HEALTH MANPOWER NEEDS IN BAHRAIN: DEVELOPING A MODEL FOR NURSING

VOLUME I

HEALTH MAPOWER NEEDS IN BAHRAIN: DEVELOPING A MODEL FOR NURSING

VOLUME I

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The candidate confirms that the work submitted is his own and that appropriate credit has been given where reference has been made to the work of others.

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A B S T R A C T

Reid (1986) indicated that in an ideal situation, health manpower planning at a national level would be an aggregate of planning for individual and different categories of health workers, taking full account of geographical inequalities and demographic, epidemiological and institutional factors.

Recognizing that nurses employed by the Ministry of Health in Bahrain comprise the largest group of health workers and consume a large portion of its budget, the decision was made to dedicate this study to nursing. In addition continuous search for a methodological approach for estimating nursing needs in Bahrain was also a stimulus for concentrating on this significant category of health workers. The results of this work will hopefully set the stage for future studies in other disciplines of health manpower.

One of the objectives was also to develop a framework which at least could be pursued by the Gulf states for the assessment of nursing manpower. It is therefore hoped that this study will contribute further to and strengthen nursing in Bahrain as a scientific and professional career.

Health manpower planning on the other hand is a controversial and difficult exercise (Reid, 1986). Uncertainty in the economic, political and social climate can easily invalidate the most carefully based projections. Given the paucity of data about nursing manpower in Bahrain and the probable inaccuracy of some of what is available, it is believed that this study should be considered as a first attempt in nurse manpower planning in Bahrain.

This study has attempted to identify the total nurse manpower needs of the Ministry of Health using the Criteria For Care method in the secondary care setting as well as assessing nursing activities and hence manpower needs in primary health care using a modified version of Hurst and Costin approach.

The results show that at the existing supply rate a mismatch would continue to exist until the year 2000. It could be concluded that Ministry of Health might be able to fill the gap and achieve more Bahrainization in the field of nursing beyond the year 2000. With the changing demographic pattern of the society served, the explosion of technology and the rising expectation of the people, the demand for health services in Bahrain will continue to rise. This will result in an increased demand for health personnel in general and nursing manpower in particular.

The challenge which we will continue to face is to address the need for nurses and close the gap between demand and supply.

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TABLE OF CONTENTS

Abstract	..	i
Dedication	..	iii
Acknowledgements	..	iv
Table of Contents	..	vi
List of Tables	..	xi
List of Figures	..	xiv
List of Abbreviation	..	xv

CHAPTER ONE THE STUDY PROBLEM

Introduction	1
The Study Problem	3
Summary	4

CHAPTER TWO HEALTH SITUATION IN BAHRAIN

Introduction	5
A Short History of Bahrain	6
Population	11
Major Health Care Facilities	14
Mortality	17
Infant Mortality and Life Expectancy	18
Causes of Death	20
Morbidity	21
Health Policy Issues	25
Health Expenditure	26
Manpower at the Ministry of Health	28
Nurse Manpower Development In Bahrain	32
Summary	33

CHAPTER THREE HEALTH MANPOWER PLANNING:AN ASSESSMENT

Introduction	35
Demand Analysis	39
Factors affecting demand	40
Professional Standards (biological demand)	45
Physician-population Ratio	46
The economic effective demand method	47

Service Targets Method 50
Supply 51
Health Manpower Projections and Imbalances 56
Summary 60

CHAPTER FOUR NURSING MANPOWER: AN OVERVIEW
Introduction 61
Nurse Manpower Needs Assessment 65
Summary 73

CHAPTER FIVE PATIENT CLASSIFICATION: AN OVERVIEW
Introduction 75
Patient Classification 75
Patient Dependancy Classification Methods 84
North West Nurse Staffing Level System 87
The Cheltenham Method 91
GRASP 96
Hurst and Costin 99
Aberdeen Formula 101
Telford Method 104
Brighton's Method 105
Nurse Hour Per Patient (NHPP) 106
NURSSYS R 108
Nursing Quality Assurance Methodologies 111
Nursing Care Index (Monitor) 114
Qualpacs 116
Summary 117

CHAPTER SIX METHODOLOGY
Introduction 119
Selection of The Methodology 122
Criteria For Care 124
Nurse Activity Sampling 126
Nursing Requirements for Bahrain 129
Workload and Nursing Activity in Salmaniya Medical Centre 130
Direct Care Assessment Form 135
All Nurse Activity Sampling form 136

Recruitment and Training of Observers 137
Workload and Nursing Activities in Primary Health Care 142
Health Officials feedback on Nursing Situation 147
Summary 148

CHAPTER SEVEN DATA ANALYSIS AND RESULTS
Introduction 150
Patient Dependency Classification 150
Direct Care Assessment 152
All Nurse Activity Sampling 155
Calculation of Requirement For Nurse Establishments In the Six Surveyed Wards 160
Nurse Satisfaction 168
Ministry of Health Officials Feedback 169
Nurse Manpower Needs 170
Nursing Manpower Establishment In Primary Health Care 171
Assessment of Nursing Establishment In the Health Centres 177
Future Nurse Requirements In Salmaniya Medical Centre Wards 182
Future Nurse Requirement In Primary Care 190
Nurse Manpower Requirement For Psychiatric Hospital 192
Future Supply of Nurse Manpower 193
Estimating The Nurse Manpower Requirement For the New Proposed Hospital 203
Nurse Manpower Requirement For Ministry of Health 208
Summary 211

CHAPTER EIGHT DISCUSSION AND RECOMMENDATIONS
Introduction 212
Why Adopt A Patient Dependency System 212
Developing A Method for Assessing Nursing Establishment in the Community 214

Nursing Manpower in Bahrain 215
Nursing Establishment In Primary Health Care Health Centres 220
Nurse Manpower Plan for Ministry of Health 221
Nurse Supply/Requirements Mismatches In Bahrain 223
Utilization of Different Nursing Categories 227
Decreasing Nurses Losses 234
Recommendations 240
Conclusion 248

REFERENCES 251

APPENDICES (Volume II)

APPENDIX

A ... GUIDELINES FOR SELECTION OF DETERMINERS FOR PATIENT CLASSIFICATION 1

B ... DEFINITION OF NURSING ACTIVITIES 11

C ... WARD PROFILE QUESTIONNAIRE 19

D ... PATIENT DEPENDENCY CLASSIFICATION FORM 30

E ... PATIENT DEPENDENCY CLASSIFICAITON MONTHLY FORM 31

F ... PATIENT DEPENDENCY YEARLY TOTALS 32

G ... DIRECT CARE ASSESSMENT FORM 52

H ... ALL NURSING ACTIVITY SAMPLING FORM A 56

I ... OBSERVERS FEEDBACK QUESTIONNAIRE 58

J ... NURSE SATISFACTION QUESTIONNAIRE 61

K ... OPERATIONAL DEFINITION OF NURSING ACTIVITIES IN THE HEALTH CENTRES 65

L ... NURSING ACTIVITIES ASSESSMENT FORM IN PRIMARY HEALTH CARE 71

M ... CONTRIBUTION OF THE COMMUNITY NURSING TEAM IN NURSING ACTIVITIES CHECKLIST 72

N ... QUESTIONNAIRE TO ASSESS HEALTH OFFICIALS FEEDBACK ON NURSING SITUATION 74

O ... WARD SAMPLING FORM 79

P ... DIRECT CARE SAMPLING FORM I: DAILY TOTALS DIRECT CARE UNITS PER DEPENDENCY CATEGORY 80

Q ... DIRECT CARE SAMPLING FORM J: WEEKLY AVERAGE DIRECT CARE PER DEPENDENCY CATEGORY 81

R ... DETAILS OF DIRECT CARE ASSESSMENT IN THE SIX SURVEYED WARDS 82

S ... ALL NURSE ACTIVITY FORM B 130

T ... ALL NURSE ACTIVITY FORM C 131

U ... DETAILS OF ALL NURSING ACTIVITY ASSESSMENT IN THE SIX SURVEYED WARDS 132

V ... NURSE SATISFACTION QUESTIONNAIRE SCORES 180

X ... DAILY AND MONTHLY NURSING ACTIVITIES IN THE SURVEYED HEALTH CENTRES 186

Y ... COMPUTER PROGRAMME MENU FOR ASSESSMENT OF NURSE ESTABLISHMENTS IN HEALTH CENTRE 200

Z ... CALCULATION OF NURSING ESTABLISHMENTS IN THE FOURTEEN HEALTH CENTRES 202

LIST OF TABLES

TABLE	TITLE	PAGE
1	Medium Projection of the Population By Age Groups, Sex and Nationality 1990	12
2	Medium Projection of Infant Mortality And life Expectancy at Birth For Years (1950-1955) to (1995-2000) in Bahrain	19
3	Health Expenditure (in Bahrain Dinars) Compared to Total Public Expenditure 1975-1990	27
4	Health Manpower in Ministry of Health By Category and Nationality - Bahrain 1987-1989	30
5	Nursing Manpower Ministry of Health	32
6	Distribution of Nurses Working At Ministry of Health According to Nationality And Job Allocation	32
7	Key Features of the Methods	112
8	Salmaniya Medical Centre Selected Wards Specification For Patient Dependency Classification	133
9	Patient Dependency Classification Yearly Summary In The Six Surveyed Wards In Salmaniya Medical Centre	151
10	Daily Mean Average Time In Minutes Per 24 Hours spent On Direct care In The Six Surveyed Wards	153
11	Ratios of Direct care Per Dependency In The Six Surveyed Wards	154
12	All Nurse Activity Sampling In The Six Surveyed Wards	156
13	Comparison of The Total Mean Average of Minutes of Direct Care And Ratios of Direct Care Per Dependency Group in Bahrain Study And North West nurse Staffing Level Project	159
14	Results Used For Assessing Nursing Establishments In SMC Wards	161
15	Comparison Between Requirement For Nurse Establishment Using CFC Method and Currently Available	164

16	Comparison Between Nurse Requirement Calculated Using Actual Figures And Mean Averages	166
17	Average Number of Patients In Each of the Four Categories Per Day	166
18	Requirements For Nurse Establishment Using Average Direct Care And Average Minutes of Direct Care/Category I Patients	167
19	Nurse Satisfaction In the Six Surveyed Wards	168
20	Summary of the Monthly Total Activities In the Six Surveyed Health Centres	173
21	Summary of the Total Activities in the Eight Surveyed Health Centres	175
22	Comparison between Nursing Establishments in the Six Health Centres as Assessed by the Study and Those Currently Available	179
23	Comparison between Nursing Establishments in the Eight Health Centres as Assessed by the Study and Those Currently Available	180
24	Comparison of Nurse Manpower Requirements Current/Study In the Four Regions	181
25	Future Nurse Requirement for Ward 41	184
26	Future Nurse Requirement for Ward 43	185
27	Future Nurse Requirement for Ward 66	185
28	Future Nurse Requirement for Ward 51	186
29	Future Nurse Requirement for Ward 56	186
30	Future Nurse Requirement for Ward 53	187
31	Nursing Requirement of The Medical And Surgical Beds	189
32	Comparison Between The Current Nursing Establishment In Salamniya Medical Centre And Future Requirements	190
33	Plan For Health Centres In Bahrain Until The Year 2000	191

34	Future Nurse Requirements In Primary Health Care	192
35	Nurse Manpower Requirement For Psychiatric Hospital Using Nurse/Population Ratio	194
36	Gain/Loss Baseline Projection For Bahraini Nurses In Ministry of Health	195
37	Supply Baseline Projection For Bahraini Nurses In Ministry of Health	197
38	Gain/Loss Baseline Projection For All Nurses In Ministry of Health	198
39	Supply Baseline Projection For All Nurses In Ministry of Health	199
40	Gain/Loss Alternative Projection for Bahraini Nurses In Ministry of Health	201
41	Supply Alternative Projection For Bahraini Nurses In Ministry of Health	202
42	Gain/Loss Alternative Projection For All Nurses In Ministry of Health	204
43	Supply Alternative Projection For All Nurses In Ministry of Health	205
44	Total Nurse Manpower Requirement Versus Supply 1991-2000	209

LIST OF FIGURES

FIGURE		PAGE
1	Distribution of Health Facilities In The State of Bahrain	15
2	The Ten Principle Diagnosis with the Highest Mortality at Salmaniya Medical centre 1989	22
3	The Ten Leading Principle Diagnosis and Numbers of Discharges at Salmaniya Medical Centre 1989	23
4	Ministry of Health Manpower by Year 1981-1990	29
5	A Conceptual View of the Evolution of Planning	36
6	Components of Health Manpower Supply	52
7	Nursing Manpower/Quality/Audit System in North Lincolnshire HA	90
8	Mean Percentages of Time of All Nurse Activity In The Six Surveyed Wards	157
9	Comparison Between Results Obtained In the Study And Those In North West Nurse Staffing Level Project	158
10	Categories of Nurses Working In Ministry of Health	229
11	Nursing Categories Model In Bahrain	230

LIST OF ABBREVIATIONS

A.D.	..	Associate Degree in Nursing. Holders of high school leaving certificate in science can earn their Associate Degree in Nursing in three years. This programme aims at preparing competent nurses capable of managing patient care in hospital wards or health centres.
A.E.	..	Accident and Emergency.
AKU	..	Artificial kidney unit.
BD	..	Bahraini Dinar (Currency).
BSN	..	Bachelor of Science in Nursing. This programme is the final level of generalist nursing preparation available in Bahrain. To enter, one must hold an Associate Degree or its equivalent plus two years of clinical experience.
CCU	..	Cardiac Coronary Unit.
CFC	..	Criteria For Care.
CHS	..	College of Health Sciences, Bahrain.
DCU	..	Day Case Unit, Salmaniya Medical Centre.
DGM	..	District General Manager.
ENT	..	Ear, Nose and Throat Department, Salmaniya Medical Centre.
GRASP	..	Grace Reynolds Application and Study of PETO.
HC	..	Health Centre. They are of different types: "A", "B" and "C".
ICU	..	Intensive Care Unit.
NHPPD	..	Nursing hours per patient.
NHS	..	National Health Service, UK.
NURSSYS R	..	System for Nursing Staffing.
OT	..	Operation Theatre.

PDC	..	Patient Depndency Classification.
PN	..	Practical Nurse, is the nurse's aide who assist the General Nurse Community Health Nurse in carrying out certain basic nursing procedures. Also, assist Family Physicians in obtaining clients records and during physical examination.
PBNP	..	Post Basic Nursing Programmes. Three speciality programmes are available; these are Nurse-Midwife, psychiatric and community health nursing programmes. The entry requirements are as follows: An Associate Degree with a minimum of one year clinical experience and meeting College of Health Sciences entry requirements.
RHA	..	Regional Health Authority.
RNMC	..	Regional Nursing and Midwifery Committee.
RR	..	Recovery room.
SMC	..	Salmaniya Medical Centre, Bahrain.
SN	..	Staff Nurse.
UKCC	..	United Kingdom Central Council for Nursing, Midwifery and Health Visiting.
WHO	..	World Health Organisation.
WLI	..	Workload Index.
WTE	..	Whole Time Equivalent.
YTS	..	Youth Training Scheme, UK.

THE STUDY PROBLEM

CHAPTER ONE

INTRODUCTION

Nursing manpower makes a major contribution to the total health care service in Bahrain and is a vital component in its organization. The latest figures show that 1366 nurses are working at the Ministry of Health comprising 21% of its workforce and 57% of its health force. The nursing budget in 1990 reached around 8 million dinars (12.5 millions sterling pounds)representing 21% of the total budget of the Ministry of Health. Unfortunately, however, the amount of manpower planning activities and research in the field of nursing is still limited and has not yet received the necessary attention and concern of health planners.

As Reid (1986) indicated, the importance of manpower planning in the nursing profession is being recognized increasingly at both national and local level. In many instances the impetus to engage in manpower planning has risen out of financial cuts. While health care delivery systems all over the world are facing external pressures forcing administrators to manage personnel with the greatest efficiency possible, the Ministry of Health in Bahrain has been fortunate so far in receiving adequate support and financial resources to continue its developmental and expansion plans. Indicators, however, show that the State of Bahrain will be facing a new era where government organizations will start to compete for somewhat limited as well as depleted resources. The Health Sector is no exception and the nursing section

in particular being the largest personnel group must be able to justify its needs, productivity levels and staff expenses.

Inspite of the long history of nursing education in Bahrain going back to 1959, Bahrainization (the process of replacing an expatriate with a Bahraini citizen having the right qualification and experience at the right time and place) in the Nursing Services is still slow and apparently not keeping pace with the development and expansion of the health services and the increasing demand for nurses.

The Bahrain Government, nevertheless has always been determined to ensure that there are adequate nursing services to meet the needs of the people. Evidence of the government's concern is reflected by the increasing number of nurses employed by the Ministry of Health which increased from 661 in 1980 to 1366 in 1990. In doing this, the government has resorted to overseas recruitment from a number of countries.

In addressing the health manpower situation in Bahrain, Chapter Two will reflect on the number of nurses and the Bahrainization achieved in the nursing field. While Chapter Three discusses health manpower planning globally as well as methods of estimating demand, supply and the imbalances between the two, Chapter Four will discuss manpower planning issues arising from the nursing establishment being one of the largest categories of health manpower. Chapter Five examines techniques for assessing nursing requirement using patient classification methods. Chapter Six discusses two methods for determining nurse manpower in Bahrain; Criteria For Care (Ball, Goldstone and Collier, 1984) and an adaptation of Hurst and Costin (1987) approach. While Chapter Seven presents the results and data analysis, Chapter Eight

elaborates on issues pertaining to patient classification, nursing manpower in Bahrain and finally provides an account of recommendations. The challenge facing the Nursing profession in Bahrain is not only to augment the 27% Bahrainization at the staff level and to bring it up to an acceptable level, but also to increase the number of nurses to meet the rising demand on the health services in this country.

THE STUDY PROBLEM

While there is no doubt that there is a pressing need for more nurses in Bahrain, no attempts have been made to assess the nursing requirements scientifically. There is still a dilemma regarding the nursing staffing situation in both the Salmaniya Medical Centre which is a secondary health care setting and the health centres which provide primary health care for the people of this country. There are a number of questions which should be asked: Are the wards and health centres over or under staffed? Are the nurses spending adequate time on direct care?; and are nurses engaged in a number of non-nursing activities that they have to do at the expense of their major role in patient care?

As the nursing force becomes larger and more influential the need for studies to assess the current nursing situation and needs as well as future demand become more evident and pressing.

In the midst of such change and uncertainty, there remains the enduring understanding of the purpose and value of research: to reduce uncertainty and bring clarity to areas of ignorance. From this perspective the purpose of this study could be summarized as: to examine the current levels and situation of nursing manpower at the Ministry of Health, to develop

guidelines for estimating future supply and demand for nursing manpower; and, identify likely short falls and suggest ways and means for correcting mismatches.

While it was anticipated that the study would produce results that will be useful for the nursing administration and senior Ministry of Health officials, the researcher in his capacity as a Dean of the College of Health Sciences which is the sole training institution for nurses in Bahrain, was also aiming at reaching findings that will have impact on this institution and its future orientation and direction in the field of nursing education.

SUMMARY

This Chapter highlighted the problems and challenges faced by the Nursing Profession in Bahrain. The data presented on the size of the nursing force and its cost, justified the reasons for dedicating the thrust of this study to such category of health workers. In conclusion this chapter illustrated the need for research in the field of Nursing in Bahrain. The next chapter will review the Health Situation of Bahrain reflecting the development of its manpower, resources and facilities.

CHAPTER TWO

HEALTH SITUATION IN BAHRAIN

INTRODUCTION

Fulup and Roemer (1987) emphasized that fundamental to health manpower planning, is a knowledge of the current manpower situation. The types and numbers of all health personnel currently in the country are the outcome of previous operations of the health manpower development process at least in general terms. Such data can also be used as a starting point for future efforts. If corresponding information for earlier periods is available, trends can be determined, but the current situation remains most important.

In reviewing health manpower planning the first initial step is to undertake a situation analysis which not only covers the past and present situation, but also future forecasts. In any situation analysis, the following aspects should be considered (WHO, 1981): Socioeconomic, Demographic, Epidemiologic, Health Policies, Health Resources and Health Services details.

By providing information on the operation of the entire health manpower development process, a comprehensive country review should reveal both what health manpower planning, production, and management have achieved and where it has failed. Based on these guidelines, a review of health situation is Bahrain is presented.

establishment of six clinics and dispensaries. In 1938, construction began on the first government hospital at Naim area, which was completed in 1942 and had 200 beds. In 1948, the Health Department took over from the Manama Municipality its facility for mental health and staffed it with physicians, making it the first in the region to be placed under professional medical care. In 1950, a building for the Directorate of Public Health was constructed.

In 1954, the demand for hospital care had outgrown the Naim Hospital and construction of the Salmaniya Hospital began. The new hospital was completed in 1959; a year that also marked the opening at Muharraq of the Women's Hospital and the establishment of the School of Nursing.

In 1968, the Health Department, headed by Dr. Ali Fakhro drew up a general plan for a comprehensive health care programme, which served as its basic planning structure for many years. It included: training programmes for Bahraini citizens in all health fields; a comprehensive health centres network covering all villages and islands of Bahrain; strengthening of the public health department and curative medicine; and, development of medical records. The period 1969-1988 witnessed a number of developmental changes in the health services in Bahrain. In 1971, the health department became the Ministry of Health, with the appointment of Dr. Ali Fakhro as the first Minister of Health.

Health services expansion in Bahrain has not, however, been able to draw upon enough staff from local resources. If one looks at the staffing pattern of the Ministry of Health in the early seventies, the percentage of expatriates was still high, with 70% of physicians, 84% of nurses and 32% of allied health

personnel being non-Bahrainis. Reliance on foreigners is especially problematic in health care.

It is essential that there be a cultural understanding between the patient and the health care provider, whereby they can communicate in such a way that accurate medical histories and complaint reports can be obtained, and prescribed courses of treatment can be understood and followed. In Bahrain, there are communication difficulties between foreign non-Arabic-speaking health personnel and Bahraini patients. In primary care, an effort is being made to place Arabic-speaking health service personnel in those health centres where the population is predominantly Bahraini nationals, and to place non-Arab health service personnel in centres with the heaviest foreign population concentrations, particularly in Manama. Bahrain realized that to achieve self-sustained economic growth, it had to develop it's human resource in the most optimal way.

To meet this challenge, the Ministry of Health embarked on a two pronged approach: a major emphasis was placed on overseas training and staff development; and, a local institution for training various health professionals was established in 1976. The College of Health Sciences (CHS) started to provide the much needed central training in health fields. Unlike many other countries, Bahrain chose to prepare the base of the health manpower pyramid first, and to stress development of middle level personnel who were critically needed at this stage of expansion and development. In addition a Family Residency Programme for physicians was established in 1979; so far 41 family physicians have graduated and assumed their responsibilities in different health centres.

In 1979, the new Salmaniya Medical Centre was opened

to provide secondary health care for the citizens and residents of Bahrain. In 1978 Ibn Sinna was the first modern health centre to be opened and the beginning of the eighties witnessed the adoption of the State of Bahrain the concept of "Health For All By the Year 2000".

To continue its efforts in meeting the increasing health needs of the population the Ministry of Health has drawn a comprehensive 5 years Health Plan for the period 1989-1993. This plan calls for expansion and further development of the health services and facilities.

BAHRAIN HEALTH PLAN 1989 - 1993

As the efforts of the Government of Bahrain continues to provide the best health care for its people, the Council of Ministers State of Bahrain requested the Minister of Health to submit a Health Plan reflecting future needs in regard facilities and manpower. A task force of Ministry of Health Officers prepared a plan covering the period 1989- 1993. The plan attempts to address the needs for additional medical services necessitated by population growth, needs for new clinical and diagnostic services which reflect technological advances, and needs to complement existing deficiencies in health services.

The plan is based on the assumption that by 1993 the population will reach 545,698 (as projected by the Central Statistics Organization). This reflects around 19.25% increase in population over the 1987 figure of 457,599. Accordingly this plan aims to provide extra medical services for a growth in population of around 88,099. In addition it caters for strengthening and improving the existing medical services on the island.

POPULATION

TABLE 1 shows the medium projection of the population by age group, sex, and nationality in 1990. While the total population is 503,022, around 32% are non Bahrainis. Out of a total 336,165 Bahraini 18% are in the age group (0-4 years), 14% (5-9 years), 11% (10-14 years), 10% (15-19 years), 10% (20-24 years), 9% (25-29 years), 7% (30-34 years), 5% (35-39 years), 3% (40-44 years), 3% (60-69 years), 2% (70 and above). This distribution shows that around 72% of the Bahraini population are young (under 30 years of age).

Population changes

Population changes in Bahrain are affecting health and health care system. Bahrain's fertility rates are still high compared to its relatively low mortality rates. Accordingly, there is a large excess number of births over deaths. The rate of natural increases of the population is thus very high. Population growth is also enhanced by high levels of migration to Bahrain. Assuming high fertility and high migration, population projections suggest an increase in total population to 545,698 in 1993.

These population changes will quickly affect Bahrain's health care system, and with the increasingly young population in Bahrain, there will be a rapid increase in needs for maternal and child care services.

The increasing elderly population of Bahrainis will require more long-term care, including homemaking and day care, as well as nursing home care, and will also

TABLE 1 MEDIUM PROJECTION OF THE POPULATION BY AGE GROUPS, SEX AND NATIONALITY 1990

Age Groups	Total Population			Non-Bahraini			Bahraini		
	Total	Female	Male	Total	Female	Male	Total	Female	Male
0 - 4	74525	36517	38008	14252	6688	7564	60273	29829	30444
5 - 9	59929	29397	30532	12358	5865	6493	47571	23532	24039
10 - 14	43567	21521	22046	7515	3683	3832	36052	17838	18214
15 - 19	39603	19605	19998	5476	2658	2818	34127	16947	17180
20 - 24	38110	18621	19489	5028	2094	2934	33082	16527	16555
25 - 29	41608	18701	22907	11418	3304	8114	30190	15397	24793
30 - 34	51421	18267	33154	27062	5882	21180	24359	12385	11974
35 - 39	50060	14436	35624	32708	6132	26576	17352	8304	9048
40 - 44	32764	9201	23563	21685	3927	17758	11079	5274	5805
45 - 49	21738	7062	14676	12828	2256	10572	8910	4806	4104
50 - 54	17141	6048	11093	8393	1396	6997	8748	4652	4096
55 - 59	12113	4699	7414	4387	803	3584	7726	3896	3830
60 - 64	8799	3596	5203	2290	436	1854	6509	3160	3349
65 - 69	5032	2136	2896	792	229	563	4240	1907	2333
70 - 74	3668	1703	1965	403	133	270	3265	1570	1695
75 +	2945	1467	1478	263	105	158	2682	1362	1320
TOTAL	503022	212977	290045	166857	45592	121265	336165	167385	168780

Source: Ministry of Health, State of Bahrain
Annual Report, 1989

require more hospital services.

The geographic distribution of the population of Bahrain has also been influenced by both migration and natural increase. The suburban movement of younger Bahrainis has been generated by increasing rates of family formation and the availability of suburban housing from the Ministry of Housing and the private sector.

As more suburbanizing takes shape, Bahrainis of the younger ages will place increasing demands on maternal and child health care services. Older Bahraini populations will also require special health services.

Bahrain families have characteristic strong ties between their members. While it is true that presently sons and daughters no longer live with their parents after marriage, they are, nevertheless, maintaining close links and regular visitation with each other. In cases of hospitalization of any member of the family, the patient is constantly and regularly visited by relatives.

Through the provision of nursing care, nurses have very strong and direct contact with patients and their relatives. Due to the heavy commitment of doctors in the clinics, theatres and training sites, relatives find themselves having more access to nurses who are always available in the ward. They usually have constant encounters with nurses for inquiring about their patients conditions, progress and day to day activities. Nurses on the wards have also a major role in health education especially to patients suffering from infectious diseases.

Considering the increasing demand on the health services and in attempt to reduce hospitalization days

and costs, there is a trend at present to capitalize on the characteristic strong family ties among Bahrainis to involve them in providing health care at homes. Family members are therefore encouraged to learn how to share in caring for their relatives after being discharged from the hospitals. They are even provided with necessary supplies and materials for example for wound changing dressing, and simple injections. Assistance from community nurses is available if and when needed, through health centres.

MAJOR HEALTH CARE FACILITIES IN BAHRAIN

The Government of Bahrain provides free health care to all its residents. Through its hospitals, clinics, and health centres (Figure 1), the government is making every effort to meet the health care problems and needs of its citizens. The private sector shares in this responsibility to some extent.

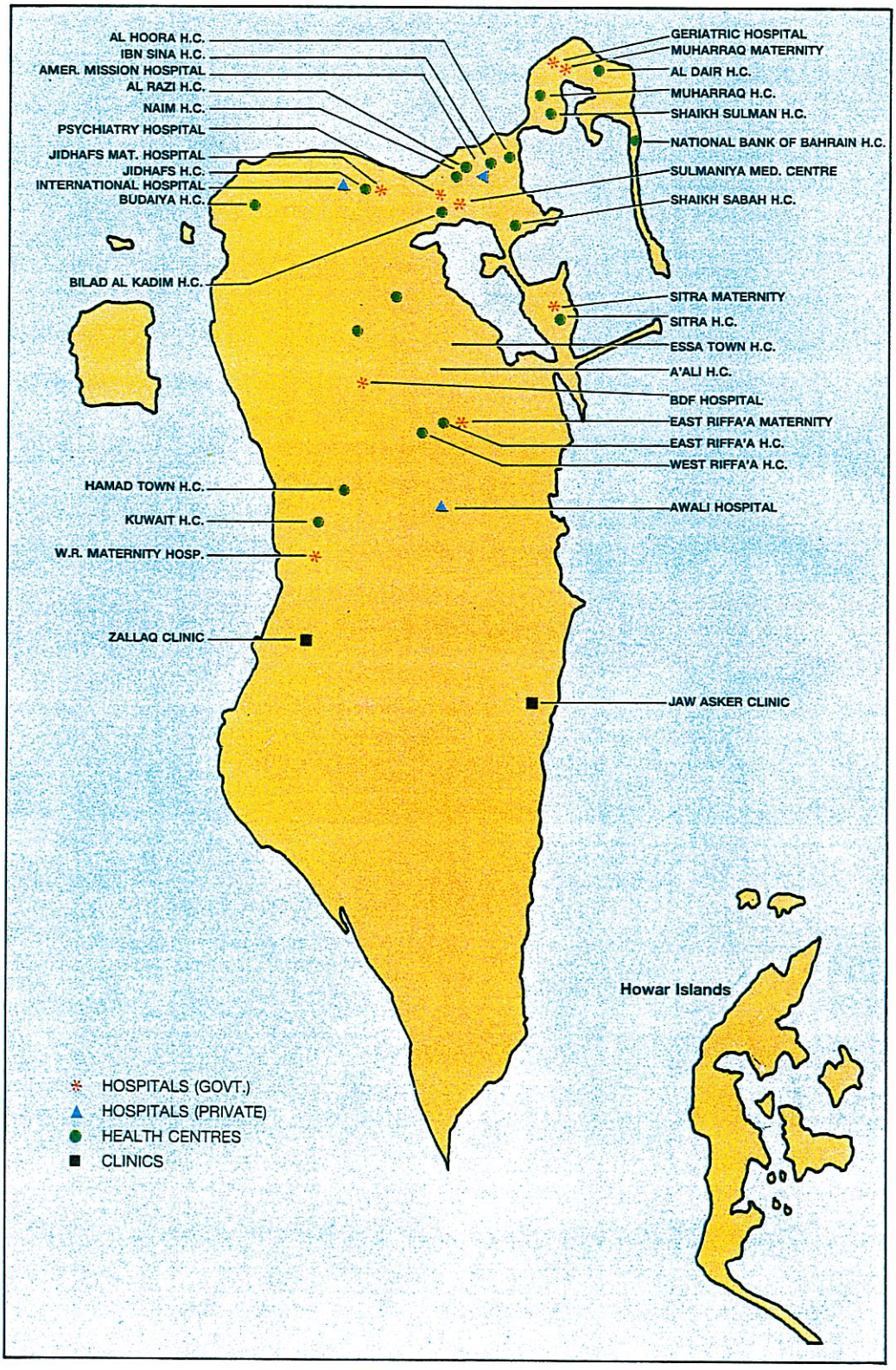
The network of 19 modern health centres distributed in the island facilitates the provision of Primary Care and contributes to the attainment towards the Government goal "Health for all by the Year 2000". The ratio of health centres/1000 population is 0.38 and it is anticipated that it will rise to 0.40 in 1993 according to the 1989-1993 Health Plan.

The health centres are operated through health teams led by family physicians. There is also a labour force clinic to serve the needs of the expatriate work force. These health centres are supplemented by the largest government hospital the Salmaniya Medical Centre, 5 rural maternity hospitals, a geriatric hospital and a psychiatric hospital.

A military hospital and three private hospitals also contribute to the provision of secondary health and

Figure 1

Distribution Of Health Facilities In The STATE OF BAHRAIN



maternity care for Bahrain's citizens and residents.

The secondary health system is under pressure to meet a number of growing needs. First, there is an increasing demand for medical services for child birth as well as pre and post natal care for mothers and children. Second, there is an increasing demand for geriatric facilities brought about by increasing number of older population. Third, there is an increasing demand for Psychiatric care and four, there is a need to improve and expand accident and emergency care including the paramedical ambulatory services to deal with increasing number of road accidents as well as occupational injuries.

In 1988, the total number of beds available in the government, military and private hospitals reached 1501, giving a total bed/1000 population ratio of 3.1. According to the 5 year plan 1989-1993 this ratio will rise to 3.9.

In addition to this state-financed health system, private facilities are available. The American Mission Hospital (40 beds) was established in 1903. There is a military hospital for the defense forces (200 beds), the Bahrain Petroleum Company Hospital (40 beds) offers advanced health care to its employees and their families. Each of the ship building companies (ASRAY) and the Bahrain Aluminum Company (ALBA) has its own medical services provided through health clinics with 20 beds. Another, sophisticated hospital, the International Hospital (100 beds) is privately owned and administered. Around 40 private clinics provide health care for a fee.

The Health services are being complemented by the crucial Public Health Directorate which is responsible for disease prevention and control in Bahrain.

If one attempts to compare health services in Bahrain with those in the Arabian Gulf Region, a lot of similarities would be noted. Health care is free in all Arabian Gulf States; the infrastructure is almost the same with Ministeries of Health being responsible for the major health facilities which includes primary, secondary and tertery care.

All Arabian Gulf States invest a significant portion of their annual budgets in building health facilities and equipping them with modern and sophisticated medical equipment.

Extensive efforts are being made by all Arabian Gulf States in the area of health manpower development whereby training institutions are being established to produced the much needed categories of health personnel.

MORTALITY

Mortality Declines and Differentials

Bahrain's death rates have been falling throughout the 20th century, and likely even before. By the time of the first reliable estimates, for the period 1965-1971, mortality had undergone a transition from high to low rates.

Bahrain's mortality transition has followed what is termed the "delayed model," rather than falling slowly. While public health and medical knowledge slowly accumulated, as in developed countries, mortality in Bahrain appeared to fall most dramatically due to vigorous application of imported technology developed in the 20th century.

Because the dramatic mortality declines in the past

few years have brought Bahrain's mortality to a relatively low level, further improvements will be smaller and more difficult to achieve.

Further reductions in mortality require changes in habits of personal hygiene and child care, and outreach and individual treatment to assure that those who do contract diseases are treated promptly.

The issue is whether health measures that postpone illness throughout life mean that ill-health, physical decline, and death will be compressed into a few of the older years . Equally, the opposite maybe the case; that there is no real compression of mortality into a few years when only the older population is considered. How medical resources are to be used will soon be an important health policy question in Bahrain. Public health and hospital care may stand in potential competition for medical resources. The resolution of this issue will have an impact on both younger and older generations.

INFANT MORTALITY AND LIFE EXPECTANCY

TABLE 2 shows the medium projection of the infant mortality rate (per 1000 live birth) and the life expectancy at birth (years) in Bahrain.

As illustrated, infant mortality has dropped from 160 per 1000 live births in the period 1950-1955 to 30 in the period 1985-1990, and is projected, to drop to 22 by 2000. Since most infants death occurs in hospitals the effect of death under reporting on infant mortality is thought to be minimal.

An important question concerning mortality, is what will be the future course of infant mortality in Bahrain? In a number of high mortality developing

TABLE 2 MEDIUM PROJECTIONS OF THE INFANT MORTALITY RATE (PER 1000 LIVE BIRTHS) & THE LIFE EXPECTANCE AT BIRTH (YEARS) FOR THE PERIOD OF (1950-1955) TO (1995-2000) IN BAHRAIN

	Life Expectany at Birth			
Period	IMR	Total	Female	Male
1950-1955	160	51.0	52.5	49.6
1960-1965	110	57.0	58.8	55.3
1965-1970	82	60.0	62.0	58.1
1970-1975	66	63.5	65.4	61.7
1975-1980	44	66.1	68.1	64.1
1980-1985	37	68.2	70.3	66.1
1985-1990	30	69.8	72.0	67.6
1990-1995	26	71.1	73.7	68.6
1995-2000	22	72.2	75.0	69.6

Source: Statestical Abstract,1987

countries, there are now signs that infant mortality rates are not decreasing as rapidly as in the recent past, and in some cases may even be increasing.

Bahrain is not in this category; it may even have already met goals for infant mortality established for the Third United National Development Decade. In 1983 a State of Bahrain - World Health Organization team estimated infant mortality as between 20 and 30 per 1000 live births (Ministry of Health - WHO, 1983). This is a lower estimate of infant mortality than is usually found for countries with comparable life expectancies.

As for life expectancy at birth, it has risen from 51 years in the period (1950-1955) to 69.8 years in the period 1985-1990. As projected, life expectancy in the year 2000 will rise to 72.2 years. It is anticipated that changes in diet, smoking habits and stressful activities will help Bahrainis to avoid some of the problems of degenerative diseases characteristic of Western nations. Nevertheless, Bahrain does have the problems associated with polluting industries, including aluminium smelting, oil field and oil refining operations, and shipyards. The potential for environmentally induced illness is high since air, land, and water pollution from industries can affect most of Bahrain's population. Further, Bahrain's rapid economic development and interaction with large foreign population could lead to increase in medical problems associated with alcohol and drug abuse, and other forms of stress related illnesses.

CAUSES OF DEATH

Due to under-registration of deaths in Bahrain, it is

difficult to assess changes in death rates by causes. However, some judgments regarding the relative importance of deaths attributed to specific causes may be made from considering the percentage of all deaths attributed to specific causes. Changes in the ten leading reported causes of death provide an alternative view of shifts in recorded mortality. Figure 2 indicates the ten leading causes of death at Salmaniya Medical Centre in 1989.

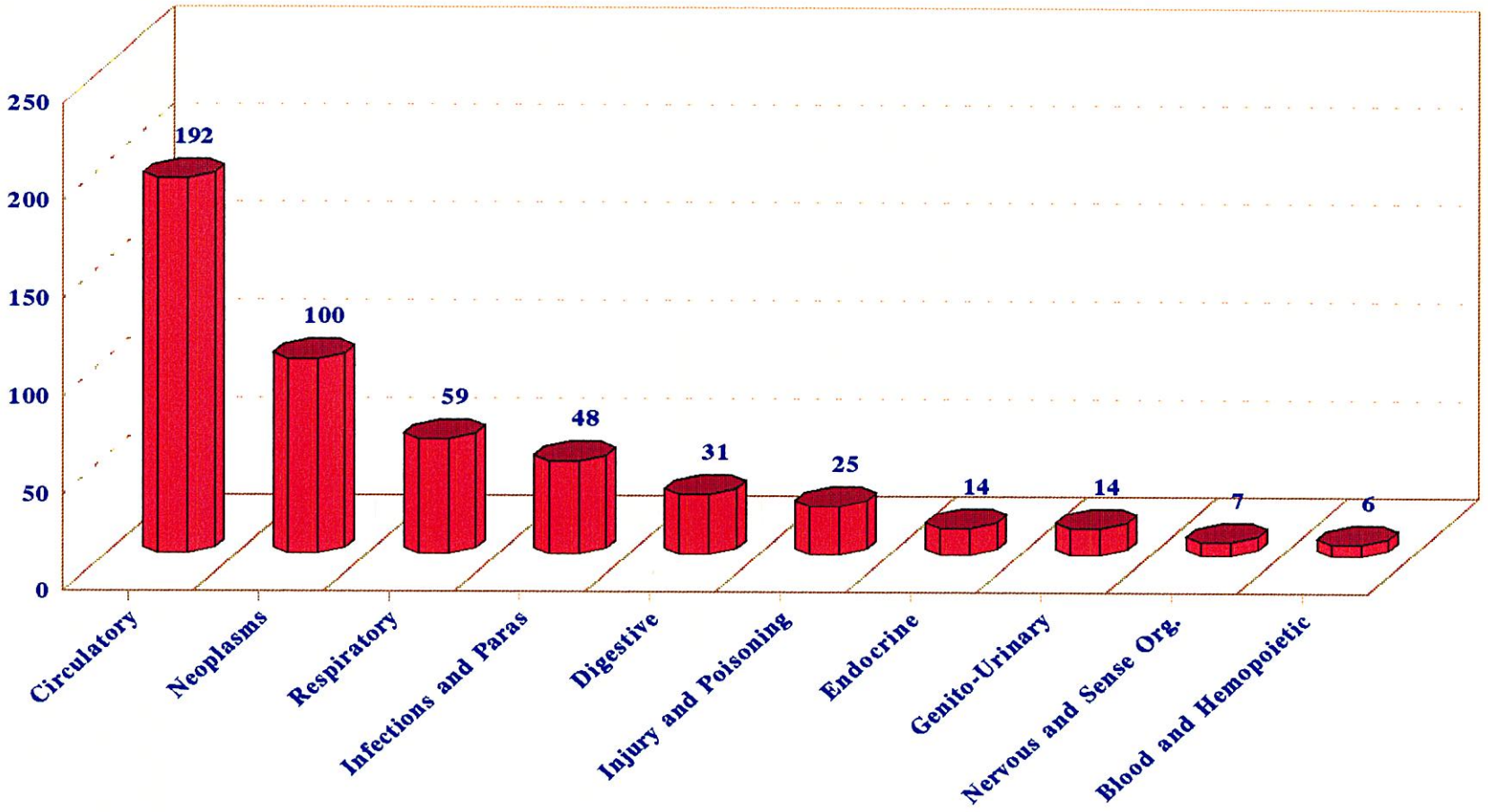
By far, the most important current causes of mortality in Bahrain are those which reflect modernization and its accompanying stress and social disorganization, Circulatory system diseases, accidents, poisoning and violence, and cancer, which represent "modern" ways of death, accounted for 64 percent of the reported deaths in Bahrain in 1989, up from 48 % in 1974.

Of particular concern for health planning over the next decades will be the extension of disease concepts to a number of behaviours which have yet to come fully into the preview of the Ministry of Health. These include alcoholism, drug abuse, overeating, behaviour disorders, Alzheimer's disease and other characteristics of an aging population; the increasing variety of chronic disease patients at all ages occasioned by the decline in infant mortality; accidents, poisoning, violence; environmental illness reflecting exposure to toxic substances in the atmosphere, on land, and in the water; and occupationally-based illnesses.

MORBIDITY

Data from Salmaniya Medical Centre describe only the illnesses treated there. The incidence and prevalence of diseases treated or diagnosed at the health centres, at private hospitals and clinics, and by

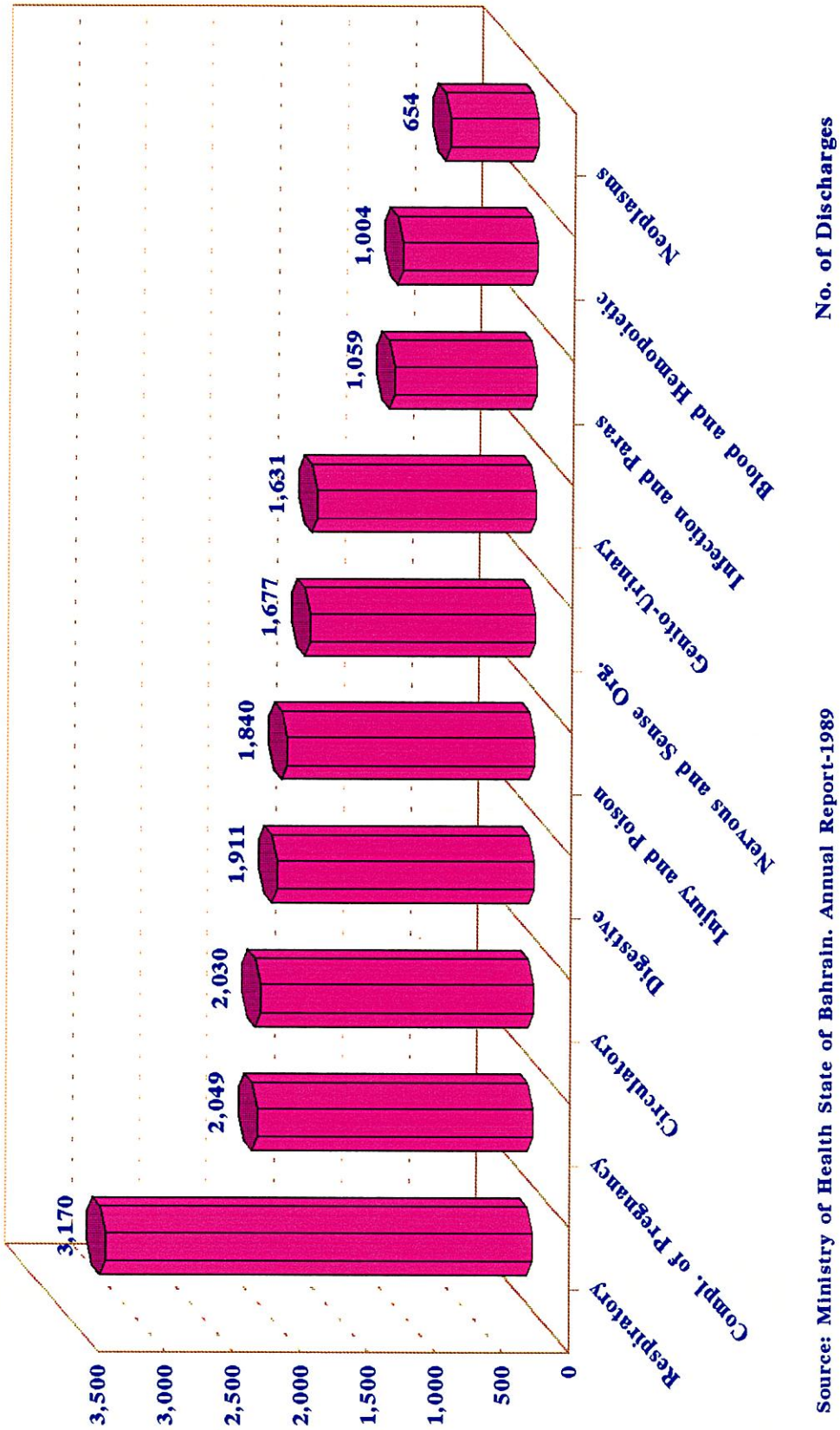
Figure 2: The Ten Principle Diagnosis With The Highest Mortality at Salmaniya Medical Centre, Bahrain



Source: Ministry of Health State of Bahrain. Annual Report-1989

No. of Cases

Figure 3: The Ten Leading Principle Diagnosis and Numbers of Discharges at Salmaniya Medical Centre, Bahrain



Source: Ministry of Health State of Bahrain. Annual Report-1989

physicians in private practice are still not very well documented. For example, 2030 cases of diseases of the circulatory system were discharged from Salmaniya Medical Centre in 1989, as indicated in Figure 3 which shows the ten leading principle diagnosis and number of discharges at Salmaniya Medical Centre in 1989. It is evident that a circulatory disease rate calculated from these data excludes persons with circulatory diseases who were not treated, those who were treated as outpatients (either private or public) and those who were treated in private hospitals. Thus, disease rates based on Salmaniya Medical Centre data may under estimate the incidence of diseases in Bahrain.

The patient load at Salmaniya Medical Centre has grown during the last few years. In 1978, there were approximately 11,700 patients discharged from Salmaniya Medical Centre. By 1989, this had nearly doubled to 20,600. Thus, any increase in disease rates between 1978 and 1989, in part, will be due to the increased bed capacity during that time.

There is no way to separate from this the true increase or decrease in disease rates occurring in the population. The discussion of increases or decreases in disease rates is therefore tentative. Diseases treated at Salmaniya Medical Centre are generally "chronic", "degenerative" or diseases of "modernization". An exception to this, however, is the category "respiratory diseases", which includes infectious diseases such as the common cold, sore throat and influenza.

Illnesses associated with pregnancy and childbirth as well as respiratory diseases, led the list of diseases treated at Salmaniya Medical Centre in 1989. Most of this increase is due to an increased number of hospital deliveries, and to the expansion of the

maternity hospital and its incorporation into Salmaniya Medical Centre.

More information regarding pregnancy related morbidity is being reported and the same is likely true of the increase of morbidity during the prenatal period. Infectious and parasitic diseases are declining in Bahrain, as shown by both public health and hospital data, with heart and respiratory diseases increasing as life expectancy increases. Road accidents, another hazard of modern life styles, are also increasing.

HEALTH POLICY ISSUES

Recent mortality decline, higher life expectancy rates, increases in the population of childbearing age, increases in recorded annual births, and rapid economic and social development are affecting current health needs and future health in Bahrain. Continued economic and social development in Bahrain and immigration from less developed areas necessitate continued emphasis on improving general sanitation, personal hygiene, and automobile and occupational safety. A parallel concern for health planning in Bahrain will be an increasing focus on substance abuse, occupationally-based illness, disabilities of older people, and the increasing variety of chronic disease patients.

Past public health measures were cost-effective in reducing infectious and parasitic diseases. These measures will give way in the future to more individualized health care services and health education. The educational and social changes required to obtain full utilization of public health knowledge and medical services are costly and slow. They require increasing numbers of trained health care personnel, as well as numerous health centres located

close to potential clients.

Social and economic modernization affect health in two ways First, improvements in the health care system decrease the incidence of disease (via preventive medicine) and enhance the survival and functioning of those who become ill but receive treatment. Second, some aspects of modernization, including sewage disposal treatment systems, efficient transportation and communications, and new housing have positive health effects, as do some related changes in life styles.

Medical services as are now found in Bahrain were gradually developed over time, creating an appreciation of modern medicine. Then medical services shifted from curative to prevention and from prevention to promotion of health. This suggests that the major steps to be taken in Bahrain now involve prevention of disease, and then the promotion of health. It is fortunate that Health appears to be a priority with the Government, and that the health care system is appreciated and well accepted by Bahraini population.

The greater concentration of Bahrainis in the younger and older ages and the higher percentage of married Bahrainis will also differentiate the health needs of the population and shape the future health care delivery system in the country.

HEALTH EXPENDITURE

TABLE 3 shows the health expenditure compared to public total expenditure over the period 1975-1990. In 1975 expenditure on health services was BD 9,655,000 (£15,000,000) against a total public expenditure of BD 195,504,000 (£304,687,500) constituting 5%. By 1990

health expenditure increased to BD 37,754,000 (£58,940,625) against the total public expenditure of BD 543,000,000 (£848,437,000) or 7% of the budget.

In 1989 secondary health care constituted 57.3% of all health expenditure, followed by 22.8% on primary health care, 8% on services, 5.5% on training, 4.3% on administration and support services and 2.1% on capital expenditure.

The average health expenditure incurred by the government of Bahrain per individual per annum is BD 90/- (£141). The growth in expenditures reflects both rapid population increase and the government's desire to provide modern health care for its people.

TABLE 3 HEALTH EXPENDITURE (IN BAHRAINI DINARS) COMPARED TO TOTAL PUBLIC EXPENDITURE 1975-1990

Fiscal Year	Health Expenditure	Total Public Expenditure	%	Yearly Growth
**1975	9,655,000	195,504,000	5%	100%
1976	14,388,000	291,535,000	5%	149%
1977	21,232,000	388,000,000	5.5%	220%
1978	21,464,000	280,000,000	7.7%	222%
1979	21,068,000	283,020,000	7.5%	218%
1980	27,298,000	329,000,000	8.3%	283%
1981	30,006,050	381,649,604	7.9%	311%
1982	35,962,660	472,200,000	7.6%	372%
1983	39,237,030	519,423,000	7.6%	406%
1984	34,725,834	538,590,000	6.4%	360%
1985	34,294,266	508,548,000	6%	355%
1986	31,870,548	487,118,000	6%	330%
1987	33,494,581	554,584,000	6%	347%
1988	35,716,923	530,000,000	6.7%	369%
1989	36,027,648	540,000,000	6.7%	373%
* 1990	37,754,000	543,000,000	7.0%	391%

* Budgeted Figures
** 1975 is the base year

SOURCE: MINISTRY OF HEALTH ANNUAL REPORT, 1989

MANPOWER AT THE MINISTRY OF HEALTH

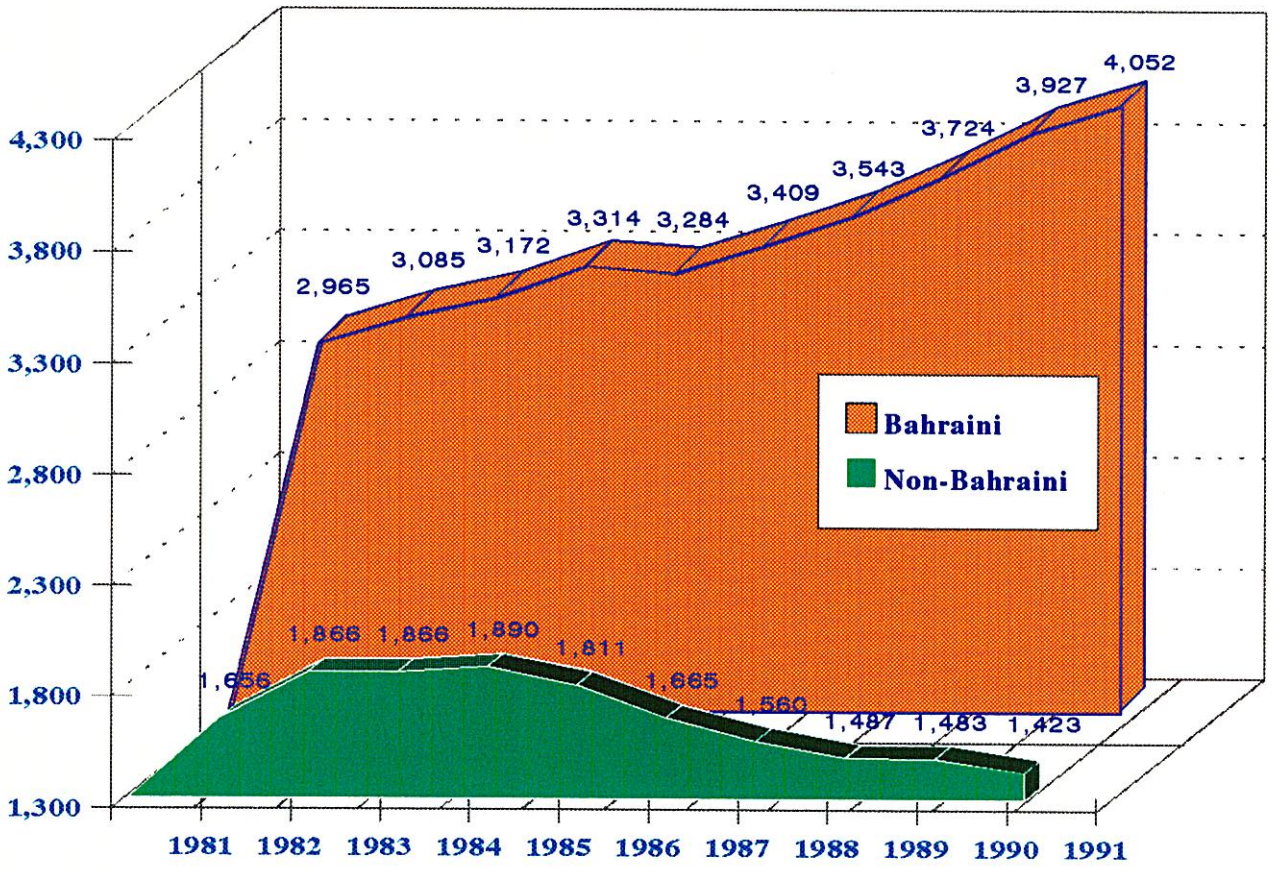
In 1990 the total number of Ministry of Health employees reached 5475. Figure 4 shows the number of Bahraini and non-Bahraini employees during the period 1981-1990.

While 26% of the total manpower is non-Bahraini, it is still evident that the Ministry of Health is progressing well towards its goal of Bahrainization. As for the distribution of the employees according to their jobs allocation, around 51% work in the hospitals, 26% in the primary health care settings and 23% in different Ministry administrative and services units as well as College of Health Sciences.

TABLE 4, shows the distribution of the health manpower of the Ministry of Health according to their specializations during the period 1987-1989. Out of a total of 1125 nurses at the staff level and above in 1989, only 26% (261) are Bahrainis. Bahrainization in nursing personnel at the general nurse level, however, increased from 14% in 1984 to 27% in 1990. While Nurses constitute 21% of the Ministry of Health total manpower force, they at the same time comprise 57% of its health manpower force.

Inspite of the shift of emphasis in the Ministry of Health toward Primary Health Care, 81% of the nurses employed by the Ministry of Health work in hospitals. According to a study in 1985 (Bosanquet and Gerard, 1985), 84% of nurses in the United Kingdom are also still working in hospitals. While in Bahrain, the physician and nurse per 1000 population ratios at present are 1.18 and 4.05, it is planned that they will reach 1.44 and 5.67 respectively in 1993, according to the 1989-1993 Health Plan. The total number of all categories of nurses working at the

Figure 4: Ministry of Health Manpower By Year 1981-1990



Source: Manpower Statistics, Ministry of Health, 1990.

TABLE 4 HEALTH MANPOWER IN MINISTRY OF HEALTH BY CATEGORY & NATIONALITY BAHRAIN, 1987-1989

CATEGORY	1989			1988			1987		
	Total	N-Bah	Bah	Total	N-Bah	Bah	Total	N-Bah	Bah
Physicians	445	202	243	426	197	229	412	196	216
Dentists	31	13	18	30	15	15	28	14	14
Pharmacists & Pharmacy Tech.	110	5	105	113	5	108	109	6	103
Nurses (Staff Nurses & above.	1125	864	261	1071	831	240	1035	839	196
Dental Hygienisits & Tech.	21	2	19	11	2	9	4	-	4
Lab.Technologists & Tech.	146	39	107	147	41	106	147	47	100
Radiographer & Tech.	52	7	45	51	6	45	50	8	42
Physiotherapists/Occup. Therapist & Tech.	27	17	10	24	15	9	23	14	9

Source: Ministry of Health Annual Report 1989
Key : Bah : Bahraini
N.Bah : Non-Bahraini

Ministry of Health as on December 1990 reached 1366 (95% female nurses). As illustrated in TABLE 5 the largest number of nurses are at the staff nurse level (807). This is followed by Practical Nurses (292) and specialist nurses (267). As evident from this distribution, Bahrain is adopting a very unique model of nursing personnel whereby the professional nurses constitute the major composition of the nursing system assisted by practical nurses and complemented with the specialized categories of nurses. While 99% Bahrainization has been achieved at the practical nurse level, only 27%, 14% and 17% have been attained at the General Nursing, Midwifery and Psychiatric levels, respectively.

As for the job distribution of nurses at the general nurse level and above TABLE 6 shows that 0.5% work in the Public Health Directorate, 11% in the Health Centres, 55% in Salmaniya Medical Centre, 23% in the Maternity Hospital, 8.5% in the Psychiatric Hospital and 2% in the Geriatric Hospital. These numbers exclude those nurse tutors working at the College of Health Sciences.

As evident also from TABLE 6, 89% of the non-Bahraini nurses are Indians, 8% Filipino, and 3% from other nationalities.

NURSE MANPOWER DEVELOPMENT IN BAHRAIN

Bahrain is one among the first countries in the region to develop a cadre of Bahraini nurses. In 1959 the first School of Nursing was established, based at the Salmaniya Medical Centre. In 1976, the College of Health Sciences was established to meet the much needed health manpower for the health services in Bahrain. The Nursing school joined the College of Health Sciences to become one of its major divisions.

TABLE 5 NURSING MANPOWER MINISTRY OF HEALTH STATE OF BAHRAIN

Category Nurses	NUMBERS OF NURSES		
	Bahraini	Non-Bahraini	Sub Total
- Licensed Practical Nurse	290	2	292
Licensed General Nurses	203	604	807
- Licensed Specialist Nurses:			
. Community	42	---	42
. Midwifery	26	162	188
. Psychiatric	17	20	37
TOTAL	578	788	1366

Source: Compiled From Data Included In Ministry of Health Manpower Statistics - December, 1990

TABLE 6 DISTRIBUTION OF NURSES AT THE STAFF LEVEL AND ABOVE WORKING AT MINISTRY OF HEALTH ACCORDING TO NATIONALITY AND JOB ALLOCATION

Nationality	PHD	Health Centre	SMC	Psy. Hosp.	Mater Hosp.	Ger Hosp.	Total
Bahraini	1	85	158	41	30	2	317
Egyptian	-	1	--	1	--	-	2
Jordanian	-	1	--	-	--	-	1
Palestinian	-	2	1	1	--	-	4
British	-	-	2	-	--	-	2
Irish	-	-	1	1	--	-	2
Irani	-	-	-	-	1	-	1
Indian	2	41	407	38	241	18	747
Pakistani	-	--	3	--	--	--	3
Sri Lanka	-	2	5	--	--	--	7
Filipino	-	-	55	13	--	2	70
Mauritanian	-	-	--	1	--	--	1
Ghanian	-	-	1	1	--	--	2
Total	3	132	633	97	272	22	1159

Key:
PHD - Public Health Department
SMC - Salmaniya Medical Centre
Psy. Hosp. - Psychiatric Hospital
Mater Hosp.- Maternity Hospital
Ger Hosp. - Geriatric Hospital

This amalgamation was an important milestone in the development of nursing education in Bahrain.

During the last fifteen years a number of nursing programmes have been developed constituting a complete and comprehensive nursing education system which allows the progressive development of practical nurses to the Associate and Bachelor Degree levels as well as attaining specialization in the fields of community, midwifery and psychiatric nursing.

SUMMARY

The understanding of a country's health system infrastructure is crucial if improvements are to be made in any of its components. This chapter reviewed the health situation in Bahrain with reference to some basic social, economic and demographic indicators. The Government of Bahrain has adopted a philosophy that health care is a right of every Bahraini citizen and that the technical and financial responsibility for providing such care rests mainly with the State, with some participation from the private sector. This concern is reflected in a vast and rapid expansion in the health services which cater for Primary, Secondary, and Public Health Care. Recent mortality decline, higher life expectancy rates, increases in population of childbearing age, increases in recorded annual births and rapid economic and social development are affecting current and future health needs in Bahrain.

Bahrain today has an extensive system of modern health care which will continue to expansion and develop. Since the cornerstone of any health plan is the provision of manpower, Bahrain has made great investments in manpower development. While the health services both in the government and private sector

still depend on expatriate health manpower in certain fields, the Ministry of Health has made much progress in health manpower development and its policy of Bahrainization.

The next chapter addresses the basic issues concerning health manpower planning, and assesses possible models or methods which might be applicable to the development of an effective nurse manpower planning system for Bahrain.

CHAPTER THREE

HEALTH MANPOWER PLANNING: AN ASSESSMENT

INTRODUCTION

In order to define health manpower planning, it is essential that its three components: health, manpower and planning are defined. Health as broadly defined by the World Health Organization (WHO) is a composite of physical, mental and social well being. The health system itself can be defined in various ways. Field (1973) describes it as the mechanism that transforms a society's general resources (knowledge, personnel and capital) into special services aimed at meeting the society's health problems. It accordingly includes all the society's institutions, activities, and efforts related to the health of its people.

Most definitions of manpower refer to it as human resources input into the production process. The primary function of health manpower is to produce, promote and maintain health. Unless manpower development patterns are appropriate to health needs and social circumstance in a country it will be difficult to achieve a level of health that will allow their people to lead socially and economically productive lives.

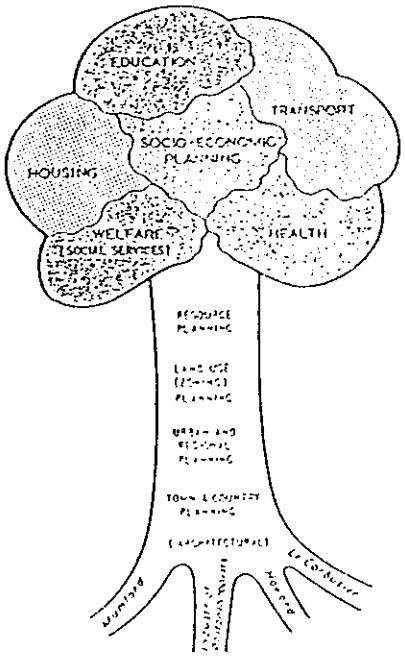
Most standard definitions of planning refer to a process for generating consensus about a desired future, and specify mechanisms likely to result in the achievement of that end. As indicated by Boam (1977),

planning can only be as good as the accuracy of the predictions on which it is based. Estimates can be miraculously right or catastrophically wrong.

Planning as an established profession is comparatively young, dating from this century only (Midgley, 1984). Upon the ruins of the second world war, the desire for better society emerged in Europe as well as North of America. While the main concern in the United States was on planned economic development, it was the land in the United Kingdom that was to be developed (Hall, 1974). From this, a conceptual view emerged which embraces all aspect of society such as housing, education and health. The concern with inter-relationship of various factors within the society replaced the philosophy of planning on the bases of physical environment (Conyers,1982).

A conceptual view of how the various branches of the planning tree have evolved Rathwell (1987), Figure 5.

Figure :5 A CONCEPTUAL VIEW OF THE EVOLUTION OF PLANNING



Source: Rathwell, 1987 p.34

Development in planning particularly in the health field has not kept pace with societal changes (Parston, 1980). This is attributed to the extensive and ill-defined field of health services planning (Dear, 1984). Sorkin (1978) notes that the concept of a pragmatic approach to health planning as an approach is based on the experience and intuitive skill of the planners, with absence of clearly defined methodologies that apply concepts or techniques of analysis and measurements.

Manpower Planning was defined by the Regional Nursing and Midwifery Committee (RNMC) South East Thames Regional Health Authority (1979) as "A strategy for the acquisition, utilisation, improvement and preservation of an organizations human resources." What is then health manpower planning? According to the RNMC, manpower planning is to ensure that an organization has "the right number of people with the right skills in the right place at the right time and at the right cost". Simply, it is to ensure the availability of enough health personnel to match but not exceed the future demand for their services.

Such planning also involves specifying who is going to do what, when, where, how and with what resources for what population groups or individuals so that the knowledge and skills necessary for adequate performance can be made available according to predetermined policies and time schedules. This planning must be a continuous and not a sporadic process, and it requires sustained monitoring and evaluation. Mejia and Fulup (1978) stressed that this process is both dynamic in that it must continually respond and adapt to any changing situation and cyclical in that it must progress through repeated stages of data collection and analysis, plan formulation, implementation and evaluation. They have

also referred to some basic conditions which are pre requisites to planning such as: leadership, readiness and commitment to change; enabling legislation for planning; planning implementation and administrative capacity; and, willingness to implement the plan. Hall (1972) commented that health manpower planning involves political decisions and depends on the kind of political system in a given country.

According to Mejia and Fulup (1978), health manpower planning is a process as complex in its procedural stages as it is straight forward in its objectives. As indicated by Cree (1978), the main objective of manpower planning is the incorporation of the planning and control of manpower resources into the total corporate plan so that all resources are utilised in the best possible conjunction. By combining the objectives of health manpower with the criteria of economic efficiency, Hoare, Lee and Long (1984) constructed a conceptual model for health manpower planning. The model incorporates the determinants and components of health, the resources available for its production and the costs and benefits associated with each resource option.

According to Mejia and Fulup (1978) the health manpower development process of a country should embrace all the basic functions involved in the planning, production, utilization and management of health workers. This is clarified by Dr. Tejada-de-Rivera, (1978), when he stated that "this task involves more than a mere focusing on numbers, because manpower is a resource that can be used in a multiplicity of ways and the manner in which it is employed is as important as, and some times more important than, its numerical supply". A health manpower plan, therefore represents a coherent set of practical proposals intended to improve service

delivery and distributions through changes in the production, use, and motivation of health manpower (Mejia, 1978a).

The goal of health manpower planning therefore is to ensure the provision of the most economical combination of the manpower skills needed for the effective, efficient, and safe delivery of the health services that can be provided within the available resources. "The importance of health manpower planning should be self evident, but throughout the world, decayed water systems, unmanned health centres, and empty hospitals stand as monuments to dismally inadequate manpower planning. The urgency of health manpower planning should be equally clear, because of the long lag time training health professionals take" (Baker,1972).

DEMAND ANALYSIS

Hall (1978a) commented that the word demand, though usually considered to be the opposite of supply has tended to confront health planners with numerous semantic and operational difficulties. Klarman (1969) defined demand as a measure of the quantities of goods or services that buyers take at alternative prices with such factors as income, preferences and the relative prices of other goods taken as constant.

In recognition of the confusion that sometimes arises through the use of the word demand, researchers such as Jeffers et al (1971), Boulding, (1966), Burns (1966) and Lave et al (1975) suggested the use of requirements or needs as alternatives.

Demand, used in a more restrictive or technical sense, refers to the sum of the amounts of the various types of health services that the population of a given area

will seek and has the means to purchase at the prevailing prices within a given time period. From this demand the health manpower required to produce these services can be derived.

FACTORS AFFECTING DEMAND

A wide variety of factors can influence the demand for health manpower, only some of which are subject to a measure of control within the health sector. There are eight categories of factors likely to be of great concern to the planner. Though all are important, their relative weights in planning will vary according to the methodological approach chosen, the nature of the health system, and the manpower category being considered. These factors are:

1. Demographic

   These factors include the size, distribution, density, growth rate, age structure, and sex ratio of the population. Population size and distribution are usually the most important.

2. Economic

   At any given price a strong positive correlation usually exists between disposable income and the demand for health care. Since price is a mediating variable, if the demand exceeds the supply the price will increase and vice versa until a new equilibrium is established. In the absence of a price variable, as in a government-financed health care system, the waiting time for services and other such variables will tend to replace the price as the mediator between supply and demand.

3. Social and Cultural

Two important and often overlapping variables are educational attainment and the level of health consciousness, or the degree to which the public is aware of the availability of health care and places a high valuation on obtaining it. If health consciousness is low the effective demand for care is also apt to be low and not well matched to the main health needs of the population.

4. Health status

One would logically expect to find health status varying inversely with demand, so that as the health status improves the demand declines, and vice versa. Although this tends to be so at any given socioeconomic level of the population, it may not be very evident in the population as a whole because of the high correlation between socioeconomic status and demand. Accordingly, in many countries, by reason of the limited availability or poor accessibility of health care to those with a low income and/or a low educational attainment, the demand for health services may be low among precisely those most in need of them.

5. Accessibility

Accessibility is a function of all the many factors that serve to facilitate or restrict health care use, which include travel time to and waiting time at the health facility, the convenience of the time of appointment, the cost, eligibility for care, social and cultural barriers to

receiving service, and impersonal or discourteous treatment at the health facilities.

6. Resource availability

The supply of resources may go a long way towards explaining the demand made on them. If hospital beds and personnel are available in abundance, even to the point of "excess", the utilization rates will, all other factors being equal, be higher than would otherwise be the case.

7. Resource productivity

Following on the above, and assuming a given availability of manpower, hospital beds, etc. if resource productivity is increased the output of services will be greater and a higher level of demand can be satisfied.

8. Health Care technology

The level of health care technology attained in a country will have a direct effect on the services that can be offered, and hence upon the manpower required to produce them. Moreover, the mere availability of new techniques may often result in a desire to introduce them irrespective of their potential contribution towards improving health.

Need, represents an estimation based on professional judgment and current medical technology of the number of workers or amount of services necessary to provide an optimum standard of health care. Need exceeds demand when there are insufficient resources to produce or purchase services in accordance with

professionally determined needs. Rathwell (1987) stressed that the cornerstone of health care delivery and the planning of its services, is the needs of its population. Kalino (1979) defined need as the difference between observed and ideal levels of health. Bradshow (1977) advocated that need has four components: normative need; felt need; expressed need; and comparative need. This notion was supported by Macstravic (1978) who recommended that needs assessment should include population survey, demographic indicators, utilization pattern and consensus attainment.

MacGuire (1969a) examined the relation between the total health care needs of a community and the care actually provided to it, she concluded that at any given time some needs are not being met.

Theoretically, a country should be able to meet all other health needs of society with its existing knowledge and resources. However, in reality, some of these needs are not being met because resources are not effectively organized or utilized. Thus deficiencies may be rectified by modifying the organization and utilization of manpower so as to increase the productivity of existing resources. Such organizational deficits may reflect problems of maldistribution, but there are other distributional problems that should also be considered. For example, a country may at any given time have an improper balance among preventive, therapeutic and rehabilitative services; it may have a relative imbalance among high, intermediate and low level personnel; or, it may have an inappropriate distribution among inpatient, ambulatory, convalescent and home care services.

Requirements refer to the amount of services,

manpower, and so on required to satisfy a given set of assumptions about how the health sector does, could, or should function. These assumptions may or may not be made explicit and may be premised in any one of a number of different approaches to planning.

Holmstron (1981) commented that when requirements are expressed as demand, economic reality is more accurately reflected. He described the estimation of demand as one of the most important and difficult aspect of health manpower planning.

Long and Mercer (1980) concluded that local demands estimates are usually based on subjective assessments which reflect the professional judgment of managers. In practice staffing levels are therefore a result of historical patterns adjusted from time to time according to changes in the service or budget, but not based on any analytical method.

Estimating demand is an important aspect of health manpower planning and such projection of health manpower requirements presupposes that a suitable method exists to determine the demand that the future population of a region or nation will need for health services.

Methods in use for this purpose vary markedly from country to country, and techniques for combining the merits of each one into a single formula are not available.

It would be helpful, in selecting among the various methodological approaches to estimating manpower requirements, if one could consult a coherent taxonomy of such methodologies. While such a taxonomy does not yet exist in a comprehensive form, a lot of attempts to categorize existing methodologies have been

published in the last few years.

A review of these publications and of the methodologies indicates that there are no definitive, agreed-upon exclusive categories for the various methods. Selecting the method to be used to estimate manpower requirements is therefore the focal point in the entire health manpower development process. It is also a difficult decision, complicated by the fact that, despite extensive debate, no single method has emerged as definitively superior to any other. Each agency must select the method that best suits its individual objectives and capabilities, and its accessibility to data. A review of the literature reveals a number of approaches for estimating manpower requirements. Basically four methods are used in estimating the demand or requirement of the population for health services with each method providing somewhat different results.

The following approaches were adopted: biological demand, physician-population ratio, economic-demographic methods and the service targets. Hall (1978a) agrees with these methods but suggests using a "professional standard approach" for estimating biological demand.

PROFESSIONAL STANDARDS (BIOLOGICAL DEMAND)

This method determines demand on the basis of health needs (Hall, 1969). Determination of requirements are based on the opinions of expert health professionals who take into consideration available medical and technological resources. The health services needed to obtain a healthy population is translated into manpower staffing and productivity standards.

This technique appears to project manpower needs based

on an assumption of what health services should be. This approach has been criticized by Goldfarb (1975) for establishing one professional standard while eliminating the possibility of substituting more economically efficient mixes of inputs. The main advantage, according to Sorkin (1977), is that it is based on serving all health needs which is important for long-range health manpower planning.

PHYSICIAN-POPULATION RATIO

This method is described by Hall (1978) as being the best method for both estimating the demand and characterizing the supply for health manpower. A ratio of the number of the health workers to the total population served is selected in order to determine the manpower requirement, this ratio is then applied to the target year population (Kriesberg et al, 1976).

The physician-population ratio method has been criticized by Hanson (1970) for ignoring changes in the population composition, changing medical demands, and not considering the possible increase in health manpower productivity.

Klarman (1969) reiterates Hanson's stance and Hall (1978a) agrees with both Hanson and Klarman and notes that this method has three drawbacks. First, it does not show how the health sector works. Second, it does not outline ways of increasing health manpower productivity. Finally, it does not explore variables such as the population density in evaluating the adequacy of a doctor/population ratio. Bennett (1965) also commented that while the ratio of 1:10000 might be adequate for a high population density region in Africa, it might not be adequate for low populated country.

This method nevertheless has some virtues such as simplicity, low cost and ease of interpretation of results. It's simple application and use are due to the fact that this method essentially requires two data input; population projection and the desired manpower/population ratio. Although simple to use and easy to interpret, the problems associated with using ratios are numerous. For example, by relating staffing to only one factor (for example, beds) this ignores other health care related factors which are relevant to manpower needs (such as, bed occupancy). The method also lacks flexibility which allows consideration of particular local circumstances which may explain different staffing levels (for instance, ward layout or medical policy). In general the method suffers from three serious problems: first, it offers very little in explaining how the health system works and it does not explain how demand and supply forces interact. Second, the method converts population to manpower directly without considering the services produced so much so that little thought is given to increasing manpower productivity or functions. Third, health manpower planners run a relatively high risk of selecting unrealistic ratios which may have predictable health policies.

THE ECONOMIC EFFECTIVE DEMAND METHOD

The economic effective demand approach is based on measurement and projection of the health services which the users are willing to buy (in a market context) or are asking for; for example, by going to the health centre or to the physician's office (in a non-market context), regardless of their objective need for these services.

The implementation of this approach is usually performed through the following stages:

(i) Observation and quantification of the present demand - this implies choice of a measurement unit, viz: patient visit; bed-day; working time of each health profession; and, monetary expression of these services.

(ii) Projection of the demand for health services to a target year in the future. This projection can take two directions: first, the analyst tries to determine what the demand will be at the target year on the basis of the most probable development of each factor of the demand; second, as an alternative, the analyst makes a conditional projection in order to see what the demand will be at the target year if the price of service steadily increases, if users incomes sharply diminish, if insurance coverage is generalized to all the population, if the mode of population ageing becomes faster, and so forth. The two directions are based on a careful examination of the factors effecting demand and their development.

(iii) Demand for health services is translated into demand for health manpower on the basis of manpower staffing (or mixture of personnel) and manpower productivity. In other words, the analyst, having calculated the amount of services which will be, or would be, demanded by users, tries to see what professions will participate in producing these services and what will be the output per worker in each profession. Through examination of these elements, the required number of workers in each

profession can be calculated.

A number of researchers question whether this method offers a better estimation of the number of health workers required. Fein (1967) indicated that the physician visits were expected to increase partly due to the increase of population and partly due to better income, education and health service utilization. As a result, the demand for allied health manpower and other health categories will increase. Goldfarb (1975) criticized economic demographic techniques for holding utilization rates constant; that is to say, if a person has visited a physician a number of times during the year, at the beginning of the study period, the health service utilization rate will be projected accordingly. Also, in addition to income, there are a number of variables that affect demand for medical services. Consequently, it is difficult to study each of these interrelated variables separately to determine the demand for health professionals (Goldfarb, 1975), Sorkin (1977) also stressed that this approach is mainly applicable to countries where no large inequalities in access to health care occur. Despite the obstacles in the use of this method, this approach offers some important advantages: first, this method can provide the health planner with a holistic view of the dynamics of health services utilization; for example factors that promote or limit utilization, demand supply interactions, and the extent to which certain population groups are receiving services. The second advantage is the method's apparent realism or conservatism. Largely due to the fact that most planning based on this method assumes constancy in the demand for health care in relation to changes with time, the risk of setting unrealistic objectives therefore is minimised.

SERVICE TARGETS METHOD

This technique is widely accepted and used for the estimation of manpower requirements. It implies that the first step is to determine the target for the type and quality of service needed by the population. It has been pointed out by Sorkin (1977) that when service needs are quantified, manpower requirements can be obtained by applying factors related to staffing and productivity; such factors, however, are not easily determined.

Hall (1978a) has emphasized a number of important advantages and some limitations of this method. He pointed out that one advantage lies in the easily disaggregated health services which helps in matching the health system component with the appropriate method to estimate demand, productivity, and consequently, improvement in health services. Among the advantages are the creation of divisions within the health services to help facilitate matching each part of the health system with the most suitable method for estimating demand for manpower. In addition it emphasizes the significance of productivity as well as calling for improvement of health services. The primary emphasis of the service targets approach is on the delivery of care. In addition, Hall (1978a) has highlighted major constraints such as misjudging the educational institutions' ability to expand its productive capacity, the administrative ability to provide the specific service mix and the public willingness to use the services produced. Sorkin (1977) agrees with Hall, and points out that the service targets method is prone to having standards based on desires rather than reality, which could lead to policy errors.

Hall (1978), however, maintains that this technique is

conducive to an active health policy by shaping and sharing future health events rather than just anticipating them. The major problem on the other hand is that it allows the planner to develop a number of assumptions that may not be realistic.

SUPPLY

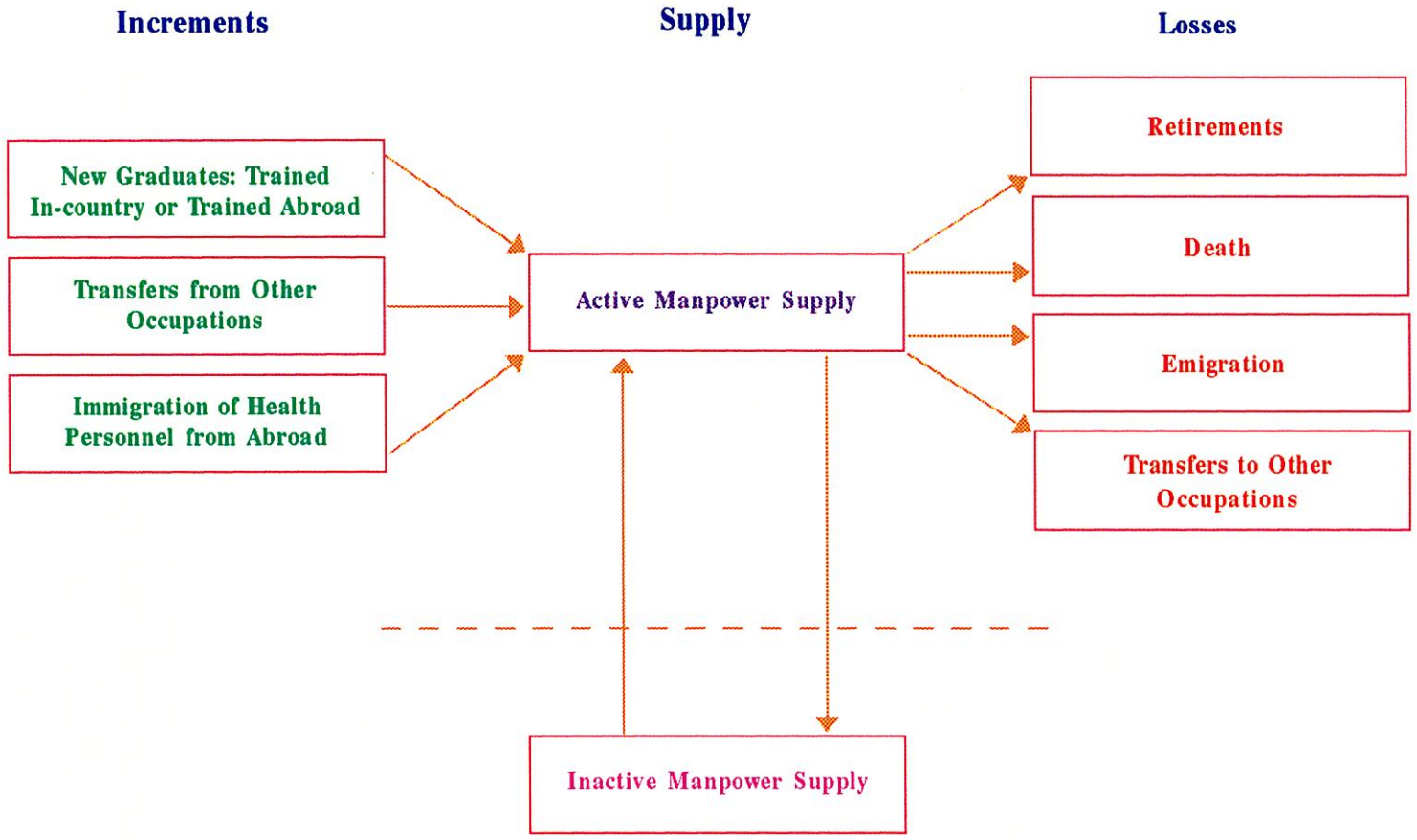
Hall (1978b) defined supply as the availability and characteristics of resources or services at a given or future time according to specified assumptions about production, loss and use.

Manpower plans often tend to give more attention to the analysis of supply than to the study of manpower requirements. The main reason could be attributed to the ease with which supply data is collected. While supply estimates seem to be more reliable than those of requirements, Hanson (1970) describes a manpower study where four projections of the supply of physicians gave results varying from 72,000 to 96,458; the highest figure being 34% greater than the lowest.

Supply analysis involves the estimation of the three following components (Hall, 1978b) and are illustrated in Figure 6:

- Current supply, the current stock of qualified health manpower. This stock has two subcomponents: the active supply, persons employed or seeking employment in the health sector; and, the inactive supply, qualified persons potentially able to serve in health occupations who are either retired or engaged in other activities.

Figure 6: Components of Health Manpower Supply



Source: Hall, T.L (1978) "Supply" in Health Manpower Planning, edited by Hall, T.L. and Majia, A, World Health Organisation, Geneva, P.92

- Future increments, probable additions to the stock of qualified persons. In projecting these increments planners need to consider the available pool of potential recruits for health occupations, and the actual, planned, and the potential capacity of the country's health training programmes.

- Projected losses, including the expected losses from attrition over time from both the current supply and future increments.

In supply projections, priority should be given to the important categories which constitute significant portions of the health manpower sector. The magnitude of the category, its training feasibilities, employer concerns, and data available are guidelines which assist researchers in deciding whether any particular category of health worker is worthy of studying and projecting its supply. Information is also needed in supply projections regarding students enrolment, applicants for admission, students losses, teaching personnel, cost of training, teaching facilities, potential curricular changes, foreign graduates and potential of the training institution for expansion.

Usually data is collected to develop supply projections of three types: First, the supply at a future time of persons qualified and physically able to work in the health sector. Second, the number of such persons likely to be actually employed in the sector, given its current and foreseeable capacity to absorb health manpower. Third, the extent to which the supply can be increased both with and without creating new educational institutions. Ideally the second projection will not be significantly less than the first, since otherwise qualified health workers

will either not be able to find employment in their chosen profession or not be interested in accepting the jobs available. If the discrepancy between these two projections is significant policies relating to manpower requirements can help to reduce the gap.

The third projection takes into account the possible effect on the supply of policies to increase the productivity of the existing educational institutions (through increased enrolment, decreased attrition, shortened curricula). Simple quantitative data are helpful but not sufficient for supply projections and head counts need to be translated into full time equivalents. Data about the age and sex distribution in each category of manpower are required in order to make reliable estimates of attrition rates. Detailed information about the qualifications (training and experience) of the members of each pool is essential to assess the characteristic of and substitutability within the existing supply of specialized professionals. Information about the current work settings of practising professionals and about their attitudes toward alternative institutional arrangements is useful in predicting the impact of proposed changes on the supply of various categories of health workers.

In particular, policy changes that affect employment opportunities and conditions will alter significantly the net losses or gains from occupational transfers within a country and from migration between countries.

When the plan calls for rapid increases in the supply rate, information about the capacity and utilization of present training facilities and about the time and resources (including academic staff) required to expand those facilities is prerequisite to realistic projections. Where the plan calls for significant

expansion in training facilities, allowance must be made for the time required to establish those institutions, the lag between start up and initial production of trained personnel and the amounts of trained manpower and other resources that will be absorbed by the additional training facilities themselves.

Furthermore, information about the characteristics of the current and the potential pool of applications for health professions training will minimize the danger that new training facilities stand empty because other elements in the system cannot produce adequate numbers of qualified persons who are motivated to seek such training. As an alternative to increasing the numbers of new trainees, planners may also consider lower cost options such as upgrading the skills of practising professionals.

Finally, supply is influenced by the productivity of health professionals, this in turn depends on the kind of training they have received, on the quantity and organization of supporting staff and facilities available to them, and on their accessibility and utilization by the public.

For most long-range planning, 20 year projections at five year intervals are adequate. Adjustments may be made to accommodate specific target years such as the end of a government administration or the end of the decade. In conclusion, while supply has been defined as the total number of currently available and active workers, demand was defined as the number of individuals that employers will hire given certain economic conditions and consumers preferences. Demand minus supply is therefore manpower requirements.

HEALTH MANPOWER PROJECTIONS AND IMBALANCES

Health manpower forecasting and planning have their roots in an early study by Lee and Jones (1933). This study was particularly noteworthy because of its attempt to focus on the need for health services as a planning criterion. Forecasting of manpower supply and demand is performed in order to minimize the personal and social costs of education, to assist in administrative planning and to ensure an adequate supply of manpower for the future. Within the health professions, education and training costs are higher than in most other sectors because of the levels of sophistication and accuracy attained in the health professions (Born, 1979).

Over the last three decades, the number of articles and books published on statistical modelling for manpower projections has increased. At the same time, there has been a refinement in the models described, with the resultant projection coming closer to actual needs. However, Edwards et al (1983) warns that projections give only general indications and should therefore be used only as an aid for determining potential trouble spots. Forecasts therefore represent possibilities for the future, not guaranteed outcomes.

Bartholomew and Forbes (1979), in warning that forecasting is risky, advise the administrator not to place too much faith on a single technique. They suggested that, whenever possible, results should be cross checked by comparing them with the projected outcomes produced by another method as well as with real outcomes.

Even with forecasting, one can be fairly confident that some unexpected things will occur after

projections are made. However, Wolfe (1967) argues that certain conditions will remain unchanged and that related trends will continue. It is important, then, that the forecaster not only be cognizant, but also fully understanding of the assumptions and limitations of the particular methodology being used.

In the design of health manpower studies, it is therefore important to maintain a balance between the development of supply and demand projections. While this seems self- evident, the usual situation is for the supply projections to be more carefully developed than the demand projections. The reasons for the imbalance are understandable. The concept of supply is straightforward: supply analysis is tangible; it is concerned with factual information; and, it tends to be oriented toward the present.

In contrast, however, demand is a multifaceted and more difficult concept, its analysis requires the consideration of alternative views regarding how health services should be delivered and how rapidly the health sector should be expanded. The results of this imbalance are predictable, if supply estimates are emphasized in the development of a health manpower study, demand will generally obtain only minimal consideration. As Hall (1969) commented "since work in supply and demand may evolve sequentially, rather than concurrently, data generated on supply frequently do not respond to the demand needs of the study and vice versa leaving the planner with nearly useless information when the study is completed". Baker (1966) pointed out that it is not the health manpower planner alone who in reality must make decisions intended to bring about a coordinated synchronization between supply and requirements, policy decisions makers must also be included as integral components in the planning process. Imbalances in fact do not occur

suddenly, nor do they develop in vacuum.

According to Mejia (1986), the imbalance in health manpower is often preceded by a confluence of political, social and economic predisposing factors. They may exist for some time without being recognized or even noticed. In addition, educators are not interested in manpower plans and they give education a life of its own. Moreover, the employer-national health systems are passive recipients of trained manpower resulting in too little feedback from the employees to the planners and educators. This lack of integration between the various elements of the manpower development process may well lead to incongruities, irrelevance and imbalances in the planning, production and management of health manpower. Fulup (1976) agrees, indicating that health manpower plans either do not exist in many countries or are vague in others. He attributes the result of unbalanced health teams to the increased emphasis on the classical health categories such as physicians. Fulup (1976) also cautions that more of this category of health personnel alone will not solve health services problems.

At the World level, the gap between the developed and developing countries in the availability of health manpower has widened. According to McGuire (1979), these types of failures are universal: they are to be found both in developed and developing countries. They can and do occur in economies where the supply of and demand for health services are regulated by non-market forces, as well as in those where services are allocated primarily by market mechanisms. The imbalances represented in the disproportionate growth of highly trained manpower relative to other categories of health personnel will certainly be a factor in retarding the attainment of health for all.

In only a little more than a decade, concerns and problems relating to the availability of skilled health manpower in the United States have taken a 180 degree turn. Indicators showed that they would never have the physician manpower they need. During the intervening years, federal policies and programmes designed to stimulate the expansion of national health manpower have proven to be remarkably effective. Accordingly, the total health manpower pool is estimated to have grown from perhaps 2.5 million workers to as many as 6 million workers and a study by Pennel and Hoover (1970) identified 126 different categories of health manpower. Accusations have been made that health educational programmes seem to be more interested in attracting bodies than in offering quality programmes that will contribute to the health care delivery system (Holmstron 1981).

Joseph Califano, a former Secretary of Labour and Health Education and Welfare (HEW) stated in 1978 that the U.S. will be facing an oversupply of doctors in the next decade. For the health manpower planner or educator this rapid and dramatic shift, from a situation in which increased production was the only concern, to one in which there are active governmental efforts to stabilize or even reduce the manpower pool, represents an entirely new reality. There is, in fact, a "cultural lag" in the acknowledgment of this new reality by the public and by its elected representatives, as well as by experts and authorities within the health manpower world.

In conclusion, imbalances between manpower supply and requirements occur because the supply of staff is either more or less than anticipated. Health manpower planners should therefore identify any mismatch in their health manpower development endeavours, analyze them and make attempts to resolve them. Only when

this is done, will health manpower plans be comprehensive and successful in achieving their goals.

SUMMARY

Manpower is the most critical resource in a crucial sector such as health. It is therefore imperative that each country should work towards ensuring the production, deployment and use of manpower in the right numbers and with the right skills to undertake current and planned health services functions. Consequently, health manpower planning should be an integral element within a country's health system.

This chapter has discussed and presented health manpower planning from an overall and global perspective. The next chapter will address nursing manpower which is one of the largest categories of health manpower.

CHAPTER FOUR

NURSING MANPOWER: AN OVERVIEW

INTRODUCTION

The reasons for selecting the category of nursing for this study are reviewed in Chapter I. The criteria on which the selection of this study is based is the WHO (1978) recommendation that in health manpower studies priority should be given to important and significant categories which constitute a significant portion of the health manpower sector. This is very true in the State of Bahrain whereby nursing constitutes around 50% of the health workers employed by the Ministry of Health. The shortage of Bahraini nurses and the efforts of this country to augment the goal of Bahrainization is an additional factor for selecting nursing for study.

Since the thrust of this study is on Nursing, an attempt will be made to define this profession in light of a series of definitions and interpretations made by a number of researchers. " Nursing provides the most fundamental human functions: to help, advise, encourage, console and comfort people who are suffering" (Asvall, 1988).

It was noted by Griffith (1972) that nursing is not clearly defined. He comments that statements about nursing are often global generalizations or tautological statements. He quotes, for example, the description given by the American Nurses Association:

"The general duty of a nurse is to be aware of the total nursing needs of the patients and be responsible for seeing that they are fulfilled". Henderson (1960) defined nursing as "the unique function of a nurse is to assist the individual sick or well in performance of the activities contributing to health, or its recovery that he would perform unaided if he had the necessary strength, will or knowledge, and to do this in such a way as to help him gain independence as rapidly as possible". It is clear that both quoted definitions are conceptual; nevertheless, both definitions relate to an activity which is performed by nurses to meet perceived patient needs. Accordingly, to specify what nursing is, should involve identifying what nurses do!

Gault (1980) described an approach where an observer in a hospital ward watches nurses at work and lists what they do. This could lead to a detailed classifications of activities typical of an industrial engineering methodology. The Aberdeen study (Scottish Home and Health Department, 1967) for example, listed eighty one nursing activities.

Nursing was defined in a similar detailed manner by McNally (1970). Conner (1961) listed five major functions for nurses: direct nursing care; indirect nursing care; paper work; communications; and, others. Jelinek (1967) used a similar gross description of nursing: "Theoretically it would be possible to consider the amount of time devoted to any number of activity groups, however, there are limitations on the number of subdivisions that may be considered". He added that further subdivisions result in a greater sample size, but that measurement techniques available are not adequate for providing reliable and consistent measures for small subdivisions.

A basic issue to be raised is whether nursing staffing is a problem. According to Ackoff (1962) a problem is characterized by: a decision maker; a desired outcome; a state of doubt as to which is the "best" course of action; and, an environment to the problem. In nursing staffing, there is a decision maker, there are different courses of action, there is the community and patients environment which the hospital serves, and there certainly is a state of doubt as to which is the best course of action to nursing staffing. Accordingly nursing staffing could be considered as a problem. The main challenge is knowing what is the desired outcome. While improving patients health care or meeting patients needs could be the targets, identifying operational definitions of "health" and "needs" and measuring them is even more difficult. Gault (1980) tried to solve this problem by first defining the nurse staffing problem. He listed the following steps for solving the nurse staffing problems: defining the problem including setting a standard for nursing care; examination of the standard of care; review of the delivery of nursing care; and, the staff model. The final part is putting the solution to the problem and controlling it.

Wandel (1974) maintains that "the right number of nurses with the right capabilities at the right time in order to give the quantity and quality of nursing care at the right cost while obtaining the right personnel and patient satisfaction" is a major step in solving nurse staffing. Aydelotte (1973) considers five additional factors, these are: the quality of patient care and its measurement; the characteristics of the patients and their care requirements; prediction of the supply and nursing manpower required; the logistics of the staffing programme and the control and evaluation of the quality of care desired; and, measuring the success of the staffing.

Let us suppose that the target is to provide standards of nursing care that patients should receive. Addressing this issue will entail defining the number and mix which will provide such a standard of care. But this is dependent on three components: budgetary decisions; allocation; and, scheduling (Trivedi, 1974).

As for the budgetary decision phase, Wandel (1974) was the only researcher who addressed this issue. He developed a three stage probabilistic programming model which addressed the problem of designing and operating a nurse staffing system for a hypothetical hospital. His work however did not address how the demand for nursing, the efficiency of nursing personnel and the optimal level of care could be estimated.

The basic issue is that nursing care has to be provided 24 hours per day and every day of the year. Scheduling nurses who usually work 40 hours per weeks and around 48 weeks per year is therefore a critical problem faced by nursing and health care managers. This problem was addressed and some solutions were presented by Miller et al (1984) and Warner (1976). They both indicated that nursing requirements per ward by grade of nurse can be determined 4-6 weeks in advance. Both Warner and colleagues, and Miller's models assume that nursing demand is known, but the schedules obtained may indicate more or less number of nurses required per shift duty.

While Barr (1983) discussed the nursing allocation issue and stated that the ability to assess and effectively deploy nurses becomes more urgent as financial constraints intensify, Ball and Goldstone (1984) concluded that there is no magic formula which will answer the question of how many nurses are

needed. Aydelotte (1983) is insistent that nurses manpower planning systems should follow a systematic approach to determine the number of staff required to provide care to a specified group of patients at a pre-determined level.

NURSE MANPOWER NEEDS ASSESSMENT

In situations where economic resources become scarce, a number of professions, in particular nursing, are forced to look carefully at how best could they maintain their organizations and manage their staffing level. Accordingly the determination and review of nursing establishments are key determinants in any nurse manpower study. With the rapid expansion in health services and the increasing demand for nurses, organizations are facing difficulties in justifying their staffing levels and getting them endorsed. With the present economic climate, considerable attention has been given to the issue of nursing staffing, their establishment and their justification.

Telford (1979) noted that achieving an establishment which satisfies the needs of the patients, the medical staff, the nurses themselves and the financial constraints of the organization, is difficult, delicate and sometimes almost impossible.

Nursing staffing studies in the United States (US) and United Kingdom (UK) started as early as 1960. In determining nursing establishments during the seventies, nurse managers were advised to adopt the norm ratio method in which a ratio of nurses per 100 beds was used as a guideline for nursing staffing. This approach has been heavily crudest. Telford (1979) argues that the ratio method does not reflect most of the factors which influence the assessment of nursing requirements.

The use of a nurse-population ratio as the basis for projecting personnel requirements has been subject to many criticisms. Bognano et al (1974) referred to a number of difficulties inherent in this approach especially the considerations to be made in the selection of an optimal ratio. Kreisberg et al (1975) points out that since experts are frequently asked to select the ratio, reliance on experts allows one to circumvent the problems associated with an absence of historical data.

A number of commentators have criticized the norms system of manpower projection and cautioned against their use in health manpower planning (Department of Health and Social Security 1978; Harrison and Rathwell, 1980). While simple to use and easy to understand, norms were found to ignore a number of factors which affect manpower needs. In addition they are not flexible enough to consider local circumstances which could verify variation in staffing levels. The Department of health and Social Security in the UK (1983) recommended that when using a norm, the original purpose and limitation of the norm as it is developed as well as the assumptions underlying it have to be considered carefully. Pace and Grimshaw (1978) however, indicate that using sets of ratios to monitor staffing, activity and cost relationships may prove extremely useful. Moreover, Keaveny and Hayden (1978) refer to the advantages of the ratio method which are its easiness to understand and apply, and its relatively simple data requirements. Burton (1967) in comparison, states that in 14 years of experience with the ratio method, projections were never in error by more than one percent.

Aydelotte (1973) after reviewing a number of methods on nurse staffing methodology concluded that no fully satisfactory staffing formula has yet been devised.

She noted that "nurse staffing methodology should be an orderly, systematic process based upon sound rationale, applied to determine the number and kind of nursing personnel required to provide a nursing care of a predetermined standard to a group of patients in a particular setting. The end result is a prediction of the kind and number of staff required to give care to patients".

In an attempt to address hospital nursing establishments in relation to costs, Feldstein (1967) in his econometric analysis of 177 large acute non-teaching hospitals in England found that nursing costs are a form of general overhead cost since differences in the availability of nursing staff had no effect on hospitals output. While this may be misinterpreted as any numbers of nurses will suffice, the logical corollary of this argument, as suggested by Barr (1983) almost twenty years later, is that it may be only necessary to supply the minimum number of nurses consistent with an adequate level of patient care.

Barr (1983) also studied nursing establishment within the financial framework, by surveying the nursing hours per patient day (NHPPD) and comparing them with average costs per patient day in acute hospitals. Barr (1983) also indicated that a staffing formula while appealing to administrators and finance people because it serves as an objective framework for cost containment and forward planning, is not so appealing to the nursing profession who is suspicious of this approach for many reasons; including the doubtful validity of basic assumptions, insufficient recognition of qualitative standards of nursing care and the unconvincing nature of many of the results.

Mulligan (1974a) introduced a patient dependency scheme which was found to be simple and reliable. The

method divided patients into three dependency groups termed "self care" "intermediate care" and "full care" requiring nursing time in the ratio 1:2:5 respectively.

It was observed that a self care patient requires 20 minutes of direct care in a 7 1/2 hours shift. The method was widely used either to calculate the total nursing minutes or the workload index. For example in a ward with three self care, 10 intermediate and two full care patients the workload index is 3 x 1 + 10 x 2 + 2 x 5 = 33 which in effect means that 15 patients are equivalent to 33 self care patients. With a workload index of 33 and each unit of workload is 20 minutes, the nursing minutes required was calculated as 33 x 20 = 660. Supposing that as a result of an observation on the ward it was found that a nurse spends 40% of her 7 1/2 hour shift on direct care equivalent to 180 minutes per nurse. Then to provide 660 minutes, 3.67 nurses are needed (660/180).

Quality of care usually receives scant attention in staffing studies and at best is measured in terms of the frequency of various procedures. This is a very task oriented approach which contrasts with current movements toward the adoption of nursing process. For example the well known "Aberdeen" formula (1969) deals with the frequencies of tasks associated with one class of patients only which is the most highly dependent. The Mulligan approach (1974a) does not specifically treat quality of care and Rhys Hearn's work (1979) is very oriented toward counting frequencies.

The Aberdeen Formula, the Mulligan Approach and the Rhys Hearn method however, were three important systems which attempted to determine the number of nurses required on the basis of objective data and

information . In the first two a sort of workload index was developed based on classifying patients into groups in order to allow the setting of nursing staff according to a stated workload index per unit of nursing time available. In the case of Rhys Hearn method, geriatric care mainly was considered.

During the late seventies a number of methods for estimating nursing manpower requirements were published. Goldstone (1980a) classified these methods as a spectrum ranging at the simple end, the norm formula methods which relate to "X nurses per bed" or "Y" per head of population". At the sophisticated end of the spectrum are those methods which use the multiple regression such as: Total Hospital Nursing Requirements = a x Medical Beds + b x Surgical beds + c x Geriatric Beds + d x Psychiatric beds + etc.

Goldstone commented that the values of "a" and "b" are vitally important because each extra medical, surgical etc. bed needs extra "a" nurses. He referred to the expected errors in estimating coefficients such as "a". Since the process of regression analysis is essentially averaging out what already exists, the vital values of a, b, c, d etc. could be obtained by putting in all the existing bed numbers and staff levels. The number that should be in post as given by the resulting regression equations is obtained as merely a sophisticated redistribution of what exists. Goldstone (1980a) concluded that there is a need for a method which relates staff levels to some higher form of goal and target.

In recent years a number of methods for estimating the nurse manpower needs have emerged. Initially the focus of studies has been on organizations needs, and only few have studied patients needs. King (1975) raised the question of when will operational research

begin to look at the part of the system called the patient care level? Beer (1975) also commented on such studies by noting that "observers have not once come across any reference to what the health services are about, namely people who are well or ill". The descriptive models were criticized as ones which relate to the behaviour of nurses in response to certain aspects of their environment, mainly the amount of time available and the type and number of patients. Accordingly they do not address the demand of patients for nursing care and concentrate on the supply of nursing care instead. This issue of nursing demand and the inadequate attention given to it has also been noted by Hockey (1974). He remarked that from the studies already carried out more is known about the existing manpower than about the manpower required.

Levine and Khan (1975) also commented that patients care requirements have rarely been dealt with explicitly and that it is not possible to measure shortages without establishing needs. However, when shortages are previewed the concern seems to be the quantity rather than quality.

In the UK the following methods have received the most discussion and attention: Aberdeen formula, Rhys-Hearn method, Telford, Criteria For care, Trent, Cheltenham, Grasp and Monitor. The methods most relevant to this research are discussed in more detail in the next chapter (five). While all these methods attempted to develop techniques for establishing staffing levels, some incorporated notions of quality of care others did not. Nevertheless all these methods fall under two main categories: "bottom up" methods and "top down" methods.

The Cheltenham, Criteria For Care and Grasp methods

are examples of "bottom up" methods and the Aberdeen and Trent formulae are examples of "top down methods". In general, "bottom up" methods derive from the characteristics of patients relating to specified needs which are timed and converted into nursing requirements. In contrast, "top down" methods are characterized by the production of formula and do not necessarily take account of current or individual patient needs.

Ruchworth and Tacket (1984) described the "top down" methods used for estimating nurse manpower requirements as relating number of nursing to costs or activity measures such as number of beds, where as the "bottom up" methods relate requirements to tasks at ward level. The top down methods derive from past data and tend to include variables that reflect quantitative rather than qualitative aspects of care: for example, the number of patients rather than the needs of patients.

In 1980 it was estimated that hospitals in the US spend around $15,000,000 yearly on nurse staffing studies (Vanghan and MacLeod 1980), and that there are two objectives for nurse staffing studies: tactical and strategic. The tactical objective is to establish a system that balances the nursing staff available with those required according to the number of patients and their care needs. The strategic objective is to summarize the data on "actual" versus "required" staff, providing feedback that influences long-range decisions regarding nurse staffing.

Inspite of the many nursing manpower assessment methods developed, Vanghan and Macleod (1980) comment that nursing staffing studies have progressed little since the earliest research performed in the sixties. They argue that there is a need for improving the

existing patient classification methods and standardizing them rather than spending more millions of dollars in reinventing the wheel.

As more and more studies were done in the field of nursing manpower, more attention was drawn to the need for addressing the quality of care provided by nurses.

Assessment of the quality of care provided by the nursing staff was done in terms of frequency of various procedures or treatment. Goldstone and Collier (1982b) critised the Aberdeen Formula as extremely limited in this respect because it deals with only the frequencies for one class of patients, the most highly dependent. They also noted that the Mulligan approach does not specifically treat quality of care and the Rhys Hearn approach is very oriented towards counting frequencies. This task orientation is out of step with modern approaches to nursing via the nursing process and also difficult to operate due to the difficulty on agreeing on a pattern for desirable frequencies.

Goldstone and Collier (1982a) stated that "staffing levels should relate not only to the number of patients and their dependency mix, but also to the environment within which care is delivered and to the service level that an authority chooses to provide". The decision process for nursing management as seen by a number of researchers depends on a number of factors such as the targeted service level, the targeted percentage of time a nurse should spend in providing direct care to the patients, a targeted ratios of time spent between four categories of patients (Minimal or Self Care, Average Care, Above Average Care and Maximum Care), and the targeted minutes per shift for a representative patient in any of the four categories.

All these factors have been considered in a study for the measurement of quality of nursing care in the United States jointly undertaken in 1980 by the Rush Presbyterian Medical Centre and the Medicus Systems Corporation and funded by the Department of Health, Education and Welfare. In a similar study conducted in 1982 by a team of nurses in Manchester, Goldstone and Collier concluded that merely adjusting the number of nurses on wards to meet some average or norm is too crude an approach to be successful. The effective and cost effective delivery of nursing care on a particular ward is sensitive to many variables that have to be considered by nursing management.

Ball, Goldstone and Collier (1984) adapted the Rush Medicus measure, anglicized it and tested it for reliability and nursing validity, the former by a formal analysis, the latter by extensive discussion and consultation. He devised a table which could be used by different hospitals to calculate their requirements for nurses.

SUMMARY

Nurses are the largest occupational group in the health sector and will probably become even larger as they undertake additional functions and responsibilities. Because of the scope and complexity of nursing manpower, nurse manpower planning should be comprehensive in approach and based on valid as well as solid data.

Malin (1986) after reviewing a number of existing nurse demand methods in the United Kingdom, concluded that for long these methods have sacrificed relevance for the sake of what appears to be a spurious vigour. She recommended that any method has got to have the commitment of all the nurses involved if it aims to

be useful and acceptable.

As researchers and nurse administrators are searching to produce better techniques for assessing nursing personnel, more emphasis must be made on methods that determine nursing requirements that actually reflect the needs of patients and the care provided to meet such needs. The next chapter seeks to shed some light on some of these methods.

CHAPTER FIVE

PATIENT CLASSIFICATION: AN OVERVIEW

INTRODUCTION

In recent years the burden of proof for justifying the rapid increase in health care cost has been imposed more frequently on hospitals and other health settings by various government regulatory agencies. Because of this situation, new techniques for objectively assessing hospital personnel requirements are much in demand. For efficient management of nursing staff, patient classification systems have been developed in recent years. In such classification, nursing interventions are defined as patient contact activities and are characterized by specificity, frequency and scope. The scope of the intervention covers a 24 hour period. Patient Classification may be generally defined as grouping patients according to some observable or inferred properties or characteristics. In nursing the term patient classification means the categorization of patients according to some assessment of their nursing care requirements over a specified period of time. "The development of patient classification systems in nursing has been in response to the variable nature of nursing demand". Conner (1960).

PATIENT CLASSIFICATION

Giovannetti (1979) defined patient classification systems as grouping patients according to observable

or inferred priorities or characteristics and nursing care requirements to determine staff needs.

As defined by Lewis and Carini (1984), a patient classification system or patient acuity system means the systematic identification and assessment of the individualized nursing care requirements of a group of patients.

As early as 1975 two types of classification systems were described by Abdellah and Levine. Those were "prototype evaluation" and "factor evaluation". Basically the difference between the two relates to the actual design of the classification instrument. The first one which was referred to as "subjective" generally describes the characteristics of patients typical to each category. In the second one which was referred to as "objective" a number of critical indicators or descriptions of direct care requirements are separately rated and then combined to designate a patient's category. A number of comprehensive studies were undertaken in the seventies on the validity and reliability of patient classification systems by Giovannetti (1979). While Giovannetti (1985) believed that patient classification systems can be extremely effective in matching workload generated by patients to numbers of nursing personnel, she warned against confusing them with such issues as effectiveness and quality. Patient classification systems should thus be considered as tools to aid in the effective allocation and utilization of nursing personnel resources. Naturally patient classification systems play an important role in an objective determination of hospital personnel requirements, especially nursing personnel, who constitute a major portion of a health payroll expenditure. Along these lines Trivedi (1979) indicated that it is conceivable that patient classification might become mandatory for

accreditation of hospitals and other health settings.

Even before the patient classification study of Conner and associates (1961) there were references to patient classification system in the literature, for instance Claussen's (1955) study in army hospitals.

The work of Conner and colleagues (1961) nevertheless was the first major attempt to solve the problem of hospital inpatient classification analytically.Conner based his work on three categories of Patient Nursing Dependency: Category I (self care); Category II (intermediate care) and Category III (intensive care). Activity sampling observations of nurses work was done. It was noted that the average direct care per patient was governed by the number and profile of the patients. In the period from 6:00 a.m. to midnight (18 hours) the direct care delivered was found as follows (Conner et al 1961).

Category	I	...	27 minutes
Category	II	...	53 minutes
Category	III	...	137 minutes

Noting that there is a statistical variation in the figures they were interpreted as 1:2:5. Conner (1961) derived a ward index as such:

$$I = C_1 + 2\,C_2 + 5\,C_3$$

where C = Number of patients in each of the categories.

Barr (1967) adopted Conner's method. His study used the same patient classification scheme. Nursing activity was categorized under "Care received by Patients and other". His study included a continuous observation of 6000 hours of nursing activity. It was

noted that there was a consistent difference in the amount of basic and technical care delivered to the three categories of patients.

Data analysis showed that the average nursing care per six hours period was:

Care group	1	(self care)	... 10 minutes
Care group	2	(intermediate)	... 22 minutes
Care group	3	(intensive)	... 44 minutes

Though a ratio of 1:2:4 could be deducted, Barr et al (1973) reported slightly different figures for observed direct nursing care which were closer to 1:2:5. This ratio was used in calculating workload index which was helpful in assessing nursing staffing needs.

The work of Conner and Barr led other nurse researchers to conduct nursing studies based on nursing dependency categories with the aim of developing a workload index. Barr et al described an unpublished study by the Department of Health and Social Security, England, which identified the following nursing times for the three different care categories.

Self care	... 30 minutes }	
Intermediate care	... 61 minutes }	between 6:00 am and 10:00 pm
Intensive care	... 152 minutes }	

Jelinek (1964, 1967), on the other hand divided nursing activity into "Direct Patient Care" "Indirect Patient Care" and "Other". He introduced four classifications of nurses which were not included in Barr and Conner studies. These were 'Professional', "Practical", "Nurse Aide" and "Student". Accordingly

he differentiated between nursing activities according to the grade of nurses involved. His model included 12 equations, and it indicated that what nurses do, depends on nurses themselves, the time available to them, and what work other nurses perform rather than upon patients demands. His model did not lead to determination of staffing levels merely because patient factors were not of major significance. Generally in all the nursing activities studies described so far, data collection was based on an industrial engineering methodology.

These studies discussed earlier were indirectly criticized as lacking objectivity and sound scientific grounds. For instance Crompton et al (1976) emphasized the need for objective studies based on scientific methods for the determination of nursing manpower. Ahuja and Sheppard (1975) claimed that their study in which patients needs were translated into workload used an objective and scientific approach. Many nursing managers however, kept advocating that nursing workload could neither be detected nor predicated. This idea was further mentioned by Charles and Gillot (1979) who indicated that any formula for determining demands would require measurement of ward's workload which nurses believe is not possible.

Most subsequent systems have adopted Conner's work as a basis for their studies. They have at the same time attempted to design patient classification instruments more adaptable to the special needs and requirements of specific hospitals . A number of studies were made for the purpose of staffing nursing units in accordance with patient load. Those include Pardee (1968), Georgette (1970), McCartney et al (1970), Poland et al (1970), Giovannetti (1973), Bihldorff et al (1976), Hanson (1976) and Plummer (1976). These

systems were mainly undertaken by nursing professionals. A number of classification systems on the other hand were developed implicitly as an integral part of broader research studies such as progressive patient care and nurse staffing and allocation systems. Those include: Freund (1969), White et al (1967), Griffith et al (1967) and Feyerherm (1966). Moreover, there have been some studies such as the one by Knowlton and Dunn (1971) performed for the sole purpose of stratification of patient charges based on classification. While more of the studies used patient care items, others such as those by Feyerherm (1966), and Thompson et al (1968) have used individual patient classification characteristics such as age and length of hospital stay.

Giovannetti (1972), indicated that in hospitals there may be wide swings in the demand for nursing care from day to day and from shift to shift and that such fluctuations are independent of the number of patients in the wards. Trivedi (1979) revealed that while 28 patient items were included in the patient classification instrument, only seven in each shift were found to be most significant in determining the amount of nursing time required for patient care. Of the seven items, four (vital signs, Catheter, intramuscular and intake/output) were common in the day and afternoon shifts, the other three were different. Those were up-in-chair, major dressing change and feeding in the day shift and ambulatory, intravenous and special observation in the afternoon shifts.

According to Giovannetti (1985) however, the indicators or descriptors used to classify patients are fairly universal and generally include the independence/dependence spectrum containing such

critical indicators as patients ability to feed and bathe themselves or their mobility status.

Giovannetti (1985) noted that there is little evidence to suggest that the addition of more detailed indicators increase the statistical validity of a classification system. Giovannetti (1985) makes two other important points: first, from a management perspective, the outcomes of interest are the required hours of nursing care and not the category of care; and, second, categorical information has been confounded by the introduction of care times that reflect not only patient's demand for care, but how the nurses will respond to the demand.

Thompson and Diers (1988) concluded that it is entirely possible for patients to be assigned by the classification instruments to the same category of care but require very different direct minutes of nursing care from shift to shift or unit to unit or hospital to hospital. All the patient classifications systems must be associated with the measurement of workload to be used for their major purpose which is nursing staffing establishments. Time per nursing task or patient indicator can be accumulated as total required time per patient, they are then aggregated for all patients on a given unit and converted into full-time equivalent nursing staff. Both the Joint Commission for the accreditation of hospitals in the United States and the Canadian Council on Hospital Accreditation have encouraged if not mandated the use of patient classification systems for the planning and allocation of nursing resources. While exact number of patient classification systems presently in existence is not known, Aydelotte (1973) reported around 40 papers on Patient Classification and it is likely that the number since then tripled or even reached 4 or 5 times more.

Over the past 25 years, hospital classification systems have received attention for the main purpose of nurse staffing. Attention has ranged from basic research to the development, refinement and implementation of staffing methods utilizing various patient classification systems.

In a survey on priorities in clinical nursing research, the need for valid and reliable methods for establishing nursing staffing patterns ranked high (Lindeman, 1974). Since the number of patients in a ward may not be an adequate indicator of the demand for care, grouping patients into categories that reflect the magnitude of nursing care time provides a more rational and sensitive approach for determining the need for nursing care resources. Giovannetti (1979) indicated that around 1000 hospitals in the United States of America were using some form of patient classification system. The majority of these systems are based on a relatively small number of approaches such as those proposed by Conner (1970), Giovannetti (1973) and Jelinek et al (1973). While these systems do not solve staffing problems, they provide useful means for establishing an appropriate baseline staff and for allocating adequate nurses to meet daily needs and fluctuations. Gradually, emphasis shifted more to issues of how to select a workable patient classification, rather than should Patient Classification systems be used.

Aydelotte (1973), Abdellah and Levine (1975) and Giovannetti (1978,1979) have recommended that certain issues be addressed with regard to patient classification instruments: continuous checking on reliability, determination of the predictive validity; and, increased sensitivity to patient differences. Haas (1988) also commented that the state of current literature does not indicate that these issues are

receiving enough attention to stimulate true innovation. Haas adds that "missing in the literature is an appreciation of the fact that any classification mode is merely a tool or instrument which has limited measurement capability". A number of researchers believe that the classification instruments do not quantify each nursing incidence or the ongoing cycling of the nursing process (Haas, 1988; Alward, 1983; Giovannetti, 1978).

In a study conducted nationwide in the US Giovannetti and Mayer (1984) identified sixteen problems encountered by nursing administrators using patient dependency classifications. These relate primarily to a lack of understanding of the principles of patient classification and to inadequate implementation and monitoring programmes. They suggested that a well designed and implemented educational programme in patient classification system is crucial to the proper use of such systems and their survival. Moreover they recommended the frequent testing of the validity and reliability of those methods. Vandenkumar (1979) also supported this notion and indicated that professional judgment is a valuable and necessary component in the patient classification process which should not be over looked in the process of validity and reliability monitoring. Vandenkumar also commented that nurses professional judgment has been found to reflect actual nursing situation accurately despite its subjective aspects. Interaction of Patient Classification Systems with issues such as : reliability, validity, user confidence, user acceptance, professional judgment, education and standard of care as well as its contribution to staffing systems and cost effective Patient Care were emphasized by Giovannetti and Mayer (1984).

Recognizing the considerably vast number of different

dependency studies the rest of this chapter reviews a number of such studies. The purpose of this review is to select the most appropriate methodology for assessing nursing manpower in Bahrain.

PATIENT DEPENDENCY CLASSIFICATION METHODS

The Mersey Regional Health Authority (RHA) in the UK began a nurse dependency project in April 1983. The objective was to design a nurse staffing format, which provides a scientific base for assessing nurse manpower needs. 17 wards in three hospitals were surveyed, workload index forms were completed daily by the nurse in charge of the ward between 8:00am and 9:00am and names and ages of all patients in the wards were listed.

Using nursing expertise, one of the five dependency categories was ticked, Dependency 1 patient producing a workload index (WLI) of 1, dependency 2 or WLI of 2 and so on. All five columns were added together to give a total patient dependency or workload index for the ward. Miller (1984), however, referred to some of the problems attached to using dependency measures as an empirical base for the staffing ratio in long stay and continuing care cases.

Activity sampling was undertaken for two or three days in each of the 17 wards, the activities were grouped under the major headings of: direct nursing care, indirect (patient related) care; domestic work, miscellaneous, and non productive with a total of 40 activities. In Mersey's nurse dependency exercise, only those nursing activities which were in direct contact with the patient were understood to be direct nursing care.

The average percentage of time which nurses spent on direct nursing care was 45%, while the average percentage on indirect nursing care was 34% . The combined findings in the respective wards represented the degrees of patient dependency (in other words workload index) and the nurse activity sampling findings provided the base of the formula for calculating nursing staffing levels.

While it has been indicated that the Mersey RHA Nurse Staffing Formula shows what exists rather than what should be. Wiseman (1984) suggested the same number of nurses for a general, surgical or medical wards with the same workload index and average bed occupancy as that in the Mersey RHA study.

In Psychiatric-mental health nursing, the challenge of determining patients illness acuity and implementing a patient classification system is significant, especially when most of the available patient classification systems focus primarily on physical nursing care activities that are easily observable and quantifiable. It took Pardue and Dick (1986), one year to develop a patient classification system for their psychiatric nursing service department in the health science centre teaching hospital in Galveston, Texas. They used the patient classification form originally developed by Schroder and Washington (1982) after making necessary adaptations. The Patient Classification and Nursing Care Hours Report form developed was judged to be a valid and reliable method for determining variations in patient's acuity and subsequent nursing care hour needs. The form was also found to be meeting the criteria identified by Unger (1985) for classification systems.

Chagnon and colleagues (1978) developed a patient classification system at the Sainte Justine Hospital

in Montreal Canada. They used the Project for Research in Nursing (PRN 74) devised by Chagnon et al (1975) for Pediatric Patients as a framework. The instrument was developed in four stages: first a list of all nursing interventions was compiled . This list was then reviewed by more than 100 experienced nurses who were asked to set up typical nursing care programmes. The list of intervention was tested for validity, specificity and exhaustiveness. In the second stage each intervention was weighted normatively in number of minutes to direct and indirect care it required during a 24 hour period. In the third stage, a number of patients were classified according to their need for direct and indirect care intervention over the 24 hours period. In the fourth stage, classes were weighted in terms of direct and indirect care intervention during a 24 hour period using the formula:

$$P = \frac{S + (TUP)}{T}$$

where S = Patient Care Time
TUP = Task Unrelated to individual Patients
T = Number of productive minutes that each nurse can provided during each shift.

the number of staff required "P" was calculated.

Compared to traditional methods, this method has a number of advantages, namely that the primary characteristic of this approach is its normativeness as regard the list of interventions, their weighting and the weighting of patient classes. Because the instrument centres on care required not on care given, it could therefore be applied to any hospital settings. Another significant characteristic of this classification is its objectivity as each patient was classified on the basis of his total care demand

calculated by totalling the weights of interventions needed in his case.

NORTH WEST NURSE STAFFING LEVEL SYSTEM (CRITERIA FOR CARE)

In an attempt to assess nursing manpower needs within a framework of quality of nursing care and efficient use of nursing time, the Criteria for Care project was initiated. The project included assessment of workload, analysis of nursing activity, the quality of care being given and the current satisfaction of the ward staff with their present levels of staff and achievement of patient care.

The Criteria for Care system adopted the bottom up approach and while it used similar measures of workload as other nurse manpower systems, it did not differentiate between basic and technical care and offered an objective measure of nursing care provided within a described workload. Basically, Criteria For Care addressed four main issues: how much time should a nurse spend on direct patient care; how much direct care should be provided to patients in a particular dependency group; what ratios should be established between the amount of direct care to be allocated to patients in each dependency group; and finally, what level and quality of care should be achieved? The North West Nurse Staffing levels project originally covered medical and surgical wards. In the period 1979/1980 the system was piloted in 14 wards and after further development, a full trial of the system was mounted in Stockport in 1983.

Ball and Oreschnick (1986) described how they applied Criteria for Care in North Lincolnshire. The study was conducted in twenty one wards and the 9 wards which scored between 65% and 81.9% were adopted as

models from which the manpower planning tool was determined. The mean average time spent on the direct patient care in the four dependency groups and the percentage of all nursing activity spent on the direct care were estimated.

Ball and Oreschnick (1986) noted that "Patients needs vary according to age, sex, class and factors which contribute to their illness patterns and nursing dependency". Accordingly, they were looking into methods for determining nursing manpower which address those changes in patient needs and which reflect the impact of different variables on the needs for nurses.

In addition to using Criteria for Care to determine the nursing establishment required to provide enough staff for providing desired standards of care, Ball and Oreschnick (1986) also assessed the changing patterns and number of patients by using part of the formula to create a workload index.

Workload assessment in North Lincolnshire began in summer of 1984, it showed that in wards with same number of beds and same daily mean average number of patients, the workload was much higher in the wards with more patients in the heavier dependency group. Ball and Oreschnick concluded that the requirement for nursing establishment is therefore different. While the workload changed over the year of study, the nursing establishment required was assessed by the mean daily workload of the wards during that period. Based on the changes in workload the assessed nursing establishment either exceeds or is less than the needs for the provision of quality nursing care.

Ball and Oreschnick accordingly suggested either regulating the pattern of work in the wards or the provision of flexible nursing staffing pattern to

maintain the quality of care throughout the year.

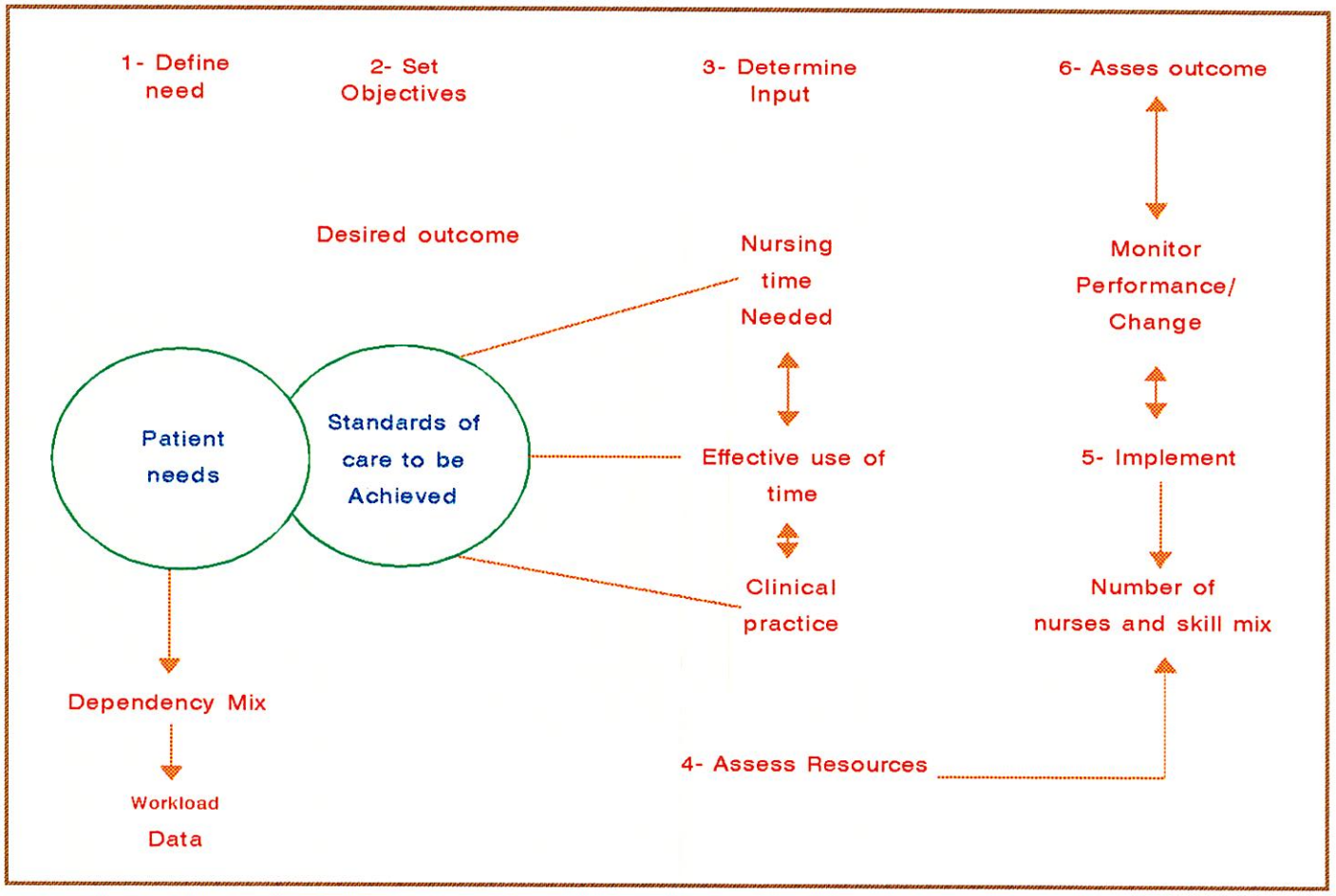
Ball (1987) presented the changes in workload indices over the year along with the acuity per patient which is calculated from the bed occupancy and workload indices. Her presentation demonstrated that acuity per patient occupied bed increased dramatically in addition to the increases in bed occupancy. Ball indicated that it is possible to use the acuity per patient per occupied bed as a means to predict the nursing workload resulting from changes in bed occupancy, case mix or bed allocation changes.

Ball (1987) described the process of nursing care as a dynamic activity which needs a dynamic model for balancing quality with the needs of patients and the available resources. Ball (1987) presented a model of a nursing manpower and quality of care audit system based on Criteria for Care (Figure 7).

Further she indicated that continuous monitoring of workload, nursing resources and quality requires great efforts from the managers, clinical practitioners and education staff. She concluded that high quality nursing care is not achieved with only deployment of nurses to meet patient needs. The leadership of the ward sister, the enthusiasm of the nursing team, the support of the manager and the encouragement and advice of the education sector were important factors suggested by Ball for the provision of high quality of nursing care. The use of acuity data in planning for nursing requirements to match changes in levels of service and use of beds were also highly recommended by Ball.

Among the many advantages of the Criteria for Care system is its unique provision of satisfactory objective data which assist in assessing and

Figure 7: Nursing Manpower Quality/Audit System in North Lincolnshire Health Authority



Source: Senior Nurse, Vol.6. No.1, January 1987, Page 24

allocating nursing resources to meet the needs of the patients.

The Criteria for Care system of observation usually produces adequate information on nursing activities and the direct care given to a sample of patients in each hospital ward. This, together with data already gathered from patients dependency classification and Monitor, can be used to work out the number of nurses required to give a certain level of care to a defined group of patients.

Studies of quality of nursing care and patient dependency classification have received the overall encouragement and support of the nurses. Gillet and Flux (1987) attributed the commitment of the nursing staff for such studies to a number of reasons such as the opportunity given to nurse to be involved in observing nursing activities, the quickness entailed with collection of information and the smooth incorporation of the feedback received.

Sharing of information between senior nursing staff and ward staff also initiated negotiation and mutual understanding and concurrence. Doubts, however, have been raised regarding the objectivity of nurses studying nurses. Nurse researchers however believe that this is the strength of such studies where the information obtained is credible and acceptable (Gillet and Flux, 1987; Young, 1986).

THE CHELTENHAM METHOD

Over the last sixteen years, a number of methods have been used throughout Gloucestershire, England, for estimating the number of nurses required in a ward, a unit or a hospital. These methods fall in the four main known approaches: Norms, Statistical Analysis,

Consultative, and Patient Dependency Classifications.

In 1982, the reorganization and restructuring of Gloucestershire health services provided the setting for a nursing group to assess critically the current position of estimating nurse requirements in Cheltenham, Gloucestershire. The main aims and objectives of the Cheltenham Project as listed by Bloore (1984) were: to develop a total nursing philosophy for the district and to introduce a comprehensive system for defining and monitoring standard of care as well as assessing nurse staffing levels based on patient classification and workload indices.

The ultimate objective was to introduce a fully computerized system providing nursing care plans, assessment of nursing workload, comparisons of supply and demand, nursing costs by ward, patient, specialty, disease, and assessing future staff training needs. The project began by dividing the nursing workload into five categories; basic care, technical care, administrative duties, domestic activities and miscellaneous activities. The study was undertaken in a number of stages which were listed in the Step-by-step Cheltenham Nursing dependency Study Guide (1982). A list of basic care activities was defined together with the number of nurses required to undertake each activity. Nurse time for each activity was also agreed upon either by consensus or check study.

Technical care activities and times were similarly defined. This activity list was then used as a basis for a data collection sheet. Nurses recorded the number of times each technical care activity was performed for each patient during a two weeks period. At the same time certain factors were considered daily

for each patient in order to categorise them into one of five dependency care groups.

Wards profile were then prepared; analysis of the technical care data revealed the proportion of patients receiving each activity within each care group. Using this analysis together with the ward profile information, a technical care profile for each of the care groups was produced for every ward by both day and night duty.

The next stage was to consider an acceptable standard of basic care. This was achieved by examining the basic care activity list for each of the care groups in turn. The frequency of occurrence of each activity by day and night within each care group was agreed by the working group. The proportion of patients requiring each of these activities was identified by analyzing the patient categorizing forms; for example, 25% of patients in care group two required one nurse's assistance for mobilization. The accumulation of this data produced a 'basic care profile' for each care group for every ward by day and night duty. Administrative duties were also listed under two headings, constant and variable, and notional times for each activity were agreed upon either by consensus among the group or by check study. This stage presents an ideal opportunity to examine critically any duties which could be done by non-nursing staff.

All the identified nursing workload for basic, technical and administrative duties together with the percentage contingency allowance for domestic and miscellaneous duties were totalled for each care group. This gave an average nurse time required for day duty and for night duty to provide the acceptable standard of care defined by the nursing staff.

Observational studies were also carried out to establish the nurse time involved in the care of different types of day case patients. This identified the average nurse time per day case for each speciality.

An information system was then compiled, consisting of the daily category form with the nursing workload calculation form on the reverse side. Patients were categorized at a suitable time each day, based on their projected nursing needs for the next 24 hours.

The anticipated number of day cases was also recorded, and the number of patients identified within each care group was multiplied by the appropriate nurse time required for day duty and for night duty for each care group.

Each day case patient was also assigned the appropriate nurse time. These figures were added up to produce the total nurse hours required for day duty and for night duty. These hours were then compared with the anticipated hours available from duty sheets, and a surplus or deficiency in nursing staffing could accordingly be identified. At this stage the previously agreed minimum nurse hours required for the safe and practical running of the ward were taken into account.

At the end of the 24 hours period the nursing officer completed the 'action' section of the form indicating the action taken to redeploy staff according to need.

At the end of each month the nursing workload calculation forms were summarized and a required whole time equivalent nursing establishment was produced. An allowance of 21% was added to account for holidays, sickness and continuing education involvement. This

figure was then compared with the current staffing establishment.

The Cheltenham system gives the total number of nursing staff required per duty shift, it however, does not give any indication of the grade or level of the nurses needed.

In their outline of the development of Cheltenham system Bell and Storey (1984) indicated that locally it was felt that the Cheltenham Project was an analytical approach to patient care which substantiates professional judgment and fulfils numerous set objectives. They described it as a "bottom up" method based on acceptable standards of care and not a method imposed on nurses form above.

Bloore (1984) indicated that the Cheltenham System was an attempt to define standards of patient care while taking account of their physical, mental, emotional and spiritual needs. She recommended the system for its marketable value and wide range application. The DHSS Financial Information Project Team (1984), have undertaken some validation studies on the Cheltenham project methodology to test its credibility as a tool for the measurement of workload. Reliability testing studies have also been undertaken to demonstrate the accuracy of patient categorization. The Financial Information Project Team (1984) have developed a computer package. A pilot study using this package was undertaken in one ward at Cheltenham. Further, the Nurse Manpower Project for the NHS Management Inquiry (1984), reviewed the Cheltenham system along with six other methods and concluded that such "bottom up" approach was an acceptable basis for nursing needs assessment.

In conclusion, the Cheltenham System for calculating

hospital nurse staffing levels is an analytical method of assessing levels of patient dependency on the nurse. The system uses a range of physical and psychological indices, it also uses the identified nursing workload within specific care groups to estimate the number of nurse hours required to deliver an acceptable level of care based on professional judgments. As Bloore (1984) commented the Cheltenham method was devised to provide analytical support for subjective views and professional judgement.

GRASP

In the early seventies, a group of nurses in a paediatrics unit at the Talmadge Memorial Hospital in the United States attempted to prove that paediatric units require more nursing care and consequently could be understaffed. The results of their efforts was a system named PETO (from the initials of the developers' surnames). This proved effective not only as a workload indicator, but also as a means of increasing the quality of patient care and staff satisfaction. Several years latter, the director of nursing secured a grant to evaluate the system and explore the possibility of its adaptation for wider hospital use.

The study lasted for three years and was conducted in Grace Reynolds Hospital. The result was named GRASP (Grace Reynolds Application and Study of PETO).

The GRASP manual was published in 1978 and the system has since been adopted by more than 500 hospitals in the United States and Canada with beds ranging from 25 to 1000 providing acute, long term and speciality care.

Mayer (1984) described GRASP as an attractive method

for its simplicity and flexibility, it differs from other patient dependency approaches as it does not classify patients into one of four or five dependency groups. Instead, its workload measurement tool permits an accurate assessment of the number of hours of nursing care each patient will need each day. While such individualized data provide the best possible basis for patient distribution, staffing, quality assurance, budgeting and cost accounting, yet the daily assessment takes less than one minute a patient.

Perhaps the key discovery of the GRASP research was Pareto's Law applied to nursing activities. Pareto's Law describes the phenomenon where a relatively small number represents the vast majority. The study showed that of the hundreds of possible direct care nursing activities, in average 40 to 50 will account for 85% of the nursing time provided to any given patient. This means that a tool incorporating these activities could be developed and used to predict accurately the nursing time required by any given patient.

The significant nursing activities and their associated time values are usually determined by two principle ways: by study and by consensus. Nursing activity studies entail listing all possible unit activities and collecting data (usually over a two week time period) in order to establish how often each activity is repeated over 24 hours. These frequency data, when combined with an estimate of the time required for each activity, yield the total amount of nursing time spent on that activity in 24 hours.

The consensus (or delphi) method is used where there is a sufficient pool of knowledge or experience from which reasonably accurate estimates can be made. Regardless of the method used to determine the

significant nursing activities and their associated times values, the time values are compiled as follows:

1. The estimated or measured (clocked) time is increased by a small margin to account for fatigue and delay. An accepted industrial standard is 12% over the clocked time.

2. The times are then multiplied by the frequency of the activity in 24 hours.

3. The times are adjusted to account for the activities which are not listed. So if listed activities represent 85% of the total nursing time, each listed time value in (2) above will be increased by the appropriate amount by dividing by 0.85.

4. All times are then divided by six (minutes in a tenth of an hour) to reduce time values to tenths of hours.

Having obtained the total nursing hours required by the patients in a specific unit, the number of required nurses could be calculated.

Mayer (1984) who has been directing the GRASP system since its inception listed a number of advantages for its use which included: workload management, allocation of nurses, quality assurance, cost accounting, budgeting, patient admission and distribution. She indicated that GRASP is a proven method of measuring and managing nursing workloads. It has been particularly well accepted by nurses because of its individualized care assessment and straightforward logic. The system's common denominator of required nursing hours is a precise and common language for communication between nursing and

other hospital departments. This is vital for cost analysis, funding requests and management decisions.

HURST AND COSTIN

The Hurst and Costin (1987) approach is generally following the task-oriented systems whereby the workload measurement design evaluates tasks that a nurse in a community performs in providing patients care. It also identifies how much time is required to complete each activity. The total time required for all activities is then converted into whole time equivalent. A patient care assessment chart is used to determine the time required per patient for specific curative, preventive and associated work nursing activities. These activities are converted into hours of nursing required.

The Hurst and Costin approach proved to be effective for the following reasons:

* It is simple and easy to monitor.

* It requires no additional personnel to complete the nursing activities assessment forms.

* It is acceptable to primary health care nursing administration.

* Can be performed manually although computer programme is possible to develop.

Of the many published papers reviewed, little criticisms have been made of Hurst and Costin (or similar approaches), however, the system(s) can be criticised in the following manner:

* Hawthorne effect, this approach lead to some behavioural change, for example, nurses under observation may change their behaviour in providing patient care.

* This approach does not attempt to assess the quality standards nor does it differentiate among the levels of care rendered by a staff nurse, practical nurse, midwife or aide.

* Certain tasks must be performed by certain skill level.

* This approach was easy to implement and not time consuming to operate.

There have been other problems along the way such as:

* The possible under or over reporting of activities which may lead to an exaggerated time required per patient.

* Also, many nurses under observation could have been intimidated by the observers if the study objectives questioned the number and mix of the nurses.

In the researcher's view however, the success of this approach have been major. While the system intended to measure time required per patient and then convert the total time into whole time equivalent, the system affected the entire Primary Health Care Health Centres operation and morale of the nursing personnel.

ABERDEEN FORMULA

The Aberdeen Formula resulted from studies carried out in Scotland over several years beginning as early as 1963. Basically a standard of nursing care was defined for a totally helpless bedfast patient in relation to physical procedures and their frequency. Patients were classified according to a five category scale. Activity sampling was undertaken on work done by the nurses. Attempts were made to relate dependency categories to the time spent on basic nursing.

For example in medical and surgical wards the basic nursing time for a typical patient in each category is expressed as a fraction of the time for a totally helpless patient as follows:

Category Description	Category Label	Dependency Weighting
Totally helpless patient	A	1.00
Partially helpless patient	B	0.80
Patient who is not helpless	C	0.75
Semi-ambulant patient	D	0.35
Totally ambulant patient	E	0.30

With a knowledge of the dependency weightings, any mix of patients can be converted into the equivalent number of totally helpless patients and then the weekly hours of care can be computed, provided a basic figure is agreed for a category A patient.

The total number of nursing hours per week were calculated as the sum of basic care hours, administrative, domestic and miscellaneous time spent in nursing care. To simplify the calculations, the Aberdeen researchers found that in wards of the same

specialty, typical "mixes" of patients existed, giving similar average dependency levels.

This allowed for replacing the classification of individual patients by patient-by-patient classification and hence time allowance, with an average factor for the speciality, and hence an average time allowance for each patient. Thus the Aberdeen Formula is as such :

$$W = N \times [F \times (B+T) + A + D + M]$$ where

W = average weekly nursing workload in hours.

N = average number of patients on ward

F = patient dependency factor for ward speciality.

B = time in hours per week required to maintain the standard of basic nursing care for a totally helpless bedfast patient.

T = time required for technical nursing of the ward speciality expressed as a percentage of the time spent on basic nursing.

A = time per patient per week for administrative duties.

D = time per patient per week for domestic work

M = time per patient per week for miscellaneous duties.

Goldstone (1980a) suggested that the Aberdeen formula may be more useful for region-wide planning than for day-to-day management at local level. He commented on two main aspects of the Aberdeen Formula. First, he indicated that since the technical care is worked out in a fixed ratio to basic care, a wrong basic figure could lead to a wrong technical figure even if it is assumed that the ratio is acceptable. Second, he stressed the fact that there is absolutely no way of knowing from the published data in the Aberdeen Formula whether the ratios of 1.0, 0.8, 0.75, 0.35 and 0.3 are really correct.

South Tyneside AHA conducted an evaluation of the Aberdeen Formula in 1977. While there were no problems in assessing patient dependency using the Aberdeen characteristics as guides, the mix of dependencies for specialities however, varied markedly from the Aberdeen values. Since variation occurred within specialities, it was felt that the concept of a typical "dependency" mix for the speciality was not valid in South Tyneside.

Since the original Aberdeen Work, a number of publications presented some updated values of times spent on basic nursing and dependency factors.

In 1978 a more successful application of the Aberdeen Formula was made in Dyfed covering four wards: General surgery, orthopaedic, medical and long stay geriatric. Mackley (1984) defended the Aberdeen Formula by stating "ironically this patient dependency method for predicting staff requirements has drawn attention to itself primarily because there is so much substance to it". According to Mackley (1984), the Aberdeen Formula's greatest strength lies in the simplicity, practicality and negotiability of its results. While a number of academicians criticized it, it is still

used in Scotland and by the Northern Regional Health Authority in England.

In a paper abridged from his Ph.D thesis Gault (1982),criticized its technical, methodological and philosophical aspects.He drew attention to the severe theoretical limitations imposed by statistical analyses as opposed to professional judgment.

Mackley (1984), however, indicated that despite criticism from academics and researchers, the Aberdeen Formula continues to find favour with nurse managers in practical situations and remains a successful attempt in amalgamating nurses' judgement and objective data in a practically useful form.

TELFORD METHOD

The work of Telford (1979) started from his belief that the ratio approaches are crude and the sophisticated methods demand time and effort in addition to their poor acknowledgement of the psychological elements of care. Telford based his work on the ultimately subjective nature of professional judgements. Ward staff are called upon to set acceptable levels of staff for morning, afternoon, evening and night duty for each day of the week, Nurses had to justify the cases for particular staffing level and pattern they propose. It is this structured justification which is the foundation of Telford's approach. Nurses hours agreed upon were then converted into whole time equivalents and grading patterns agreed upon. Allowance of 20% was added, the allowance was standardized to 20% for all grades of nurses and this was made of the following components: annual leave 13%, sickness 6% and inservice education 1% .

Once the units are summarized, the actual and amended figures are discussed among senior nursing officers and consensus reached. Telfold (1979) has commented that since his method is an exercise by nurses on behalf of nurses, it is very realistic and professionally acceptable. Nevertheless Telford method was criticized by administrators and hospital managers as a subjective system which depends mainly on nurses judgments which could be prejudiced and ambitious.

THE BRIGHTON METHOD

While recognizing the fact that so much research has already been made in the area of nurse manpower requirements, Waite and Hirsh (1986b) indicated that none of the available methods could answer all the questions. While criticizing the dependency methods as limited, complex, costly and time-consuming, they also believed that the norms type of "One Nurse to Two Beds" were too simple and the professional judgment methods unacceptable outside the nursing professions. Nevertheless they used the professional judgment of nurses as developed by Telford.

The Brighton Method (1986) was therefore an extension of Telford's Method where the researchers attempted to prove the reliability of professional judgment and extend it further to tackle a number of nursing issues. Nurses were asked to make their judgments about staffing needs at the end of specified periods. Specifically they were asked how many nurses were required to carry out the work safely and acceptably. Measurements of workload (number and dependency of patients and movement in and out of the wards) were also recorded.

Judgments about the number of nurses required at each

time of the day were turned into whole time equivalent using the calculation formula developed by Telford.

Since the authors found out that patient dependency measures add only 10% to the explanatory power provided by bed occupancy, they used checklists which include assessments of how much nurse assistance a patient requires for mobility, hygiene and feeding as alternative.

In summary, the Brighton method included the following stages: defining workload groups for each nursing speciality, recording number of patients, soliciting subjective judgment of staff needed to provide acceptable level of care, calculating establishments and using regression to check reliability of judgment and for producing estimates of WTE for individual wards. Waite and Hirsh (1986) described the Brighton Method as easy, flexible, cheap and not time consuming.

N H P P (NURSING HOUR PER PATIENT)

Reid and Melaugh (1987) described a simple index which summarizes the nursing hours available per patient on a daily basis.

The basic equation they used for Nursing Hours Per Patient (NHPP) was:

$$NHPP = \frac{\text{Nursing hours}}{\text{Number of occupied beds.}}$$

For day activity they used the formula:

$$NHPPD = \frac{\text{Day Nursing Hours}}{\text{Number of occupied beds.}}$$

and for night nursing staff they used the formula:

$$NHPPN = \frac{\text{Night Nursing Hours}}{\text{Number of occupied beds.}}$$

The index was considered a crude indicator of ward activity, the major limitation being that it measures the hours available and not the care delivered. It could be useful in stimulating scrutiny of the way in which staff are allocated relative to occupied beds and to explore whether the current allocation is best meeting the need.

A survey conducted by Barr (1983) provided Nursing Hours Per Patient Day (NHPPD) ratios for acute psychiatric and psychogeriatric wards in Northern Ireland. The results demonstrated very considerable variation in NHPPD in acute psychiatric wards. Reid (1985) used the data collected in a study of nursing training in Irish hospital funded by the Northern Ireland Council for Nurses and Midwives. She analyzed the data collected on staff hours and bed occupancy in 24 medical wards in 12 hospitals located in four area Boards to calculate the Nurse Hour Per Patient Day ratio (NHPPD).

From the results obtained Reid (1985) was able to suggest that the NHPP index may aid constructive investigation of staffing levels at either ward level, unit level, hospital level or regional level. One immediate criticism which was stated by Reid (1985) was that the index did not account for patient dependency.

Since the index also provides the average nursing hours per patient, it also may not take account of patients with particular nursing needs. Reid (1985) argued on the hypothesis that a greater level of

available nursing hours per patient leads to a greater number of hours actually delivered to the patient. She based her argument on the findings she obtained in the context of nurse training whereby she proved that greater staff-student ratios did not necessarily lead to greater staff student contact because the extra nursing hours available for supervision of learners were not deployed in that way. It is therefore important to establish that extra nursing hours available per patient does in fact lead to extra care for patients. That care should not only be for the patients in greatest need but also of the right kind and extent.

NURSSYS R

McGratty (1985) developed a system for nursing staffing which was called NURSSYS R. The system is mainly a worksheet developed for the nurse in charge of a ward to specify one day in advance how many nursing hours would be required to provide nursing care in that particular ward. The sheet lists the status of all the patients who will be in the ward next day, along with their dependency status: self care, low, medium or high dependency. Alongside the dependency rating is listed the number of patients on the ward for 24 hours. The sheet also includes number of current patients, number of admissions, number of discharges, number of patients going to operating theatre and those returning from operating theatre.

The information collected by the nurse in charge is then entered into the computer which calculates requirements for the next day and the actual staff available. Staff required and available are then compared and any short fall or over staffing are dealt with.

While McGratty (1985) describes the system as very effective in forecasting nursing requirements, the system did not yet gain the attention of researchers as other systems and methods have. This is mainly due to its predictive approach as compared to more realistic findings obtained in other methods.

Inspite of the number of methods illustrated, determining nurse staffing requirements continued to be an issue of debate and argument. Bagust and colleagues (1988) indicated that in spite of the 20 years or even more of nursing research worldwide there is not yet even a broad consensus on how to determine nurse staffing requirements.

This fact was very alarming to the DHSS in the United Kingdom who advised nursing managers in 1988 to rectify that shortcoming as soon as possible. In the North Western Health Region, district general managers responded by asking a sub- group of DGMs and nurse advisors to review available methods and suggest assessment tools for nursing staffing.

It advocated that two existing methods had strong support in the region, the locally developed "Criteria for Care" dependency method and the "Brighton" method based on nurses professional judgments. It was decided to undertake a direct comparison between the two systems.

A 12 month study was initiated by the DGMs, staff on 20 wards selected from five districts were involved in data collection. The two systems examined appeared to suffer from short-comings: on the one hand, the Brighton method was crudest as giving unrealistic inflated figures which reflect the ambition of the professional nurses rather than the actual numbers needed. On the other hand it was felt that "Criteria

for Care" depends heavily on identifying a suitable model ward as a standard to set for other similar ones. The choice of a model ward is therefore critical to the method and variations in results could be obtained.

The two methods produced estimates of nursing staffing needs on the same surgical ward with a wide variation. These variations led North Western Regional Health Authority to search for an alternative approach which could be simple, realistic and reliable and at the same time makes the best use of the data available.

By considering the occasions when a target good level of care was achieved a straight forward relationship between nursing hours and simple workload was studied.

A number of advantages were quoted for the formula which included the following:

- it does not involve complex dependency assessments - because dependency is adequately represented by the equation's factors;

- all the data required are readily available, with little or no extra work required of ward staff;

- it reflects a target good level of care, as identified by nurses; and

- it represents realism, by relying on the actual staff members rather than aspirations.

The formula was applied to the 20 surveyed wards and the results demonstrate that in total, staff members

are close to the target level. Mismatches, however, between workload and staff from unit to unit, ward to ward and day-to- day were evident.

The district general managers of the North Western Health Region have adopted the formula and funds were allocated for developing the method for possible wide application.

It is important to recognise at the outset that each of the methods discussed in this chapter has been developed with different purposes and objectives in mind. In this chapter the focus is mainly on the possible use of these methods for estimating nurse requirements. The methods discussed fall into two categories. The first category consists of "bottom up" methods, these are methods in which nurse manpower requirements are directly related to tasks or activities at ward level. The "bottom up" methods include Criteria for Care, Cheltenham and Grasp. The second category consists of "top down" methods, these are methods in which nursing manpower is statistically related to cost or measures of activities. These methods include Aberdeen, Telford and Brighton.

A summary of key features of each method discussed in this chapter is presented in Table 7.

NURSING QUALITY ASSURANCE METHODOLOGIES

As Goldstone and Ball (1983) indicated, quality of nursing care is hard to define and measure. They believed that the extensive work in the US on measuring quality of nursing care merited further development in the U.K. Goldstone and Ball (1984) stressed that nursing manpower needs are contingent on two principal measures: the amount of workload to be serviced and the level or quality of care to be

KEY FEATURES OF THE METHODS

Table 7

	Criteria For Care	Cheltenham	Grasp	Aberdeen	Telford	Brighton	NHPP	NURSSYS R
source of workload used to determine staff requirements	nurse activity sampling over one week	average over two week	frequency of nursing activities for two weeks.	average over one week in hours	ward staff judgement	ward staff judgement	not applicable	ward staff judgement
treatment of skill level of nurses	explicitly in method, local policy is used	none explicitly in method, local policy is used	none	based on local practice	division based on local practice	division based on local practice	division based on local practice	division based on local practice
scope of the method	on going local system with wider uses	on going local system with wider uses	largely on going	largely on going	largely one-off application	one-off application	one-off application	largely one-off application
level of care	acceptable on agreed criteria	acceptable on agreed criteria	agreed criteria	dependent on "mix" of patients	safe and acceptable (no explicit criteria).	no explicit criteria	no explicit criteria	no explicit criteria
speciality covered	all	all	all	all	all	all	all	all

Table 7 continued

	Criteria For Care	Cheltenham	Grasp	Aberdeen	Telford	Brighton	NHPP	NURSSYS R
Time of day covered	24 hours	24 hours	24 hours	day duty	day duty and night duty	day duty and night duty	day duty and night duty	24 hours
Method of dealing with dependency of patients	4 dependency groups	5 dependency groups	none	5 dependency groups based on helpless/ bedfast patients	not quantilat--ively	none	none	5 dependency groups
Source of work measurement	measured time for Dependency I patient	time agreed by local working group	timed nursing activities	selection of dependency factor for the speciality	not applicable	not applicable	not applicable	not applicable
Other aspects of the methods	one week workload assessment	subjective basis of timing of tasks	times are adjusted to account for unlisted activities	assumption that technical care is a fixed percentage of basic care	prone to overbidding	prone to overbidding	adjusting coefficients for speciality group	development of worksheet

provided. In reviewing a number of methodologies for assessing the quality of nursing services, Harvey (1988) indicated that in quality assurance, there is a choice between selecting an established measure anddeveloping local initiatives. She added that there are a number of problems associated with using established instruments to measure the quality of nursing care.

Giovannetti, et al (1986) also argued that there is insufficient testing of instruments for validity and reliability. Ventura, et al (1982) showed that there are low correlations between quality rating on different instruments. Kitson and Harvey (1987) mentioned the four most common quality assurance tools used by nurses: Monitor, Audit, Patient Satisfaction Systems and Quality Patient Care Scale (Qualpacs). Two of these, Monitor and Quality Patient Care Scales are now discussed.

NURSING CARE INDEX (MONITOR)

Monitor was the first global evaluation tool for measuring the quality of nursing care in the U.K. It was developed in 1983 by Goldstone and Ball as part of the Criteria for Care Project. Monitor is an adaptation of the Rush Medicus instrument which was a major study conducted jointly in the USA in 1972 by the Medicus Systems Corporation of Chicago and Rush College of Nursing and Allied Health. Monitor was originally developed for use in acute medical and surgical wards and consisted of two separate parts: patient monitor and ward monitor.

The reasons given by the developers of Monitor Goldstone and Ball, for choosing Rush Medicus instrument as a guideline were: its broad content, coverage and philosophy and the possibility of using

it as a decision making tool. In Monitor the criteria for measuring quality is based on the extent to which the nurse concentrates on patient needs. The criteria for assessing the implementation of the care plan depends on checking that care is provided according to that plan. Evidently the plan was based on the assessment of needs and problems.

The major components of Monitor are: planning nursing care, meeting patient physical needs, meeting patients non physical needs, such as psychological, emotional and social support, and finally evaluation of the nursing care. Therefore, Monitor is basically a series of checklists which attempt to investigate the level of nursing care provided. This covers the three major components of the nursing process: planning of the nursing plan, implementing the nursing plan to meet the patients needs and evaluating the nursing care.

Goldstone and Ball (1984) believe that Monitor is a very successful index of care which is very useful in deciding on the number and deployment of nurses. Recently this tool has been modified to a number of clinical settings and specialities such as care of the elderly (Goldstone and Maselino, 1986) and district nursing (Illsely and Goldstone, 1987).

In his assessment of Monitor, Walker (1985) referred to the benefits of using Monitor in assessing the level of nursing care. He described it as a useful tool for evaluation of nursing care with particular emphasis on the standard of record keeping. Walker commented that by seeking the answers from a variety of sources such as nurses, patients, records, environment and inference, Monitor suffers less of subjectivity than other quality based measurement systems and is more realistic.

Birch (1986) described Monitor as a system which gives the ward manager the opportunity to describe the acuity of each patient, the workload and the manpower required to achieve a prearranged level of quality and the appropriate staff mix. Birch also commented that there is a growing evidence the instrument will be able to combine all health care components: medical, allied health and nursing into a single unitary denomination. Walker (1985) indicated that Monitor has received positive and negative criticism from a number of researchers. For instance Pullan and Chittock (1986) described it as a most useful tool which is capable of influencing nursing practice, management and education. Barnett and Wainright (1987), however, questioned the validity and reliability of the tool and Whelan (1987) highlighted the potential for observer bias. Hilton and Dawson (1988) raised doubts about the philosophy of Monitor since it is based on a nursing process framework and yet claims to be applied to task-oriented nursing. Brittle and Marsh (1986) criticised the reliance on patient satisfaction and nursing records as opposed to direct observation of care.

QUALPACS

Qualpacs, or the Quality Patient Care Scale, was developed at Wayne State University and is mostly derived from the Slater Nursing Competencies Rating Scale (Wandelt and Ager, 1974).

The main difference between the two is that the Slater scale assesses individual nurse performance by focusing on nurse-patient interactions and interventions by nurses on behalf of patients. Qualpacs, on the other hand is designed to measure the quality of care received by patients and the final score is a measure of the quality provided by a ward

monitor productivity levels, to predict and justify staffing needs and to assist in the budgeting process of their divisions. Patient classification systems have become part of the standard operating procedures of most health institutions, whether adopted voluntarily to predict staffing needs and or as measures of productivity or to achieve and maintain accreditation. They are becoming the methodologies used by departments of nursing to define, implement and maintain a "system for determining patient requirements for nursing care on the basis of demonstrated patients needs, appropriate nursing intervention and priority of care" (Joint Commission on Accreditation of Hospitals, 1983).

This chapter has reviewed the development of patient classification methods. A brief description with a critical overview of the major patient classification methods was presented.

The next chapter will discuss the two methods selected and used for assessing nursing establishments in primary and secondary health care setting in Bahrain.

CHAPTER SIX

METHODOLOGY

INTRODUCTION

In order to select the best methodology for estimating health manpower demand, four key areas need to be considered. First, particular consideration should be paid to whether the objective is to project the continuance of a historical trend or is the turning point for some change in a basic pattern. Second, the researcher should look at the level of accuracy desired versus the cost allowed by budgetary constraints. Third, the amount of historical data currently on hand, the extent of the data, and how much it would cost to collect more data, should also be considered. The final consideration is the amount of time required for preparing a forecast, versus the urgency of the current need for projections.

Historically, future staffing needs in health sectors have been assessed by a number of approaches such as use of projections based on historical data, use of comparative statistical data, performance indicators, use of formulae within some form of modelling and use of purely subjective professional judgements.

In the field of Nursing, Mackley (1984) suggested the following selection criteria: the availability of objective evidence to support the method chosen; the effectiveness of the method; and, the acceptance and application of the results obtained from any of the

methods. In looking for a method for determining nursing requirements nurse researchers were concerned about meeting the following basic criteria which will enable it to be accepted:

- The system must produce the main elements of any staffing requirement and indicate the number of staff required, and the 'balance' of grades of staff within the local situation.

- Allowances and amendments for sickness, absence, holidays, inservice training and nursing education, must be taken into account and realistic adjustments made in numerical terms.

- The system should be flexible, usable in all clinical situations, and able to accept local policy constraints.

- Simplicity must be a part of the system, for nurses generally prefer straight forward system, rather than complicated academic approaches which involve a great deal of paperwork.

Acceptability must be a key factor, not only to staff, but also to staff organizations and to management. This measure of agreement is vital in the present industrial and financial climate. The system should also be economic insofar as the expense of putting in the system must be minimal and the result must be realistic and attainable.

Malin (1986) suggested that the most sensible course of action in selecting a method for assessing nursing requirement would be to start with simple methods that

were readily understandable and acceptable to all those involved, and in a staged manner refine the method to cover any major shortcomings that might become apparent.

She believed that starting with an initial simple method is by no means a regressive step. Telford (1979) has also made a similar remark indicating that "There may be an initial impression that solutions to the nursing problems can be produced merely by calculations, and that the 'objective' methods are more appropriate. It does not take long however, to make a user aware of the fact that this objectivity is more apparent than is real, for in each situation professional judgements are always exercised at some stage or other of any assessment".

Barr (1982) discussed the soundness of using very simple measures as basis for improving nurse deployment strategies. He concluded that the "argument used to encourage administrators away from the use of occupied beds as a measure of workload could well have been something of a red herring. While it is certainly true that this ignores the severity of the condition of the occupants, the allocation of staff is apparently so bad that the use of the simpler measure would pay dividends".

One could conclude therefore that there is no single method for determining nurse requirements which gives the right and exact answer to the question of how many nurses are needed.

Hall (1974) stressed that there is no one methodological approach for the estimation of health manpower requirements which is best for all country situations. Each country must therefore select approaches that are suitable for its own needs and

conditions. Alternatively it has been advocated that different approaches might be required for strategic purposes on one hand and operational planning on the other hand. In general, different approaches might be required for different problems. A systematic approach nevertheless, has the desirable effect of promoting the efficient and effective use of nursing resources by providing an opportunity to review and challenge existing practice.

SELECTION OF THE METHODOLOGY

In Bahrain, research in the field of nursing manpower is very limited. In fact this study could be considered the first of its kind in the field of nursing manpower in the State of Bahrain. Accordingly, looking for a methodology that could be applied in Bahrain and that would produce results reflecting the existing as well as futuristic situation of nursing manpower establishment was deemed necessary. Following a detailed and extensive literature review of available methods for determining nurse manpower needs, it was decided that those methods based on Patient Dependency Classification were the most appropriate.

Through centuries, hospital patients have been classified primarily according to their medical diagnosis or intervention, age and sex. More recently, categories have reflected the acuity of illness and type of care needed. During the last 35 years or so, patient classification has acquired a more specific meaning for nursing administrators.

Nagaprasanna (1988) conducted a study to gather information regarding patient classification systems currently available in 251 hospitals in the U.S. His study showed interesting results indicating that 21%

of the hospitals were basing their nursing allocation upon hours per patient day, 4% on number of patients per full time nurse and 75% were using patient classification systems. The majority of the hospitals using patient classification systems indicated that they have adopted and modified commercial systems before implementing them. As for the degree of satisfaction with the patient classification systems, 63% were satisfied and 38% were not satisfied even though they have been using them for several years. While 55% of the hospitals were using 4 categories of patients, 22% were using 3 and 23% were using 5 categories. 60% of the hospitals were classifying their patients daily and 40% according each shift. While 54% used computerized patient classification system, 46% were using manual. As for the number of personnel needed to maintain the system more than 50% indicated that the system needs one full time equivalent, the others indicated that between 2-3 full time equivalents are needed. When it came to rating the system in regard to acceptance by nurses, and by hospital administration, reliability, and ease of classification, the latter was the highest rated factors with the other factors rating equal. As concluded by Nagaprasanna (1988), the present demand for patient classification systems within the nursing profession suggests their importance and value in assisting with the difficult and complex problem of nurse staffing.

The objective was therefore to select a method that would address a number of issues such as: how much direct care should a nurse give to patients in a particular dependency group, what percentage of her time should she devote to direct care, what is the ratio between the time of direct care given to patients in each of the dependency groups and finally to identify nurse establishment in primary and

secondary health care settings in Bahrain. Criteria for Care (Ball, Goldstone and Collier, 1984) was found to address these issues, having the advantage of being easy to use and clear to relate to the nursing situation in Bahrain. The decision was made to use the method, and permission from the authors was obtained.

Since the validity and reliability of the method has already been measured, it was felt that it is best to apply the method with minor modification. As a detailed discussion of Criteria for Care is given in Chapter 5 (page 87) what follows is an overview of the main components of the system.

CRITERIA FOR CARE

The system includes five major components:

- Ward Profile Questionnaire
- Patient Dependency Classification
- Nursing Activity Sampling (all nurse activity and direct care assessment).
- Nursing Care Index (Monitor)
- The Satisfaction Questionnaire

The components are discussed in turn. However, the Nursing Care Index (Monitor) is discussed in Chapter 5, page 114 in the context of an overview of patient classification. Similarly, the Satisfaction Questionnaire is discussed on page 142 in the context of the Nursing Requirement for Bahrain.

THE WARD PROFILE QUESTIONNAIRE

A questionnaire is distributed to each of the wards being studied to gather information on current working pattern prior to conducting the study. The information covers areas such as number of available beds, type of speciality, number of consultants, nursing hours worked, number and time of shifts, ward organization and so on.

Patient Dependency Classification

Patients are classified daily into four dependency categories depending on the nursing care they require:

Minimal or Self Care	... Dependency Category - I
Average Care	... Dependency Category - II
Above Average Care	... Dependency Category - III
Maximum Care	... Dependency Category - IV

The categories are defined by the use of specific determiners of patient dependency based upon four major components and two additional determiners. Details of the guidelines for selection of classification determiners are given in Appendix A, Volume II. The four components of feeding, mobility, personal care and nursing attention are further broken down into individual determiners which reflects the patient's degree of dependency upon nursing staff for the provision of that care component.

Each component has a number of determiners which are classified into a scale according to the amount of nursing involvement required: A = minimal, B = average, C = above average.

The two additional determiners include involuntary drainage and or major intervention in the patient

situation and both are scaled at C. A special form is used which lists the names of the patients, the components and determiners. The patient is given a score for each of the main components and two determiners. Classification is done daily and preferably at the same time each day. The scores for each patient are totalled and the patient's dependency is identified according to the following criteria and entered in the appropriate column:

- All Scores A .... Category - I

- Mixture of A and B with maximum of 2 C .... Category - II

- 2 or 3 C scores and more C sores than A scores .... Category - III

- 4 or more C scores .... Category - IV

While patients in Category I and II require minimal and average nursing care, patients in categories III and IV require above average and maximum nursing care.

NURSING ACTIVITY SAMPLING

The objective of this component of Criteria for Care is to record the pattern of nursing activity in the wards through continuous observation over 24 hours per day during the seven days of the study. Activity Sampling covers two aspects; all nurse activity and direct care sampling.

All Nurse Activity

At 15 minutes interval the activities of all the nursing staff on duty are recorded. Each observed

activity is recorded under the categories of direct care, indirect care, associate work and personal activity.

A staff list is prepared including the nursing staff, their grades and code letters for each. The list is prepared for the whole of the study. Staff are given identity badges and they are advised to wear them throughout the observation study. On special forms termed all nurse activity forms (A), 23 nursing activities are listed; 12 under "direct care", 3 under "indirect care", 6 under "associated work", and 2 under "other activities". See APPENDIX B, Volume II for a description of the various activities.

The forms also list horizontally the categories of the nursing staff, below each there are five columns for marking observations at 15 minutes interval and entering the total hourly units. Each form reflects one hour of observed nursing activities, accordingly 24 forms are used for each day of the study.

The forms are collated by the time of observation and placed carefully in chronological order for each day of the study. The totals for each activity are entered on another form (B), and a subtotal for each shift is obtained and entered on second part of Form (B). The daily Forms (B) are then collated in the correct sequence and the totals for the 24 hours nursing activities and the shift totals are entered on another Form (C). From this data the percentage of all nursing activities spent on direct care is calculated. Further information could be obtained from the data collected: percentages per activity category per shift during the observation week; percentage of total direct/indirect and associated/personal activities performed by each shift during the observation week; and, the percentage of

all activities per shift during the observation week.

Direct Care Assessment

After the daily classification of patients into the four dependency categories has been completed, all patients in the particular ward are listed in the sampling form along with their dependency categories. For each patient four direct care forms are prepared covering the 24 hours. The forms list vertically the 13 direct care activities: communication, medication, nutrition and elimination technical, nutrition and elimination non technical, patient hygiene, patient movement positioning/exercising, rounds with doctors, nursing rounds, vital signs, specimen gathering and testing, treatment and procedures and others. Horizontally the form lists the categories of nursing staff, the name of the patient along with his/her dependency category and ward allocation are entered in the bottom of the form.

Direct Care of all the patients in the ward is observed and recorded at 10 minute intervals throughout the observation week. The observed direct care recorded every 10 minute are entered in four forms for each patient during a 24 hours observation. Using another form (I), the daily total of direct care units is entered for each patient and the totals for each dependency category are then calculated to obtain the daily total per category. For each day of the study one Form (I) is completed. The daily totals from the seven (I) forms are entered into another form (J). The daily total of direct care for each category and the daily total of patients per category are entered . The daily mean average is obtained by dividing the weekly total of direct care in minutes by the number of patients observed during the observation week.

To calculate the ratios of Direct Care Per Dependency Category the daily mean time for dependency categories II, III and IV is divided by the daily mean time for dependency Category I.

The remainder of this chapter describes the work undertaken to assess nursing requirements of the Ministry of Health, State of Bahrain .

NURSING REQUIREMENTS FOR BAHRAIN

The purpose of the study was to:

- Review the nursing staffing situation at the Ministry of Health.

- Using the Criteria for Care to determine the needs for nursing at Salmaniya Medical Centre which is a secondary level hospital.

- Adapt and further develop Hurst and Costin (1987) method, and use it for determining nursing needs in Primary Health Care settings.

- Provide feedback to concerned Ministry of Health officials regarding nursing staffing situation and recommend plans for the future. Data collection was organized in three main areas:

A. Workload and Nursing Activity In Salmaniya Medical Centre

To obtain adequate information in this area three observations were conducted in Salmaniya Medical Centre: Patient Dependency

Classification, All Nurse Activity Sampling and Direct Patient Care Sampling, in addition nurse satisfaction was also assessed.

B. Workload and Nursing Activity in the Health Centres

To obtain adequate information in this area, nursing activity and workload at selected health centres were observed and assessed.

C. Health Officials Feedback on Nursing situation

To complete the picture regarding the situation of Nursing in Bahrain it was necessary to consult the feedback and comments of a selected group of health officials and decision makers.

WORKLOAD AND NURSING ACTIVITY IN SALMANIYA MEDICAL CENTRE

Approval of Salmaniya Medical Centre Officials for conducting the study

Before starting the study, the approval of the Salmaniya Medical Centre Chief Executive Officer, Chief of Medical Staff, and Principal Nursing Officer was obtained. Meetings were held with Senior Nursing Officers at Salmaniya Medical Centre to introduce and familiarize the nursing administration with the project. On some occasions the advise and feedback from College of Health Sciences nursing colleagues regarding issues pertaining to the nursing profession

and its practice was solicited.

Ward Profile

Prior to starting the study in the Salmaniya wards, detailed information on the wards was collected using the same Ward Profile Questionnaire developed for Criteria for Care. No major changes were deemed necessary in the content and format of the questionnaire. Before distributing the questionnaires to the Ward Nurses in charge a formal request was sent to the Chief of Medical Staff and Nursing Administration in Salmaniya Medical Centre. The questionnaire includes 76 items and a blank page at the end for drawing a ward sketch or adding more information. The questionnaire items cover a wide range of information on the ward such as: main speciality, sex of patients, bed complement, average patient length of stay, number of available consultants, timing of consultants rounds, number of nurses allocated, types and timing of shifts, allowances for coffee/meal breaks, availability of ward clerks, services available such as physiotherapy, occupational therapy, sterilization, visiting hours, specimens collections, distribution of patients meals, nurses workload, types and frequency of patients admission, patients daily meal timings, whether the ward is used for teaching and training, assignment of nursing tasks, availability of nursing relief, responsibility of patients escorting, and few other inquiries about the ward set up. See Appendix C, Volume II, for details of the ward profile questionnaire.

Wards Selection

To undertake the study on an appropriate mix of patients and wards, the above information on different

Salmaniya Medical Centre wards was used and 15 acute surgical and medical wards were selected. These wards vary in bed capacity, nursing staff as well as the patients they receive as illustrated in TABLE 8.

Training Programme for Ward Nursing Officers on Patient Dependency Classification

The Principal Nursing Officer at Salmaniya Medical Centre was contacted and asked to assign 15 wards supervisors for the Patient Dependency Classification study. A meeting was also held with the 4 Nursing Officers responsible for those wards. The objective and methodology of the study were explained to them. The 15 ward supervisors were divided into two groups, each group attended a two hours workshop on using Patient Dependency Classifications. The following aspects of the study were covered:

- The purpose and significance of the study.
- The four dependency categories and their definition.
- The use of specific determiners of patient dependency, based on personal hygiene, feeding, mobility and nursing attention.
- The process of patients classification.
- Workload and the average number of patients in each dependency category.

Patient Dependency Classification Study

Before starting the patient classification study, the classification form used in the Criteria For Care was

TABLE 8 SALMANIYA MEDICAL CENTRE SELECTED WARDS SPECIFICATIONS FOR PATIENT DEPENDENCY CLASSIFICATION

Wards	Nurse Super.[1]	Staff Nurse	Trained Pract. Nurse[2]	Aux.Nurse Nurse[3]	Ward Clerk	Total Nurse	Ward Bed/ Bed Capacity	Nature of Services
11	1	12	1	7	1	22	28	Male/Female Chest Diseases
22	1	10	2	4	1	18	16	Male Orthopedic
23	1	10	2	4	1	18	20	Male Orthopedic
41	1	11	2	4	1	19	22	Male General Surgery
43	1	10	2	3	1	17	16	Male General Surgery
45	1	11	2	4	1	19	16	Obstetric/Gyne
46	1	11	3	2	1	18	22	Female General Surgery
51	1	12	2	2	1	18	22	Male/Female General Medical
53	1	10	2	3	1	17	15	Male/Female General Medical
54	1	12	1	3	1	18	22	Male/Female General Medical
55	1	11	2	2	1	17	18	Male/Female Medical
56	1	13	2	4	1	21	22	Male/Female General Medical
63	1	11	2	4	1	19	22	Male Opthomology (eye)
65	1	9	2	4	1	17	16	Male ENT[4]
66	1	13	1	3	1	19	22	Male General Surgery

1 Nurse Supervisor
2 Trained Practical Nurse
3 Auxillary Nurse
4 Ear, Nose, and Throat

reviewed carefully to determine whether there was any need for modification.

The form which is to be completed by the ward supervisor is designed in such a way to include a vertical column for patients names, with the distribution of ward total dependencies on top of it. The horizontal column includes the four major nursing components, PERSONAL CARE, FEEDING, MOBILITY, NURSING ATTENTION, with a fifth category of OTHER also included. Under each of the four major categories three determinants are listed and under the fifth only two. It was decided to use the form with only minimal modifications to reflect consistency of the determinants (see APPENDIX D, Volume II). Each of the selected wards was provided with a folder containing the Patient Dependency Classification (PDC) procedures, as well as a supply of classification forms. It was agreed that the forms would be completed daily between 12 noon and 2 pm.

The Patient Classification study started on Saturday April 29, 1989. The first two days were considered as a learning experience for the ward supervisors, with proper data collection effective as from May 1, 1989.

Each day, filled forms were collected from the ward and fresh ones were supplied. The filled forms were checked and compiled by the researcher separately for each ward. During data collection certain problems were encountered in some of the wards. These were mainly due to inconsistency of nursing staff in some of the wards which resulted in inaccurate recording and filling of the forms.

Periodic review by the researcher and checking of the completed forms in some wards revealed some mistakes and reflected inaccurate information. In some

instances delays were encountered in filling the forms and information entered later was accordingly considered invalid and unreliable.

On October 31 1989, and after a close and careful review of the situation, the decision was made to discontinue the study in wards due to unusually increased workload. Data collection continued however in the six remaining wards. This means that two to six month data only was collected in nine wards, while data collection in the other six wards continued for almost a year.

At the end of each month, a monthly Patient Classification Summary Form was prepared. This form (APPENDIX E, Volume II) shows the number of patients in each of the four dependency groups distributed over the days of the month. It also includes the number of beds in the ward.

By the end of the year, a Patient Classification Yearly Summary Form was also completed for each ward. (APPENDIX F, Volume II) illustrates the yearly findings for all the wards surveyed. Each form gives the total yearly number of patients classified, their distribution among the four groups, their mean average and the percentage per group.

Direct Care Assessment Form

The form used for direct care assessment in Criteria for Care was carefully reviewed. Some minor amendments were deemed necessary in the Direct Care Form to correspond with the number and time of shifts in Salmaniya Medical Centre. Also two additions were made to include auxiliary nurses, student nurses and others to reflect the nurse staffing profile in Salmaniya Medical Centre. Four forms were used for

each 24 hour period of observation (Appendix G, Volume II).

Each of the forms includes a vertical column which lists the following nursing activities: communications, medications, nutrition and elimination technical, nutrition and elimination non technical, patient hygiene, patient movement, positioning, exercising, rounds, assist doctors, nursing rounds and checking symptom observation, vital signs, specimen gathering and testing, treatment and procedures and others. At the bottom of the form there is a space for the patients names and ward on one side and patient dependency category, patient number and total units on the other side.

ALL NURSE ACTIVITY SAMPLING FORM

The form used for All Nurse Activity sampling in Criteria for Care was also carefully reviewed. Some necessary amendments were made in the form whereby the categories of nurses in the amended form included: Sister, Senior Nurse (SN), Practical Nurse (PN), Auxiliary, Student and others. (APPENDIX H, Volume II). The following areas of activities have been listed:

Total Direct Care

- Communication with Patient &/or Family
- Medications (I.V.) Administering
- Nutrition and elimination-Technical
- Nutrition and elimination-non-technical
- Patient Hygiene
- Patient movement-non-therapeutic
- Rounds or assist doctor/non nurse
- Routine checks, patient rounds, etc.
- Vital signs.

- Specimen gathering and testing
- Treatment and Procedures (Nursing only)

Total Indirect Care

- Cleaning, housekeeping, tasks
- Clerical
- Communication-unit related
- Errands off ward
- Meetings, Inservice, Ward Reports
- Supplies, Check restock

Total Associated Work

- Personal and Miscellaneous
- Other

To test the amended forms and identify any possible problematic areas, it was decided to conduct a pre-pilot test on two of the wards, and observations of all nurse activity and direct care sampling were undertaken for 1 week. Since this was only done during the morning hours, the results of the pre-pilot study are not included. The indications were however satisfactory and no major problems were encountered in carrying out the observations and filling the forms.

RECRUITMENT AND TRAINING OF OBSERVERS

Due to the extensive and comprehensive nature of the study, it was impossible for one person to conduct the direct care assessment and all nurse activity sampling in the selected wards on his own. Additional input was therefore deemed crucial. Considering the heavy workload at Salmaniya Medical Centre wards and the

full engagement of the nurses with patient care, nurse observers were recruited to assist in the study.

Twelve observers were recruited and a training session was arranged which covered an orientation to the purpose of the study, the methodology, the forms to be used and how to fill them. All aspects of the study pertaining to Direct Care Sampling and All Nursing Activity were covered. The observers questions and queries were also addressed. It was agreed to contact each of the observers well in advance when the schedule for the observations was completed.

Pilot Study

A comprehensive schedule for the one week pilot study was prepared with 24 hours daily coverage. Each observer was notified ahead of the day of observation assignment. Each shift of observation was to be completed by two observers and one relief. An official letter was sent to the Principal Nursing Officer informing her that the all Nurse Activity and Direct Care Sampling Pilot study was to start in the selected Ward. She was requested to inform the concerned ward supervisors and to ask them to collaborate and cooperate with the study observers and facilitate their assignment.

The researcher visited the Ward on several occasions ahead of starting the pilot test and explained the purpose, goal and procedure for the study. A list with all the nursing staff, auxiliaries and student nurses in the Ward was compiled and identification badges were prepared and handed over to the Ward. The observation study during the 24 hours as well as for the whole week was carefully and closely supervised and monitored.

When the pilot study was completed the forms were collected and carefully reviewed, and checked. All indicators showed that results were satisfactory and it was decided to start both observations in five other wards.

The observations were carried consequently with a 2 days interval between each ward. The same team of observers undertook the whole observations to ensure consistency in assessment and recording of nursing care.

As it has been already discussed, patient direct care observation was noted by one observer at 10 minute intervals and all nurse activity at 15 minute intervals by another observer. It has been thought that parts of the nursing activities might have been missed between any observations. However, as the observation progressed it became clear that the criteria for care system takes account of these probable loss of activities and that is compensated for, by observing nurse activities for 24 hours over seven days period, the duration of the study. Training of students did not represent any problem in assessing nursing activities in the wards due to their limited number.

Direct Care Assessment

A duty rota for each of the wards was prepared and posted in each of the wards. The observers were contacted well in advance and urged to report punctually to the assigned ward and on the assigned day and shift. Though the study started with Ward 43, duty rotas for all the wards were prepared. The amount of direct care given to all patients in each of the four dependency categories was recorded every 10 minutes during the 24 hours and for seven days.

The data was recorded in the Direct Care Assessment Forms (APPENDIX G, Volume II). This was done after the daily classifications of all patients into the four dependency categories has been made. Rather than observing selected number of patients in the ward, all patients were observed and the direct care given was recorded in the forms. For each patient 4 forms were completed E, F, G and H. The patients name, dependency category as well as the ward, date of observation and day of the study is entered on each form. Each direct care form lists the observation time at 10 minute intervals. The observer records each direct care activity by placing a tick on the form each time a nursing staff member is observed giving direct care to a patient (see also page 136). The four forms for each patient were clipped together. Patient forms for each day of the study were checked, compiled and kept ready for analysis.

All Nurse Activity Sampling

Along with direct care assessment, all nurse activity sampling was undertaken in the five wards starting with Ward 43. The duty rota prepared for direct care assessment also included all nurse activity sampling. Lists with all the nursing staff in the concerned wards were prepared, this included all categories of nurses, hospital attendants and ward clerks. All staff and students were given identification badges.

The activities of all the nursing staff on duty in the selected wards were observed and recorded every 15 minutes. Each observed activity was recorded in the forms under the pertinent category of direct care, indirect care, associated work and personal activity. The observations were carried over the 24 hours and continued for seven days.

Each form was used for 1 hour observation, accordingly 24 forms were filled each day of the study.

A gap of two days was allowed between the completion of observations in one specific ward and starting the observation in the next selected ward.

To avoid any confusion in numbering and collating the forms, great attention was paid to the numbering of forms in sequence and corresponding with the timing of the observations and shift observed. Direct supervision of the observations, recording and collating the forms was maintained during the whole study duration.

After completing the Direct Care and All Nurse Activity Sampling in the six selected wards, it was felt that the comments and feedback of the observers should be solicited. A simple questionnaire of 15 items was prepared (APPENDIX I, Volume II) which the observers were asked to fill in during a meeting held with them. The purpose of the questionnaire was mainly to gain information regarding the observations and the staffing situation in the wards surveyed.

The results of the questionnaire were found to be consistant with the researcher's finding as regard the nurse shortages in the wards. The observers also note the ease with which criteria for care system was followed and that the process of observation was not over taxing.

Althought the observations of direct care and all nurse activity were carried out daily for seven days by two observers, a daily duty rota was provided for all twelve observers to cover 24 hours of observation for the duration of the study. A relief observer was incorporated in the duty rota to account for fatigue

and other personal needs of the observers.

Nurse Satisfaction

Nursing staff in each of the wards studied were requested to respond to a simple questionnaire which addressed their level of satisfaction with patient care and current staffing patterns. The same questionnaire from Criteria for Care was used with no amendments deemed necessary. The questionnaire (APPENDIX J, Volume II) contained 34 items which were categorized under five main categories: Physical care, Treatment, Well-being, Information, and Ward Staffing.

Space was left for optional additional comments at the end of the questionnaire. The rating scale ranged from "very satisfied" to "not at all satisfied" with "fairly satisfied" and "not really satisfied" in the middle. Most of the nurses who were asked to fill in the questionnaire were at the Ward Sister Level, who were more in contact with patient care and mostly informed of the set up and circumstances of the wards.

Thirty out of thirty six nurses completed the questionnaires which represent an 83% response rate.

This part of the chapter has described the work undertaken in Salmaniya Medical Centre wards, the remaining section discusses the study undertaken in the primary health care setting .

WORKLOAD AND NURSING ACTIVITIES IN PRIMARY HEALTH CARE

Patient Classification Systems are playing an increasingly important role in the delivery of nursing care today. While much has been written about their

use in hospital care settings, little research has been done on their application to community health nursing. According to Giovannetti's (1978) detailed analysis there has been virtually no direct application of these systems in the field of community health care.

Kissinger (1973) described an applied research study conducted in a community nursing agency to design a method to quantify nurses' activities as a base for better planning. Huckabay (1981) observed and summarized direct and indirect care activities in a community setting. He defined direct care needs as the actual time spent by the nurse in the presence of the patient and indirect care needs as those activities conducted by the nurse on behalf of, but away from the patient. Sienkiewicz (1984) examined the effects of a weighted patient classification system on the quality of nursing care rendered by community health nurses.

In 1982 a health visiting project was completed in Cheltenham using a new approach to traditional methods of calculating community nurse establishment levels. This project was part of a comprehensive nursing plan for the whole district which aimed at identifying the workload and distribution of working time in order to estimate the number of staff required to carry out this workload (Bell and Moules, 1985). They have shown that the distribution of health visitors working time is as such: visits 37%, clerical 26.3%, travel 14.4%, clinic 12.3% and liaison 10%. They have also calculated the average time for specific activities such as developmental check of children as 31.5 minutes for 9 months old, 29.0 minutes for 18 months old and 30 minutes for 3 years old children.

Recognizing the limitation of the use of patient

dependency classification studies in determining nurse manpower establishment in community settings, a suitable alternative approach for possible adaptation, development and application in primary health care facilities in Bahrain was explored.

Hurst and Costin (1987) attempted to observe the frequency and timing of nursing activities in the community. This was taken as a starting point and the approval was obtained to adapt their method and further develop it for possible application in Bahrain.

The purposes of this aspect of the research were:-

- Identification of Nursing activities which are undertaken by nurses at the Health Centres.

- Definition of these nursing activities operationally.

- Assessing the time needed for completion of those activities.

- Identify members of the community nursing team undertaking these activities and sharing in their accomplishment.

- Designing a form which includes such activities.

- Testing the form to identify any possible problematic areas.

- Using the form to collect data on nurses activities and time spent by nurses in undertaking such activities.

- Using the above data to estimate the nurse manpower needs of each of the health centre investigated.

To initiate the study, meetings were held with the Principal Nursing Officer in the Directorate of Health Centres. The objectives and methodology of the study were explained and her endorsement and support were obtained.

She was asked to review a list developed for all the nursing activities undertaken by all categories of nurses in the Health Centres. The comprehensive list was reviewed and each activity was discussed at length with a group of community nursing faculty. On site visits were made by the researcher to a number of health centres to verify those activities. Each activity was comprehensively investigated in each of the selected health centres. The activities were listed under Preventive, Curative and Associated work Categories. The detailed list and their operational definition are described in APPENDIX K and L, Volume II.

A form was designed which lists all these activities horizontally and names of the Health Centre visitors were to be entered vertically as shown in APPENDIX L, Volume II. To translate those activities into time spent by nurses, an observation was undertaken on each activity. The time taken by each activity was recorded, verified, checked and compared with times recorded for the same activity by different members of the community nursing group.

After some discussion and careful review of the timings a consensus was reached regarding the completion time of each of the activities undertaken by nurses at the health centres. As for members of the

community nursing team in health centres who are sharing in performing those nursing activities, they were identified as: sister in-charge, community health nurse, midwives, student nurse, maternal and child health care nurse and practical nurse. To establish the contribution of each of those categories of nurses in each of the nursing activities performed in the health centres, an observation study was undertaken in a number of health centres whereby each activity was comprehensively observed and the contribution of each member of the community nursing team was ticked in the check list specially designed for this purpose (APPENDIX M, Volume II). These findings were checked a number of times until a consensus was reached regarding the input and contribution of each member of the community nursing team in the nursing activities performed at the health centres. The findings were concurred by the nursing supervisors of those health centres as well as primary health principle nursing officer.

As for health centres selection, it was agreed to conduct the study in six health centres: Jidhaffs, Sh. Sabah, Naim, Isa Town, Sitra, and Sh.Salman. These health centres cover a representative geographical area of the country. They were of Type "A" serving a total population of 180,000 (the population covered in Type "A" health centre is between 20,000 and 30,000, the services available are maternal and child health, pharmaceutical, laboratory and dental services in addition to primary health care).

Prior to starting the study, visits were made to the health centres and meetings were held with the nurses in charge. The purpose of the study was explained and procedure for filling the forms was described. A pilot study was conducted to test the forms and identify any possible problematic areas, with the

actual study being conducted for four weeks.

Following completion of the pilot exercise and a preliminary analysis of the results it was decided to extend the observation study on eight more health centres. The aim was to further test the formula and obtain more results that would be of statistical value for assessing future nursing establishments.

In selecting the 8 additional health centres, consideration was given to different types of health centre. Accordingly 4 type "B" health centres (National Bank of Bahrain, Hoora, Bilad Al-Qadeem and Budaiya) a type "A" (Kuwait Health Centre) in the West Region and 3 type "C" health centres (Dair, A"ali, West Rifaa) were selected (Type "C" health centre serves a population between 5,000 and 10,000. The services available are maternal and child health and pharmaceutical services in addition to primary health care. Type "B" health centre, however, serves a population of 10,000 to 20,000. In addition to services available in "C" type health centre, X-ray, laboratory and dental services are offered). Observations were undertaken for one week only in each of those health centres.

HEALTH OFFICIALS FEEDBACK ON NURSING SITUATION

To gather feedback from Ministry of Health Officials on the nursing situation in Bahrain a questionnaire with 15 items was designed. Eight additional items pertaining to nursing manpower were included to the questionnaires that were to be filled by Salmaniya Medical Centre and Health Centres Officials. The items in the general questionnaire addressed numbers of nurses working in Ministry of Health, needs of the Ministry for additional nurses, whether the health services were facing nurses shortage, impact of

medical knowledge and technology on nurse manpower, Ministry of Health Nursing manpower plan, attrition among nurses, reasons for such attrition, and attempts to reduce attrition among Bahraini Nurses (see Appendix N, Volume II). In the questionnaire designed for Salmaniya Medical Centre and Health Centre Officials additional items addressed number of nurses working in each of the selected and surveyed Salmaniya Medical Centre Wards and Health Centres, and how are these numbers of nurses determined.

A selected number of Ministry of Health Officials were interviewed and the questionnaires were left with them for completion. Those officials were high policy makers such as the Undersecretary, and Assistant Undersecretaries for Medical Services, Hospitals, and Primary Health Care, Director General For Health Centres, Chief Executive Officer Salmaniya Medical Centre, Director of Personnel, Personnel Advisor, and Senior Advisor to H.E. The Minister. Nursing leaders such as the Nursing Advisor, the Principal Nursing Officer Salmaniya Medical Centre, Principal Nursing Officer Health Centre, Senior Nursing Officers Maternity and Psychiatric Hospitals, and Chairperson Nursing Division, College of Health Sciences were also included.

SUMMARY

In this chapter the rationale for selecting Criteria For Care for determining nurse manpower establishment in Salmaniya Medical Centre was discussed. Also details on the work undertaken in the selected wards which covered: Patient Classification, Direct Care Assessment, All Nurse Activity sampling and nurse satisfaction were included.

A description of the adaptation and further

development of Hurst and Costin (1987) method on community workload and its application in community setting in Bahrain was given. While the process of identification of the nursing activities performed at fourteen selected health centres was recounted, an assessment of the contribution of each member of the nursing team in performing each of those activities, identification of time value for each activity as well as designing the observation form and the details of the study were also covered.

The next chapter discusses the process of data analysis and results obtained in the study.

CHAPTER SEVEN

DATA ANALYSIS AND RESULTS

INTRODUCTION

This chapter presents the results of data analysis in four sections: Section I covers the results of Patient Dependency Classification Study, Direct Care assessment, All Nurses Activity Sampling and Assessment of Nurse Establishments in Salmaniya Medical Centre Wards. Section II describes the results of the Nurse Satisfaction Questionnaire, and Ministry of Health officials Questionnaire. Section III presents the results obtained from the study undertaken in the Health Centres. Section IV considers the future nurse requirements in Salmaniya Medical Centre, Primary Health care and Ministry of Health. Highlights of results and a limited discussion will be presented in this chapter. More detailed discussion of the results follows in chapter eight.

SECTION I

PATIENT DEPENDENCY CLASSIFICATION

The Patient Dependency Classification study was undertaken in the six selected wards in Salmaniya Medical Centre over an eleven month period.

TABLE 9 shows a summary of the yearly totals, mean average, percent per group and bed occupancy for the year for the six surveyed wards.

TABLE 9 PATIENT DEPENDENCY CLASSIFICATION YEARLY SUMMARY IN THE SIX SURVEYED WARDS IN SAIMANIYA MEDICAL CENTRE

WARD	No Days	No.Patient by Group				Total	No Beds	Bed Occ
		I	II	III	IV			
41S								
Totals	245	2981	1352	546	331	5210	22	
Mean Average		12.2	5.5	2.2	1.4	21.3		
% Per Group		57.2	26.0	10.5	6.4	100		96.8
43S								
Totals	304	3395	2248	282	625	6554	22	
Mean Average		11.1	7.4	0.9	2.0	21.6		
% Per Group		51.8	34.3	4.3	9.5	100		97.9
66S								
Totals	335	2147	2476	973	1216	6812	22	
Mean Average		6.4	7.4	3.0	3.6	20.3		
% Per Group		31.5	36.3	14.3	17.9	100		93
51M								
Totals	303	296	3390	693	1704	6088	22	
Mean Average		1	11.2	2.3	5.6	20.1		
% Per Group		4.9	55.7	11.4	28	100		91
53M								
Totals	304	1905	1032	594	951	4482	16	
Mean Average		6.3	3.4	2.0	3.1	14.7		
% Per Group		42.5	23.0	13.3	21.2	100		92
56 M								
Totals	328	2535	2330	1075	754	6694	22	
Mean Average		7.7	7.1	3.3	2.3	20.4		
% Per Group		37.9	34.8	16.1	11.3	200		93

Key : S: Surgical
M: Medical
Bed Occ: Bed Occupancy

Bed occupancy in the six surveyed wards ranged from 91-97.9%, the highest was in Ward 43 (97.9%) followed by ward 41 (96.8%). Wards 56 and 66 had the same bed occupancies of 93%. Wards 53 and 51 had the lowest bed occupancies of 92 and 91% respectively.

As for the distribution of patients among the four dependency categories it varied from 4.9 - 57.2% in Dependency I. The patients distribution in Category II ranged from 23.1 - 55.7%. As for the distribution of patients in the last two categories III and IV a decline in patients numbers is noticed whereby under category III the range was 4.3 - 16.1 % and range under category IV was 6.4 - 28%.

DIRECT CARE ASSESSMENT

To calculate the daily average time devoted to direct care for each dependency group, the same procedure described in the Criteria for Care was followed. Using the ward sampling form (APPENDIX O, Volume II) patients names and their dependency classifications were entered for each ward and day of the study. Using Direct Care Sampling Form (I) (APPENDIX P, Volume II) the daily totals of direct care units per dependency category for the selected patients were entered. Again using Direct Care Sampling Form (J) (APPENDIX Q, Volume II) the weekly average of direct care per dependency category was entered. APPENDIX R, Volume II includes all the data pertaining to direct care assessment.

The daily average time in minutes per 24 hours spent in giving direct care for each category were calculated by dividing the weekly total minutes of direct care by the total number of patients observed during the study week (Table 10). The minutes of direct care per Category I patients in Wards 41, 43,

TABLE 10 DAILY MEAN AVERAGE TIME IN MINUTES PER 24 HOURS SPENT ON DIRECT CARE IN THE SIX SURVEYED WARDS

Wards	Dependency Category	I	II	III	IV
41 S	Total minutes direct care	3132	3380	2100	3230
	Total number of patients	34	33	13	17
	Daily mean average time in minutes per 24 hours	92.1	102.4	161.5	190.0
43 S	Total minutes direct care	3090	4210	1220	6350
	Total number of patients	34	31	5	14
	Daily mean average time in minutes per 24 hours.	90.8	136	244	454
66 S	Total minutes direct care	3300	5800	3910	6980
	Total number of patients	33	32	18	23
	Daily mean average time in minutes per 24 hours.	100	181	217	303
51 M	Total minutes direct care	190	3990	1590	7120
	Total number of patients	2	35	7	7
	Daily mean average time in minutes per 24 hours	95.0	114	228	285
53 M	Total minutes direct care	1890	2520	3180	4370
	Total number of patients	21	18	15	7
	Daily mean average time in minutes per 24 hours.	90.0	140	212	624
56 M	Total minutes direct care	2976	4850	3770	8870
	Total number of patients	31	28	13	17
	Daily mean average time in minutes per 24 hours.	96.0	173	290	522

Key : S: surgical M: Medical

51, 53, 56 and 66 were 92.1, 90.8, 95, 90, 96 and 100 respectively. The mean average was found to be 94 minutes this is comparable to the 93 minutes found by Ball, Goldstone and Collier (1984).

TABLE 11 shows the ratios of Direct Care Per Dependency Category in the six surveyed wards: 41, 43, 66, 51, 53, and 56. Accordingly the mean ratios of direct care were calculated as 1.0: 1.5 : 2.4 : 4.2. respectively. Again this is comparable with data from the application of Criteria for Care (Ball, Goldstone and Collier, 1984).

TABLE 11: RATIOS OF DIRECT CARE PER DEPENDENCY IN THE SIX SURVEYED WARDS

WARD	Dependency Category			
	I	II	III	IV
41 S	1.0	1.9	3.0	3.5
43 S	1.0	1.5	2.7	5.0
66 S	1.0	1.8	2.1	3.0
51 M	1.0	1.2	2.4	3.0
53 M	1.0	1.3	2.0	5.9
56 M	1.0	1.5	2.5	4.5
Mean Ratio Direct Care	1.0	1.5	2.4	4.2

S: Surgical
M: Medical

ALL NURSE ACTIVITY SAMPLING

The activities of all nursing staff in each of the surveyed wards were observed and recorded on an hourly basis for seven days.

The information was recorded in the All Nursing Activity Sampling Form A described in the Chapter on Methodology, page 136. All Nurse Activity Sampling Forms (B) and (C) were used to transfer the data from forms (A) (APPENDIX S AND T, Volume II). Data pertaining to all Nursing Activity and calculations of Direct, Indirect, Associated and Personal Care are included in APPENDIX U, Volume II.

TABLE 12 summarizes the findings in the six surveyed wards as regard the percentages of time of all nurse activities spent on Direct Care, Indirect Care, Associated Work, Personal and Miscellaneous as well as all activities performed by night shift. The highest percentage of time in all the six wards was spent on Direct Care; the ratios were very near in each of the six wards with a very narrow range of variation of 1.9% (43.9 - 42.0). However, the lowest percentage of time was spent on personal and miscellaneous activities were the ratios ranged from 7.8 - 10.2%. The next highest percentage of time was spent on Associated Work the ratios ranged from 25.2 - 30.3%. As for the percentages of time spent on Indirect Care, they ranged from 17.8 - 22.9%. The percentages of all nurse activities performed by night shift ranged from 25.9 - 36.0.

Figure 8 shows the mean percentages of time of all nurse activities in the six surveyed wards, these are 42.8%, 20.3%, 27.8%, 9.1% for the Direct Care, Indirect Care, Associate Work and Personal/Miscellaneous activities.

TABLE 12 : ALL NURSE ACTIVITY SAMPLING IN THE SIX SURVEYED WARDS

WARD	Percentage of Time of All Nurse Activities				% of all activities performed by night shift.
	Direct Care	Indirect Care	Associated Work	Personal/ Misc.	
41 S	43.9	21.1	25.2	9.8	31.8
43 S	42.0	21.9	26.6	9.5	25.9
66 S	43.0	17.8	29.9	9.3	29.5
51 M	42.0	22.9	27.3	7.8	30.1
53 M	42.2	19.9	27.7	10.2	36.0
56 M	43.6	18.3	30.3	7.8	33.9
Average	42.8	20.3	27.8	9.1	31.2

Figure 9 shows the comparison between the results of this study and those obtained in the study by Ball,Goldstone and Collier (1984). The comparison included Direct Care, Indirect Care, Associated Work and Personal/Miscellaneous activity results as obtained from all nurse activity sampling.

As illustrated, direct care in Salmaniya Medical Centre wards constitutes 42.8% of all Nursing Activities. This is lower than the 55% result produced by Criteria For Care (Ball, Goldstone and Collier, 1984). Nurses in Bahrain however spend more time on Indirect Care and Associated Work as evidenced by the results of 20.3% for indirect care against 11.8% and 27.8% for associated work against 15.3%. As for personal/miscellaneous activities the percentage of time spent on them in Salmaniya Medical Centre is less than that found by Ball, Goldstone and Collier (1984); 9.1% versus 16.6%.

TABLE 13 presents the comparison between the two studies in relation to mean average minutes of Direct Care for Category I patients per 24 hours and the mean

Figure 8: Mean Percentages of Time of all Nurse Activity in the Six Surveyed Wards

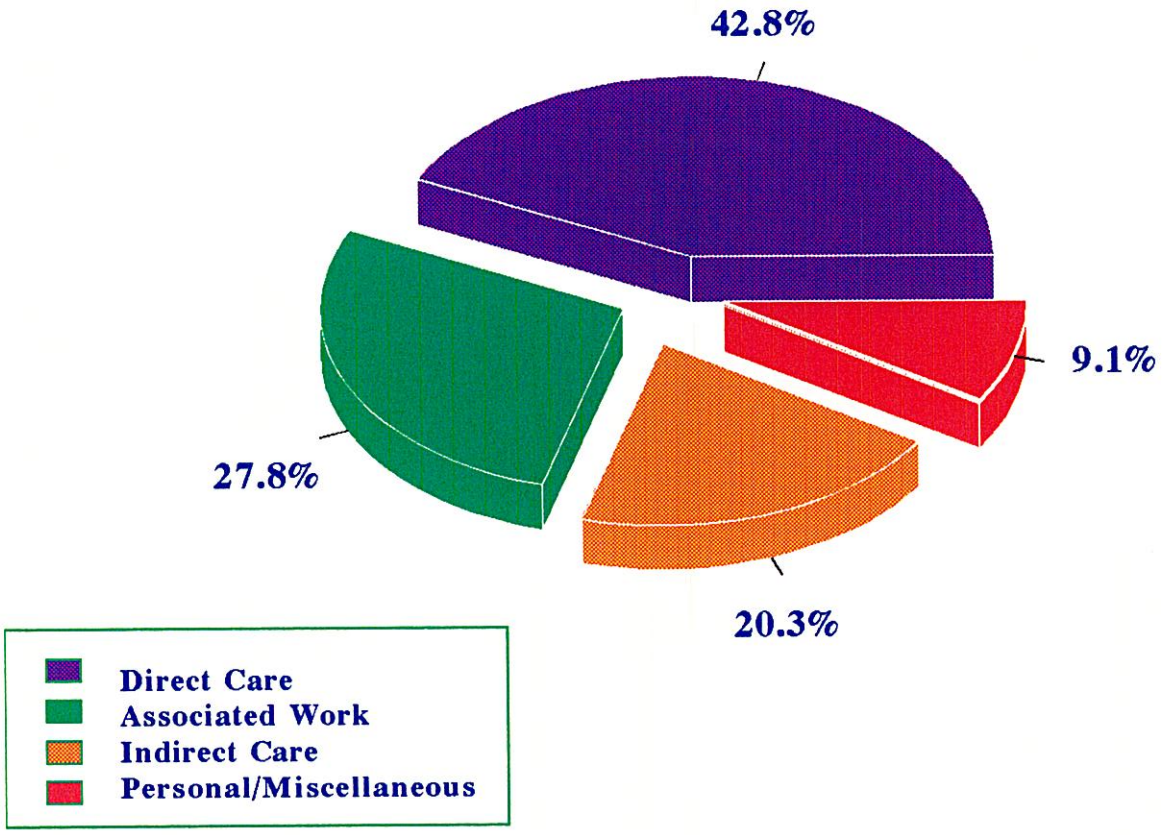
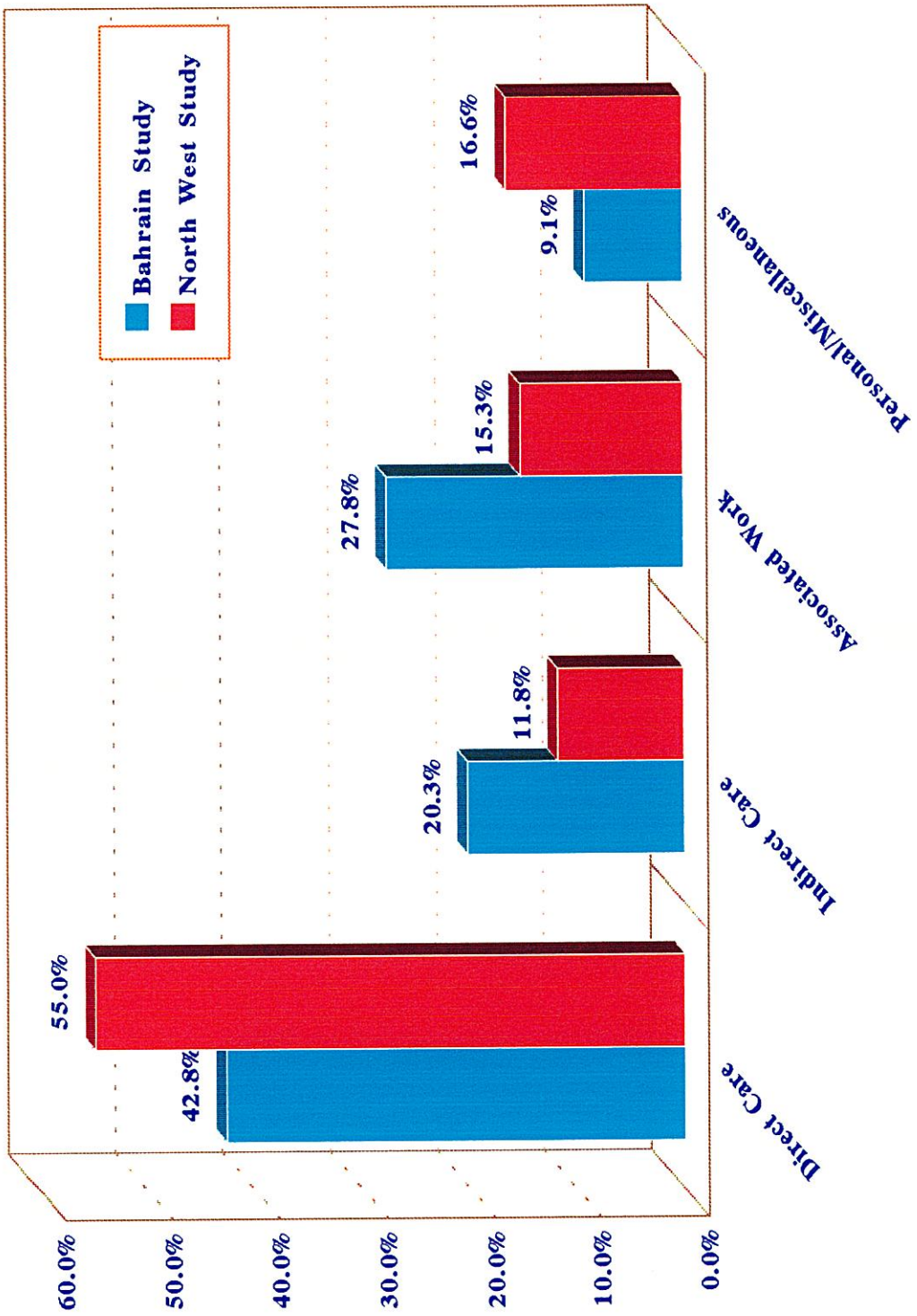


Figure 9: Comparison Between Results Obtained in The Study And Those in The North West Nurse Staffing Level Project



ratios of Direct Care per Dependency Group I, II, III and IV.

TABLE 13 COMPARISON OF THE TOTAL MEAN AVERAGE OF MINUTES OF DIRECT CARE AND RATIOS OF DIRECT CARE PER DEPENDENCY GROUP IN BAHRAIN STUDY AND NORTH WEST NURSE STAFFING LEVEL PROJECT.

Study	Mean average minutes of Direct care per 24 hours	Mean Ratios of Direct Care per Dependency Group.			
		I	II	III	IV
Bahrain	94	1.0	1.5	2.4	4.2
North West Staffing Project	93	1.0	1.6	2.5	3.5

It is interesting to note that there is great similarity in the mean average minutes of Direct Care per 24 hours per patient in dependency I between the Bahrain study (94) and Criteria for Care (93 for the sample ward). Also there were similarities in the mean ratios of direct care per dependency groups which were 1.0: 1.5: 2.4: 4.2 and 1.0: 1.6: 2.5: 3.5 respectively.

It should be made clear however, that although these figures may be similar there should be no suggestion or conclusion that this study provides direct comparison between the health settings in Bahrain and that described in North West Nurse Staffing Level Project.

CALCULATION OF REQUIREMENT FOR NURSE ESTABLISHMENTS IN THE SIX SURVEYED WARDS

Criteria For Care in calculating nurse requirements uses the time needed for the direct care of a dependency I patient as the basic component. The formula also uses the mean average number of patients in each of the four categories as derived from the Patient Dependency Classification yearly calculation. In addition the ratio of Direct Care per Dependency Category and the percentage of direct care activity are also incorporated.

Using the results obtained from the patient Dependency Classification, Direct Care Assessment and All Nurse Activity Sampling study in the six surveyed wards, the nurses requirements were calculated (Table 14). It can be observed that while the average number of category I and II patients in the Surgical Wards was more that those in the Category III and IV, the disbribution of patients in Medical Wards was more evenly balanced over the four categories. Ward 41 was used to illustrate how nurse requirements were calculated. The results obtained from the six surveyed wards in minutes for Direct Care, Percentage of Direct Care, Ratios of Direct Care Per Dependency Category and number of Patients in each Dependency Category were utilized in this calculation. for example:

TABLE 14 RESULTS USED FOR ASSESSING NURSING ESTABLISHMENTS IN SALMANIYA MEDICAL CENTRE WARDS

WARD	Minutes of Direct care per Category I Patients	% Direct Care	Ratios of Direct Care per Dependency Category.				Average Number of Patients in each Dependency Category			
			I	II	III	IV	I	II	III	IV
41 S	92.1	43.9	1.0	1.9	3.0	3.5	12.2	5.5	2.2	1.4
43 S	90.8	42.0	1.0	1.5	2.7	5.0	11.1	7.4	1.0	2.0
66 S	100.0	43.0	1.0	1.8	2.1	3.0	6.4	7.4	3.0	3.6
Average S	94.3	43	1.0	1.7	2.6	3.8				
51 M	95.0	42.0	1.0	1.2	2.4	3.0	2.8	10.1	2.3	5.5
53 M	90.0	42.2	1.0	1.3	2.0	5.9	6.3	3.4	2.0	3.1
56 M	96.0	43.6	1.0	1.5	2.5	4.5	7.7	7.1	3.3	2.3
Average M	93.7	42.6	1.0	1.3	2.3	4.5				

Overall average (percent direct care) 42.8
S : Surgical
M : Medical

WARD 41: SURGICAL

	I	II	III	IV
- DEPENDENCY GROUP:				
- MEAN NUMBER OF PATIENTS.	12.2	5.5	2.2	1.4
- MULTIPLY BY RATIO	1.0	1.9	3.0	3.5
- WORKLOAD INDICES ARE THEREFORE	12.2	10.5	6.6	4.9

WorkLoad Index :

12.2	x 92.1 minutes	=	1123.62
10.5	x 92.1 minutes	=	967.05
6.6	x 92.1 minutes	=	607.86
4.9	x 92.1 minutes	=	451.29
34.2			3149.82

(minutes/24hr)

$$\text{Acuity} = \frac{\text{WORKLOAD INDEX}}{\text{NO. OF PATIENTS}} = 1.6$$

Ward 41 S therefore needs 3149.82 minutes/24 hours to provide direct care to its normal workload of patients.

Since the direct care is 43.9% of the total nursing activity;

Ward 41 S requires $: \frac{3149.82 \times 100}{43.9}$

= 7175.0 minutes of nursing time per 24 hours to provide for all nursing activity.

$\frac{7175 \times 7}{} = 837.1$ hrs/week

Since nurses normally work 40 hours/week

Ward 41 S needs:

$$\frac{837.1}{40} = 20.9 \text{ whole time equivalent}$$

While in the Criteria For Care a 10% deduction is made for unpaid meal breaks, a 20% addition is incorporated as an allowance for annual leave, sickness and study leave. No provision has been made in this study for any deductions or additions because neither nursing administration nor Civil Service Bureau were able to advise precisely on these issues. To compensate, however, for such net losses the Civil Service Bureau recommends using extra nurses services on over time basis if and whenever needed.

Using the data in TABLE 14 and the calculation procedures above, requirements for nurse establishment in the five remaining Wards were calculated. The results were as follows:

Ward	Type	Whole time equivalent
43	Surgical	22.0
66	Surgical	25.0
51	Medical	24.3
53	Medical	20.5
56	Medical	23.8

TABLE 15 shows the comparison between the requirement for nurse establishments as calculated in the study using the Criteria For Care and those actually and currently available. The nursing requirements determined by the study using the Criteria For Care Method were higher than the current number of nurses actually working in the wards.

TABLE 15 COMPARISON BETWEEN REQUIREMENT FOR NURSE ESTABLISHMENT USING CFC METHOD AND CURRENTLY AVAILABLE.

Ward/Type	No.of Beds	% Direct care	Minutes Direct Care Per Cat.I	Acuity	WTE Required CFC method	WTE current	Difference	WTE/Bed
41 S	22	43.9	92.1	1.6	20.9	19.0	1.9	1.0
43 S	22	42.0	90.8	1.6	22.0	17.0	5.0	1.0
66 S	22	43.0	100.0	1.8	25.0	19.0	6.0	1.1
Average Surgical		43.0	94.3	1.7				1.0
51 M	22	42.0	95.0	1.8	24.3	18.0	6.3	1.1
53 M	16	42.2	90.0	2.2	20.5	17.0	3.5	1.3
56 M	22	43.6	96.0	1.8	23.8	21.0	2.8	1.1
Average Medical		42.6	93.7	1.9				1.2

Key : S: Surgical
M: Medical
CFC: Criteria For Care
WTE: Whole time Equivalent

The difference was lowest in Ward 41 (1.9 WTE) and highest in Ward 51 (6.3 WTE). The whole time equivalent per bed was found on the average to be 1.0 for the surgical wards and 1.2 for the medical wards. The acuity which indicates hospital level of care and sophistication (Ball, 1987) ranged from 1.6 to 2.2. Medical wards, however, showed higher acuity. The integration of cardiac care unit (ccu) within the two medical wards (53 and 54) influenced the level of care rendered and consequently raised the acuity in the medical wards. The percent direct care as well as minutes direct care per Category I in Surgical wards found to be higher than those in medical wards. This could be attributed to the pre and post-operative nursing care needed.

Using the averages of Minutes of Direct Care per Category I patients, the averages of ratio of direct care per dependency and the mean percentage of direct care for the three surgical and three medical wards, the requirement for nursing establishments in the six wards were again recalculated. This was done to find out whether there will be any significant difference between using the individual and actual figures or the mean ones. Since the results were very near in five of the six wards, (TABLE 16), it was therefore decided to use those means for calculating the requirements for nursing establishments in those Wards which were initially included in the study and whose survey was continued for patient dependency classification only. The following mean average number of patients in each of the four categories in Wards 22, 23, 45, 46, 63, 65, 54 and 55 (TABLE 17) were used to calculate nurse establishments.

TABLE 16: COMPARISON BETWEEN NURSE REQUIREMENT CALCULATED USING ACTUAL FIGURES AND MEAN AVERAGES

WARD	WTE Using Actual Figures	WTE Using Mean Averages
41 S	20.9	20.8
43 S	22.0	21.6
66 S	25.0	25.8
51 M	24.3	29.6
53 M	20.5	19.0
56 M	23.8	22.5

TABLE 17 AVERAGE NUMBER OF PATIENTS IN EACH OF THE FOUR CATEGORIES PER DAY

Ward	C A T E G O R I E S			
	I	II	III	IV
22	3.6	7.4	2.8	1.8
23	3.5	8.8	5.0	1.7
45	6.7	4.5	2.3	1.9
46	10.0	6.0	2.8	2.0
63	11.2	4.7	2.4	1.7
65	3.4	7.1	3.0	2.0
54	3.3	7.0	2.5	7.4
55	6.3	4.3	1.8	4.3

TABLE 18 shows the results of using the means in assessing nursing establishment in the fourteen wards and their comparison with the actual whole time nurse equivalent available. As illustrated, the difference ranged from as low as 1.3 WTE in Ward 22 (Surgical) to as high as 15 WTE in Ward 54 (Medical); such difference could be attributed to the high acuity in

TABLE 18 REQUIREMENTS FOR NURSE ESTABLISHMENT USING AVERAGE DIRECT CARE, AND AVERAGE MINUTES OF DIRECT CARE/CATEGORY I PATIENTS.

Ward/Type	No.of Beds	Average occupancy	% Direct care	Minutes of mean average direct care per 24 hours.	Acuity	WIE Actual	WIE Requirement as per CFC study	WIE/Bed
22 S	16	97	43	94	1.9	18.0	19.3	1.2
23 S	20	95	43	94	2.0	18.0	24.2	1.2
41 S	22	97	43	94	1.5	19.0	20.8	0.95
43 S	22	98	43	94	1.6	17.0	21.6	1.0
45 S	16	96	43	94	1.8	19.0	17.6	1.1
46 S	22	94.5	43	94	1.7	18.0	22.4	1.0
63 S	22	90.9	43	94	1.6	19.0	20.3	0.9
65 S	16	97.1	43	94	2.0	17.0	19.7	1.2
66 S	22	93	43	94	2.0	19.0	25.8	1.2
Average		95.4			1.8			
51 M	22	94	42.6	94	2.2	18.0	29.6	1.3
53 M	16	94	42.6	94	2.0	17.0	19.0	1.2
54 M	22	91.8	42.6	94	2.0	18.0	33.0	1.5
55 M	18	92.8	42.6	94	2.1	17.0	22.8	1.3
56 M	22	93	42.6	94	1.7	21.0	22.5	1.0
Average		92.7			2.1			1.5

Key: S: Surgical
M: Medical
WIE: Whole Time equivalent
CFC: Criteria For Care

Medical Wards. Ward 45, however, shows nurse requirement less than the actual by 1.4 WTE. This could possibly be attributed to under reporting of patients and activities in this ward.

As for the average bed occupancy, it was 95.4% in the Surgical Wards and 92.7% in the Medical Wards; the acuity was 1.8 and 2.1 respectively. Again from TABLE 18 it will be noted that WTE per bed continues to be approximately one in most of the wards. The acuity observed in this TABLE is higher than those found as a result of the actual data established by the study (TABLE 15, page 164).

SECTION II

NURSE SATISFACTION

Using the scores obtained from the nurse satisfaction questionnaire (APPENDIX V, Volume II), the percentage ratings of satisfaction were calculated for Patient Care, Staffing and Total using the method outlined in Criteria for Care.

TABLE 19 NURSE SATISFACTION IN THE SIX SURVEYED WARDS

WARD	PATIENT CARE	STAFFING	TOTAL
41 S	81.0%	66.2%	74.1%
43 S	89.6%	77.5%	83.9%
66 S	88.1%	65.0%	77.2%
51 M	87.4%	62.0%	75.4%
53 M	86.6%	71.3%	79.4%
56 M	87.7%	68.7%	78.8%

TABLE 19 shows nurse satisfaction in the six surveyed wards. Satisfaction with patient care ranged from 81.0% to 89.6% . Satisfaction with the staffing situation varied from 62.0% - 77.5% and overall satisfaction ranged between 74.1% - 83.9%. As can be seen, overall nurse satisfaction was highest in ward 43 with patient care scoring higher than staffing.

MINISTRY OF HEALTH OFFICIALS FEEDBACK

This section discusses the feedback and comments of Ministry of Health officials regarding issues pertaining to the nurse manpower situation in Bahrain. Out of 13 questionnaires distributed 10 were returned, representing a response rate of 77%. What follows are the results of the questionnaire/survey. (Volume II, Appendix N).

Number of Nurses Working at Ministry of Health

When asked about the number of nurses working at the Ministry of Health, responses revealed a wide range of variation (between 900-1500) indicating that there is no consensus regarding this issue.

Attrition Among Bahraini Nurses

Respondents indicated that the attrition rate among Bahraini nurses ranged between 2-5%. The main reasons behind such losses were: marriage; family commitments; low salaries; other better job opportunities; long working hours; shift duties; unavailability of transportation; lack of recognition; and, job dissatisfaction. As for the attempts being made to reduce such attrition, they were limited to: a proposal for placing nurses on the professional scale;

creating a nurses association; better salaries and benefits; and, more opportunities for continuing education and career development.

NURSING MANPOWER NEEDS

Almost all the respondents indicated that there is a serious shortage of nurses at the Ministry of Health. Similarly all the Ministry officials who completed the questionnaires felt that the present health services are not adequately meeting the needs of the population of Bahrain. Regarding the issue of the needs of the Ministry for nurses by the Year 2000, most of the respondents indicated that more nurses will be needed. The extent of such need was not specified in figures; a significant number of responses, however, reflected 50% increase over the existing nursing establishments. While the need for more nurses was indicated for meeting future expansion in health services, Ministry of Health Officials especially in the field of nursing management felt that there is a need for more nurses even if the health sector is just to maintain its present services.

As for the impact of advances in medical knowledge and technology on the health services and on the demand for nurse manpower, most of the respondents indicated the urgent need of a greater number of quality nurses to address these issues. When the respondents were asked what plans should be made to meet the increasing demand for nurses, the responses were: need to undertake a nurse manpower study; increase intake of students in College of Health Sciences nursing programmes; supporting the establishment of a nursing association; increasing the nursing budget; enhancing inservice and overseas training, graduating more Bahraini nurses; emphasis on nursing specialization in different fields and placing nurses on the

professional scale.

Methods for Determining Nursing Demand

As for the methods used for determining nurse manpower in the Wards or Health Centres, most of the responses showed that no specific methods are being used for assessing nursing establishment. Very few mentioned that the needs are determined according to the number and type of patients, number of procedures done per hour, ward capacity, doctor-nurse team composition, workload, type of health facility and patients attendance, density of population, as well as vacant positions available.

As for determining the mix of nurses, some indicated that this is done on the basis of type of health facility and workload, number of doctors, functional needs and level of care required. A number of respondents did not complete this item of the questionnaire.

SECTION III

NURSING MANPOWER ESTABLISHMENT IN PRIMARY HEALTH CARE

This section describes the results of the study undertaken in the Health Centres.

Nursing Activities in the Health Centres

The observation of Nursing activities in the selected health centres was performed in the period February 19 - March 19, 1990 during the morning shifts. An additional observation was conducted on eight more health centres during the period October 29 - November 5, 1990. The total number of activities for each day in each of the health centres was calculated. Then

the totals of Nursing activities for each day were entered into a special form described on page (145) of the chapter on Methodology. The totals for the survey period in each of the health centres were then calculated. Details of daily and monthly totals for all the health centres are available (APPENDIX X, Volume II).

TABLE 20 however, presents a summary of the monthly totals for the six health centres surveyed in the main study. Similarly TABLE 21 shows the totals for the additional eight health centres surveyed. As evident in TABLES 20 and 21, the total number of nursing activities as well as their frequencies differ significantly from one health centre to the other depending on the catchment area, the type of services offered and the community's demand for and utilization of health services. Clearly, demands in the area of preventive services are much higher than other services available in the health centres. It can be observed that nurses are also immersed in clerical work which absorbs a high percentage of their daily activities. Upon reviewing TABLES 20 and 21, ante-natal services utilization are generally found to be high. Due to Government support for the Health For All By the Year 2000 initiative, immunization is an on going activity and public immunization is approaching 100 percent of the population. To complete the preventive services, health education is becoming a very important component in the provision of health care services through the Public Health Directorate. Health Education is being attended to by a team consisting of a community nurse, a midwife and maternal and child health care nurse. Communication plays a major role in health care services. It may be important to consider a clerk to undertake communication as well as other clericals tasks. Both communication and clerical tasks consume great amount

TABLE 20 SUMMARY OF THE MONTHLY TOTAL ACTIVITIES IN THE SIX SURVEYED HEALTH CENTRES

	TOTAL MONTHLY NURSING ACTIVITIES					
PREVENTIVE	Sitra HC	Sh.Salman HC	Naim HC	Jidhafs HC	Isa Town HC	Sh.Sabah HC
Ante-natal Primi	134	79	48	239	62	104
Multi	233	135	111	390	158	166
Revisit	196	171	156	444	223	217
Midwife encounter	89	82	155	193	206	81
Post-natal Mother	11	36	49	35	75	38
Newborn	15	13	42	89	40	5
Child screening under 5 yrs	161	269	152	412	154	107
Immunization	478	418	272	656	266	164
School Service	108	100	15	302	84	15
Health Education	1023	92	514	305	412	650
Counselling	55	120	490	59	185	706
Communication	3357	2213	2218	3634	2362	1863
Home Visit - Mother	52	24	148	14	17	3
- Child	36	24	2	2	2	3
- Adult	4	13	3	2	0	7
- Elderly	4	26	8	3	2	3
CURATIVE						
Injections	222	159	552	669	427	100
Special Injections	139	793	36	74	1012	207
I.V. Administration	18	16	15	20	16	13
Dressing	922	633	470	718	1016	495
Circumcision	30	15	13	29	41	5
Cryotherapy	2	0	16	0	0	32
Cauterization	1	2	0	15	4	9
Excision-Lesion	1	3	5	4	0	12
Biopsies	1	1	0	0	1	0
Suture Wound	27	8	13	21	32	9
Suture Removal	43	25	18	61	36	22
Incision Abcess	22	7	5	23	5	11
Remove - Foreign Body	9	3	6	7	13	4
First Aid	19	0	24	0	7	2
Ear Lobe Pierce	27	3	11	33	11	2
Ear Wash	7	0	2	0	0	0
Ear Suction	0	0	2	0	0	1
Ear Pack	3	0	0	1	1	1
Eye Wash	31	3	6	8	11	16

(CONTD) TABLE 20 SUMMARY OF THE MONTHLY ACTIVITIES IN THE SIX SURVEYE HEALTH CENTRES

TOTAL MONTHLY NURSING ACTIVITIES						
CURATIVE	Sitra HC	Sh.Salman	Naim HC	Jidhafs HC	Isa Town HC	Sh.Sabah HC
Vision Test	149	36	27	57	259	33
Tonography	2	0	2	3	2	5
Epilation	17	6	6	31	18	10
E.C.G.	31	40	64	47	89	64
Vitalograph	0	0	0	1	3	1
O_2 Administration	1	0	8	2	12	5
Nebulization	47	90	44	85	112	75
Control Nose Haemorrhage	2	2	2	1	0	0
PPD Test	4	26	2	6	18	7
Other Tests	2	152	22	0	12	31
Enema	0	2	0	0	2	0
Cold Sponge	8	2	0	1	3	5
I.U.C.D.	0	1	5	1	4	3
Vital Signs TPR/BP	49	40	54	17	11	203
ASSOCIATED WORK						
Clerical	3397	2895	1857	5557	3688	1674
Meeting	23	10	85	26	99	5
Escorting	165	135	421	0	116	5
Personal & Miscellaneous	432	139	115	49	128	128
Others	422	279	470	739	159	400

Key:
HC: Health Centre

TABLE 21 SUMMARY OF THE TOTAL ACTIVITIES IN THE EIGHT SURVEYED HEALTH CENTRES

	TOTAL MONTHLY NURSING ACTIVITIES							
PREVENTIVE	Budaiya HC	West Rifa HC	National Bank	Kuwait HC	Hoora HC	Dair HC	Bilad	A'Ali HC
Ante-natal Primi	11	0	3	19	26	0	10	4
Multi	43	0	7	0	75	0	7	39
Revisit	45	0	10	42	105	0	37	36
Midwife encounter	23	0	0	33	28	0	8	21
Post-natal Mother	13	0	10	7	21	21	26	0
Newborn	0	0	0	0	37	0	4	0
Child Screening	53	6	50	66	48	14	42	27
Immunization	89	14	56	48	51	59	49	37
School Service	13	0	2	13	0	0	2	5
Health Education	28	85	79	85	142	112	3	93
Counselling	4	87	89	48	33	7	3	12
Communication	497	148	298	137	619	456	473	29
Home visit - Mother	22	0	9	10	28	5	8	0
- Child	0	0	0	3	31	0	3	7
- Adult	0	0	7	7	14	6	3	2
- Elderly	0	0	0	1	6	1	2	0
CURATIVE								
Injections	76	73	27	104	11	83	55	41
Special Injections	14	1	16	0	75	0	60	21
I.V.Administration	6	1	2	1	1	4	2	0
Dressing	272	79	152	147	75	179	110	140
Circumcision	0	3	0	0	0	2	22	0
Cryotherapy	0	0	0	0	0	0	0	0
Cauterization	0	0	0	0	0	0	0	1
Excision-Lesion	0	2	1	0	0	0	1	0
Biopsies	0	0	0	0	0	0	0	0
Suture Wound	1	1	4	4	0	1	4	1
Suture Removal	3	1	5	1	7	6	4	1
Incision Abcess	2	2	0	0	0	0	0	3
Remove Foreign Body	0	2	0	0	1	1	0	1
First Aid	0	1	0	0	2	0	0	0
Ear Lobe Pierce	2	0	0	0	2	1	0	4
Ear Wash	0	0	3	0	1	2	2	0
Ear Suction	0	0	0	0	0	0	0	0

(CONTD) TABLE 21 SUMMARY OF THE TOTAL ACTIVITIES IN THE EIGHT SURVEYED HEALTH CENTRES

	TOTAL MONTHLY NURSING ACTIVITIES							
CURATIVE	Budaiya HC	West Rifa HC	National Bank of Bahrain HC	Kuwait HC	Hoora HC	Dair HC	Bilad HC	A'Ali HC
Ear Pack	2	0	0	0	0	3	0	0
Eye Wash	1	0	0	2	2	2	1	2
Vision Test	14	5	20	6	5	17	10	18
Tonography	4	0	2	0	0	0	0	0
Epilation	5	0	2	7	1	2	6	4
ECG	8	1	18	2	4	14	8	5
Vitalograph	0	0	0	0	4	1	0	1
O_2 Administration	2	0	0	0	2	1	1	2
Nebulization	17	22	6	2	8	9	10	6
Control Nose Haemorrhage	0	0	0	0	0	0	0	0
PPD Test	2	0	3	0	0	0	2	0
Other Tests	0	1	15	0	41	1	0	1
Enema	0	0	1	0	0	0	0	0
Cold Sponge	0	0	0	1	0	1	1	0
IUCD	0	0	0	1	4	0	0	1
Vital Signs TPR/BP	3	0	21	1	4	0	0	1
ASSOCIATED WORK								
Clerical	693	234	266	300	537	501	550	44
Meeting	0	0	0	3	4	41	0	6
Escorting	13	12	8	4	6	9	6	0
Personal & Miscellaneous	28	20	0	15	16	68	16	25
Others	137	13	163	40	185	62	169	0

Key:
HC - Health Centre

of the nurse time. (Volume II, appendix K).Among the many curative matters, dressing is more frequently seen in any health centre.

ASSESSMENT OF NURSING ESTABLISHMENT IN THE HEALTH CENTRES

The Nursing establishments in the primary health care, health centres were calculated using the Hurst and Costin (1987) formula. Basically the formula is as follows:

WTE = A x B /C/D

where:

A : Total hours worked by all community Nursing team in a given time.

B : Whole Time Equivalent factor

C : Duration of observation in weeks.

D : Number of hours/week

Since the WTE factors (B) reflects the actual number of working days per year per nurse, it was calculated on the basis of the following assumptions:

i) Each year, in Bahrain in the Public Health Directorate, 153 days are consumed by different leaves/holidays:

. weekends	..	104 days
. yearly leave	..	30 days
. public holidays	..	13 days
. average sick leave	..	6 days
Total days/year	..	153 days

ii) Accordingly the actual number of days worked/year is calculated as follows:

365 - 153 = 212 days

iii) Therefore, the WTE factor in Bahrain is:
365/212 = 1.7

This excludes pregnancy leave, orientation and training leave for which replacements or overtime are needed. The WTE factor of 1.7 was incorporated in Hurst and Costin's computer programme along with nursing activities and the time needed for performing each of these activities. The Computer programme is outlined in APPENDIX Y, Volume II).

The monthly totals for each health centre were entered and the total nursing establishment as well as the breakdown of the nursing staff were calculated. Fourteen computer printouts for the fourteen health centres with the total activities, total hours consumed in performing these activities, total and breakdown of the nursing establishments were produced (APPENDIX Z, Volume II).

TABLE 22 compares the nursing establishment in the six health centres as assessed by the study and those currently available. As shown, the study produced higher figures in each of the six surveyed health centres. The difference ranged from 2.1 - 10.1 WTE, being lowest in Sh. Salman Health Centre and highest in Jidhafs Health Centre. The mean difference is 5.8 WTE for all studied health centres.

TABLE 23 is a comparison of the current nursing establishments and those assessed by the study in the

TABLE 22 COMPARISON BETWEEN NURSING ESTABLISHMENTS IN THE SIX HEALTH CENTRES AS ASSESSED BY THE STUDY AND CURRENTLY AVAILABLE

HEALTH CENTRE	NURSE ESTABLISHMENT														DIFF
	S.INCH		SN		MW		CHN		MCH		PN		TOTAL		
	C	S	C	S	C*	S	C	S	C	S	C	S	C	S	
Sitra	1.0	3.6	3.0	3.9	0.3	3.3	2.0	3.6	2.0	4.1	4.0	3.4	12.3	21.9	9.6
Naim	1.0	3.0	8.0	3.0	0.3	2.9	2.0	3.5	1.0	3.6	3.0	2.66	15.3	18.6	3.3
Sh. Salman	1.0	2.8	5.0	3.1	0.3	1.9	2.0	3.0	2.0	2.7	3.0	1.9	13.3	15.4	2.1
Isa Town	1.0	4.3	4.0	4.5	0.3	2.8	3.0	2.6	2.0	3.0	6.0	3.0	16.3	20.2	3.9
Sh. Sabah	1.0	2.6	2.0	2.7	0.3	2.6	2.0	2.2	2.0	2.7	2.0	2.2	9.3	15.0	5.7
Jidhafs	1.0	3.2	5.0	3.5	0.3	4.2	3.0	4.6	2.0	5.2	2.0	2.7	13.3	23.4	10.1
															Ave.5.8

KEY:
S.INCH: Sister Incharge
SN: Senior Nurse
MW: Midwife
CHN: Community Health Nurse
MCH: Maternal Child Health
PN : Practical Nurse

* A Midwife shared between 3 Health Centres
C: Current number of nurses in health Centre
S: Number of nurses establishment according to the study

TABLE 23 COMPARISON BETWEEN NURSING ESTABLISHMENTS IN THE EIGHT HEALTH CENTRES AS ASSESSED BY THE STUDY AND THOSE CURRENTLY AVAILABLE

	NURSE ESTABLISHMENT																			
HEALTH CENTRE	S.INCH		SN		MW		CHN		MCH		PN		TOTAL		Difference
	C	S	C	S	C*	S	C	S	C	S	C	S	C	S	
A"Ali	0	1.4	1.0	1.5	0.2	1.3	1.0	1.2	1.0	1.4	1.0	1.2	4.2	8.0	3.8
Bilad Al Qadim	1.0	2.7	1.0	2.7	0.2	1.9	1.0	2.9	1.0	2.6	3.0	2.3	7.2	15.1	7.9
Budayia	1.0	2.7	2.0	2.8	0.3	2.0	2.0	2.6	2.0	2.6	2.0	2.4	9.3	15.1	5.8
Dair	1.0	2.5	1.0	2.5	0	1.2	1.0	2.0	1.0	1.9	2.0	2.2	6.0	12.3	6.3
Hoora	1.0	2.4	1.0	2.6	0.3	3.4	1.0	4.0	1.0	4.7	2.0	2.0	6.3	19.1	12.8
Kuwait	1.0	1.7	2.0	1.7	0.3	1.4	2.0	2.3	1.0	1.7	4.0	1.5	10.3	10.3	0.0
NBB	1.0	2.1	3.0	2.3	0.3	1.2	3.0	2.4	2.0	1.8	0	1.9	9.3	11.7	2.4
West Riffa	0	1.3	1.0	1.3	0	0.6	1.0	0.8	0	0.8	2	1.1	4.0	5.9	1.9
															Ave 6.8

* Midwife shared between a number of Health Centres
(0 = no. MW, 0.2 = MW shared between 5 HC, 0.3 = MW shared between 3 HC)

Key:
C: Current Nurse Establishment
S: Number of Nurses according to the study
S.INCH: Sister incharge
SN: Senior Nurse
MW: Midwife
NBB: National Bank of Bahrain Health Centre
CHN: Community Health Nurse
MCH: Maternal Child Health
PN: Practical Nurse
HC: Health Centre

TABLE 24 COMPARISON OF NURSE MANPOWER REQUIREMENTS CURRENT/STUDY IN THE FOUR REGIONS

	T		Y		P		E	
HEALTH CENTRE/ REGION	Super A Current/Study		A Current/Study		B Current/Study		C Current/Study	
Region I			13.3	15.4				
Sh.Salman					9.3	11.7		
NBB							6	12.4
Dair								
Region II								
Naim	15.3	18.5						
Sh.Sabah			9.3	15.0				
Al Hoora					6.3	19.1		
Region III								
Isa Town			16.3	20.2				
Jidhafs			13.3	23.4				
Bilad Al-Qadim					7.2	15.1		
Budaiya					9.3	15.2		
A"Ali							4.2	7.9
Region IV								
West Riffa							4.0	5.9
Sitra			12.3	21.8				
Kuwait			10.3	10.3				
Total	15.3	18.5	74.8	106.1	32.1	62.1	14.2	26.2
Difference		3.2		31.3		29		12
Mean				5.2		7.25		4
Additional WIE needed		3.2		57.2		29		12
WIE/HC		18.5	12.5	17.7	8.0	15.27	4.7	8.73
Sub total		18.5		194.7		61.1		26.2
Total WIE for 21 HC		300.5 300.5 - 200 = 100.5 PN & above						

Key - NBB: National Bank of Bahrain Health Centre WIE/HC: Whole time equivalent in Health Centre
PN : Practical Nurse HC: Health Centre

eight additional selected health centres surveyed. As illustrated the study results are also higher than the current establishments in all the health centres except in Kuwait Health Centre where the two figures were the same. The highest difference in the studied health centres was however in Hoora Health Centre and the least in West Riffa Health Centre. The mean average difference is 6.8 WTE of all studied Health Centres.

TABLE 24 reflects an overall comparison of nurse requirement as per the study and those actually available in the fourteen health centres. The difference in the super type A health centre is 3.2 WTE, in Type A health centre 31.3 WTE in type B health centre 29.0 WTE and the Type C health centre 12 WTE. The mean average differences were calculated and multiplied by the number of health centres available under each of the four categories Super A, A, B and C. The additional number of nurses needed are therefore 3.2, 57.2, 29.0 and 12.0 in types Super A, A, B and C respectively. The mean average number of whole time equivalents needed in each of the four categories were also calculated. One notices that Type A Health Centres should have an average of 17.7 WTE, Type B 15.27 WTE and Type C 8.73 WTE. The one super A, 11 type A, 4 type B and 3 type C available and functioning health centres should have a total number of 300.5 WTE. In other words there is a 100 WTE difference between the nurse establishment requirement as determined by the study and those currently employed in the Health Centres.

FUTURE NURSE REQUIREMENTS IN SALMANIYA MEDICAL CENTRE WARDS

Using the data of the study an attempt was made to determine the future requirements of the six

surveyed wards. Such planning is based on changes of acuity over time (acuity is workload Index over number of patients (Ball, 1987). Improvement in the quality of care is directly proportional to technology utilization which is reflected by ascending acuity.

Ball (1987) illustrated how acuity can be used to plan for nursing requirements that match changes in levels of service and use of beds. The same guidelines were used in projecting the nursing requirement in Salmaniya Medical Centre, taking into consideration that factors like bed occupancy and workload index were kept constant.

As shown in TABLES 25 and 26, increasing the acuity in Wards 41 and 43 from 1.6 to 2.1 over the period 1990-2000 will increase the nursing requirements from 20.8 WTE and 21.7 WTE in 1990 to 27.3 WTE and 28.5 WTE respectively in the year 2000. It is worth mentioning that number of beds, percent occupancy and workload index were kept constant. Similarly TABLES 27, 28, and 29 show how increasing the acuity from 1.8 to 2.1 over the period 1990 to 2000 will result in increased nursing requirements from 25.0 WTE, 24.6 WTE and 23.6 WTE in 1990 to 29.2 WTE, 28.7 and 27.5 WTE in the year 2000, in Wards 66, 51 and 56 respectively. In Ward 53, nevertheless, the acuity was already high (2.2) and a further increase can not be anticipated (Table 30).

Salmaniya Medical Centre has 598 beds distributed in 32 Wards covering different specialities like Medical, Surgical, Paediatric, Gynaecology, Ear, Nose and Throat (ENT) and Optholmology. For the purpose of this exercise the beds were distributed between the two broad specialities: Surgical and Medical. The former having 321 beds and the latter 277 beds.

TABLE 25 FUTURE NURSE REQUIREMENT FOR WARD 41

	TARGET YEARS IN THE PLAN PERIOD										
WARD 41 S	90	91	92	93	94	95	96	97	98	99	2000
No of beds	22	22	22	22	22	22	22	22	22	22	22
Occupancy %	97	97	97	97	97	97	97	97	97	97	97
Acuity	1.6	1.6	1.7	1.7	1.8	1.8	1.9	1.9	2.0	2.0	2.1
Workload Index of I	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61
WTE needed	20.8	20.8	22.1	22.1	23.4	23.4	24.7	24.7	26.0	26.0	27.3

TABLE 26 FUTURE NURSE REQUIREMENTS FOR WARD 43

WARD 43 S	TARGET YEARS IN THE PLAN PERIOD										
	90	91	92	93	94	95	96	97	98	99	2000
No.of beds	22	22	22	22	22	22	22	22	22	22	22
Occupancy %	98	98	98	98	98	98	98	98	98	98	98
Acuity	1.6	1.6	1.7	1.7	1.8	1.8	1.9	1.9	2.0	2.0	2.1
Workload Index I	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63
WTE needed	21.7	21.7	23.1	23.1	24.4	24.4	25.8	25.8	27.2	27.2	28.5

TABLE 27 FUTURE NURSE REQUIREMENT FOR WARD 66

WARD 66 S	TARGET YEARS IN THE PLAN PERIOD										
	90	91	92	93	94	95	96	97	98	99	2000
No.of beds	22	22	22	22	22	22	22	22	22	22	22
Occupancy %	93	93	93	93	93	93	93	93	93	93	93
Acuity	1.8	1.8	1.8	1.8	1.9	1.9	1.9	2.0	2.0	2.0	2.1
Workload Index I	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68
WTE needed	25.0	25.0	25.0	25.0	26.4	26.4	26.4	27.8	27.8	27.8	29.2

TABLE 28 FUTURE NURSE REQUIREMENT FOR WARD 51

WARD 51 M	TARGET YEARS IN THE PLAN PERIOD										
	90	91	92	93	94	95	96	97	98	99	2000
No.of beds	22	22	22	22	22	22	22	22	22	22	22
Occupancy %	94	94	94	94	94	94	94	94	94	94	94
Acuity	1.8	1.8	1.8	1.8	1.9	1.9	1.9	2.0	2.0	2.0	2.1
Workload Index I	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.66
WTE needed	24.6	24.6	24.6	24.6	25.9	25.9	25.9	27.3	27.3	27.3	28.7

TABLE 29 FUTURE NURSE REQUIREMEN FOR WARD 56

WARD 56 M	TARGET YEARS IN THE PLAN PERIOD										
	90	91	92	93	94	95	96	97	98	99	2000
No.of beds	22	22	22	22	22	22	22	22	22	22	22
Occupancy %	93	93	93	93	93	93	93	93	93	93	93
Acuity	1.8	1.8	1.8	1.8	1.9	1.9	1.9	2.0	2.0	2.0	2.1
Workload Index I	0.64	0.64	0.64	0.64	0.64	0.64	0.64	0.64	0.64	0.64	0.64
WTE needed	23.6	23.6	23.6	23.6	24.9	24.9	24.9	26.2	26.2	26.2	27.5

TABLE 30 FUTURE NURSE REQUIREMENT FOR WARD 53

WARD 53 M	TARGET YEARS IN THE PLAN PERIOD										
	90	91	92	93	94	95	96	97	98	99	2000
No.of beds	16	16	16	16	16	16	16	16	16	16	16
Occupancy %	92	92	92	92	92	92	92	92	92	92	92
Acuity	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2
Workload Index I	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62
WIE needed	20.1	20.1	20.1	20.1	20.1	20.1	20.1	20.1	20.1	20.1	20.1

Considering that Salmaniya Medical Centre has 321 surgical beds at a current occupancy rate of 95.4% with an acuity of 1.8 and WTE/per workload index of one as 0.64, the number of nurses required will be:

321 x 0.954 = 306.2
306.2 x 1.8 x 0.64 = 352.8 WTE

Also considering there are 277 medical beds available in Salmaniya Medical Centre, nursing requirements can be calculated on the basis of 92.7% occupancy, 2.1 acuity and WTE per workload index of one equal 0.64. The number of nurses required are:

277 x 0.927 = 256.8
256.8 x 2.1 x 0.64 = 345.1 WTE

The total number of nurses required for the total medical and surgical wards is therefore 697.9 WTE. While increasing the average acuity in the medical wards (2.1) is not feasible in the foreseeable future, increasing it in the surgical wards from 1.8 to 2.1 is possible and will therefore lead to an increase in the total requirement for nurses.

TABLE 31 shows the requirement for nursing establishment (based on the existing average acuity figures of 2.1 for medical and 1.8 for surgical) for the 598 medical and surgical beds. This suggests that 697.9 WTE nurses are needed compared with the current number of 507 nurses on the wards, a difference of 190.9 nurses. Since the study was only conducted on the wards, this reflects the nursing establishment situation in the wards only. TABLE 32 shows nurses in the wards constitute around 54.5% of the total nursing and other support staff in Salmaniya Medical Centre. Although not studied one would assume that if the percentage of other categories of staff are to be

maintained their numbers would have to be proportionally increased. Therefore the total figure of 1120.9 calculated on the basis of Criteria For Care Method would be expected to be higher.

Nursing requirements were also estimated using ascending acuity. While it was possible to gradually increase the acuity in the surgical wards from 1.8 to 2.1 overtime (1990-1999), it was nevertheless kept constant at 2.1 in the medical wards. This resulted in an increase in the wards nurse requirements to 717.5, 737.1 and 756.7 WTE. As shown in TABLE 32 the total nursing establishment were therefore calculated as 1140.5, 1160.5 and 1179.7 at acuity 1.9, 2.0 and 2.1 respectively.

TABLE 31 NURSING REQUIREMENT OF THE MEDICAL AND SURGICAL BEDS

Type of Beds	Number of Beds	Acuity	Nursing Requirement
Medical	277	2.1	345.1
Surgical	321	1.8	352.8
			Total 697.9 WTE
Medical	277	2.1	345.1
Surgical	321	1.9	372.4
			Total 717.5 WTE
Medical	277	2.1	345.1
Surgical	321	2.0	392.0
			Total 737.1 WTE
Medical	277	2.1	345.1
Surgical	321	2.1	411.6
			Total 756.7 WTE

TABLE 32 COMPARISON BETWEEN THE CURRENT NURSING ESTABLISHMENT IN SALMANIYA MEDICAL CENTRE AND FUTURE REQUIREMENTS

		NUMBERS DETERMINED BY THE STUDY USING ACUITY CHANGE OVERTIME			
Year Acuity	Current Number	1990 1.8S/ 2.1M	1993 1.9S/2.1M	1996 2.0S/2.1M	1999 2.1S/2.1M
Nurses on the wards	507	697.9	717.5	737.1	756.7
Nurses in other areas:					
Admin.	59	59	59	59	59
OT,RR,AKU CCU,ICU AE,DCU	189	189	189	189	189
Hospital attendent	136	136	136	136	136
Support staff	39	39	39	39	39
Total WTE	930	1120.9	1140.5	1160.1	1179.7

OT : OPERATION THEATRE
RR : RECOVERY ROOM
AKU: ARTIFICIAL KIDNEY UNIT
CCU: CARDIAC CORONARY UNIT
ICU: INTENSIVE CARE UNIT
A/E: ACCIDENT AND EMERGENCY
DCU: DAY CASE UNIT
CFC: CRITERIA FOR CARE

FUTURE NURSE REQUIREMENT IN PRIMARY CARE

The data obtained from the study undertaken in the health centres was used to project the future nurse requirement in Primary Health Care. The health plan for the next five years aims to add two new health centres (type A), upgrading of one type C health centre into a type B and the conversion of two clinics into type C health centres, giving a total of 23. There are no plans for further increase in the number of health centres until the year 2000 (TABLE 33).

TABLE 33 PLAN FOR HEALTH CENTRES IN BAHRAIN UNTIL THE YEAR 2000

TYPE	TARGET YEARS IN THE PLAN PERIOD											
	89	90	91	92	93	94	95	96	97	98	99	2000
Super A	1	1	1	1	1	1	1	1	1	1	1	1
A	10	11	11	12	12	13	14	14	14	14	14	14
B	4	4	4	4	6	6	5	5	5	5	5	5
C	4	3	3	4	2	3	3	3	3	3	3	3
Clinic	2	2	2	1	1	0	0	0	0	0	0	0
Total	21	21	21	22	22	23	23	23	23	23	23	23

Based on the future health plan and using the data available, it was calculated that by 1992, 26.4 WTE additional nurses will be needed, in 1993, 13.0 WTE , and in 1994, 26.4 WTE giving a total additional requirement of 65.8 WTE (TABLE 34).

TABLE 34 FUTURE NURSE REQUIREMENT IN PRIMARY HEALTH CARE

Type of Health Centre	Location	Year changes are	WTE Needed
A	Isa Town (sanad)	1992	17.7
C	Zallaq	1992	8.7
B	A"Ali	1993	6.5
B	W. Riffa	1993	6.5
A	Hamad Town (two)	1994	17.7
C	Jaw/Askar	1994	8.7

Summary: 26.4 WTE are needed in 1992
13.0 WTE are needed in 1993
26.4 WTE are needed in 1994
65.8 WTE Total

NURSE MANPOWER REQUIREMENT FOR PSYCHIATRIC HOSPITAL

While the nurse requirements for the psychiatric hospital were not estimated,it was necessary to determine data to reflect nursing establishment in the Psychiatric Hospital that could be added to other nursing establishments to complement the overall Ministry of Health nurse requirements. Using the projected nurse/population ratio as indicated in psychiatric hospital official reports, the nurse requirements were calculated. TABLE 35 shows that numbers of psychiatric nurses needed are 301.8 in 1990 and 392 nurses in the year 2000 to achieve the desired

ratio of 60:100,000 population. The present number of 130 in 1990 however, presents a ratio of 25.8:100,000. This means that an additional 171.8 nurses are immediately needed to achieve the desired ratio. Thereafter 8-10 nurses would be required each year during the period 1991-2000.

FUTURE SUPPLY OF NURSE MANPOWER

As indicated by Hornby et al (1980) the future supply of manpower can be based on the availability of current staff, the rate of loss and future additions. Accordingly baseline manpower projections are based on current staff in post combined with estimates of additions and losses. Assuming that no significant changes are expected in nursing supply policies in Bahrain, TABLE 36 demonstrates the Gain-Loss baseline Projection in Bahraini nurses during the period 1990-2000.

The gains are in fact mainly the graduates of the College of Health Sciences based on the expected number of graduates from the present pool of enrolled nursing students and the yearly intake of around 130 students (as from 1990), with an expected attrition rate of 22% mainly in the first year. Gains also include nurses returning from temporary retirement, employees transferring from other organization etc. Such gains in Bahrain are very minimal. As for the losses, they may include death, retirement, emigration, resignation, transfer to other jobs and temporary losses due to study leave and or extended leaves. In Bahrain the nursing force is young, accordingly the losses from death and retirement are almost non-existent. Under the losses, however, the Bahrain Defence Hospital graduates (students sponsored by Bahrain Defence Force for future enrolment in the Military Hospital) have been listed.

TABLE 35 NURSE MANPOWER REQUIREMENT FOR PSYCHIATRIC HOSPITAL USING NURSE/POPULATION* RATIO

Staff Type: Nurses	TARGET YEARS IN THE PLAN PERIOD										
	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Planned nurses needs		17	32	17							
Population estimate for each year of the plan	503,022	516,444	530.548	545,700	561,632	577,607	593,337	608,458	623,969	639,066	653,5
Current Psy Nurse/population ratio 25.8:100,000	130	147	179	196							
Target/Psy. Nurse population ratio 60:100,000	301.8	309.9	318	327	337	346.6	356	365	374	383	392
Annual increment needed over previous year	171.8	8.1	8.1	9	10	9.6	9.4	9	9	9	9

* Medium Projection
Source: Ministry of Health, State of Bahrain, Annual Report 1989.

TABLE 36 GAIN/LOSS BASELINE PROJECTION FOR BAHRAINI NURSES IN MINISTRY OF HEALTH

Source	YEARS OF PROJECTION										
	90	91	92	93	94	95	96	97	98	99	2000
A. Gains											
Current graduates	83	86	80	100	100	100	100	100	100	100	100
Nurses returning from temporary retirement	-	1	1	1	1	2	-	-	-	-	-
Total	83	87	81	101	101	102	100	100	100	100	100
B. Losses											
Death, Retirement, Immigration.	--	--	--	--	--	--	--	--	--	--	--
Resignation due to family reasons.	3	4	4	4	4	4	4	4	4	4	4
Bahrain Defence Force graduates	17	21	18	20	20	20	20	20	20	20	20
Total	20	25	22	24	24	24	24	24	24	24	24

They in fact are gains to the health services but also are lost from the future supply for Ministry of Health.

As illustrated, in TABLE 37 the supply of Bahraini nurses at the end of the period 1990-2000 and after considering the yearly gains and losses, will increase from 641 in 1990 to 1374 in the year 2000.

While the previous two TABLES 36 and 37 indicate the gain and loss projection among Bahraini nurses in the period 1990-2000 and the supply projection at baseline, the same projection is presented for all nurses working in Ministry of Health Bahrain in regard gain-loss and supply projection at baseline (TABLES 38 AND 39).

When considering the baseline projections of the gains and losses among all nurses (TABLE 38) the picture somehow becomes different from that for Bahraini nurses. Under the gains the yearly overseas recruits were added to the graduates of the College of Health Sciences . The Table shows the actual recruitment that took place in the years 1990 and 1991. The anticipated recruitment for the years 1992, 1993 and 1994 is largely due to the expected completion of Salmaniya Medical Centre expansion project. The demand for nurses will be highest is 1993 and 1994 where the yearly recruitment is expected to reach 100 nurses. Beyond the year 1994, it is anticipated that recruitment will stabilize and be maintained at about 73 nurses annually. This is important for the maintenance of the nursing pool considering the anticipated nurse turnover. In 1991 a significant drop in the number of overseas nurses recruitment was encountered mainly due to the Gulf War and the instability of the region towards the end of 1990 and beginning of 1991 when preparations and arrangements

TABLE 37 SUPPLY BASELINE PROJECTION FOR BAHRAINI NURSES IN MINISTRY OF HEALTH

	YEARS OF PROJECTION										
	90	91	92	93	94	95	96	97	98	99	2000
Supply at the start of the year	578	641	703	762	839	916	994	1070	1146	1222	1298
Gains	83	87	81	101	101	102	100	100	100	100	100
Losses	20	25	22	24	24	24	24	24	24	24	24
Supply at the end of the year	641	703	762	839	916	994	1070	1146	1222	1298	1374

TABLE 38 GAIN-LOSS BASELINE PROJECTION FOR ALL NURSES IN MINISTRY OF HEALTH

Source/Destination	YEARS OF PROJECTION										
	90	91	92	93	94	95	96	97	98	99	2000
Gains:											
Current graduates	83	86	80	100	100	100	100	100	100	100	100
Overseas recruitment	111	41	73	100	100	73	73	73	73	73	73
Nurses returning from temporary retirement.	0	1	1	1	1	2	0	0	0	0	0
Total	194	128	154	201	201	175	173	173	173	173	173
Losses:											
Family/personal reasons	136	74	71	71	71	71	71	71	71	71	71
Graduates lost to Bahrain Defence Force	17	21	18	20	20	20	20	20	20	20	20
Total	153	95	89	91	91	91	91	91	91	91	91

TABLE 39 SUPPLY BASELINE PROJECTION FOR ALL NURSES IN MINISTRY OF HEALTH

	YEARS OF PROJECTION										
	90	91	92	93	94	95	96	97	98	99	2000
Supply at the start of the year	1366	1407	1440	1505	1615	1725	1809	1891	1973	2055	2137
Gains	194	128	154	201	201	175	173	173	173	173	173
Losses	153	95	89	91	91	91	91	91	91	91	91
Supply at the end of the year	1407	1440	1505	1615	1725	1809	1891	1973	2055	2137	2219

for overseas advertisements and recruitment are usually made.

Under the losses the number of non Bahraini nurses who resign yearly from the service were also incorporated. Having determined the gains and losses for all nurses, a baseline projection of nursepower supply was made (TABLE 39). The supply of 1407 in 1990 is expected to increase to 2219 in the year 2000.

In addition to establishing a baseline projection for assessing whether the future supply of nurse manpower will be adequate to meet future requirements, a further alternative projection could be made to estimate the likely supply of manpower on the basis of making certain changes in present policies and other factors that could affect nurse manpower gains and losses. TABLE 40 shows an alternative Projection for Gain/Loss in Bahraini nurses by increasing the intake of students in the Associate Degree Nursing Programme from 130 to 160 and an expected number of graduates of 125 as from the year 1995.

Based on the alternative projection of the gains-losses in Bahraini nurses over the period 1990-2000, an alternative projection of Bahraini nurse supply was made (TABLE 41). Comparing the supply of Bahraini nurses using the baseline and alternative projections, it is evident that by increasing the students intake into the nursing programmes at the College of Health Sciences as from 1991, the Ministry of Health will have 1524 Bahraini nurses by the year 2000 based on alternative projection compared with 1374 according to the baseline projection. Similarly an alternative projection for gains and losses for all nurses in Ministry of Health, has been made on the assumption that overseas recruitment will continue to be 100 per year as from 1992 till the year 2000 (TABLE 42).

TABLE 40 GAIN/LOSS ALTERNATIVE PROJECTION FOR BAHRAINI NURSES IN MINISTRY OF HEALTH

Source/Destination	YEARS OF PROJECTION										
	90	91	92	93	94	95	96	97	98	99	2000
Gains											
Current Graduates	83	86	80	100	100	125	125	125	125	125	125
Overseas recruitment	--	--	--	--	--	--	--	--	--	--	--
Nurse returning from temporary retirement	--	1	1	1	1	2	--	--	--	--	--
Total	83	87	81	101	101	127	125	125	125	125	125
Losses											
Family/personal reasons	3	4	4	4	4	4	4	4	4	4	4
lost to Bahrain Defence Force	17	21	18	20	20	20	20	20	20	20	20
Total	20	25	22	24	24	24	24	24	24	24	24

TABLE 41 SUPPLY ALTERNATIVE PROJECTION FOR BAHRAINI NURSES IN MINISTRY OF HEALTH

	YEARS OF PROJECTION										
	90	91	92	93	94	95	96	97	98	99	2000
Supply at the start of the year	578	641	703	762	839	916	1019	1120	1221	1322	1423
Gains	83	87	81	101	101	127	125	125	125	125	125
Losses	20	25	22	24	24	24	24	24	24	24	24
Supply at the end of the year	641	703	762	839	916	1019	1120	1221	1322	1423	1524

The continued recruitment of 100 nurses is due to the expected completion of Salmaniya Medical Centre expansion project, additional health centres as well as completion of the planned Muharraq hospital with 500 beds.

Based on the alternative projection for the gains and losses for all nurses, an alternative nurse manpower supply projection was made. As shown in TABLE 43, 2583 nurses will be available in the Ministry of Health by the year 2000. This reflects an additional of 284 more nurses by the year 2000 (2583-2219) see TABLE 39 .

ESTIMATING THE NURSE MANPOWER REQUIREMENT FOR THE NEW PROPOSED HOSPITAL

In planning for health manpower needs, provision should be made for any anticipated new projects and expansions. While the expansion of Salmaniya Medical Centre has already started, plans for a new 500 beds hospital in Muharraq area, coming closer to reality. Accordingly if a model for nursing is to be pursued then, the data collection and analysis has to be extended to include an estimation of nurse manpower needs of such a project using the study data and assuming the completion dates as 1999 for phase one and 2000 for phase two. It is hoped that the Ministry of Health will use the calculations in the planning of nurse manpower requirement for the new hospital.

New Hospital: Phase I

Based on the assumption that this Phase will consist of 210 surgical beds and 110 Medical beds in addition to all support services, the nurse manpower requirement will be as follows:

TABLE 42 GAIN/LOSS ALTERNATIVE PROJECTION FOR ALL NURSES IN MINISTRY OF HEALTH

SOURCE/DESTINATION	YEARS OF PROJECTION										
	90	91	92	93	94	95	96	97	98	99	2000
Gains:											
Current Graduates	83	86	80	100	125	125	125	125	125	125	125
Overseas recruitment	111	41	100	100	100	100	100	100	100	100	100
Nurse returning from temporary retirement	--	1	1	1	1	2	--	--	--	--	--
Total	194	128	181	201	226	227	225	225	225	225	225
Losses											
Family/Personal reasons [1]	136	74	71	71	71	71	71	71	71	71	71
Lost to Bahrain Defence Force [2]	17	21	18	20	20	20	20	20	20	20	20
Total	153	95	89	91	91	91	91	91	91	91	91

1 MOH yearly report
2 CHS yearly report

TABLE 43 SUPPLY ALTERNATIVE PROJECTION FOR ALL NURSES IN MINISTRY OF HEALTH

	YEARS OF PROJECTION										
	90	91	92	93	94	95	96	97	98	99	2000
Supply at the start of the year	1366	1407	1440	1532	1642	1777	1913	2047	2181	2315	2449
Gains	194	128	181	201	226	227	225	225	225	225	225
Losses	153	95	89	91	91	91	91	91	91	91	91
Supply at the end of the year	1407	1440	1532	1642	1777	1913	2047	2181	2315	2449	2583

- Number of Surgical beds Phase I = 210
  Occupancy rate 90%
  Acuity 2.1
  WTE Per Workload Index of one 0.64
  Number of Nurses for 210 surgical beds =
  210 x 0.9 x 2.1 x 0.64 = 254 WTE

- Number of Medical beds Phase I = 110
  Occupancy rate 90%
  Acuity 2.1
  WTE Per Workload Index of one 0.64
  Number of Nurses for 110 Medical beds =
  110 x 0.9 x 2.1 x 0.64 = 133 WTE

Also based on the assumption that Phase II will consist of an additional 80 surgical beds and 100 medical beds, the nurse manpower requirement will be expected to be as follows:

- Number of Surgical beds Phase II = 80
  Occupancy rate 90%
  Acuity 2.1
  WTE per Workload Index of one 0.64
  Number of Nurses for 80 surgical beds =
  80 x 0.9 x 2.1 x 0.64 = 97 WTE

- Number of Medical beds Phase II = 100
  Occupancy rate 90%
  Acuity 2.1
  WTE per Workload Index of one 0.64
  Number of Nurses for 100 Medical beds =
  100 x 0.9 x 2.1 x 0.64 = 121 WTE

The total nurse manpower needs would therefore be 605. Since this figure represents the needs of the wards/beds only, it was necessary to estimate the

needs of the other sections/units/specialities on the basis of current nursing categories staffing levels in Salmaniya Medical Centre. The total nurse establishment of the new hospital would therefore be 1028 and the different categories were worked out to be as follows:

- Administration	59*
- Special areas (OT,RR,AKU, CCU, ICU,AE,DCU)	189*
- Nurses on wards	605
- Hospital attendants	136*
- Support staff	39*
	1028 WTE

*(see table 32, page 190)

Summary:

Phase I (year 1999)

- 210 surgical bed	= 254 WTE
- 110 Medical bed	= 133 WTE
- special areas, support staff, Administration and Hospital attendants	= 423 WTE
Total Phase I	= 810 WTE

Phase II (year 2000)

80 surgical bed	= 97 WTE
100 Medical bed	= 121 WTE
Total Phase II	= 218 WTE

NURSE MANPOWER REQUIREMENT FOR MINISTRY OF HEALTH

Using the data and results derived from the study an attempt was made to estimate the total nurse manpower requirement for the Ministry of Health over the period 1991-2000. TABLE 44 illustrates the requirements categorized under different locations of Salmaniya Medical Centre, Primary Health Care, Psychiatric Hospital and Maternity Hospital, as well as the new hospital expected to be built in Muharraq. Under Salmaniya Medical Centre, nursing requirement according to current data was kept constant at 930 WTE from 1990 till 1992. As from 1993 it will increase to 1130 WTE to include the additional 200 nurses required for Salmaniya Medical Centre expansion. According to the study the requirements are kept at 1120.9 WTE (acuity 1.8) for the period 1990- 1992. As from the year 1993 till 1995 it will increase to 1140.5 WTE (acuity 1.9). Again in 1996 and till the year 1998 the nurse requirement is increased to 1160.1 WTE (acuity 2.0). A further increase is incorporated in 1999 and 2000 whereby the nurse establishment reaches 1179.7 WTE reflecting an anticipated acuity of 2.1.

As for the nursing establishment of the Psychiatric Hospital the figures using current data reflect the available number of nurses as well as required, according to information received from Psychiatric Hospital officials. On using the target ratio of 60:100,000 population and expected population growth, the nursing requirement as calculated in TABLE 35 were incorporated. The requirement for nurses in the Maternity Hospital were incorporated as communicated by the hospital administrator, these were 38 nurses in 1991 and 22 in 1992.

TABLE 44 TOTAL NURSE MANPOWER REQUIREMENT FOR MINISTRY OF HEALTH VERSUS SUPPLY 1991-2000

	TARGET YEARS IN THE PLAN PERIOD																					
LOCATION	1990		1991		1992		1993		1994		1995		1996		1997		1998		1999		2000	
	C	S	C	S	C	S	C	S	C	S	C	S	C	S	C	S	C	S	C	S	C	S
S.M.C.	930	1120.9	930	1120.9	930	1120.9	1130	1140.5	1130	1140.5	1130	1140.5	1130	1160.1	1130	1160.1	1130	1160.1	1130	1179.7	1130	1179.7
PHC/HC	265	365	265	365	282.8	391.4	288.8	404.4	306.0	430.8	306.0	430.8	306	430.8	306	430.8	306	430.8	306	430.8	306	430.8
PSY.HOSP	130	301.8	147	309.9	179	318	196	327	196	337	196	346.6	196	356	196	365	196	374	196	388	196	392
MATERN-ITY LONG STAY	230	230	268	268	290	290	290	290	390	390	390	390	390	390	390	390	390	390	390	390	390	390
NEW HOSP																			482	810	271	218
TOTAL REQUIRE-MENTS	1555	2017.7	1610	2063.8	1681.2	2120.3	1904.8	2161.9	2022.0	2298.3	2022.0	2307.9	2022.0	2336.9	2022.0	2345.9	2022	2354.9	2504	3198.5	2293	2610.5
SUPPLY	1407		1440		1532		1642		1777		1913		2047		2181		2315		2449		2583	
DIFFER-ENCE	148	610.7	170	623.8	-149.2	-588.3	-262.8	-519.9	-245.0	-521.3	-109	-394.9	25	-289.9	159	-164.9	293	-39.9	-55	-749.5	390	-27.5

Key: C: Current
S: Study
SMC : Salmaniya Medical Centre
PHC/HC: Public Health Centre Directorate
Psy.Hosp: Psychiatric Hospital
New Hosp: New Hospital to be completed in Muharraq by the year 1999 and 2000 respectively.

As is evident from TABLE 44 the same maternity long-stay figures are listed for both current situation and the study. The major increase in requirement for 100 nurses can be observed in 1994 when the replacement of the existing maternity will be incorporated in the new facilities of Salmaniya Medical Centre which are expected to be completed at that time.

Nursing requirements in the Health Centres were as communicated by concerned officials in the Directorate of Health Centres and according to the health plan. These requirements are expected to increase from 265 WTE in 1990 to 306 WTE in the year 1994. The 1994 figure is expected to continue unchanged till the year 2000. According to the study however, the requirements are expected to increase from 365 WTE in 1990 to 430.8 WTE in the year 2000.

Planning for future manpower needs should reflect any anticipated new project. The needs of the new hospital to be built in Muharraq were also included and as calculated earlier: 810 WTE in 1999 and 218 WTE in the year 2000. The requirements for the new hospital however, were calculated on the basis of the current data and existing staffing levels in Salmaniya Medical Centre as 482 WTE in 1999 and 271 in the year 2000.

Adding all the above requirements, the total nurse requirements for the Ministry of Health according to both current and study data are expected to rise from 1555 WTE and 2017.7 WTE in 1990 to 2293 and 2610.5 WTE by the year 2000. However, due to the opening of the new hospital in Muharraq and the anticipated services, the shortages for nurses is expected to be highest in year 1999.

The Ministry of Health will continue to suffer

shortage of nurses till 1995 indicated by the negative figures under both current and study results (Table 44). According to current data however, the situation will start improving by the year 1996 only to show another shortage by 1999 due to the opening of the new hospital. If however, the study data are to be considered, the Ministry of Health will continue to suffer nurse manpower shortage up to and possibly beyond the year 2000. Considering the Bahraini nurses supply only, the mismatch is much more profound.

SUMMARY

If the total nurse requirements according to the study are compared with the supply it can be easily noticed that until the year 2000 Bahrain will still be dependent on additional overseas recruitment to meet the requirements for nurse manpower. Beyond the year 2000 however, total Bahrainization is possible if no further expansion is scheduled and no additional nurse manpower requirements are deemed necessary.

The final chapter which follows examines the results obtained and reflects on methods used for assessing nurse manpower in secondary and primary health care setting. Some issues pertaining to nursing situation in Bahrain are highlighted.

CHAPTER EIGHT

DISCUSSION AND RECOMMENDATIONS

INTRODUCTION

This chapter elaborates on issues such as why use patient classification in assessing nursing establishments, nursing manpower in Bahrain and mismatches between requirements and supply. Finally the recommendations arising from this study are presented.

WHY ADOPT A PATIENT DEPENDENCY SYSTEM

Nursing administrations all over the world will continue to be challenged by the main issue of determining and allocating nursing personnel to meet variable and unpredicted demands.

In Bahrain, nursing administration is equally challenged in this regard. While patient classification systems succeeded to a great extend in rationally assessing and deploying nursing establishments, a number of nursing organizations all over the world have not yet realized the benefits as well as draw backs anticipated from using patient classification systems.

Since it is important for patient classification systems to accurately measure the extent of nursing care under special conditions such as the operating features of the nursing unit, medical care practices,

and nursing care standards and policies, consequently nursing staff are sometimes reluctant to adopt in total a classification system developed in another setting. Accordingly the wish to develop one's own system may be understandable under these considerations. Vaughan and MacLeod (1980) however, warn that the effort involved in developing one's own system is substantial and frequently underestimated. Furthermore, comparison of classification systems shows that they have many similarities in both the indicators used and the average amount of direct nursing care time found to be needed for each category of patients. Vaughan and MacLeod (1980) thus conclude that it may not be necessary to "reinvent the wheel". This notion was also confirmed by Williams (1988).

The researcher believes that using an already developed patient classification system is a realistic choice in many institutions. Such experience will provide a rich base of information that sets the stage for comparative studies.

This is most true in Bahrain where nursing research is limited and expertise in this field is limited. Following an extensive literature review and after a number of hospital visits and meetings with nursing administration and in depth discussions, it was decided to apply the Criteria for Care method. The selection of this method emerged due to its adaptability and the satisfaction expressed by nursing personnel with its implementation. It has also managed to overcome a number of problems encountered in patient classification and nurse establishment assessments. The results of the study in Salmaniya Medical Centre prove that it is feasible to use the Criteria For Care System (Ball, Goldstone and Collier, 1984). Determining content validity, concurrent validity and predictive validity could be done in

future if the nursing administration opts to do so. Williams (1988) indicated that this could be done without costly studies if expert professional judgment is applied.

DEVELOPING A METHOD FOR ASSESSING NURSING ESTABLISHMENT IN THE COMMUNITY

As indicated by Long and Mercer (1980) the majority of the "bottom up" techniques for estimating nursing establishment have been successful in hospital settings. The estimation of nurses needed in community settings, however, remained confined to the traditional norms whereby a ratio of nurses per population is established and applied.

Long and Mercer (1987) stressed the need for the establishment of special methods for the estimation of demand for nurses in community settings. Two main factors contributed to the difficulty of applying the patient classification methods for assessing nursing requirement in the community settings. These were the general role of the nurse in the community which goes beyond the curative aspect to include prevention and health promotion responsibilities, and the fragmentation of the professional role of nurses in primary health care between a number of nurses categories such as midwives, maternal and child health nurses and community nurses. Waite and Hirsh (1986) note three main reasons why research into the community is more difficult than that in hospital settings. These were mainly lack of and variation in useful information collected about community services, variation of working practice in the community, and limited studies carried out on primary health care establishment in comparison with those undertaken in hospitals.

Realizing the limited use of patient dependency classification systems in assessing nursing establishments in the community, an aspect of the study was dedicated to adopting, developing, testing and implementing the Hurst and Costin (1987) approach in assessing nursing establishment in the community. The results obtained (Chapter 7, page 173) proved that the system has potential in assessing nurse establishment in a Primary Health Care setting. The computer programme developed for this method could be used for assessing the nurse establishment of any health centre. A further merit of the system is that it offers a breakdown of the total nurse establishment in a particular health centre.

NURSING MANPOWER IN BAHRAIN

This section discusses nursing manpower in Bahrain with the main focus on the results of the study in regard to nursing activities and establishment in the Salmaniya Medical Centre Wards and the Primary Health Care, health Centres. The section concludes with a review of the nurse supply-requirement situation.

Nursing Activities and Establishment in the Surveyed Wards

To reflect on nursing activities in the wards, a comparison was made between the results of this study and those obtained in the Criteria for Care study undertaken by Ball, Goldstone and Collier (1984). The comparison included Direct Care, Indirect Care, Associate Work and Personal/Miscellaneous activity results, as obtained from all nurse activity sampling.

As illustrated in Figure 9 (page 158) direct care in Salmaniya Medical Centre wards constitutes 42.8% of all Nursing activities. This is lower than the 55%

result produced by applying Criteria For Care in the Lincolnshire area (Ball, Goldstone and Collier,1984).

This is largely due to the increased involvement of Salmaniya Medical Centre nurses in activities such as clerical tasks, house keeping, escorting patients, attending telephone calls and undertaking other wards errands which are important to the daily management of the ward.

Unlike the Criteria for Care experience, Salmaniya Medical Centre ward nursing teams are responsible for the total care of the patient which ranges from medication to serving meals. It is also apparent that the sociocultural aspects as well as family relations exert additional demand on the nurses absorbing a significant percentage of their time, attention and efforts. In addition, the layout of the wards and number of patients as well as the high occupancy rate (95%) contribute to such a situation. It could be concluded that direct care is somehow compromized due to inadequate clerical, administrative, domestic and support services and shortage of nurses. Other results in the study compared well with the application of Criteria for Care elsewhere (Ball,Goldstone and Collier, 1984).

Nurses in Bahrain however spend more time on Indirect Care and Associate Work as evidenced by the results of 20.3% for indirect care against 11.8% and 27.8% for associated work against 15.3% (Figure 9, page 158). As for personal/miscellaneous activities the percentage of time spent on them in Salmaniya Medical Centre is less than that for Criteria for Care Levels; 9.1% versus 16.6%. The difference in the percentage of time between Salmaniya Medical Centre and results elsewhere is due to the fact that morning shift in Salmaniya Medical Centre starts at 6:30 am and

continue for seven and half hours. The morning shift ends at 2:30 pm when handover takes place. Contrary to the shift system in most United Kingdom hospitals, Salmaniya Medical Centre shift nursing personal do not enjoy meal breaks, brief coffee breaks during the shift however are allowed. The majority of the inhabitants of Bahrain are accustomed to having their meals at home. Accordingly, the personal/ miscellaneous activities at work place in Salmaniya Medical Centre is compensated in favour of other activities pertinent to patients needs.

TABLE 13 (page 159) also compares the two studies in relation to mean average minutes of Direct Care for Category I patients per 24 hours and the mean ratios of Direct Care Per dependency Group I, II, III and IV.

It is interesting to note that there is a great similarity in the mean average minutes of Direct Care per 24 hours per patients in dependency I which were 94 in the Bahrain study and 93 in the North West Nurse Staffing Levels Projects (in the model Ward). Also there were similarities in the mean ratios of direct care per dependency groups which were 1.0: 1.5: 2.4: 4.2 and 1.0: 1.6: 2.5: 3.5 respectively. The significance of the data produced by the study points to the possible usability of the criteria for care system for determining nursing establishment in any country regardless of the health care system.

As for the nursing establishment in Salmaniya Medical Centre Wards the study showed that the actual number of nursing staff in each of the surveyed wards was less than that estimated by the study using the Criteria For Care Method. The difference ranged from 1.9 to 6.3 WTE per ward reflecting a shortage of nurses in each of the wards surveyed, with the problems being more profound in wards 66 (Surgical)

and 51 (Medical) (TABLE 15 Chapter 7 page 164). These findings are in fact consistent with the generally expressed feelings of nurses themselves as well as officials regarding shortage of nurses.

The results obtained in Salmaniya Medical Centre showed a difference of about 190.9 WTE between the current number of available nurses in the wards and those determined in the study. This reflects a shortage of about 27% which is considered a serious problem that could threaten the level of the health care delivery system that the Ministry of Health aims to provide. This shortage is in fact becoming a major area of concern to those responsible, especially in nursing administration. During the observation study in the wards it was observed that this shortage is worst during the evening shifts where the limited number of nursing staff (usually two per ward) assigned to night shifts struggle hard to meet the needs of 16-28 patients, depending on the ward. With the existing high bed occupancy of 95% and above in some wards those nurses are shouldering far more responsibilities than they can cope with.

The opinions of nurses regarding their staffing situation has been voiced in the nurse satisfaction and Ministry of Health Officials questionnaires. In the first, the satisfaction of nurses in all wards surveyed with staffing situation was significantly less than with patient care. In the second questionnaire, almost all respondents indicated that there is a serious shortage among nurses in the Ministry of Health.

As indicated by Alward (1983) an important problem which the nursing profession has not satisfactorily addressed, relates to the discrepancies between the ideal nursing staffing establishments derived by the

patient classification methods and the actual and existing number of nurses available as governed by budgetary constraints. He also warned that without attention to their reliability and validity for the specific organizations standards and practice, Patient Dependency Classification may frustrate rather than assist the nursing administrators efforts to predict staffing needs.

A number of nursing administrators fear the legal implication of having a Patient Dependency study pointing out staffing deficiencies that budgetary or recruitment factors preclude filling. This the researcher believes is a debatable issue, especially in Bahrain as the results of patient dependency studies could be used as guidelines for staffing needs to correct deficiency in the light of the results and recommendations of the study.

It is understood that Salmaniya Medical Centre nursing administration will be submitting a proposal for the review of nursing organization with the goal of increasing the number of nurses. The results of this study could be used to support their case for augmenting nursing establishment. It is however worth mentioning that requesting additional positions in any government organization in Bahrain is usually initiated at the service department who usually forward proposals to the concerned Directorate of Personnel. This directorate then communicates with the Civil Service Bureau which is the central body responsible for conducting a job analysis to determine and approve the additional manpower requested. This process is lengthy and usually takes months before final approval is obtained. Since the Ministry of Health depends mostly on overseas recruitment for filling vacancies or meeting additional nursing positions, it usually takes the Ministry of Health

several more months to place overseas advertisements, receive applications, and complete the recruitment process with all its formalities before the selected candidates actually begin their work.

Unless this process can be shortened or speeded up vacant nurse positions will not be filled immediately. Consequently, the nursing shortage is likely to continue indefinitely. As a result, the quality of nursing services would therefore be compromised.

NURSING ESTABLISHMENT IN PRIMARY HEALTH CARE HEALTH CENTRES

As discussed above as well as in Chapters 6 and 7, nursing establishments in health centres were assessed by a method adapted for possible future use. Since the method is basically an observation of nursing tasks undertaken in health centres and estimating time in minutes needed for the completion of each of these tasks, the results accordingly obtained reflect the actual activities in real situation. As indicated in TABLE 24 (page 181) the study revealed that the twenty one health centres need 300 nurses as against the 200 currently available (and 65 helpers). While these results may reflect ideal nursing establishments they, nevertheless, should be reviewed from a global and holistic perspective with an attempt to bridge the gap between what is expected and desirable and those possible and attainable within the existing economical and financial constraints as well as the increasing cost of health services in this country.

Since the results showed that the twenty one health centres have around 100 nurses less than what is needed to undertake the various preventive, curative and associated tasks performed, managers in the Directorate of Health Centres have a number of options

to correct this shortage situation. Meeting the ideal nursing establishment may be an unrealistic solution in the short term because of the financial constraints and the rather long process of requesting and approving additional manpower. Training and preparing the needed nurse manpower is another challenge in correcting this shortage. Alternatively and as a short term plan at least, the nursing administration in the health centres may wish to review the list of tasks identified by the study as the main responsibilities undertaken by the nurses in the health centres. Since the associated work may include a number of non-nursing duties, these tasks could be carried out by practical nurses after appropriate training. This category of nurses are less costly to employ and retrain.

NURSE MANPOWER PLAN FOR MINISTRY OF HEALTH

Chapter 7 illustrated how the data obtained from the study in Salmaniya Medical Centre wards, Primary Health Care Health Centres as well as information gathered from Ministry of Health Officials regarding existing and future health facilities, is used in calculating the total nurse manpower requirements over the period 1990-2000. Also using alternative supply projections which considered expected gains and losses, it is possible to calculate the total supply over the same period 1990- 2000. In TABLE 44 (page 209) a comparison was made between the supply and the requirements to identify any mismatches possible.

At a constant supply of 120-125 College of Health Sciences nursing graduates per year, it has been estimated that the total supply would rise from 1407 in 1990 to 2583 in the year 2000. Requirements were calculated according to existing data and those calculated in the study using the Criteria For Care

Method and incorporating all future expansion anticipated. It is evident from the table that the available number of nurses is less than that required reflecting a serious shortage problem.

Comparing supply with requirements can be discussed from two aspects. If on the one hand, supply is compared with requirements at current data a negative mismatch is evident till the year 1995. In the years 1996, 1997 and 1998 the supply will be expected to exceed the requirements. In 1999, however, a shortage will be encountered due to the opening of the new hospital. This shortage will be corrected in the year 2000. If the supply on the other hand is compared with the requirements as estimated in this study, a negative mismatch is expected to be encountered from the year 1990 till the year 2000 and beyond.

The above reflects the nurse manpower situation in regard to total strength irrespective of whether they are Bahrainis or non-Bahrainis. If a prediction is to be made regarding the date when the Ministry of Health would be able to achieve complete Bahrainization, then on the basis of TABLE 44 (assuming current staffing patterns to continue), the Ministry might be able to further enhance Bahrainization from the year 1996 onwards. But when the new hospital at Muharraq is complete in the year 1999 it will require more nurses to be recruited from overseas. This may mean that the Ministry of Health will not be able to achieve Bahrainization till the year 2000. Beyond that date, complete Bahrainization would be possible on the assumption that no additional future expansion is anticipated. While it appears that all nurse supply will be approaching total nurse requirements by the year 2000, however mismatch, between supply of Bahraini nurses and total requirements is much wider to the extent that total Bahrainization will extend to

the year 2010 or beyond.

NURSE SUPPLY/REQUIREMENTS MISMATCHES IN BAHRAIN

When either the supply or requirement of health manpower is more or less than anticipated, mismatches occur and it becomes the responsibility of the health planners to correct such imbalances. There are a number of reasons behind imbalances in health manpower. These could be attributed to expansion of health services, more trainees fail than anticipated, more attrition among staff, staff productivity and efficiency below than what is expected and needed and others. Usually a mismatch situation is characterized by one or more of three basic problems related to number, distribution or utilization of manpower. Accordingly the number of staff might be increased or decreased which means that their distribution might also be unequal. Also, their training, skills and motivation might not be in accordance with the needs of the health services. Hornby and colleagues (1980) described six steps for resolving the mismatch problems: identification of the source of mismatch; selection of the problem that needs further investigation; decision on the type of problem; review of possible actions; identification of constraints and consequences of these actions; and, assessing the significance of the constraints and consequences of these actions. How far countries see themselves as faced with a shortage of nurses depends upon the standards laid down for entry to training, the length and rigour of the training provided and the number of different grades of personnel with different entry requirements and period of study. Smith (1987) indicated that there is frequently a conflict of objectives with the aim to raise the standard and status of nursing and the goal to provide sufficient nursing staff to meet requirements for working in the

hospitals and in the community. Apparently a number of countries which established high standards for nursing education and practice have not yet managed to secure all the numbers of nurses needed.

This is most true in a country like Bahrain which while having scarce local human resources on one hand and limited training capacity on the other, has nevertheless established a high standard for nursing education and practice. Accordingly Bahrain has no doubt a serious and severe problem of shortage of Bahraini nurses: the major issue therefore is how can the gap between demand and supply be reduced and how the mismatch be resolved?

Matching the demand with increasing supply is an option which the Ministry of Health has already started to pursue through increasing the enrolment of students in the nursing programme at the College of Health Sciences. There are also other measures which could contribute to solving manpower mismatches. In countries where demand for health manpower exceeds supply, the balance could be restored by : 1) decreasing the demand, an option which is unfeasible and undesirable 2) increasing the supply which is not always possible, or 3) increasing the productivity of existing force.

Baker (1978), Rafferty (1974), and Reinhardt (1975), emphasized the importance of productivity in health manpower planning. Baker (1978) indicated that health manpower productivity may be increased by the more efficient use of manpower, equipment, supplies, facilities, and better administrative techniques and technology. Productivity is defined as output per unit of input; for example health services per unit of professional time or per unit of cost. The relationship that exists between the supply of health

workers and the demands for their services is determined in large part by their productivity. Delegation of tasks could be one of the most effective ways of increasing productivity. It has been advocated that if the use of auxiliary personnel either by substitution or addition can increase the production of services in a given situation by a greater percentage than resource inputs will, then the overall productivity is improved. Increasing productivity through delegation of tasks have been achieved in a number of countries and health professions including nursing. To avoid sacrificing the level and quality of care in such an approach, task or functional analysis is recommended to determine which tasks could be delegated and the probable effect on productivity and impact on quality of service rendered. It would appear that after studying the list of activity the productivity of Bahraini nurses could be improved greatly through delegation of tasks to other members of the nursing team such as the practical nurse.

Organizational changes within the health services can also have an important effect on productivity. The way manpower is renumerated and the appropriateness and concentration of the health services in relation to the main health problems are important indicators in any organizational change. For example, Bahrain since the late sixties has moved from concentrating on secondary health care to developing primary health care services. This notion, while new, has quickly gained momentum and acceptability among the inhabitants of Bahrain. It dictated organizational change to the extent of adopting services and manpower to be consistent with this new approach as well as being able to address health problems and needs of the community.

The health planner must however, seek to maintain a satisfactory balance between quantity and quality so that gains in quantitative productivity are not negated by any corresponding decline in quality.

In judging the worthwhileness of a particular alternative policy, Mooney (1979) suggests that it is important to ascertain that the gain from pursuing it more than offsets the sacrifice involved in implementing it. In other words, there is a need to weigh the benefits against the cost of implication. Accordingly in the health field, no health care policy should be pursued if it results in a cost to society greater than the benefits on offer. While Primary Health Care in Bahrain provides a wider coverage, its cost is much less than the secondary and tertiary health care. This is evident in the budgetary allocation for secondary Health Care which in 1989 was 57.3 % compared to 22.8% for Primary Health Care. Going back to the issue of delegating tasks within the nursing services, it is most probable that there might be a number of daily tasks undertaken by staff nurses which do not require such sophisticated training and qualification and which might be easily undertaken by a lower category of nurses such as the practical nurses.

There is presently a move in the Ministry of Health Bahrain, towards adopting the associate degree level only as an entry to nursing practice. Experience suggests that this issue should be approached more carefully and realistically. After all, nursing all over the world encompasses a number of levels and categories of skills and experience. In an attempt to elaborate on this issue the discussion now turns to nursing categories and their history.

UTILIZATION OF DIFFERENT NURSING CATEGORIES

While the variations in nursing education programmes and job levels within and between countries are extensive, nevertheless, it is generally agreed that there are three major categories of nursing personnel: professional, auxiliary and aides. In 1966 a WHO Expert Committee on Nursing described a nursing personnel system of three categories according to level of training and responsibilities assumed (WHO Technical Report Series No.347). In 1974 WHO distributed a questionnaire on health occupations to member states and the classification it presented was similar to that of 1966. The three levels were: professional nurse (high level) assistant and auxiliary nurse (middle level) and nurse aides (basic level).

The International Council of Nurses has submitted a proposed description of categories of nurses to the International Labour Organization to be used in 1976 Edition of the International Standard Classification of Occupations. (International Nursing Review, 1973). The proposal also used a three-level classification system, with the difference that the professional nurse is the middle level.

The nurse specialist, a category that includes specialized nurses as well as those whose primary role is teaching, research and administration, is the highest level. The auxiliary nurse is the lowest category and includes both the assistant or auxiliary nurse and nurse aide.

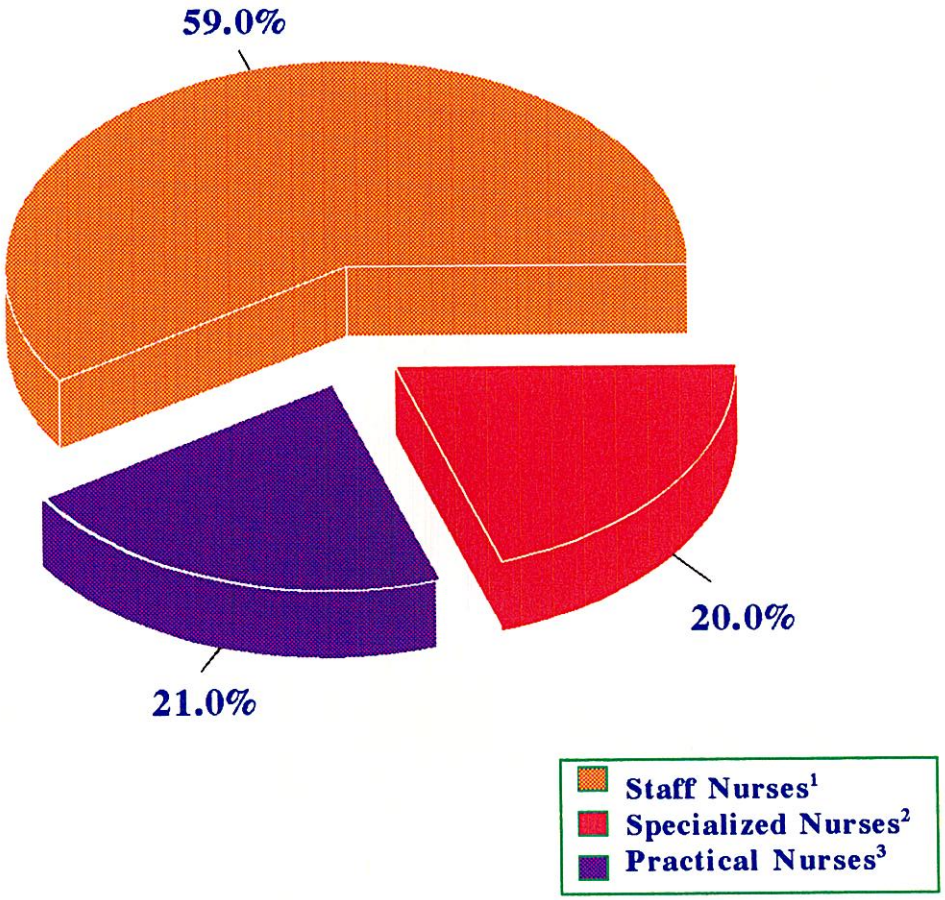
In 1973, sixty member countries responded to an International Council of Nurses questionnaire regarding the categories of nurses they had. The results showed that 3 countries had professional

nurses only, 9 had professional and assistant nurses, 16 had professional nurses and aides and 32 had all three levels (International Nursing Review, 1973). There is however, no document that shows that Bahrain was among the countries which responded to that questionnaire. At present the Ministry of Health in Bahrain, has a unique and sophisticated model of nursing personnel which consists of 21% licensed Practical Nurses, 59% licensed General Nurses and 20% licensed Specialist Nurses (Figures 10 and 11).

A number of researchers have addressed the issue of staff mix and the quality of care. While Donnelly (1986) recommended a swing from unqualified to qualified nurses in staffing children's units, Smith (1987) however advocated that health manpower planning must consider which ratio of different grades of staff to be used to ensure the most effective utilization of the limited budget. Barham and Schneider (1980) noted that identifying the appropriate staffing mix makes it possible to improve the quality and quantity of nursing care while maintaining or even decreasing personnel cost. Hall and Mejia (1978) and Hornby et al (1980) recommended that the health and manpower policy formulation process should ideally follow the basic steps of systematic problem-solving culminating in the selection of the most appropriate strategy for the achievement of objectives.

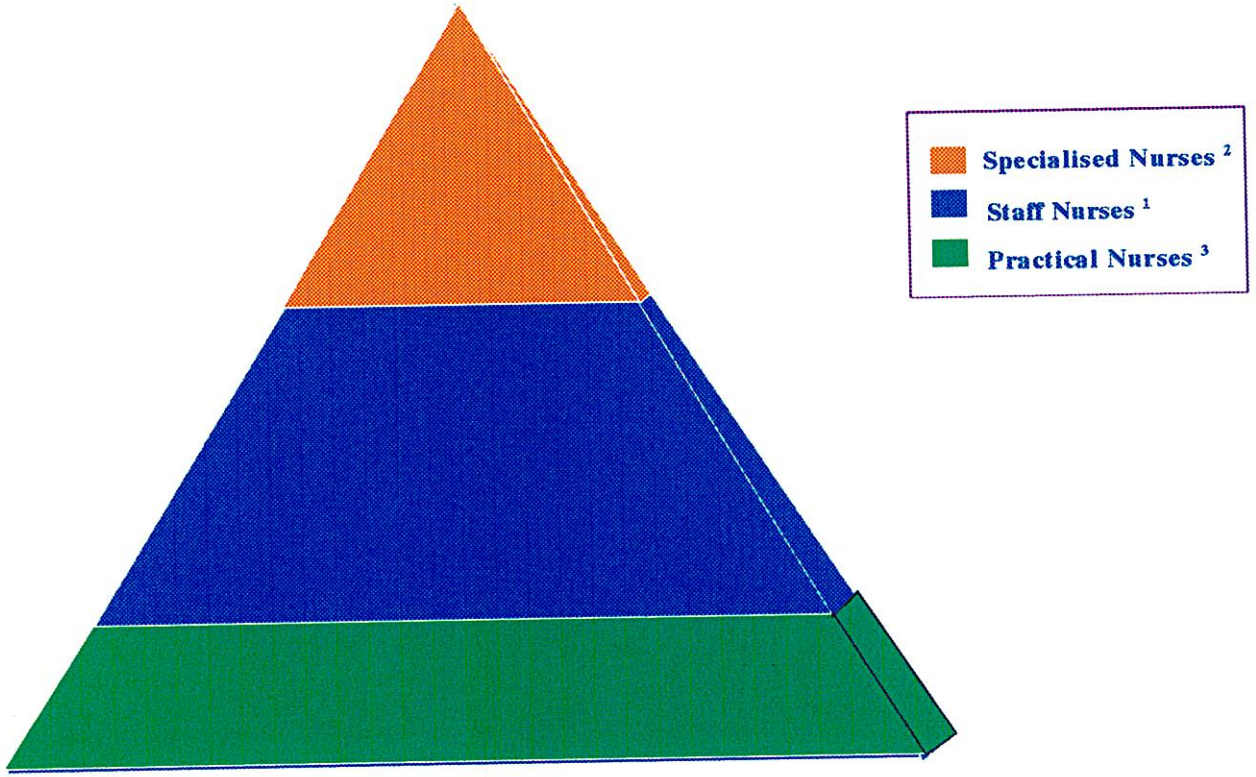
Bahrain, therefore should systematically study the problem of shortage of Bahraini nurses and the increasing demand on this crucial category of health workers and select a strategy that, while it attempts to correct the mismatch in nurse manpower, will also take consideration of the existing resources, constraints and limitations.

Figure 10: Categories of Nurses Working in the Ministry of Health



[1] Associate Degree holders or higher
[2] Associate Degree holders or higher, plus special training programme
[3] 9 years of basic education and 2-3 years of practical nursing education

Figure 11: Nursing Categories Model in Bahrain



[1] Associate Degree holders or higher
[2] Associate Degree holders or higher, plus special training programme
[3] 9 years of basic education and 2-3 years of practical nursing education

In the context of the efficient planning and use ofnursing labour, Smail (1982) recommended focusing on three main areas of analysis: efficient deployment of the existing stock of nurses; efficient planning of the numbers and types of nurses entering and leaving the labour force; and the recognition that local and regional conditions will vary greatly and will have some effect on patterns of nursing employment.

If Bahrain considers the existing mismatch in nurse manpower supply and demand as a problem that has to be solved, health and nurse planners as well as educators should work together to face this challenge. Basically the issue is to produce more and to lose less nurses. While the intake of students into the associate degree has been increased from 130 per year to 160 as from the Academic Year 1991-1992, the needs of the College of Health Sciences for additional resources should be met as early as possible. Also ways and means for ensuring the maximum and most efficient utilization of the clinical areas should be explored. In this context, Bahrain may also opt during this transition period to retain and even produce more practical nurses simultaneously with the continued supply of staff and specialist nurses. The preparation of the practical nurses should allow for their possible future development into the associate degree level. Once the shortage of nurses in Bahrain is corrected, those practical nurses could again be recycled through the associate degree nursing programme at the College of Health Sciences in line with the Ministry's goal of attaining a maximum ratio of staff nurse in nursing services whereby also achieving a higher Bahrainization rate in the staff nurse level. This recommendation could be viewed in line with the Youth Training Scheme (YTS) proposed in the U.K. The Price Waterhouse (1987) study recommended the initiation of a training programme of

around two years duration for youths of 16 years old to prepare them for becoming hospital helpers. Behi and Storey (1988) and Johnstone (1989) indicated that competent and potential graduates of the YTS could be enrolled in further nursing educational programmes in the future. Such a scheme would not only prepare a category of helpers who could relieve nurses from a lot of time consuming indirect and associated nursing tasks, it could also widen the entry gate to nursing education and increase the pool of candidates for nursing programmes.

In this context, it is also worth referring to an interesting study funded by Mersey Regional Health Authority in the UK (Ball et al, 1989). The main objectives of the project were to: 1) analyse nursing activities and identify tasks that have to be done by registered nurses and those that could be shouldered by other staff; 2) to develop a method which takes account of contribution and input of nursing students; 3) to provide a method of staff deployment over the 24 hours period which uses the work force most efficiently and effectively; 4) to recommend and implement a staffing pattern which considers the above points; and, 5) to consider the preparation and training of a new category of support workers who can perform those duties identified as not requiring trained nurses.

The report proved that by providing sufficient numbers of support staff, nurses could be relieved of a number of tasks that do not necessarily require nursing skills and expertise. The report also produced a pattern of numbers and grade mix of staff which could be applied in staffing other health districts. Some nurses, however, do not accept this approach and are still adamant that indirect nursing care as well as associated activities have to continue to be part of

the nurses' responsibilities.

It could be concluded that with the expanding role of professional nurses and the greater expectations expected from them, it is becoming obvious that nurses cannot deliver all the care that is needed. This is a widely recognized reality in the nursing profession in the United Kingdom. The UNITED KINGDOM CENTRAL COUNCIL FOR NURSING has urged and subsequently reaffirmed that the registered practitioner must be a doer and while delivering care must also have the skills to assess the need for care and assign work to others in appropriate circumstances. In this context, these nurses will be expected to supervise, monitor and evaluate the work of their assistants (UKCC, 1986).

If the nursing profession in Bahrain is to be viewed from this perspective, this means that the category of practical nurses has not only to be maintained, but also to be increased. Also they should be assigned extra responsibilities within a well defined role framework and clear task delineation.

The DHSS (1985) report on nursing staffing and skill mix, indicated that so long as nursing auxiliaries are given in-service training they can shoulder a lot of tasks and accordingly relieve qualified nurses for undertaking more demanding patient care responsibilities.

MacGuire (1986) also commented that there are no definite policies on staffing levels and grade mix in most districts. Individual institutions should therefore decide on the optimal number and mix of nurses needed in the most efficient and economical way. For instance Hawkins (1986) commented that managers and academicians differ fundamentally in

their aims for nurse education. Project 2000 aims at moving towards a more professionally based nursing service with less numbers of qualified supported by more unqualified staff. Gray (1987) also indicated that inadequate clerical and support staff sometimes deflected nurses from direct patient care.

Unfortunately, the nursing profession in Bahrain is also confronted with the same problem whereby it is required to meet the increasing needs of patients within a number of constraints mostly chronic shortages of staff and inadequate clerical and administrative support.

DECREASING NURSES LOSSES

Manpower planners need also to take into account the probable losses or attrition from the current and future manpower supply (Hall, 1978b). The sources of loss of manpower are deaths, retirements, emigration, temporary or permanent withdrawal from the labour force and attrition during training. Bahrain characterized by a young population, has no significant problems so far with nurses losses due to death and retirement, nor is this likely to be an issue for at least the next 20 years. As for emigration, few Bahraini nurses leave their jobs to join their husbands in any of the neighbouring Gulf Countries. The two major sources of losses are therefore temporary or permanent withdrawal from the labour force and dropout from training programmes. Flows out of the nurse manpower system are mainly attributed to withdrawal from training and failure. In a survey of nurse training programmes in the United Kingdom, MacGuire (1969c) found a 34% rate of attrition over the three years of training being higher in the first year than the two subsequent years. The main identified reasons for attrition were

Intelligence Quotient and educational qualification of entrants.

A number of other researchers have investigated the extent, range and timing of students dropout. Moores (1971) for instance found that it varied between 20% and 80% in the schools of nurses which he studied. His study also showed that dropout in the first year ranged between 35-65%. MacGuire (1969c) also showed that success among nurses in the United Kingdom is not well correlated with General Nursing Council test scores. In a study conducted at College of Health Sciences, Khouri (1980) found that success is largely determined by the level of English language competency. This is explainable by the simple fact that English is the language of instruction at College of Health Sciences. Singh and Smith (1975) found that success was correlated with the number of O-level qualifications, not with the grades. Students attrition varies between and within countries and ranges from over 50% to as low as 5% with most losses occurring during the first year of study (Bergman 1978). The main reasons for students attrition are academic failure, personal, poor adjustment and disappointment with nursing. Two major variables therefore influence student loss: the student and the environment (MacGuire 1969c). Selection methods have received considerable attention and it has been concluded that although testing may be used to predict academic achievement, it cannot yet anticipate real success (Taylor, 1974 and Thurston, 1979).

Students environment includes the curriculum, the faculty, the training sites, practitioner models and conditions of practice. Studies have confirmed the effect of each of these aspects. While a numbers of factors might contribute to attrition during training the student probably remains the key to the attrition

problem since a highly motivated and adequately prepared student can overcome a number of environmental deficiencies and pressures.

Moores (1971) referred to the institutional effect on attrition, whereby some nurse training institutions achieved better success rates with less qualified entrants than others do with better qualified ones. His results however, indicate that the percentage of attrition due to leaving was between 33% and 65% during the first year. While these studies were conducted around 20 years ago, nursing training institutions are still challenged with the problem of students attrition. Some researchers have attempted to study the effect of students personalities and attitudes on their nursing training. Singh and Smith (1975) for instance illustrated that students leaving nursing training were found to be less conscientious, more trusting and less "tender-minded" than stayers. They recommended using such findings in students' selection procedures by means of psychological tests.

In assessing attrition among nursing students in Bahrain, a very similar pattern can be observed whereby the overall attrition during the three years training is around 22% with the highest dropout in the first year. MacGuire's findings underline the importance of good selection and of developing sufficiently good liaison with secondary school to ensure a good pool of applicants for selection and enrolment. Similarly, the College of Health Sciences developed entrance examinations including English, Science and interviews. These tests, while helping screening potential students, do not determine success.

While the selection procedures at the College of Health Sciences do not include psychological tests,

attempts are made to carefully screen the candidates during interviews that are held during registration. Bosanquet and Clifton (1971) showed that although the largest portion of attrition among nursing students was due to voluntarily withdrawals, a substantial percentage of attrition was also through examination failure and that this population seemed to be growing. The situation in nursing education in Bahrain is not very much different where failure in the first year courses is the main reason for discontinuing nursing students. In addition, only an insignificant number of nursing students leave voluntarily.

Reid (1986a) also indicated that the occasional drop-outs from courses in nursing education in the United Kingdom tend to be in the first year. She suggested that selection procedures must assess professional motivation as well as intellectual ability. The population of those who qualify but do not work as nurses is around 10% (Institute of Manpower Studies, 1985). Based on data published by O'Brein (1984), Sinclair (1984), Montague and Herbett (1982), Martin (1982), attrition rate among nurses who undergo higher nursing education is lower than that among those who attain basic nursing training. This led the Royal College of Nursing in 1985 to recommend that nursing education in Britain should be moved to higher education institution. This is also one of the reasons which influenced the College of Health Sciences to introduce the Bachelor Degree Nursing Programme.

As for other sources of losses, attrition from the labour force has generally been accepted as a major cause of shortage (Bergman, 1978). Early work suggested that this was in part due to the short working life of nurses citing figures of three, five or ten years. These figures were challenged by other

studies that have shown that nurses have a working life of well over 20 years (Reese 1964, Taylor 1968, Knoff, 1974).

Ministry of Health data show a high percentage of nurses (over 80%) at work during the first five years after graduation and a lower percentage between the fifth and fifteenth years, followed by a subsequent rise to about 70% where it remains fairly stable until retirement. Our observations indicate that majority of the Bahraini nursing cohort which graduated in 1970 are still working. Fortunately nurses attrition from the labour force is not a significant problem in Bahrain. While this study did not explore this issue at length, data show that attrition among Bahraini nurses is around 5% annually.

In Bahrain the main reasons for leaving work are family circumstances, salaries, working conditions, job dissatisfaction, and seeking better job opportunities. Studies indicate that assistance to mothers of young children such as home helps, day care centres and improved transport facilities might decrease losses. Other ways are by increasing satisfaction through good use of nurses abilities, improved working relationships, career advancement, opportunities for further studies, and improved salaries and working conditions.

Hutt (1984) questioned the reasons behind the attrition rate falling from 35% to 25% in recent years. She wondered whether this drop could be attributed to the level of unemployment and lack of alternative jobs. This trend has been experienced in Bahrain as the economic boom enjoyed in the eighties has begun to dissipate and consequently job opportunities are now becoming less abundant. Also in Northern Ireland, the number of nurses who left the

service dropped from 21% in 1979 to 12% in 1984 (Reid, 1986b). This decline in attrition was mainly attributed to the declining economic situation in which fewer other job opportunities have been available.

In research on the careers of nurses, Hutt (1984) showed a demand for more refresher courses which would bring back trained nurses who are not working. Each one successfully brought back into nursing is in fact a gain to the nursing workforce. Bahrain should also consider such an approach to attract Bahraini nurses who left the service for family reasons. In manpower terms, mature re-entrants to nursing are highly attractive since they have proved to be stable employees who provide relatively long periods of service (Young, 1982). A major difficulty however in manpower planning is predicting the rate of return to the profession of those who had left the service. As mentioned earlier attrition among Bahraini nurses does not present a major problem in nurse manpower planning. This issue however, is very critical and should be closely monitored. The Bahraini nurse manpower force in its present situation and with the future challenges ahead, cannot afford any kind of losses. Attempts have to be made not only to maintain and reduce attrition from the labour force, but also to attract new entrants to the nursing profession. Roelens (1989) presented a number of recommendations for such an approach, the most important of these are increasing nurses salaries, making the nursing profession more attractive, basing the relationship between nurses and physicians on colleagueship principles, incorporating nursing research in all nursing practice and involving nurses in all the discussions as well as decisions regarding the present and future of their profession.

Recruitment of nurses is also dependent on many factors not least on the availability of adequately prepared high school leavers. As for the pool of applicants available, the Ministry of Health in Bahrain is very much like the British NHS in having a virtual monopoly in recruiting nurses with the Bahrain Defence Force and few private organizations as the only competitors. Walsh (1985) indicated that the British NHS needs to be aware of the external environment in which it could operate. Similarly, the Ministry of Health cannot operate in isolation from labour market conditions which could influence its ability to recruit adequate number of nurses.

In summary the monitoring of recruitment and outcome of nurse education in view of the many anticipated changes is one of the major measuring instruments in the balance of supply and demand. In this regard the Ministry of Health in Bahrain is fortunate in having under its umbrella a training institution for nurse manpower training and development. The symbiotic relation between the College of Health Sciences as a production centre and the Ministry of Health as a consumer organization is a unique instrument in correcting any mismatches in nursing manpower in this country.

RECOMMENDATIONS

Reflecting on the previous chapters and capitalizing on the analysis of the data, the following recommendations are put forward.

1 Nursing is a process seeking to anticipate patients needs rather than being a reaction to them.

While this study has attempted to identify

nursing establishment based on patient classification in the hospital and nursing activities in the health centres, it is however recommended that further studies should be initiated in this field to provide data base to allow for comparison between nursing establishment and services in Bahrain and those elsewhere.

2 The criteria for care method should be a permanent feature of Salmaniya Medical Centre wards ongoing activities. The collected data should be shared with Directorate of Personnel as well as Civil Service Bureau to formalize policies regarding nursing needs.

3 The Directorate of Health Centres is also urged to consider the results obtained from the study on nursing establishments in the different health centres. The computer programme employed in the study could also be utilized for future assessment of total nursing establishment and mix.

4 Salmaniya Medical Centre and the Directorate of Health Centres may also wish to approach the Civil Service Bureau through the Directorate of Personnel to re-evaluate their nursing organization.

5 Recognizing the significant role of Nurses in the health care delivery system and realizing the shortage of nurses, the Ministry of Health is charged with formulating a comprehensive nurse manpower

plan. Such plan could take into account the results of this study in formulating nurse manpower policies.

6 Ministry of Health is also charged with correcting the mismatch between the requirement and supply of nurses. Finding solutions for nursing manpower shortage involves a three-step process. The first step entails the identification of all possible solutions. Second, it is necessary to identify all obstacles, constraints and consequences associated with any of the possible options. Third, an evaluation of the obstacles/constraints should be undertaken to arrive at an order of merit for reasonable solutions. The Ministry of Health may wish to adopt this approach in attempting to correct nurse manpower mismatches.

Based upon the above guidelines the Ministry of Health might be able to select a number of short term as well as long term strategies for solving nurse manpower problems.

7 The Ministry of Health has already opted to solve the shortage problem through increased production of nurses through the nurse training programmes at College of Health Sciences. Attempts, nevertheless, should be concentrated on strengthening the College of Health Sciences and complementing its physical facilities as well as human resources.

8 While increasing the capacity of training institutions with the goal of producing more manpower is one of the most guaranteed long term plans to meet manpower shortage, the Ministry of Health is also urged to look into other alternatives. For instance, the proposal for phasing out the practical nursing category and adopting the associate degree nursing level as an entry to the nursing profession, should be reconsidered, postponed or even cancelled.

The Ministry of Health may embark on a two pronged approach to address the increasing demand for nurses. First, this could be accomplished by reviewing the present staff nurse tasks so that some of the activities may be passed down to be performed by practical nurses. This process may provide better distribution of nursing tasks among the nursing establishments. Second, the Ministry of Health could also consider selective retraining of practical nurses to complete the Associate Degree programme following ward experience whereby more staff nurses will be available for recruitment. This in effect will provide the number of staff nurses required by Ministry of Health and will also improve the Bahrainization among staff nurses.

9 The Ministry of Health through the nursing coordination committee may also wish to explore other means for overcoming the nursing shortage in Bahrain. This goal could be achieved through efforts to attract back to service trained nurses who have left. To be able to do so, the health

services should identify the reasons behind staff attrition. Such problem arises especially in predominantly female occupation. While in some countries up to 50% of graduating nurses leave the service within five years, Bahrain, nevertheless, is fortunate in this aspect whereby only a small percentage of about 5% only leave yearly.

10 Reducing attrition of nurses from the services could strengthen the nursing manpower development plan of the Ministry of Health. To that effect, the Ministry of Health should look into attracting nurses through cash incentives, provision of a career structure that includes opportunities for further promotion and progress, improving employee benefits, offering possible opportunities for part-time employment or flexible work schedules, and reviewing personnel policies and management styles.

The proposals to increase nurses benefits must be carefully examined because of their possible implications on other professions in the Ministry of Health itself or in other Ministries at large. The nursing situation, nevertheless, is unique and the need to provide the required numbers of nurses is critical to the health care delivery system.

11 Just as health manpower development should be seen as an integral part of health system development, the management of nursing manpower should be seen as an

integral part of the wide process of managing a nation's health system. The Ministry of Health and Nursing administration should ensure that nurses trained to respond to perceived needs are properly managed to maximum effect within the health system. Nursing leaders are urged to consider the key elements of nursing manpower management: employing, supervising, retaining, supporting and developing.

12 To overcome the problem of nurses shortage, and to plan, train, and use nurses that are ultimately required to meet health needs, nursing issues should receive a national commitment as pointed out by Fulup and Roemer (1982). Whenever the commitment is strong and at the highest level it would be easier to overcome problems and succeed in achieving goals.

13 Recognizing the close interdependence between the development of health manpower and the development of the health system, and realizing that with these interactive and interdependent relationships there are a number of unresolved questions calling for the need to initiate research. In this context, attention of the Ministry of Health should be drawn to the crucial need of health manpower research and its role in improving decision-making in health manpower development within the overall development of health systems.

14 Having advocated the need to initiate nurse health manpower research, it is useful to

review the reasons identified by the WHO as hindering and limiting health manpower research. First, lack of recognition and understanding of health manpower research as an important and genuine area of research in comparison to other areas of research. Second, lack of effective organizational and institutional relationships between health manpower researchers and those responsible for planning, producing and managing manpower. Third, lack of individual and institutional capacities for health manpower research. Fourth, lack of definitive, policymaking mechanisms for health manpower development and for health manpower research. It is imperative therefore that health manpower research should be closely linked to policymaking. When it fails to be so its primary purpose is lost and policymakers are left without essential instruments that they can use in formulating their decisions and judgments.

15 Recognizing the role of the College of Health Sciences in health manpower development including nursing and considering this study as a starting point, Ministry of Health officials are urged to involve the College of Health Sciences in health-nursing research endeavours. It is a well known fact that health services and health training institutions can develop a coherent approach to the research and educational aspects of health manpower development.

16 It is recommended that as part of the planning cycle, nurse managers should become involved in estimating unit-based nurse manpower demands. In addition, senior nurse managers should present their estimates of nurses required by speciality to meet the service requirements of 1,3,5 and 10 years ahead. Health Care Planning Teams and others responsible should also be aware of nurse manpower implication when proposals or projects for change or improvements in health services are put forward.

17 Health manpower planning involves political decisions at various levels. Plans therefore must be formulated in accordance with prevailing policies and legislation. Health/nursing manpower plans conflicting with prevailing political and educational policies are unlikely to be implemented, and educational plans dissociated from health/nursing manpower policies are likely to be irrelevant to national needs. To overcome such obstacles, the importance of the integrated health services and manpower development cannot be over emphasized. This approach aims at the integration of the different elements of the health services and supplies of health manpower into a unified system providing health care directly relevant to the health needs of the population. While the Ministry of Health and the College of Health Sciences have exhibited a model for such integration and collaboration, further strengthening and fostering of such a relationship would enhance the achievements of objectives and

goals in health nurse manpower development.

18 In reviewing the nursing establishment in Salmaniya Medical Centre, it was noticed that a number of nurses at the Associate Degree are manning the outpatient clinics. The responsibilities undertaken by such nurses are mostly clerical with only minimal nursing care. The Salmaniya Medical Centre administration may wish to study this issue. It might be feasible to delegate such responsibilities to trained practical nurses who could relieve the staff nurses for the much needed nursing care. This might ease the nurse shortage problem encountered at present and expected to continue for years to come.

19 In studying nursing establishment in the health centres, clerical tasks were also identified as significant activities undertaken by the nurses. Managers in the Directorate of Health Centres and nursing administration may wish to study this observation and explore the possibility of delegating such clerical and time consuming activities to non-nursing staff who are easier and less costly to be trained and prepared. Relinquishing such tasks as domestic, escorting, clerical, would allow nurses to concentrate on direct nursing care. This however, could only be possible if an adequate and efficient back-up services are available.

CONCLUSION

This study has mainly concentrated on assessing

nursing establishment in Salmaniya Medical Centre wards using patient classification criteria for care method, and nursing establishments in the primary health care centres based on nursing activities undertaken and time used for completion of these tasks. It did not consider factors such as length of stay, number of operations, procedures, case loads, discharges and deaths, changes in medical staff, use of different techniques, age range of patients, turn over, need for increased patient monitoring. Since all of these factors affect nursing manpower needs, it is suggested that further studies be initiated to address these factors.

An important pre-requisite of any manpower planning system is a proper and reliable manpower information system. It was noticed, nevertheless, that the information system is not as comprehensive as it should be. It is suggested that more attention should be given to updating manpower information and computerizing it to facilitate the process of any data collection in any health manpower research or planning.

This manpower research adopted the Criteria for Care method and nurse activities measured in unit time in developing a nurse manpower model for Bahrain. The outcomes and recommendations emerged from this study could be directing possible implementation in the Arabian Gulf Countries. The high feasibility of implementing this approach is due largely to the similarity of the infrastructure of the health care delivery system in this region.

Health manpower development should be seen as an integral part of the health systems development. It must also proceed as part of health planning within the larger framework of national strategies for health

for all and serve as a linkage between the health system that deploy manpower and the educational institutions that train manpower. Recognizing the significance of nurse manpower in Bahrain and realizing the limited research in this area. It was decided to dedicate this study to nurse manpower in Bahrain.

While it is evident that there is a pressing need for more nurses, there is no scientific attempt to identify the needs and assess the situation by matching the supply with the needs. Realizing such a problem, one of the goals of this study was to adopt and use reliable methods for estimating nursing requirements in secondary and primary settings. Based on the data obtained, the total requirements of the Ministry of Health were determined and compared with the supply to identify mismatches.

Nursing manpower in Bahrain will continue to be a challenge. It is hoped that this study has set the stage for further research in the area of nursing as well as health manpower.

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HEALTH MANPOWER NEEDS IN BAHRAIN: DEVELOPING A MODEL FOR NURSING

VOLUME II

APPENDIX A
GUIDELINES FOR SELECTION OF DETERMINERS FOR PATIENT CLASSIFICATION

AHA
19 SEP 1995
College of Medical Sciences

Guidelines for Selection of Determiners for Patient Classification

Medicine/Surgery

Personal Care Component

This component refers to the nursing care required by the patient to complete all aspects of his personal hygiene needs including the bath, hair-grooming, teeth and mouth care and bed making.

DETERMINERS

A Self-basin/bath/shower - Minimal Nursing Involvement

The patient is quite independent in this area of care and no supervision is required. The nurse may prepare the basin set-up at the bed-side or the bath or shower for the patient's back or check once while in the bath but not necessarily.

B Bath with Assistance - Average Nursing Involvement

The patient is not able to provide this care without some assistance. The nurse may prepare the basin set-up, wash the back and legs and sometimes perform the perineal toilet, or the nurse may prepare the bath, assist with washing the back and check on the patient several times while he is in the bath. In addition, some help would probably be required with hair care, shaving and denture or teeth care.

C Complete Bath - Above Average or maximum Nursing Involvment

The patient is totally dependent upon the nursing staff for the provision of his personal hygiene and/or the presence of the nurse is needed for the entire bath. Consider the following examples:-

- the nurse gives the complete bath. The patient may wish to wash his own face and hands, and in some instances, expects and insists on doing his/her own perineal toilet.

- the nurse stays to supervise and coach the patient i.e. rehabilitation patient who is re-learning lost skills.

- the nurse's presence is required for surveillance i.e. psychiatric patient in the bath may wash herself, but the continuing presence of the nurse is required for safety.

- the nurse's presence is required because the patient is confused and cannot be trusted to manage safely in the bath without supervision. The patient may be confused and forgets to proceed unless re-oriented frequently to reality and the task being performed. The nurse may be teaching the patient to become self-reliant or independent. The patient may complete his entire bath but the nurse's presence for supervision and safety are necessary.

- The nurse bathes the patient completely, not because the patient is unable to do so, but because his is incapacitated by appliances which inhibit his capability i.e. the patient with a naso-gastric tube and a urethral catheter, plus I.V. solution running in one arm and a cast on the other.

FEEDING COMPONENT (B & C ONLY)

This component refers to the nursing care required by the patient in order to provide for nourishment and includes items as menu selection, assistance with, supervision of and total feeding.

DETERMINERS

Note: There is no determiner marked to designate minimal nursing involvement. In most instances, once the food is delivered and the patient is in position he proceeds to eat independently. The nurse may check to assess the patient's appetite or to record intake.

B) Partial Help - Average Nursing Involvement

The patient is not able to proceed with his meal without some assistance. It may be necessary to cut meat, butter bread, pour tea, etc., but then the patient proceeds by himself. The nurse returns at intervals to check, supervise, remind, coach, encourage or to readjust placement of foods on the tray. However, the patient is able to eat the food by himself and the continuous presence of the nurse is not necessary. Consideration should also be given to patients on diets who require information from the nurse concerning the diet and perhaps help with the selection of foods from the menu.

C) Fed or Nil by Mouth - Above Average or Maximum Nursing Involvement

The continuous presence of the nurse is required because the patient must be completely fed, and/or supervised and/or encouraged continuously. This feeding includes the customary meal trays.

Patients who are fed by Levine tube or gastrostomy tube while the nurse supervises very closely or stays continuously during the procedure are also considered within this determiner.

Any patient who is nil by mouth for a major reason is also marked under this determiner e.g. pre-operatively, arteriogram etc. Consider also the patient who requires ice cubes, special mouth care and psychological support.

Note: Patients who are nil by mouth for short periods of time only, i.e. fasting blood sugars, etc. should not be included here.

NURSING ATTENTION

This component refers to the nursing care required by the patient to carry on a wide range of ordered treatments, clinical or symptom observations and to meet instructional and psychological needs.

It is important to recognise, when marking these determiners, that the minimal determiner does not infer that the patient is not observed frequently. It does mean that nursing intervention or a specific observation is only required 4 hourly or less on average over the 24 hour period of time. Some examples of items to include are vital signs, intake and output, medications, I.V. infusions, central venous pressure, surgical dressings, compresses, catheterization, care of drainage tubes, gastric analysis, diabetic urine testing, 24 hour urine collection, lumbar puncture, patient teaching re prosthesis, diabetic teaching. Pre- discharge explanations and teachings, specific visits to provide psychological support, surveillance of a confused unpredictable patient.

This component requires broad interpretation and as a guide in an acute care hospital, consideration should be given to all treatments and observations, which after being performed, are charted.

DETERMINERS

A) Four Hourly or Less - Minimal Nursing Involvement

The patient receives treatments, clinical observations, medications and/or psychological support only two or three times per shift.

B) Two to Four Hourly - Average Nursing Involvement

The patient receives treatments, clinical observations, medications and/or psychological support on a regime that requires nursing intervention approximately every two to four hours or up to 12 times in the 24 hour period.

Note: Patients, who are otherwise receiving very few nursing observations, treatments, but undergoing a special procedure (e.g. lumbar puncture, bone marrow etc.) which is time consuming for staff, are usually

- the patient stays in position placed by the nurse and does not move. Repositioning in bed or chair is required with use of sand bags, foam rubber, sheepskin, or pillows every two hours, and exercising of limbs is required at regular intervals. The diagnosis in this example might be post CVA or head injury.

- the patient is restless, unpredictable and frequently reverts back to an undesirable position on the decubitus ulcer on his hip despite the nurse's repeated efforts to keep this area free of pressure.

-the patient is confused, unsteady, obese and elderly; he is hampered by a catheter, plaster cast and I.V. and two nursing staff members are required to walk and assist up and back to bed.

MOBILITY COMPONENT

This component refers to the nursing care required by the patient to keep him/her physically active within the limitations of the disease or condition. This includes positioning, exercising, assistance to move while confined to bed, getting out of bed into a chair, going to the bathroom or walking.

DETERMINERS

A) Up and About - Minimal Nursing Involvement

The patient does not require assistance with getting in and out of bed, is up as tolerated or is independent in a wheelchair. Consider the rehabilitation paraplegic patient and patients who have learned to manage potentially restricting tubes or appliances such as T-tubes, urethral catheters, I.V's and plaster casts while walking.

B) Bedrest, Up with Assistance - Average Nursing Involvement

The patient requires some assistance from nursing staff either because he is confined to bed or because he needs help to walk safely. Consider the following examples:-

- The patient is on bedrest, but is able to change his own position as desired, or if reminded, or if encouraged and assisted minimally.

- the patient is on bedrest, but may be up with the assistance of one nurse to the bathroom, or to the commode chair for bowel movements.

- the patient requires the assistance of one person to get in and out of bed and requires the assistance of one person to walk.

C) Bed or Chair with position and Support - Above Average or Maximum Nursing Involvement

This patient is completely dependent upon the nurse for correct positioning, support and mobility. Consider the following examples:-

considered here. Explanation of the procedure, reassurance during and clinical observation following, requiring nursing judgement is usually necessary.

C) Hourly/Constant - Above Average or Maximum Nursing Involvement

The patient receives treatments, clinical observations, medications and/or psychological support at intervals of one hour or more frequently than every hour.

OTHER (BOTH C)

Two additional above average and maximum care determiners were considered to be significant in the assessment of the patient's requirements for nursing care; one concerning involuntary drainage and one concerning requirements for nursing care due to a major intervention such as the patient's operative day, patients undergoing extensive workup for a major procedure or diagnostic purpose, or for patients requiring extensive psycho-social support, exhibiting marked educational needs, or requiring attention to behavioural problems.

DETERMINERS

C) Involuntary Drainage - Above or Maximum Nursing Involvement

The patient has lost voluntary control over excretion of bodily wastes, most commonly faeces and urine, but also fistula or sinus drainage, vomiting, hemorrhaging, colostomies, ileostomies, ureterostomies, tracheotomy, etc. Frequent nursing intervention is therefore required for extra washing, bed linen changes, and/or dressing changes, and/or patient teaching or explanation and counselling. Consider the following:-

- the patient has lost voluntary control, is unpredictable and cannot indicate to you when his bowels will move. This patient may be given a regularly spaced enema, but is unable to expel it completely and therefore expels small amounts of stool frequently over periods of time. This requires frequent washing and bed linen changes.

- the patient is a 4 day post operative ileostomy and requires frequent dressing change, counselling and explanation from the nursing staff.

- the patient is learning to care for his/her colostomy but the presence of the nurse is required for supervision and support.

Note: if the patient is incontinent of urine, and a retention catheter is inserted, he/she can no longer be considered as incontinent or if the patient is on a controlled bowel routine involving a regulated amount of laxative, suppository, enema or digital evacuation and the treatment is readily completed without extra bathing and linen changes he should not be marked incontinent.

C) Major Intervention - Above Average or Maximum Nursing Involvement

This determiner is marked the morning of surgery for all patients going to the operating theatre: for patients undergoing special procedures requiring extensive workup, preparation, frequent observation and follow-up or; for patients requiring extensive psycho-social support: or patients who have marked educational needs or requiring attention to major behavioural problems.

To explain more fully, this determiner is provided to incorporate the extra nursing care requirements of patients on their day of surgery or on the day a major procedure is carried out, e.g. arteriogram, pneumogram, cardiac catheterization, etc. The nursing care activities include some or perhaps all of the following: planned patient teaching, psychological support and explanation to the patient and sometimes to relatives, preparation of the chart to accompany the patient, collection and safekeeping of valuables, helping the patient to the stretcher and, when indicated, accompanying the patient to the operating room or diagnostic treatment area.

This determiner is also utilized to incorporate the extra nursing intervention provided by nursing staff which relates to special psycho-social, educational needs and major behaviour problems. For example, consider the patient undergoing rehabilitation and requiring teaching of activities of daily living over and above that provided with basic personal care. The teaching might include training and the patient to dress himself, applying braces, prosthesis, etc.

Note: It is very important that this determiner not be marked indiscriminately. The majority of the psycho-social activities are included as an integral part of all the determiners for care and therfore this above average and maximum care requirement is not intended for patients who are coping with stress and are only requiring basic supportive measures. This determiner denotes a primary need requiring extensive nursing involvement.

Further guidelines for interpreting the dependency categories:-

Are all the needs marked minimal? ("A")	Dep. I
Are most needs marked either "A" or "B" with not more than 2 "C"s?	Dep. II
Are there 2 or 3 "C" needs and are there more "C" needs than "A" needs or equal numbers of "C" and "A" needs?	Dep. III
Are there 4 or more "C" needs?	Dep. IV

Example Scores

A	B	C	Category
3	0	0	Dept. I
0	2	1	
1	1	1	
2	1	2	Dept. II
2	2	0	
3	0	2	
0	0	3	
1	2	2	
1	3	2	Dept. III
1	2	3	
0	4	2	
2	0	3	
0	0	4	
0	1	4	
2	0	4	Dep. IV
1	0	5	

APPENDIX B
DEFINITION OF NURSING ACTIVITIES

X → APP 2.

DEFINITION OF ACTIVITIES 11, 12

A. DIRECT CARE

1. Communication with patient and or families

Personal contact with patients - conversation support and reassurance
Teaching patients
Explanation of procedures and treatments
Demonstrations
Admission orientation to unit
Attention to relatives and friends of patients
Patient's involvement in making nursing care plan
Preparing patients or ward for service

2. Medications, I.V. (Administering)

All medications (oral, injectables, vaginal, rectal, suppositories)
I.V's (starting, additives, changing bottles, maintaining flow, making tubing changes, checking flow rate, discontinuing).
Checking drugs

(If a nurse is with a patient for teaching purposes, e.g. teaching patient to give own insulin, check # 1)

3. Nutrition and Elimination - Technical

Cutting food
Feeding helpless patients
Forcing oral fluids
Tube feeding
Intake
Preparation of special diets and hourly or two hourly drinks
Passing water
Urinary output
Bowel functions
Giving and removing bedpan/urinal
T-tube drainage
Giving and removing vomit bowls
Anything to do with output directly with or in the presence of the patient

4. Nutrition and Elimination - Non-technical

Distributing food and drinks
Preparation of food and drinks (not special diet)
Collecting and clearing meals
Distributing and collecting water jugs

5. Patient Hygiene

Bath: complete, partial, assist, shower
Bed bath
Back rub or care
Any special skin care
Supervising patients in bathroom
Washing patients
Shaving male patients
Cleaning and washing incontinent patients
Toilet rounds, distributing and collecting washbowls and mouthwashes
Care of patient's hair and nails
Mouth hygiene, cleaning mouth, teeth and dentures
Stripping and making occupied beds
Tidying occupied beds, including making patients comfortable
Linen changing in patient's presence

6. Patient movement - non-therapeutic

Escorting patient to and from another department, including time with patients in the department.
Escorting patients to and from theatre, including time in theatre
Discharge, transfer on ward or to another ward or hospital
Escorting patient to another area on ward
Preparing bed for known admission
Admitting and discharging day cases
Placing patient on an orthopaedic frame or bed
Helping porters to lift patients onto trolleys

NOTE: Include all patient movement that is non-therapeutic in itself as compared with Category 7 below.

7. Positioning, Exercising - Therapeutic Movement

Turning and repositioning
Changing bed position
Turning
Exercising
Active or passive range of motion
Assisting or supervision walking
Swinging legs on edge of bed
Adjusting traction, foot boards, 'monkey bar' etc.
Moving between bed, chair, wheel chair, stretcher
Deep breathing and coughing

Note: The intent is therapeutic, as compared with Category 6 above.

8. Rounds or Assist Doctor or Other Non-nurse with Patient

Nurses accompanying consultants visiting patients
Nurses accompanying all other medical staff visiting patients
Nurses accompanying all other hospital staff visiting patients
Time spent by nursing staff accompanying medical round for own tuition
Assisting doctors in technical procedures or treatments needing the presence of nursing staff.
Assisting staff from other departments in technical procedures (e.g. assisting X-ray technician in positioning patient for portable chest X-ray)

9. Routine checks, Patient Rounds, Symptom Observations - by Nursing Personnel only

NOTE: Includes all observations but not vital signs or technical procedures

Anxiety state
Evidence of pain
Circulation
General well being
Condition of dressing
Swelling
'Special' or closely watching very ill patients (excluding technical procedures)

10. Vital Signs

Weighing patients
Taking B.P's, charting, recording
Taking T.P.R's charting, recording
Respirations
Temperature
Neurological signs
Pulse
Central venous pressures
Cardiac monitoring, E.C.G.

11. Specimen Gathering and Testing

NOTE: Include gathering and testing as one observation, even though the testing may be done away from the patient. If testing is being done in the presence of the patient for teaching purposes record as # 1.

Acetone
Sugar
Specific gravity
Testing urine
Assembling and labelling specimen for the laboratory

12. Treatment and Procedures - Nursing Only

Cathetering patients
Oxygen therapy - starting, maintaining, discontinuing
Suction therapy - starting, maintaining, discontinuing
Traction - applications, set up, discontinuing
Application of braces
Padding
Care of pressure sores
Swabbing patients
Venepuncture
Giving enemas (non medication)
Irrigation such as bladder, ostomies, douche
Sterile or non sterile dressings

Naso-gastric tube insertion or removal
Sterilising technical equipment
Cleaning trolleys in preparation for a sterile procedure
Attention to drainage
Remove or re-apply antiembolism stockings
Hot or cold packs
Providing inhalers
Scrubbing up for technical procedure
Putting on or taking off mask and gowns
Carrying out technical procedure, e.g. removing I.V. cannula etc.
Last offices, laying out.

NOTE: Include activities in preparation for and completion of treatments and procedures, even if not carried out in the presence of the patient.

B. INDIRECT CARE

21. Charting, Checking Chart or Kardex

Completing Kardex or nursing record
Nursing Care Plan - recording or single-handed divising
Completing fluid balance charts
Charting other than that carried out as integral part of ward round
Checking and distributing charts
Writing-up the drug box
Arranging specific X-ray, Sonar scan, Path Lab. technician visit etc. from other departments.
Completing dependency forms

22. Communications about a Specific Patient with Others

Team conference regarding a specific patient
Ward rounds out of patient's presence
Studying case histories
Teaching student other than by daily example
Time of student being taught as above
Nursing care plan development with others
Telephone calls to or from unit about a specific patient
Official communications, oral instructions about a specific patient

23. Preparing Medications I.V.

Pouring, setting-up, nursing, additives - away from the patient.

C. UNIT RELATED ACTIVITIES

31. Cleaning, Housekeeping Tasks

Stripping and making occupied beds
Cleaning unoccupied beds
Cleaning equipment not in use with patient
Disinfecting and routine washing of equipment
Clearing and tidying medical and surgical store cupboards
Light cleaning, dusting
Tidying ward, including lockers and cupboards
Changing covers of screens, cleaning screens
Preparing and cleaning night table etc.
Washing crockery and tidying kitchen
Cleaning bathroom or sluice
Sterilizing crockery
Sluicing
Washing small items, e.g. masks, bandages
Sorting, checking and disposing of soiled linen
Collecting and emptying rubbish, including w.p.b's, dirty dressings and bins
Moving beds, lockers and chairs
Carbolising beds, mackintosh sheets, labelling to be disinfected
Care of flowers
Care and maintenance of electric lights
Distributing cutlery and setting up bed tables
Making tea for Sister and Doctors

32. Clerical

Preparing diet lists
Preparing menu lists
Updating ward census list
Completing daily bed return
Delivering mail and flowers

Making out patient wrist bands

Date stamping

Preparing T.P.R. lists or any other routine ward lists

Assembling new records

Dealing with deceased patient's belongings

General clerical duties

33. Communication with Others

Sister's ward rounds

Receiving and making telephone calls not related to a specific patient

Visits to ward or external hospital staff

Borrowing or lending equipment or stores - on unit

Visits of Admin. or other nursing staff

Any miscellaneous emergency, non-medical

Making ward rounds to inspect buildings, checking fire equipment, lights, open windows, T.V. etc.

34. Errands off Ward

Delivering patient reports

Delivering requisitions

Off ward looking for lost equipment

Off ward looking for people, either staff or patients

Trips to other areas to pick up supplies, drugs, equipment, blood, CSSD, etc., even if for a specific patient

Collecting linen from store or laundry

Borrowing linen from other wards

35. Meetings, Inservice, Ward Reports

Committee work

Shift reports

General ward supervising reporting

General staff meetings

Evaluation and counselling sessions on or off ward

Giving, making or checking assignment lists

Preparing work schedules

Student or new employee orientation

Reporting on or off duty

Inservice education programmes, on or off ward

Team conferences

36. Supplies, Check, Restock

Checking and reordering of routine unit supplies, paper goods, etc.
Checking emergency trolley, special trays and reordering as necessary
Stockmaking, including cutting gauze, making swabs
Packing drums
Ordering, receiving and checking ward surgical stores and equipment
Issuing stores and equipment, replenishing trolleys

D. PERSONAL AND MISCELLANEOUS

40. Meal time
Coffee breaks
Non-productive time
Socialisation not related to work
Personal telephone calls
Going on and off duty, changing uniforms
Nurses private study on ward

OTHER

APPENDIX C
WARD PROFILE QUESTIONNAIRE

WARD PROFILE

(To be completed by the ward sister/charge nurse in consultation with the assessors).

Responses

HOSPITAL:

WARD NAME AND/OR NUMBER:

1 Main speciality on ward. .....

2 Other specialities/subspecialities. .....

3 Sex.

Male	
Female	
Mixed	

4 Bed complement. .....

5 Are extra beds put on the ward?

Often	
Sometimes	
Never	

6 How many extra beds? .....

7 Average bed occupancy (from latest set of annual returns - please quote the year). .....

Responses

8 Average patient length of stay (latest set of annual returns - plese quote year). .....

9 (Surgical Units)

Number of operating sessions per week. .....

Operation days. .....

Average number of operations per week. .....

10 How many consultants have beds on the ward?

Name	Number of Beds
.....	.....
.....	.....
.....	.....
.....	.....
.....	.....
.....	.....
.....	.....
.....	.....

11 When do consultant's rounds take place, and how long do they take?

Consultant	Day(s)	Time	Duration
.....	.....	.....	.....
	.....	.....	.....
	.....	.....	.....
	.....	.....	.....
.....	.....	.....	.....
	.....	.....	.....
	.....	.....	.....
	.....	.....	.....
.....	.....	.....	.....
	.....	.....	.....
	.....	.....	.....
	.....	.....	.....
.....	.....	.....	.....
	.....	.....	.....
	.....	.....	.....
	.....	.....	.....

12 Is the ward used for teaching?

Medical students	Yes	☐
	No	☐
Student nurses	Yes	☐
	No	☐
Pupil nurses	Yes	☐
	No	☐

13 How have learners been allocated to the ward in the past year?

14 Is there a study block in at present? Yes ☐ No ☐

If so, what grade and number?

Grade? .....

Number? .....

15 To what extent are clinical instructors employed on the ward? (Typical hours per day when learners present.)

.....

HOURS WORKED

16 How many nursing staff are normally allocated to the ward (exluding learners).

	Full Time	Part time (give weekly hours)
Sisters/Charge Nurses		
Staff Nurses		
Senior SENs		
Nursing Auxiliaries		

17 Do you have use of a nurse bank Yes ☐ No ☐

18 Are bank nurses used on a regular basis on your ward. If yes please give details, such as particular shifts, particular days bank nurses are used. Yes ☐ No ☐

19 Are split shifts being worked? Yes ☐ No ☐

If so, why?

20 Are extra long days being worked? Yes ☐ No ☐

21 If so, why?

22 What is the pattern of part-time working - do staff work set shifts? (e.g. early morning, twilight)

23 Are shift patterns influenced by local transport arrangements? Yes ☐ No ☐

24 What is the starting time of the day staff? .....

25 What is the finishing time of the day staff? .....

26 What is the starting time of the night staff? .....

27 What is the finishing time of the night staff? .....

28 What is the pattern of night staff working?

(.....nights on .....nights off)

29 What are the allowances for meal times which are not included in duty hours?

Day Staff	Night Staff
.....	.....

30 What allowances for breaks are included in duty hours?

Day Staff	Night Staff
.....	.....

31 Do night staff take their meals on the ward or in the dining room?

Ward |_____|
Dining Room |_____|

32 If on the ward, how is food supplied?

33 Are creche facilities <u>readily available</u> to nursing staff?

Yes |_____|
No |_____|

34 To what extent is nursing relief available for:-

	None	Some	Considerable
Holidays	☐	☐	☐
Sickness	☐	☐	☐
Extra workload	☐	☐	☐

35 Is the sickness rate known? If so, please state, by grade if possible.

36 Are any future changes contemplated in hours of duty or length of duty spans? Yes ☐ No ☐

37 Is any basic training given to nursing auxiliaries? Yes ☐ No ☐

38 How are nursing tasks assigned?

Patient allocation ☐

Task allocation ☐

Nursing process ☐

Combination of above, please explain. ☐

39 If task allocation, are tasks allocated daily? Yes ☐ No ☐

40 How is the allocation made? .....

41 How is patient's progress recorded? .....

42 Do you have the services of a ward clerk? Yes |_____|
No |_____|

43 What hours does the ward clerk work? .....

44 Is the ward clerk shared with another ward? Yes |_____|
No |_____|

45 Is the ward clerk paid from the nursing budget? Yes |_____|
No |_____|

46 What hours do the domestic assistants work? .....
.....

47 Is there any relief for sickness/ absence/holidays of ward clerks? Yes |_____|
No |_____|

48 Is there any relief for sickness/ absence/holidays of ward clerks? Yes |_____|
No |_____|

49 To what extent are porters used? .....

50	Are physiotherapy services provided?	Yes	☐
		No	☐
	If Yes	On ward	☐
		Away from ward	☐
		Both	☐
51	Are occupational therapy services provided?	Yes	☐
		No	☐
	If Yes	On ward	☐
		Away from ward	☐
		Both	☐
52	Is a Central Sterile Supply Service available?	Yes	☐
		No	☐
53	Is the service	Topping up?	☐
		One for one exchange?	☐
		Supply on demand?	☐
		Other, please describe	☐
54	Are sterile packs or trays made up by ward staff?	Usually	☐
		Sometimes	☐
		Never	☐
55	What system does the ward normally use for the distribution of meals?	Bulk trolley	☐
		Plated meals	☐
		Trayed meals	☐
		Other, please describe	☐
56	Who <u>usually</u> serves the meals?	Nurses	☐
		Other staff	☐
		Both	☐

58 Are nurses regularly involved in collection of of the following items?

Blood from blood bank	Yes No	_____ _____
Drugs	Yes No	_____ _____
Stores	Yes No	_____ _____
Linen	Yes No	_____ _____
Specimens	Yes No	_____ _____
Other, please state	Yes No	_____ _____

59 Patient's daily routine/

	Time
Wakened	.....
Breakfast	.....
Lunch	.....
Tea	.....
Supper	.....
Lights out	.....

60 Are there any restrictions on patients' meal times, which in turn affect the organisation of nursing tasks? Yes _____ No _____

If yes, please explain

61 What are the visiting hours? .....

.....

62 Are outpatients seen on the ward?

Usually _____
Sometimes _____
Never _____

63 How many in the past 4 weeks? .....

64 Is this typical? (If not, please explain.)

Yes |_____|
No |_____|

65 Are day cases admitted to the ward?

Usually |_____|
Sometimes |_____|
Never |_____|

66 How many in the past 4 weeks? .....

67 Is this typical? (If not, please explain.)

Yes |_____|
No |_____|

68 Does the ward take emergency admissions?

Usually |_____|
Sometimes |_____|
Never |_____|

69 What system is used for allocating emergencies to the ward?

70 Are patients transferred to/from other hospitals from the ward?

Yes |_____|
No |_____|

71 If yes, are nursing escorts required from the ward?

Yes |_____|
No |_____|

72 Do nursing staff from the ward escort patients to/from theatre or other units?

Yes |_____|
No |_____|

73 Do nursing staff from the ward wait with patients in the recovery area?

Usually |_____|
Rarely |_____|
Never |_____|

74 Are there any factors not alluded to above, which you feel have a significant impact on nursing workload? Please state.

75 What do you feel are the three most important factors, on your ward, which limit the amount of time nurses can spend on direct patient care?

1 .....
2 .....
3 .....

76 Please sketch the layout of the ward and the disposition of the beds, with any comments you wish to make.

PATIENT DEPENDENCY CLASSIFICATION

NO

DATE

TIME

WARD

SIGNATURE

Ward Total Dependencies			
I	II	III	IV

CATEGORY GUIDELINES

DEP I — 3 A Scores only

DEP II — A + B Scores and not more than 2 C Scores.

DEP III — 2 or 3 Scores, more C's than A's or equal C's and A's.

DEP IV — 4 or more C Scores

	Personal Care			Feeding			Mobility			Nursing Attention			Other		TOTAL SCORES			Dependency Category	
Patient Details	Bath/Self	Bath/assistance	Bath/complete	Minimum Help	Partial Help	Complete Help or Nil by mouth	Up and about	Bed rest/up with help	Bed/chair with position/support	4 hourly or less	2-4 hourly	Hourly/constant	Involuntary drainage	Major intervention	A	B	C		COMMENTS
	A	B	C	A	B	C	A	B	C	A	B	C	C	C	A	B	C		

APPENDIX E
PATIENT DEPENDENCY CLASSIFICATION MONTHLY FORM

WARD
HOSPITAL:
MONTH:

PATIENT DEPENDENCY CLASSIFICATION (B) MONTHLY SUMMARY

DAY OF MONTH	NUMBER OF PATIENTS PER CATEGORY				TOTAL NO. OF PATIENTS	NO. OF BEDS DAYS IN MONTH
	I	II	III	IV		
1						Comments:
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						
21						
22						
23						
24						
25						
26						
27						
28						
29						
30						
31						
Totals for month:						
Daily Average:						
% per category						

APPENDIX F

PATIENT DEPENDENCY YEARLY TOTALS

PATIENT DEPENDENCY CLASSIFICATION YEARLY SUMMARY

YEAR : 1989 and 1990

NO.OF BEDS: 22

WARD : 56

HOSPITAL: SALMANIYA MEDICAL CENTER

CHANGE IN NO.OF BEDS: NIL

MONTH	No. Days	No.Patient by Group				Total	No. Beds	Bed Occ.	W/L Ind.	Acuity
		I	II	III	IV					
MAY : Totals	31	231	192	101	89	614		90%		
Mean Average		7.5	6.2	3.3	2.9	19.8				
% Per Group		37.6	31.3	16.7	14.6	100				
JUNE : Totals	30	252	174	131	30	585		89%		
Mean Average		8.4	5.8	4.4	1	19.5				
% Per Group		43.1	29.7	22.4	5.1	100				
JULY: Totals	31	264	169	100	61	595		87%		
Mean Average		8.5	5.5	3.2	2.0	19.2				
% Per Group		44.4	28.4	16.8	10.3	100				
AUGUST: Totals	31	320	164	67	69	621		94%		
Mean Average		10.7	5.5	2.2	2.3	20.7				
% Per Group		51.5	26.4	10.8	11.0	100				
SEPTEMBER: Total	30	246	301	40	53	638		97%		
Mean Average		8.2	10.0	1.3	1.8	21.3				
% Per Group		38.6	47.2	6.3	8.3	100				
OCTOBER: Totals	31	236	300	94	30	652		95%		
Mean Average		7.6	9.7	3.0	1.0	21.0				
% Per Group		36.2	46.0	14.4	4.6	100				
NOVEMBER: Totals	30	208	241	102	72	623		94%		
Mean Average		6.9	8.0	3.4	2.3	20.8				
% Per Group		33.4	38.7	16.4	11.6	100				

PATIENT DEPENDENCY CLASSIFICATION YEARLY SUMMARY (Sheet 2.)

MONTH	No. Days	No.Patient by Group I	II	III	IV	Total	No. Beds	Bed Occ.	W/L Ind.	Acuity
DECEMBER: Totals	31	267	230	80	74	650		95%		
Mean Average		8.5	7.4	2.6	2.4	21.0				
% Per Group		41.0	35.3	12.3	11.3	100				
JANUARY: Totals	31	212	184	129	137	662		97%		
Mean Average		6.8	5.9	4.1	4.4	21.3				
% Per Group		32.0	27.8	19.5	20.7	100				
FEBRUARY: Totals	28	178	233	120	63	594		96%		
Mean Average		6.4	8.3	4.3	2.3	21.2				
% Per Group		30	39	20.2	10.6	100				
MARCH: Totals	24	121	142	111	76	450				
Mean Average		5.04	5.91	4.62	3.16	18.75				
% Per Group		26.8	31.5	24.6	16.8	100		85%		
YEAR SUMMARY: Yearly Totals	328	2535	2330	1075	754	6684				
Mean Average		7.7	7.1	3.3	2.3	20.4				
% Per Group		37.7	34.8	16.1	11.3	100		93%		
Bed Occupancy for Year										

PATIENT DEPENDENCY CLASSIFICATION YEARLY SUMMARY

YEAR : 1989 and 1990

NO.OF BEDS: 22

WARD : 43

HOSPITAL: SALMANIYA MEDICAL CENTER

CHANGE IN NO.OF BEDS:

MONTH	No. Days	No.Patient by Group				Total	No. Beds	Bed Occ.	W/L Ind.	Acuity
		I	II	III	IV					
MAY : Totals	31	212	283	24	64	583				
Mean Average		6.8	9.1	0.8	2.1	18.8				
% Per Group		36.3	48.5	4.1	10.9	100		85.4%		
JUNE : Totals	30	315	258	23	62	658				
Mean Average		10.5	8.6	0.8	2.0	21.9				
% Per Group		47.8	39.2	3.5	9.4	100		99.5%		
JULY: Totals	31	372	225	27	44	668				
Mean Average		12.0	7.3	0.9	1.4	21.5				
% Per Group		55.7	33.7	4.0	6.6	100		97.7%		
AUGUST: Totals	31	387	181	49	63	680				
Mean Average		12.5	5.8	1.6	2.0	21.9				
% Per Group		56.9	26.6	7.2	9.3	100		99.5%		
SEPTEMBER: Total	30	379	184	26	71	660				
Mean Average		12.6	6.1	0.9	2.4	22				
% Per Group		57.4	27.9	3.9	10.8	100		100%		
OCTOBER: Totals	31	319	236	33	83	675				
Mean Average		10.3	7.6	1.1	2.7	21.8				
% Per Group		47.6	35	4.9	12.3	100		99%		
NOVEMBER: Totals	30	387	190	24	58	659				
Mean Average		12.9	6.3	0.8	1.9	21.9				
% Per Group		58.7	28.8	3.6	8.8	100		99.5%		

PATIENT DEPENDENCY CLASSIFICATION YEARLY SUMMARY (Sheet 2.)

MONTH	No. Days	No. Patient by Group I	II	III	IV	Total	No. Beds	Bed Occ.	W/L Ind.	Acuity
DECEMBER: Totals	31	379	216	17	70	682				
Mean Average		12.2	6.9	0.5	2.3	22				
% Per Group		55.6	31.7	2.5	10.3	100		100%		
JANUARY: Totals	31	351	234	42	54	681				
Mean Average		11.3	7.5	1.4	1.7	21.9				
% Per Group		51.5	34.4	6.2	7.9	100		99.5%		
FEBRUARY: Totals	28	294	241	17	56	608				
Mean Average		10.5	8.6	0.6	2.0	21.7				
% Per Group		48.4	39.6	2.8	9.2	100		98.7%		
MARCH: Totals										
Mean Average										
% Per Group										
YEAR SUMMARY: Yearly Totals	304	3395	2248	282	625	6554				
Mean Average		11.1	7.4	0.9	2.0	21.6				
% Per Group		51.8	34.3	4.3	9.5	100		97.9%		
Bed Occupancy for Year										

PATIENT DEPENDENCY CLASSIFICATION YEARLY SUMMARY

YEAR : 1989 and 1990

NO.OF BEDS: 22

WARD : 66

HOSPITAL: SALMANIYA MEDICAL CENTER

CHANGE IN NO.OF BEDS: NIL

MONTH	No. Days	No.Patient by Group				Total	No. Beds	Bed Occ.	W/L Ind.	Acuity
		I	II	III	IV					
MAY : Totals	31	145	234	113	103	593		86%		
Mean Average		4.7	7.5	3.6	3.3	1.9				
% Per Group		24.5	39.4	19	17.3	100				
JUNE : Totals	30	176	292	98	61	627		95%		
Mean Average		5.9	9.7	3.3	2.0	21				
% Per Group		28	46.6	15.6	9.7	100				
JULY: Totals	31	160	218	100	108	588		86.4%		
Mean Average		5.2	7.0	3.2	3.5	19.0				
% Per Group		27.2	37.0	17.0	18.4	100				
AUGUST: Totals	31	205	228	77	137	643		94.1%		
Mean Average		6.6	7.4	2.5	4.4	20.7				
% Per Group		31.9	35.5	12.0	21.3	100				
SEPTEMBER: Total	30	182	234	84	121	624		95%		
Mean Average		6.0	7.8	2.8	4.0	20.8				
% Per Group		29.1	37.5	13.5	19.4	100				
OCTOBER: Totals	31	200	173	156	124	654		95.9%		
Mean Average	—	6.5	5.6	5.0	4.0	21.1				
% Per Group		30.6	26.5	23.9	19.0	100				
NOVEMBER: Totals	30	208	212	87	100	604		95%		
Mean Average		8	7.3	3	3.4	20.8				
% Per Group		34.4	35.0	14.4	16.6	100				

PATIENT DEPENDENCY CLASSIFICATION YEARLY SUMMARY

YEAR : 1989 and 1990

NO.OF BEDS: 16

WARD : 53

HOSPITAL: SALMANIYA MEDICAL CENTER

CHANGE IN NO.OF BEDS: NIL

MONTH	No. Days	No.Patient by Group				Total	No. Beds	Bed Occ.	W/L Ind.	Acuity
		I	II	III	IV					
MAY : Totals	31	158	57	61	163	438		88%		
Mean Average		5.0	1.8	1.9	5.3	14.1				
% Per Group		36	13	13.9	37.2	100				
JUNE : Totals	30	137	72	66	141	416		86.9%		
Mean Average		4.6	2.4	2.2	4.7	13.9				
% Per Group		32.9	17.3	15.9	33.9	100				
JULY: Totals	31	174	69	62	96	402		81.3%		
Mean Average		5.6	2.2	2.0	3.1	13.0				
% Per Group		43.3	17.2	15.4	23.9	100				
AUGUST: Totals	31	231	65	49	111	454		91.3%		
Mean Average		7.5	2.1	1.6	3.6	14.6				
% Per Group		50.8	14.3	10.7	24.4	100				
SEPTEMBER: Total	30	219	115	46	78	458		95.6%		
Mean Average		7.3	3.8	1.5	2.6	15.3				
% Per Group		47.8	25.1	10.0	17.0	100				
OCTOBER: Totals	31	183	153	67	82	485		97.5%		
Mean Average		5.9	4.9	2.2	2.6	15.6				
% Per Group		37.7	31.5	13.8	16.9	100				
NOVEMBER: Totals	30	216	148	52	61	477		99.4%		
Mean Average		7.2	4.9	1.7	2.0	15.9				
% Per Group		45.3	31.0	10.9	12.8	100				

PATIENT DEPENDENCY CLASSIFICATION YEARLY SUMMARY (Sheet 2.)

MONTH	No. Days	No. Patient by Group I	II	III	IV	Total	No. Beds	Bed Occ.	W/L Ind.	Acuity
DECEMBER: Totals	31	221	116	63	72	472		95%		
Mean Average		7.1	3.7	2.0	2.3	15.2				
% Per Group		46.8	24.6	13.3	15.3	100				
JANUARY: Totals	31	177	117	69	93	456		91.9%		
Mean Average		5.7	3.8	2.2	3.0	14.7				
% Per Group		38.8	25.7	15.1	20.4	100				
FEBRUARY: Totals	28	189	120	59	54	422		94.4%		
Mean Average		6.75	4.3	2.1	1.9	15.1				
% Per Group		44.8	28.4	14.0	12.8	100				
MARCH: Totals										
Mean Average										
% Per Group										
YEAR SUMMARY: Yearly Totals	304	1905	1032	594	951	4480		92%		
Mean Average		6.3	3.4	2.0	3.1	14.7				
% Per Group		42.8	23.1	13.6	21.0	100				
Bed Occupancy for Year										

PATIENT DEPENDENCY CLASSIFICATION YEARLY SUMMARY

YEAR : 1989 and 1990

NO.OF BEDS: 22

WARD : 51

HOSPITAL: SALMANIYA MEDICAL CENTER

CHANGE IN NO.OF BEDS:

MONTH	No. Days	No.Patient by Group				Total	No. Beds	Bed Occ.	W/L Ind.	Acuity
		I	II	III	IV					
MAY : Totals	31	71	171	81	273	596				
Mean Average		2.3	5.5	2.6	8.8	19.2				
% Per Group		11.9	28.7	13.6	45.8	100		87.3%		
JUNE : Totals	30	87	249	91	133	562				
Mean Average		2.9	8.3	3.0	4.4	18.7				
% Per Group		15.5	44.3	16.2	23.7	100		85%		
JULY: Totals	31	57	304	67	121	549				
Mean Average		1.8	9.8	2.2	3.9	17.7				
% Per Group		10.4	55.4	12.2	22	100		80.5%		
AUGUST: Totals	31	46	370	69	130	615				
Mean Average		1.5	11.9	2.2	4.2	19.8				
% Per Group		7.5	60.2	11.2	21.1	100		90%		
SEPTEMBER: Total	30	22	413	56	136	627				
Mean Average		0.7	13.8	1.9	4.5	20.9				
% Per Group		3.5	65.9	8.9	21.7	100		95%		
OCTOBER: Totals	31	5	413	69	143	630				
Mean Average		0.2	13.3	2.2	4.6	20.3				
% Per Group		0.8	65.5	10.9	22.7	100		92.3%		
NOVEMBER: Totals	30	1	404	71	149	625				
Mean Average		.03	13.5	2.4	4.9	20.8				
% Per Group		0.16	64.6	11.4	23.8	100		94.5%		

PATIENT DEPENDENCY CLASSIFICATION YEARLY SUMMARY (Sheet 2.)

MONTH	No. Days	No. Patient by Group I	II	III	IV	Total	No. Beds	Bed Occ.	W/L Ind.	Acuity
DECEMBER: Totals	31	1	342	84	207	634				
Mean Average		.03	11.0	2.7	6.0	20.5				
% Per Group		.16	53.9	13.2	32.6	100		93.2%		
JANUARY: Totals	31	1	398	72	180	653				
Mean Average		.03	12.8	2.3	5.8	21.0				
% Per Group		0.2	60.9	11.0	27.6	100		95.5%		
FEBRUARY: Totals										
Mean Average										
% Per Group										
MARCH: Totals	28	5.3	326	33.2	232.8	597.3				
Mean Average		18	11.6	1.2	8.3	21.3				
% Per Group		.88	54.6	5.6	39	100		97%		
YEAR SUMMARY: Yearly Totals	303	296	3390	693	1704	6088				
Mean Average		.98	4.2	2.3	5.6	20.0				
% Per Group		4.9	55.7	11.4	28	100		91%		
Bed Occupancy for Year										

PATIENT DEPENDENCY CLASSIFICATION YEARLY SUMMARY

YEAR : 1989 and 1990

NO.OF BEDS: 22

WARD : 41

HOSPITAL: SALMANIYA MEDICAL CENTER

CHANGE IN NO.OF BEDS:

MONTH	No. Days	No.Patient by Group				Total	No. Beds	Bed Occ.	W/L Ind.	Acuity
		I	II	III	IV					
MAY : Totals	31	348	141	62	68	619				
Mean Average		11.2	4.5	2.0	2.2	20.0				
% Per Group		56.2	22.8	10.0	11.0	100.0		90.9		
JUNE : Totals	30	386	151	57	61	655				
Mean Average		12.9	5.0	1.9	2.0	21.8				
% Per Group		58.9	23.1	8.7	9.3	100.0		99.1		
JULY: Totals	31	392	125	95	29	641				
Mean Average		12.6	4.0	3.1	0.9	20.7				
% Per Group		61.2	19.5	14.8	4.5	100.0		94.1		
AUGUST: Totals	31	396	186	61	21	663				
Mean Average		12.8	6.0	2.0	0.7	21.4				
% Per Group		59.7	28.1	9.2	3.2	100.0		97.3		
SEPTEMBER: Total	30	394	183	50	18	645				
Mean Average		13.1	6.1	1.7	0.7	21.5				
% Per Group		61.1	28.4	7.8	2.8	100.0				
OCTOBER: Totals	31	359	207	88	9	663				
Mean Average		11.6	6.7	2.8	0.3	21.4				
% Per Group		54.1	31.2	13.3	1.4	100.0				
NOVEMBER: Totals	30	369	185	70	23	647				
Mean Average		12.3	6.2	2.3	0.8	21.6				
% Per Group		57.0	28.6	10.8	3.6	100.0				

PATIENT DEPENDENCY CLASSIFICATION YEARLY SUMMARY (Sheet 2.)

MONTH	No. Days	No.Patient by Group I	II	III	IV	Total	No. Beds	Bed Occ.	W/L Ind.	Acuity
DECEMBER: Totals	31	337	174	63	102	676				
Mean Average		10.9	5.6	2.0	3.3	21.8				
% Per Group		49.9	25.7	9.3	15.1	100.0				
JANUARY: Totals										
Mean Average										
% Per Group										
FEBRUARY: Totals										
Mean Average										
% Per Group										
MARCH: Totals										
Mean Average										
% Per Group										
YEAR SUMMARY: Yearly Totals	245	2981	1352	546	331	5209				
Mean Average		12.2	5.5	2.2	1.4	21.3				
% Per Group		57.2	26.0	10.5	6.4	100.0				
Bed Occupancy for Year								96.8		

WARD: 55
HOSPITAL: SMC

YEAR 89 NO. OF BEDS 18

PATIENT DEPENDENCY CLASSIFICATION - YEARLY SUMMARY (sheet)

MONTH:	NUMBER OF PATIENTS PER CATEGORY I	II	III	IV	TOTAL NO. OF PATIENTS	COMMENTS OCCUPANCY
May:						
Totals for month	170	145	56	159	530	
Daily Averages	5.5	4.7	1.8	5.1	17.1	
% per Category	32.1	27.4	10.6	30.0	100.0	95
June:						
Totals for month	212	116	54	106	488	
Daily Averages	7.1	3.9	1.8	3.5	16.3	
% per Category	43.4	23.8	11.1	21.7	100.0	90.6
July:						
Totals for month						
Daily Averages						
% per Category						
Totals for month						
Daily Averages						
% per Category						
Totals for month						
Daily Averages						
% per Category						
SUMMARY:						
Totals	382	261	110	265	1018	
Daily Averages	6.3	4.3	1.8	4.3	16.7	
% per Category	37.5	25.6	10.8	26.0	100.0	
Bed Occupancy						92.8

WARD: 22
HOSPITAL: SMC

YEAR 89 NO. OF BEDS 16

PATIENT DEPENDENCY CLASSIFICATION - YEARLY SUMMARY (sheet)

MONTH:	NUMBER OF PATIENTS PER CATEGORY I	II	III	IV	TOTAL NO. OF PATIENTS	COMMENTS
May:						
Totals for month	108	225	87	55	475	
Daily Averages	3.5	7.3	2.8	1.8	154	
% per Category	22.7	47.4	18.3	11.6	100.0	96.3
June:						
Totals for month	110	222	82	54	466	
Daily Averages	3.7	7.4	2.7	1.8	15.6	
% per Category	23.6	47.6	17.6	11.6	100.0	97.5
July:						
Totals for month						
Daily Averages						
% per Category						
Totals for month						
Daily Averages						
% per Category						
Totals for month						
Daily Averages						
% per Category						
SUMMARY:						
Totals	218	447	169	109	941	
Daily Averages	3.6	7.4	2.8	1.8	15.6	
% per Category	23.2	47.5	18.0	11.6	100.0	
Bed Occupancy						97.0

WARD: 23
HOSPITAL: SMC

YEAR 89 NO. OF BEDS 20

PATIENT DEPENDENCY CLASSIFICATION - YEARLY SUMMARY (sheet)

MONTH:	NUMBER OF PATIENTS PER CATEGORY				TOTAL NO. OF PATIENTS	COMMENTS OCCUPANCY
	I	II	III	IV		
May:						
Totals for month	112	255	141	69	577	
Daily Averages	3.6	8.2	4.5	2.2	18.6	
% per Category	19.4	44.2	24.4	11.9	100.0	93
June:						
Totals for month	99	243	208	36	584	
Daily Averages	3.3	8.1	6.9	1.2	19.5	
% per Category	16.95	41.6	35.6	6.2	100.0	97.5
July:						
Totals for month	117	314	116	51	596	
Daily Averages	3.6	10.1	3.7	1.6	19.2	
% per Category	19.6	52.7	19.5	8.6	100.0	96
Totals for month						
Daily Averages						
% per Category						
Totals for month						
Daily Averages						
% per Category						
SUMMARY:						
Totals	328	812	465	156	1757	
Daily Averages	3.5	8.8	5.0	1.7	19.0	
% per Category	18.7	46.2	26.5	8.9	100.0	
Bed Occupancy						95.0

WARD: 45
HOSPITAL: SMC

YEAR NO. OF BEDS 16

PATIENT DEPENDENCY CLASSIFICATION - YEARLY SUMMARY (sheet)

MONTH:	NUMBER OF PATIENTS PER CATEGORY I	II	III	IV	TOTAL NO. OF PATIENTS	COMMENTS OCCUPANCY
May: Totals for month	195	155	65	58	473	
Daily Averages	6.3	5.0	2.1	1.9	15.3	
% per Category	41.2	32.8	13.7	12.3	100.0	95.6
June: Totals for month	213	136	63	53	465	
Daily Averages	7.1	4.5	2.1	1.8	15.5	
% per Category	45.8	29.2	13.5	11.4	100.0	97
July: Totals for month	204	123	83	59	469	
Daily Averages	6.6	4.0	2.7	1.9	15.2	
% per Category	43.5	26.2	17.7	12.6	100.0	95
Totals for month						
Daily Averages						
% per Category						
Totals for month						
Daily Averages						
% per Category						
SUMMARY: Totals	612	414	211	170	1407	
Daily Averages	6.7	4.5	2.3	1.9	15.4	
% per Category	43.5	29.4	15.0	12.1	100.0	
Bed Occupancy						96

WARD: 46
HOSPITAL: SMC

YEAR 89 NO. OF BEDS 22

PATIENT DEPENDENCY CLASSIFICATION - YEARLY SUMMARY (sheet)

MONTH:	NUMBER OF PATIENTS PER CATEGORY				TOTAL NO. OF PATIENTS	
	I	II	III	IV		
May:						
Totals for month	300	173	88	57	617	
Daily Averages	9.7	5.6	2.8	1.8	19.9	
% per Category	48.6	28.0	14.3	9.2	100.0	90.5
June:						
Totals for month	309	193	81	65	648	
Daily Averages	10.3	6.4	2.7	2.2	21.6	
% per Category	47.7	29.8	12.5	10.0	100.0	98.2
July:						
Totals for month						
Daily Averages						
% per Category						
Totals for month						
Daily Averages						
% per Category						
Totals for month						
Daily Averages						
% per Category						
SUMMARY: Totals	609	366	169	122	1265	
Daily Averages	10.0	6	2.8	2	20.8	
% per Category	48.1	28.9	13.4	9.6	100.0	
Bed Occupancy						94.5

WARD: 63
HOSPITAL: SMC

YEAR 89 NO. OF BEDS 22

PATIENT DEPENDENCY CLASSIFICATION - YEARLY SUMMARY (sheet)

MONTH:	NUMBER OF PATIENTS PER CATEGORY I	II	III	IV	TOTAL NO. OF PATIENTS	BED OCC FOR THE MONTH
May:						
Totals for month	297	164	72	50	583	
Daily Averages	9.6	5.3	2.3	1.6	18.8	
% per Category	50.9	28.1	12.3	8.6	100.0	85.5%
June:						
Totals for month	380	122	75	55	632	
Daily Averages	12.7	4.1	2.5	1.8	21.1	
% per Category	60.1	19.3	11.9	8.7	100.0	96%
July:						
Totals for month						
Daily Averages						
% per Category						
Totals for month						
Daily Averages						
% per Category						
Totals for month						
Daily Averages						
% per Category						
SUMMARY:						
Totals	677	286	147	105	1215	
Daily Averages	11.2	4.7	2.4	1.7	20.0	
% per Category	55.7	23.5	12.1	8.6	100.0	90.9
Bed Occupancy						

WARD: 65
HOSPITAL: SMC

YEAR 89 NO. OF BEDS 16

PATIENT DEPENDENCY CLASSIFICATION - YEARLY SUMMARY (sheet)

MONTH:	NUMBER OF PATIENTS PER CATEGORY				TOTAL NO. OF PATIENTS	
	I.	II	III	IV		
May:						
Totals for month	115	215	84	53	467	
Daily Averages	3.7	6.9	2.7	1.7	15.1	
% per Category	24.6	46.0	18.0	11.3	100.0	94.4
June:						
Totals for month	91	220	100	68	479	
Daily Averages	3.0	7.3	3.3	2.3	15.97	
% per Category	19.0	45.9	20.9	14.2	100.0	99.8
July:						
Totals for month						
Daily Averages						
% per Category						
Totals for month						
Daily Averages						
% per Category						
Totals for month						
Daily Averages						
% per Category						
SUMMARY:						
Totals	206	435	184	121	946	
Daily Averages	3.4	7.1	3.0	2.0	15.5	
% per Category	21.8	46	19.5	12.8	100	
Bed Occupancy						97.1%

WARD: 54
HOSPITAL: SMC

YEAR 89 NO. OF BEDS 22

PATIENT DEPENDENCY CLASSIFICATION - YEARLY SUMMARY (sheet)

MONTH:	NUMBER OF PATIENTS PER CATEGORY I	II	III	IV	TOTAL NO. OF PATIENTS	COMMENTS OCCUPANCY
May:						
Totals for month	121	177	56	273	625	
Daily Averages	3.9	5.7	1.8	8.8	20.2	
% per Category	19.4	28.3	8.96	43.7	100.0	91.8
June:						
Totals for month	68	217	87	204	576	
Daily Averages	2.3	7.2	2.9	6.8	19.2	
% per Category	11.8	37.7	15.1	35.4	100.0	87.3
July:						
Totals for month	111	249	88	202	650	
Daily Averages	3.6	8.0	2.8	6.5	20.96	
% per Category	17.0	38.3	13.5	31.1	100.0	95.3
Totals for month						
Daily Averages						
% per Category						
Totals for month						
Daily Averages						
% per Category						
SUMMARY:						
Totals	300	643	231	679	1851	
Daily Averages	3.3	7.0	2.5	7.4	20.2	
% per Category	16.2	34.7	12.5	36.7	100.0	
Bed Occupancy						91.8

APPENDIX G
DIRECT CARE ASSESSMENT FORM

DIRECT CARE ASSESSMENT FORM

DATE:

TIME: 7:00 a.m. to 12:50 p.m. FORM: (F)

DAY OF STUDY:

ACTIVITIES

1. Communication
2. Medications
3. Nutrition & Elimination Technical.
4. Nutrition & Elimination non Technical.
5. Patient Hygiene
6. Patient Movement
7. Positioning, Exercising
8. Rounds, assist Doctor
9. Nursing rounds, checks Symptom observation
10. Vital Signs
11. Specimen gathering and testing.
12. Treatment and Procedures
13. Other

Time	Sister	SN	PN	AUX	Student	Others
7:00						
7:10						
7:20						
7:30						
7:40						
7:50						
8:00						
8:10						
8:20						
8:30						
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11:40						
11:50						
12:00						
12:10						
12:20						
12:30						
12:40						
12:50						

PATIENT NAME:
WARD:

DEPENDENCY CATEGORY: _____
PATIENT NO: _____
TOTAL UNITS: _____

DATE:

TIME: 1:00 p.m. to 6:50 p.m.

FORM: (F)

DAY OF STUDY:

ACTIVITIES

1. Communication
2. Medications
3. Nutrition & Elimination Technical.
4. Nutrition & Elimination non Technical.
5. Patient Hygiene
6. Patient Movement
7. Positioning, Exercising
8. Rounds, assist Doctor
9. Nursing rounds, checks Symptom observation
10. Vital Signs
11. Specimen gathering and testing.
12. Treatment and Procedures
13. Other

Time	Sister	SN	PN	AUX	Student	Others
1:00						
1:10						
1:20						
1:30						
1:40						
1:50						
2:00						
2:10						
2:20						
2:30						
2:40						
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5:50						
6:00						
6:10						
6:20						
6:30						
6:40						
6:50						

PATIENT NAME:

WARD:

DEPENDENCY CATEGORY: _____

PATIENT NO: _____

TOTAL UNITS: _____

DATE:

TIME: 7:00 p.m. 12:50 a.m.

FORM: (G)

DAY OF STUDY:

ACTIVITIES

1. Communication
2. Medications
3. Nutrition & Elimination Technical.
4. Nutrition & Elimination non Technical.
5. Patient Hygiene
6. Patient Movement
7. Positioning, Exercising
8. Rounds, assist Doctor
9. Nursing rounds, checks Symptom observation
10. Vital Signs
11. Specimen gathering and testing.
12. Treatment and Procedures
13. Other

Time	Sister	SN	PN	AUX	Student	Others
7:00						
7:10						
7:20						
7:30						
7:40						
7:50						
8:00						
8:10						
8:20						
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11:40						
11:50						
12:00						
12:10						
12:20						
12:30						
12:40						
12:50						

PATIENT NAME:
WARD:

DEPENDENCY CATEGORY: _____
PATIENT NO: _____
TOTAL UNITS: _____

DATE:

TIME: 1:00 a.m. to 6:50 a.m. FORM: (H)

DAY OF STUDY:

ACTIVITIES

1. Communication
2. Medications
3. Nutrition & Elimination Technical.
4. Nutrition & Elimination non Technical.
5. Patient Hygiene
6. Patient Movement
7. Positioning, Exercising
8. Rounds, assist Doctor
9. Nursing rounds, checks Symptom observation
10. Vital Signs
11. Specimen gathering and testing.
12. Treatment and Procedures
13. Other

Time	Sister	SN	PN	AUX	Student	Others
1:00						
1:10						
1:20						
1:30						
1:40						
1:50						
2:00						
2:10						
2:20						
2:30						
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5:40						
5:50						
6:00						
6:10						
6:20						
6:30						
6:40						
6:50						

DEPENDENCY CATEGORY: _____

PATIENT NO: _____

TOTAL UNITS: _____

PATIENT NAME:

WARD:

APPENDIX H

ALL NURSE ACTIVITY SAMPLING FORM (A)

ALL NURSE ACTIVITY SAMPLING FORM (A) DATE: HOUR: HOSPITAL:

SIGNATURE OF OBSERVER: DAY OF STUDY: FORM NUMBER: WARD:

AREA OF ACTIVITY	SISTER					SN					PN					AUXILIARY					STUDENT					OTHER					TOTAL
	00	15	30	45	T	00	15	30	45	T	00	15	30	45	T	00	15	30	45	T	00	15	30	45	T	00	15	30	45	T	
1. Communication with Patient &/or Family																														
2. Medications (I.V. Administering)																														
3. Nutrition and Elimination-Technical																														
4. Nutrition & Elimination-non-technical																														
5. Patient Hygiene																														
6. Patient movement-non-therapeutic																														
7. Positioning,Excercising-therapeutic																														
8. Rounds or assist doctor/non nurse																														
9. Routine checks,patient rounds, etc.																														
10.Vital Signs																														
11.Specimen gathering and testing																														
12.Treatment and Procedures-Nursing only																														
TOTAL DIRECT CARE																														
21.Charting, Checking Chart or Kardex																														
22.Communications (specific patient)																														
23.Preparing Medications, I.V.																														
TOTAL INDIRECT CARE																														
31.Cleaning, housekeeping, tasks																														
32.Clerical																														
33.Communication-unit related																														
34.Errands off ward																														
35.Meetings, Inservice, Ward Reports																														
36.Supplies, Check restock																														
TOTAL ASSOCIATED WORK																														
40.Personal and Miscellaneous																														
50.Other																														
OVERALL TOTAL																														

ALL NURSE ACTIVITY SAMPLING FORM (A) DATE: HOUR: HOSPITAL:

SIGNATURE OF OBSERVER: DAY OF STUDY: FORM NUMBER: WARD:

AREA OF ACTIVITY	SISTER					SN					PN					AUXILIARY					STUDENT					OTHER					
	00	15	30	45	T	00	15	30	45	T	00	15	30	45	T	00	15	30	45	T	00	15	30	45	T	00	15	30	45	T	TOTAL
1. Communication with Patient &/or Family																														
2. Medications (I.V. Administering)																														
3. Nutrition and Elimination-Technical																														
4. Nutrition & Elimination-non-technical																														
5. Patient Hygiene																														
6. Patient movement-non-therapeutic																														
7. Positioning,Excercising-therapeutic																														
8. Rounds or assist doctor/non nurse																														
9. Routine checks,patient rounds, etc.																														
10.Vital Signs																														
11.Specimen gathering and testing																														
12.Treatment and Procedures-Nursing only																														
TOTAL DIRECT CARE																														
21.Charting, Checking Chart or Kardex																														
22.Communications (specific patient)																														
23.Preparing Medications, I.V.																														
TOTAL INDIRECT CARE																														
31.Cleaning, housekeeping, tasks																														
32.Clerical																														
33.Communication-unit related																														
34.Errands off ward																														
35.Meetings, Inservice, Ward Reports																														
36.Supplies, Check restock																														
TOTAL ASSOCIATED WORK																														
40.Personal and Miscellaneous																														
50.Other																														
OVERALL TOTAL																														

APPENDIX I
OBSERVERS FEEDBACK QUESTIONNAIRE

NURSE MANPOWER STUDY
OBSERVERS FEEDBACK ON DIRECT AND ALL NURSE ACTIVITY SAMPLING

1. Was one observer per shift adequate for undertaking Direct Care Assessment ?

   Yes ☐ No ☐

2. Was one observer per shift adequate for undertaking All Nurse Activity Sampling ?

   Yes ☐ No ☐

3. Were the instructions regarding observation procedures clear?

   Yes ------ No -------

4. Did you find the training session useful for carrying out the observation.

   Yes ------ No ------

5. Have you encountered any problems in carrying out the observation as instructed.

   Yes ------- No ------

   If yes or No , explain ----------

   ---

6. Do you think that the observation instruments adequately measure all nursing activities, during 24 hrs in SMC wards.

   Yes ------ No -------

   If no, explain ----------

   ---

7. Did you encounter any difficulties in filling observation forms.

Yes ---------- No -------

If yes, which form and comment : ----------

---

8. In your view, do you think there is room for improvement/ change in the instruments used.

Yes ------- No --------

If yes, explain ----------

---

9. From your experience during observation, do you think there is shortage of nurses in the wards ?

Yes --------- No ----------

If yes, during which shift ?

---

10. Is the present nurse/patient ratio adequate ?

Yes -------- No --------

If no, explain ----------

3

11. Were the instrument(s) relatively easy to use

Direct Care ... All Nurse Activity

Yes ------ No ----- Yes ------ No -------

comment in both cases : ----------

---

12. Were the observation timing/shift suitable for observation?

Yes ---------- No ----------

If No, explain ----------

---

13. Which ward was the easiest to observe ?

---

14. Which Ward was the most difficult to observe and why ?

---

15. Any other comment or observation you may wish to add:

APPENDIX J
NURSE SATISFACTION QUESTIONNAIR

NURSE SATISFACTION QUESTIONNAIRE

WARD _____

DATE _____

PERSONAL CODE NUMBER _____

DAY/NIGHT SHIFT _____

FOR EACH QUESTION PLEASE TICK ONE BOX ONLY

Please ring your staff grade:

Nursing Officer
Ward Sister
Staff Nurse
Enrolled Nurse
Student Nurse
Pupil Nurse
Nursing Auxiliary

During the last 7 days on this ward how satisfied were you:	VERY SATISFIED	FAIRLY SATISFIED	NOT REALLY SATISFIED	NOT AT ALL SATISFIED	PLEASE DO NOT WRITE IN THIS COLUMN
Physical Care					
1. that patients were able to bath & wash often enough?	☐	☐	☐	☐	
2. that patients got enough rest & sleep?	☐	☐	☐	☐	
3. that patients had easy access to a bedpan, toilet, or urinal?	☐	☐	☐	☐	
4. that patients could get something to drink when they wanted it? (This question should not be answered for patients whose drinks were controlled for medical reasons)	☐	☐	☐	☐	
5. that patients were helped to a comfortable position in and out of bed?	☐	☐	☐	☐	
6. that patients were able to move safely about the ward, with or without help, as much as they wanted?	☐	☐	☐	☐	
Treatments					
7. that patients were given medicines properly?	☐	☐	☐	☐	
8. that patients received proper treatment for pressure areas?	☐	☐	☐	☐	

	VERY SATISFIED	FAIRLY SATISFIED	NOT REALLY SATISFIED	NOT AT ALL SATISFIED	PLEASE DO NOT WRITE IN THIS COLUMN
9. that patients were given other nursing treatments (e.g. dressings) properly?	☐	☐	☐	☐	
10. that adequate attempts were made to keep patients free from pain and discomfort?	☐	☐	☐	☐	
Well-being					
11. that the nurses understood patients worries and reassured them?	☐	☐	☐	☐	
12. that the nurses were considerate of patients privacy?	☐	☐	☐	☐	
13. that the nurses considered patients likes and dislikes	☐	☐	☐	☐	
14. that the nurses checked often to see that patients were all right?	☐	☐	☐	☐	
15. that a nurse rapidly attended patients when they needed a nurse?	☐	☐	☐	☐	
Information					
16. that somebody told patients how things worked on the ward when they arrived?	☐	☐	☐	☐	
17. that the nurses explained to patients about their medicines and treatments?	☐	☐	☐	☐	
18. that the nurses explained things to the patients family or friends?	☐	☐	☐	☐	

	VERY SATISFIED	FAIRLY SATISFIED	NOT REALLY SATISFIED	NOT AT ALL SATISFIED	PLEASE DO NOT WRITE IN THIS COLUMN
Ward Staffing					
19. with the way the needs of acutely ill patients were met?	☐	☐	☐	☐	
20. with the way the needs of non-acutley ill patients were met?	☐	☐	☐	☐	
21. that the number of staff on this ward during the day was generally adequate?	☐	☐	☐	☐	
22. that the number of staff on this ward during the night was generally adequate?	☐	☐	☐	☐	
23. that the mix of staff on this ward during the day was suitable?	☐	☐	☐	☐	
24. that the mix of staff on this ward during the night was suitable?	☐	☐	☐	☐	
25. that you had about the same amount of work to do each day?	☐	☐	☐	☐	
26. that changes in number of nursing staff reflected changes in workload?	☐	☐	☐	☐	
27. that your work was reasonably free from interruption?	☐	☐	☐	☐	
28. that non-nursing duties were minimised?	☐	☐	☐	☐	
29. that there were good communications between nursing staff?	☐	☐	☐	☐	
30. that nursing staff on the ward were genuinely concerned about the patients well-being?	☐	☐	☐	☐	

	VERY SATISFIED	FAIRLY SATISFIED	NOT REALLY SATISFIED	NOT AT ALL SATISFIED	PLEASE DO NOT WRITE IN THIS COLUMN
31. that there was a happy atmosphere on the ward?	☐	☐	☐	☐	
32. that patients were adequately prepared for discharge?	☐	☐	☐	☐	
33. that the present shift arrangements make the best use of the available nurse manpower?	☐	☐	☐	☐	
34. that the ward was not over-staffed?	☐	☐	☐	☐	

Additional Comments:

APPENDIX K
OPERATIONAL DEFINITION OF NURSING ACTIVITIES IN THE HEALTH CENTRE

Operational Definitions for the activities performed in the Health Centre for the purposes of Nurse Manpower Study

Midwife encounter:

Is the pregnant client whose follow up examinations are done by the midwife from the second visit to the ente-natal clinic upto 36 weeks gestation. If the pregnant client has a bad obstetric history or any complaints, she will then be examined by the doctor. All first visits, 28 weeks and those after 36 weeks of gestation will be seen by the doctor.

Ante-natal first visit/revisit:

Is the six hours a day clinic activities planned and organized for the pregnant clients to attend the health centre for ante-natal care. In this session the ante-natal card is made by the clerk. Present and past obstetric medical and family history are taken by the maternal and child health nurse (MCH) and nurse midwife, after which the client will be examined by the doctor or midwife. Abdominal palpation include fundal height, lie, lateral palpation, position and presentation of the foetus. Fetal heart rate checked and required investigation is done. Also health education and instructions regarding prescribed medication is given to pregnant mother. Tetanus toxoid is given according to schedule.

Post-natal:

Is the time after delivery upto 42 days. During this period the appointment for post natal examination will be given after 6 weeks to the delivered mother by the Community Health Nurse in the health centre or by a Nurse Midwife during hospitalization in post-natal ward. The post-natal examination form will be filled by community health nurse. The weight and blood pressure is checked and urine for routine examination will be done. The client will be examinated by the family physician. This examination will include physical and gynaecological examination. A pap smear and high vaginal swab obtained for laboratory investigation. Required advice will be given especially on family planning/birth spacing. Rubella vaccine and tetanus toxoid will be given for those who require with appropriate instructions.

Home Visit:

a. Mother:

Is the home visit done by a community health nurse for a mother who had delivered at home or hospital with a problem. Eg. anaemia, post-partum haemorrhage, handicapped baby, small forterm, pre-term baby etc. The purpose of the visit is to follow up the condition of the mother by taking the history, observation, examination and health education is

given as required. Home visits are also done for ante-natal and post-natal defaulters. Also, to select families for nursing students for their project.

b. Child:

Is the visit done by a Community Health Nurse especially for "at-risk-child", (eg. pre-term baby/under weight baby, handicapped child) and immunization defaulters. The purpose for follow-up visits are to assess the condition of the baby, educate and demonstrate to the mother the proper care of the baby.

c. Adults/Elderly:

Is the visit done by a Community Health Nurse for an adult/elderly who can not attend the health centre or a defaulter. Eg. diabetic, hypertensive clients and defaulter of penedur injection. The purpose of the visit is to follow-up the condition by assessment/examination to write report and health education is given if required.

Child Records: (clinic)

Every child who attend the clinic (child welfare) has the health record and a book for developmental screening. On each visit to the clinic these records will be filled by the Community Health Nurse after assessing the child's weight, height and head circumference. Developmental screening is carried out according to the schedule (6m to 5 yrs). Health education regarding immunization and feeding practices will be given. Individual child's health record will be filled accordingly.

Injections:

Different kinds of injections are given through different routes eg. intradermal, subcutaneous and intramuscular. Preparation done for special injections such as cortisone, I.V. drip also to be taken into account.

School Health Services:

Following entrance registration at school each new student will be given a card to attend the Health Centre for complete physical examination and immunization. Each child will be examined by the Community Health Nurse before referring the student to the Family Physician with the record duly filled. Immunization will be given according to the specific requirement and recorded.

Associate Work:

Clerical:

Is the tasks of maintaining various records and filing, performed by Nursing team members both in preventive and curative sides (Sr. in-charge, CHN, Midwife, staff-Nurse and MCH nurse). The records include child health record, immunization register, birth register, appointment book for screening children under five, for post-natal check-up, ante-natal defaulter register, follow-up register for M 6 ward, register for handicapped children, home visit book, vision test register etc. Registers for daily dressings procedure, minor operations, circumcision, emergency injections, dangerous drug register, referral book, daily statistics etc.

Meeting:

Is the participation of nursing personnel in the meeting arranged by physician incharge/principal nursing officer, to discuss issues or matters related to the improvement of services to the individual, family and community.

Escorting:

Is accompanying a client/patient to his/her transport or ambulance after giving the appropriate care. Escorting may also include accompanying clients to other department in health centre, other health centres and/or hospitals.

Child Screening (at 6 months & 1 yrs of age)

Is the sytematic examination of children under five (from head to toe) and observation of milestones according to the age of children, based on the "Developmental Screening Book, maintained at health centres. Also recording the observations and instructions/counselling given as required and referred to family physician if necessary.

Screening of children at 2 months, 4 months, 9 months, 2 yrs, 3 yrs, 4 yrs & 5 yrs is carried out by the Family Physician and CHN, keeps the record of the individual child ready, according to the appointment date and files the record after being examined.

Cryotherapy:

Is a therapeutic use of cold application by nitrous oxide for removing warts. The Nurse cleans the affected area of the skin and applies the Nitrous Oxide and records in the treatment register.

Epilation:

Is a process of removing inverted eye lashes from the affected eye. The Nurse cleans the eye, removes the lashes, wash the eye with normal saline and record.

Vision Test:

Is a process of testing the acuity of the eyes. It is determined by having the subject/client read letters of various sizes at standard distance (20 ft) by using the Snellan's chart and record.

First Aid:

Is the administration of emergency assistance to individuals who have been injured or otherwise disabled prior to the arrival of the physician for the following conditions: burns, poisoning, foreign-body, fracture, unconsciousness, bleeding, injuries, dehydration, breathlessness, etc.

I.U.C.D. Insertion/Removal:

Is the introduction/removal of intrauterine contraceptive device into/from uterus of mother, the nurse sets up the tray and assist the doctor while the I.U.C.D. is being inserted/removed. She disinfects the used instruments and sets up the tray for the next use and record.

Nebulization:

It is the use of nebulizer apparatus where a liquid is reduced to a fine spray. As per the physician's order, the drug is measured and put into the nebulizer with the ordered proportion of solvent. The nurse administers the medicated steam to the client. She records the treatment in client's record and the register. The nebulizer is cleaned and kept ready for next use.

Vitelograph:

Is a graph taken with the aid of a machine in order to assess lung capacity of a client who is suffering from Chronic Obstructive Pulmonary Disease (COPD). Nurse sets up the machine and the graph recording is taken by the physician.

5

Others

- Filling
- Bring Stationery
- Telephoning
- Prayer
- Help CHS students
- Toilet
- Coffee break
- Hand washing
- Store-keeping/check linen-laundry
- Getting supplies (syringes, needles, cotton)
- Instruments - washing and autoclaving/check instrument
- Give appointment
- Translation to patients
- Bring medicine from pharmacy
- X-Ray searching/collecting
- Cleaning OT/ER - preparing OT - dressing room
- Estatistics
- Bed making
- Taking weight
- Referal
- Check safe poison cupboard/check emergency drugs
- Change ECG wire
- Holding child
- Calling 999 ambulance
- Cleaning trolley - arrange

6

Communication:

1. With patients and/or families

   - Personal contact with patients, conversation, support and reassurance.
   - Explanation of procedures and treatments.
   - Attention to relatives and friends of patients.

2. About specific patient with others

   - Team conference regarding specific patient.
   - Teaching student(s).
   - Telephone calls to or from units/health centre(s) about a specific patient.
   - Official communications, oral instructions about a specific patient.

3. Communication with others

   - Receiving and making telephone calls not related to a specific patient.
   - Borrowing or lending equipment.
   - Visits of administration or other nursing staff.
   - Any miscellaneous emergency, non-medical.

Other tests:

Such as : Sugar, Protein (Albumin) reaction, FSH in urine specimen.

Others:

Weight taking, supply of syringes and needles, store keeping, checking medication, cleaning instruments, autoclaving, trolley set-up, preparing ER/OT.

Supervision:

CHN supervises the performance of nursing students Eg. Immunization, Health Education, etc.

APPENDIX L

NURSING ACTIVITIES ASSESSMENT FORM IN PRIMARY HEALTH CARE

PHC-2 NURSING CATEGORY ASSESSMENT IN PRIMARY HEALTH CARE

DATE :
SHIFT : 1 2 3
NURSE :

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
PREVENTIVE																														
Ante-natal first visit																														
Primi																														
Multi																														
Re-visit																														
Kidney discharge																														
Post-natal - Mother																														
- Newborn																														
Child Preventive Under 5 yrs																														
Immunization																														
School service																														
Health Education																														
Counselling																														
Communication																														
CURATIVE																														
Injections																														
Special Injections																														
I.V. Administration																														
Dressing																														
Circumcision																														
Cryotherapy																														
Cauterization																														
Excision-Loation																														
Bloodclot																														
Suture wound																														
Suture removal																														
Lumbalum Aspiration																														
Removal - Foreign body																														
First Aid																														
Ear Ache Pierce																														
Ear Wash																														
Ear Suction																														
Ear Pack																														
Eye Wash																														
Vision Test																														
Tonometry																														
Epilation																														
E.C.G.																														
Vitalometry																														
O2 Administration																														
Nebulization																														
Control Nose Haemorrhage																														
P.P.D. Test																														
Other Tests																														
Enema																														
Cold Sponge																														
I.U.C.D																														
Vital Signs TPR/BP																														
Home Visit - Mother																														
- Child																														
- Adult																														
- Elderly																														
Clerical																														
Record																														
Escort Line																														
Personal & Missal Problems																														
Other																														
Male																														
Female																														
Initial contact - new patient																														
Under 5 years																														
5 - 15 years																														
16 - 24 Years																														
25 - 34 years																														
35 - 44 years																														
45 - 54 years																														
55 - 64 years																														
Total Time																														
Total Score																														
Category																														

APPENDIX M
CONTRIBUTION OF THE COMMUNITY NURSING TEAM IN NURSING ACTIVITIES CHECKLIST

CONTRIBUTION OF THE COMMUNITY NURSING TEAM IN NURSING ACTIVITIES - CHEKLIST

ANNEXURE M

1 Ministry of Health
2 Primary Health Care
3
4 Preventive Total Total Percent Hrs.
5

6			SIC	SN	MW	CHN	MCH	PN
7		Ante-natal Primi			X		X	
8		Multi			X		X	
9		Revisit			X		X	
10		Midwife encounter			X			
11		Post-natal Mother				X	X	
12		Newborn				X	X	
13		Child Screening Under 5 Years				X		
14		Immunization				X	X	
15		School Service		X		X	X	
16		Health Education	X	X	X	X	X	X
17		Counselling	X	X	X	X	X	X
18		Communication	X	X	X	X	X	X
19		Home Visit - Mother				X	X	
20		- Child				X	X	
21		- Adult				X	X	
22		- Elderly				X	X	
23		Total						
24								
25		Curative						
26								
27		Injections	X	X			X	
28		Special Injections	X	X				
29		I.V. Administration	X	X				
30		Dressing	X	X				X
31		Circumcision	X	X				X
32		Cryotherapy	X	X				X
33		Cauterization	X	X				X
34		Excision-Lesion	X	X				X
35		Biopsies	X	X				X
36		Suture Wound	X	X				X
37		Suture Removal	X	X				X
38		Incision Abcess	X	X				X
39		Remove - Foreign Body	X	X				X
40		First Aid	X	X	X	X	X	X
41		Ear Lobe Pierce		X				
42		Ear Wash		X				X
43		Ear Suction		X				X
44		Ear Pack		X				X
45		Eye Wash		X				X

6			SIC	SN	MW	CHN	MCH	PN
46		Vision Test		X				X
47		Tonography		X				
48		Epilation	X	X				X
49		E.C.G.	X	X				
50		Vitalograph	X	X				
51		O2 Administration	X	X				
52		Nebulization	X	X				
53		Control Nose Haemorrhage	X	X				X
54		P.P.D. Test		X		X		
55		Other Tests		X				
56		Enema		X				X
57		Cold Sponge		X				X
58		I.U.C.D.	X	X				X
59		Vital Signs TPR/BP	X	X	X	X	X	X
60		Total						
61								
62		Associated Work						
63								
64		Clerical	X	X	X	X	X	X
65		Meeting	X	X	X	X	X	X
66		Escorting	X	X	X	X	X	X
67		Personal & Miscellaneous	X	X	X	X	X	X
68		Others	X	X	X	X	X	X

69	Total	0	0	ERR
70				
71	Summary		Total	Percent Hrs.
72				
73	Preventative	0	0	ERR
74	Curative	0	0	ERR
75	Associated Work	0	0	ERR
76	Total	0	0	ERR
77				
78	Establishment		Total	WTE's
79	Total		0	0.0
80	Sister in-charge (SIC)		0	0.0
81	Staff Nurse (SN)		0	0.0
82	Midwife (MW)		0	0.0
83	Community Health Nurse(CHN)		0	0.0
84	Maternal and Child Health Nurse(MCH)		0	0.0
85	Practical Nurse (PN)		0	0.0

APPENDIX N
QUESTIONNAIRE TO ASSESS HEALTH OFFICIALS FEEDBACK ON NURSING SITUATION

4

HEALTH OFFICIALS FEEDBACK ON NURSING SITUATION

MINISTRY OF HEALTH
COLLEGE OF HEALTH SCIENCES

NURSING MANPOWER STUDY

1. What is the total number of Nurses presently working in Ministry of Health ?

   1. Total :

   2. Total Bahraini :

2. If the present health facilities are to remain the same till the year 2000, do you think Ministry of Health will need more Nurses ?

   Yes ☐ No ☐

3. Is there a shortage of Nurses at present in Ministry of Health ?

   Yes ☐ No ☐

4. What is the extent of this shortage ?

   ---

5. Are the present health services adequately meeting the demand of the population ?

   Yes ☐ No ☐

6. Do you believe that medical knowledge and technology will have any effect on the health services and consequently on nurse manpower demands ?

Yes ☐ No ☐

If yes please indicate in which aspect:----------

---

7. I understand that Ministry of Health have a future plan to expand its health services. What implication this will have on the demand for nurses ?

---

8. What plans should be taken to meet this demand ?

---

9. Does Ministry of Health have (Nurses) Manpower Plan ?

Yes ☐ No ☐

If yes:

a. What is the total number required by the year 2000.

---

b. How was this figure calculated ?

---

10. What is the total yearly Overseas Nurse recruitment ?

---

11. What is the total yearly Bahraini Nurse recruitment?

---

12. What is the yearly number of Nurses graduated/supplied by College of Health Sciences ?

---

13. What is the present rate of attrition or loses among Bahraini Nurses?

---

14. What are the main factors or reasons for Nurse attrition in Bahrain ?

---

15. If the attrition rate or loses in Bahrain is high, what attempts have been made to reduce such attrition ?

7

16. Number of Nurses in the following Wards:

Ward.41 --------

Ward.43 --------

Ward.51 --------

Ward.53 --------

Ward.56 --------

Ward.66 --------

17. Number of Nurses in the following Health Centers:

Naim Health Center : ---------

Jidhaffs Health Center: ----------

Sh. Sabah Health Center : ----------

Sitra Health Center: _____

Isa Town Health Center: _____

Sh. Salman Health Center: _____

18. How the number of Nurses in the Ward(s) is determined ?

---

19. How the number of Nurses in the Health Center is determined?

_____

_____

_____

20. How the mix of Nurses is determined ?

_____

_____

_____

8

21. Has provision been made for coverage of sickness, leaves, release for continuing education etc..?

If so, what percentage ?

_____

_____

_____

_____

22. What is the present total number of Nurses in Salmaniya Medical Center ?

_____

---

23. What is the present total number of Nurses in Health Centers?

APPENDIX O
WARD SAMPLING FORM

WARD ______

DATE ______

DAY OF STUDY ______

WARD SAMPLING FORM

NAME OF PATIENT	DEP.I	DEP.II	DEP.III	DEP.IV	COMMENTS/SELECTION

APPENDIX P
DIRECT CARE SAMPLING FORM I: DAILY TOTALS DIRECT CARE UNITS PER DEPENDENCY CATEGORY

DIRECT CARE SAMPLING FORM (I) Date: Day of Study:

DAILY TOTALS - DIRECT CARE UNITS PER DEPENDENCY CATEGORY

DEPENDENCY CATEGORY I	UNITS OF CARE FROM FORMS E, F, G & H				
Patients in sample No: Name:	E	F	G	H	Total Units
1					
2					
3					
4					
5					

TOTAL for day =

DEPENDENCY CATEGORY II	UNITS OF CARE FROM FORMS				
Patients in sample No: Name:	E	F	G	H	Total Units
1					
2					
3					
4					
5					

TOTAL for day =

DEPENDENCY CATEGORY III	UNITS OF CARE FROM FORMS				
Patients in sample No: Name:	E	F	G	H	Total Units
1					
2					
3					
4					
5					

TOTAL for day =

DEPENDENCY CATEGORY IV	UNITS OF CARE FROM FORMS				
Patient in sample No: Name:	E	F	G	H	Total Units
1					
2					
3					
4					
5					

TOTAL for day =

APPENDIX Q
DIRECT CARE SAMPLING FORM J: WEEKLY AVERAGE DIRECT CARE PER DEPENDENCY CATEGORY

DIRECT CARE SAMPLING FORM (J)

WEEKLY AVERAGE - DIRECT CARE PER DEPENDENCY CATEGORY

Mins = Units x 10

	DAYS OF STUDY							TOTALS	
DEPENDENCY CATEGORY I	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7	Units	Mins
Daily total care units (FORM I)									
Daily total number of patients in sample									

DEPENDENCY CATEGORY II	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7	Units	Mins
Daily total care units									
Daily total number of patients in sample									

DEPENDENCY CATEGORY III	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7	Units	Mins
Daily total care units									
Daily total number of patients in sample									

DEPENDENCY CATEGORY IV	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7	Units	Mins
Daily total care units									
Daily total number of patients in sample									

TRANSFER TOTALS IN MINUTES FOR EACH DEPENDENCY CATEGORY

To calculate daily mean average time Direct Care dependency category - divide total minutes of direct care by number of patients in sample.

DEPENDENCY CATEGORY	I	II	III	IV
Total minutes direct care				
Total number of patients				
Daily mean average time in minutes per 24 hours				

APPENDIX R
DETAILS OF DIRECT CARE ASSESSMENT IN THE SIX SURVEYED WARDS

DIRECT CARE SAMPLING FORM (J)

WEEKLY AVERAGE - DIRECT CARE PER DEPENDENCY CATEGORY

Mins =
Units x 10

WARD 41

	DAYS OF STUDY							TOTALS	
DEPENDENCY CATEGORY I	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7	Units	Mins
Daily total care units (FORM I)	20	19	28	32	36	14	35	184	1840
Daily total number of patients in sample	5	5	5	5	5	4	5	34	

DEPENDENCY CATEGORY II	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7	Units	Mins
Daily total care units	57	19	60	45	49	47	61	338	3380
Daily total number of patients in sample	3	5	5	5	5	5	5	33	

DEPENDENCY CATEGORY III	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7	Units	Mins
Daily total care units			70	40	38	48	14	210	2100
Daily total number of patients in sample			4	2	3	3	1	13	

DEPENDENCY CATEGORY IV	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7	Units	Mins
Daily total care units	72	37	58	65		13	78	323	3230
Daily total number of patients in sample	3	3	3	3		1	4	17	

TRANSFER TOTALS IN MINUTES FOR EACH DEPENDENCY CATEGORY

To calculate daily mean average time Direct Care dependency category - divide total minutes of direct care by number of patients in sample.

DEPENDENCY CATEGORY	I	II	III	IV
Total minutes direct care	1840	3380	2100	3230
Total number of patients	34	33	13	17
Daily mean average time in minutes per 24 hours	54.1	102.4	161.5	190.0
	1	1.89	2.985	3.5

For the week of the study:
Ratio: 1 : 1.9 : 3 : 3.5

DIRECT CARE SAMPLING FORM (I) Date: 4/6/89 Day of Study: 1

DAILY TOTALS - DIRECT CARE UNITS PER DEPENDENCY CATEGORY Ward 41

DEPENDENCY CATEGORY I	UNITS OF CARE FROM FORMS E, F, G & H				
Patients in sample No: Name:	E	F	G	H	Total Units
1 Amir Jawder	2			2	4
2 A. Karim Ali		1	4	1	6
3 Shamsudin Mohideen	2	2		1	5
4 Abdulla Abdulla	2			1	3
5 Mohd Hussain	2				2
			TOTAL for day =		20

DEPENDENCY CATEGORY II	UNITS OF CARE FROM FORMS				
Patients in sample No: Name:	E	F	G	H	Total Units
1 Mohd Khalil	12	3	2	1	18
2 Paitul Pan	4	5	7	5	21
3 Poshanna Sayanna	1	7	5	5	18
4					
5					
			TOTAL for day =		57

DEPENDENCY CATEGORY III	UNITS OF CARE FROM FORMS				
Patients in sample No: Name:	E	F	G	H	Total Units
1					
2					
3					
4					
5					
			TOTAL for day =		

DEPENDENCY CATEGORY IV	UNITS OF CARE FROM FORMS				
Patient in sample No: Name:	E	F	G	H	Total Units
1 A.Ghani Shaban	9	5	5	5	24
2 Ali Abdulla Ali	9	3	2	12	26
3 Shafiqa Abdulla	7	4	7	4	22
4					
5					
			TOTAL for day =		72

DIRECT CARE SAMPLING FORM (I) Date: 5/6/89 Day of Study: 2

DAILY TOTALS - DIRECT CARE UNITS PER DEPENDENCY CATEGORY Ward 41

DEPENDENCY CATEGORY I	UNITS OF CARE FROM FORMS E, F, G & H				
Patients in sample No: Name:	E	F	G	H	Total Units
1 Sharifa Zada	3	2	1		6
2 Abdul Karim			1		1
3 Ummer Thanahu	4	1	2		7
4 Hussain Ghuloom				1	1
5 Salim Ebrahim	2	1		1	4
			TOTAL for day =		19

DEPENDENCY CATEGORY II	UNITS OF CARE FROM FORMS				
Patients in sample No: Name:	E	F	G	H	Total Units
1 Dr.Faisal A.Latif			1	2	3
2 Pautul Pan	3				3
3 Varghese Joseph	3	2		1	6
4 Ali Hassan Mohd	1		2	1	4
5 Abbas Hamza	1			2	3
			TOTAL for day =		19

DEPENDENCY CATEGORY III	UNITS OF CARE FROM FORMS				
Patients in sample No: Name:	E	F	G	H	Total Units
1					
2					
3					
4					
5					
			TOTAL for day =		

DEPENDENCY CATEGORY IV	UNITS OF CARE FROM FORMS				
Patient in sample No: Name:	E	F	G	H	Total Units
1 Cha Dong Seog		3	3	7	13
2 Ali Abdulla Ali	9	1	2	4	16
3 Hameed Ahmed	-	-	-	8	8
4					
5					
			TOTAL for day =		37

DIRECT CARE SAMPLING FORM (I) Date: 6/6/89 Day of Study: 3

DAILY TOTALS - DIRECT CARE UNITS PER DEPENDENCY CATEGORY Ward 41

DEPENDENCY CATEGORY I	UNITS OF CARE FROM FORMS E, F, G & H				
Patients in sample No: Name:	E	F	G	H	Total Units
1 Sharif Zadw	3	2		1	6
2 Abdul Karim	5	2			7
3 Shamsudin Mohidin	2	1		1	4
4 Hussain Ghuloom	4	1	1		6
5 Mohd Hanif	2	1	2		5
			TOTAL for day =		28

DEPENDENCY CATEGORY II	UNITS OF CARE FROM FORMS				
Patients in sample No: Name:	E	F	G	H	Total Units
1 A.Ghani Shaban	6	3	1	5	15
2 Gulam Mustafa	6	1			7
3 Ali Hassan Mohd	9	3	1	5	18
4 Abbas Hamza	5	8		1	14
5 Shafiqa Abdulla	3	1	1	1	6
			TOTAL for day =		60

DEPENDENCY CATEGORY III	UNITS OF CARE FROM FORMS				
Patients in sample No: Name:	E	F	G	H	Total Units
1 Dr. Faisal A.Latif	4	3	2	2	11
2 Cha Dong Seog	7	7	2	9	25
3 Salim Ebrahim	1	4	2	2	9
4 Hameed Ahmed	13	6	4	2	25
5					
			TOTAL for day =		70

DEPENDENCY CATEGORY IV	UNITS OF CARE FROM FORMS				
Patient in sample No: Name:	E	F	G	H	Total Units
1 Varghese Joseph	5	4	5	5	19
2 Antoney Gomes	2		6	10	18
3 Ali Abdulla Ali	7	2	4	8	21
4					
5					
			TOTAL for day =		58

DIRECT CARE SAMPLING FORM (I) Date: 7/6/89 Day of Study: 4

DAILY TOTALS - DIRECT CARE UNITS PER DEPENDENCY CATEGORY Ward 41

DEPENDENCY CATEGORY I	UNITS OF CARE FROM FORMS E, F, G & H				
Patients in sample No: Name:	E	F	G	H	Total Units
1 Sharif Zadu	3	3	4	4	14
2 Patul Pan	1	2		1	4
3 Mohd Hanif	1		1	1	3
4 Hussain Guloom	6			1	7
5 Ummer Thanathu	1		1	2	4

TOTAL for day = 32

DEPENDENCY CATEGORY II	UNITS OF CARE FROM FORMS				
Patients in sample No: Name:	E	F	G	H	Total Units
1 Dr. Faisal A.Latif	2		3	2	7
2 Cha Dong Seog	5	3	5	4	17
3 Gulam Mustafa	1	1	2	1	5
4 Salim Ebrahim	6	2	1	1	10
5 Abbas Hamza	3	1		2	6

TOTAL for day = 45

DEPENDENCY CATEGORY III	UNITS OF CARE FROM FORMS				
Patients in sample No: Name:	E	F	G	H	Total Units
1 Hameed Ahmed	7	3	1	4	15
2 Mohd Khalil	11	7	5	2	25
3					
4					
5					

TOTAL for day = 40

DEPENDENCY CATEGORY IV	UNITS OF CARE FROM FORMS				
Patient in sample No: Name:	E	F	G	H	Total Units
1 Varghese Joseph	12	7	1	9	29
2 Antoney Mohraj	8		4	5	17
3 Ali Abdulla	8	5	2	4	19
4					
5					

TOTAL for day = 65

DIRECT CARE SAMPLING FORM (I) Date: 8/6/89 Day of Study: 5

DAILY TOTALS - DIRECT CARE UNITS PER DEPENDENCY CATEGORY Ward 41

DEPENDENCY CATEGORY I	UNITS OF CARE FROM FORMS E, F, G & H				
Patients in sample No: Name:	E	F	G	H	Total Units
1 .A.Ghani Shaban	2		5	1	8
2 . Abdul Karim		1	2	2	5
3 . Patul Pan	2	1	3	2	8
4 . Mahmmod Ahmed		3	3	1	7
5 . Abbas Hamza	4	2	1	1	8
			TOTAL for day =		36

DEPENDENCY CATEGORY II	UNITS OF CARE FROM FORMS				
Patients in sample No: Name:	E	F	G	H	Total Units
1 . Dr. Faisal A. Latif	3		4	2	9
2 . Gulam Mustafa		1	3	3	7
3 . Salim Ebrahim	7		3	2	12
4 . Ali.Abdulla	7	1	4	4	16
5 . Shafiqa Abdulla		1	3	1	5
			TOTAL for day =		49

DEPENDENCY CATEGORY III	UNITS OF CARE FROM FORMS				
Patients in sample No: Name:	E	F	G	H	Total Units
1 . Varghese Joseph	11	1	3	2	17
2 . Mohd Khalil	4	3	4	1	12
3 . Ebrahim Saleh	-	-	5	4	9
4					
5					
			TOTAL for day =		38

DEPENDENCY CATEGORY IV	UNITS OF CARE FROM FORMS				
Patient in sample No: Name:	E	F	G	H	Total Units
1					
2					
3					
4					
5					
			TOTAL for day =		

DIRECT CARE SAMPLING FORM (I) Date: 9/6/89 Day of Study: 6

DAILY TOTALS - DIRECT CARE UNITS PER DEPENDENCY CATEGORY Ward 41

DEPENDENCY CATEGORY I	UNITS OF CARE FROM FORMS E, F, G & H				
Patients in sample No: Name:	E	F	G	H	Total Units
1 . Hameed Jaffer	1	1	1	1	4
2 .. Gulam Mustafa	-	2			2
3 . Abdulla Abdulla	2		2	1	5
4 . Ali Hassan	1		1	1	3
5					

TOTAL for day = 14

DEPENDENCY CATEGORY II	UNITS OF CARE FROM FORMS				
Patients in sample No: Name:	E	F	G	H	Total Units
1 . Sharif Zadw	3	3	5	5	16
2 . Paitul Pan	4	2	1	1	8
3 . Antony Mahraj	2	5	-	4	11
4 . Venkajran Sheshali	3	4		1	8
5 . Pashanna Sayanna	2	1		1	4

TOTAL for day = 47

DEPENDENCY CATEGORY III	UNITS OF CARE FROM FORMS				
Patients in sample No: Name:	E	F	G	H	Total Units
1 . Hassan Ebrahim	6	3	1	7	17
2 . Varghese Joseph	10	4	3	5	22
3 . Mohd Khalil	4	1	4		9
4					
5					

TOTAL for day = 48

DEPENDENCY CATEGORY IV	UNITS OF CARE FROM FORMS				
Patient in sample No: Name:	E	F	G	H	Total Units
1 . Ebrahim Saleh	5	5	2	1	13
2					
3					
4					
5					

TOTAL for day = 13

DIRECT CARE SAMPLING FORM (I) Date: 10/6/90 Day of Study: 7

DAILY TOTALS - DIRECT CARE UNITS PER DEPENDENCY CATEGORY Ward 41

DEPENDENCY CATEGORY I	UNITS OF CARE FROM FORMS E, F, G & H				
Patients in sample No: Name:	E	F	G	H	Total Units
1 . Ghulam Mustafa	4	2	1		7
2 .. Abdul Karim	4	3			7
3 . Salim Ebrahim	6	1	1	1	9
4 . Ali Hassan	2			2	4
5 . Hameeda Jafer	4	2	1	1	8

TOTAL for day = 35

DEPENDENCY CATEGORY II	UNITS OF CARE FROM FORMS				
Patients in sample No: Name:	E	F	G	H	Total Units
1 . Ebrahim Saleh	15	5		3	23
2 . Mutbannu Sayanna	5	2	1		8
3 . Varghese Joseph	6	2	3	2	13
4 . Antony Mehraj	2	5		2	9
5 . Ali Abdulla	6			2	8

TOTAL for day = 61

DEPENDENCY CATEGORY III	UNITS OF CARE FROM FORMS				
Patients in sample No: Name:	E	F	G	H	Total Units
1 . Mohd Khalil	3	2	7	2	14
2					
3					
4					
5					

TOTAL for day = 14

DEPENDENCY CATEGORY IV	UNITS OF CARE FROM FORMS				
Patient in sample No: Name:	E	F	G	H	Total Units
1 . Nora Essa Mohd	8	5	5	5	23
2 . Hassan Ebrahim	12	8	1	4	25
3 . P.G. Danial	10	4	1	3	18
4 Sharif Zadw		6	3	3	12
5					

TOTAL for day = 78

DIRECT CARE SAMPLING FORM (J)

WEEKLY AVERAGE - DIRECT CARE PER DEPENDENCY CATEGORY

Mins = Units x 10

WARD 66

	DAYS OF STUDY							TOTALS	
DEPENDENCY CATEGORY I	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7	Units	Mins
Daily total care units (FORM I)	36	50	37	58	42	60	55	338	3380
Daily total number of patients in sample	4	5	5	5	4	5	5	33	

DEPENDENCY CATEGORY II	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7	Units	Mins
Daily total care units	70	84	52	54	70	144	106	580	5800
Daily total number of patients in sample	5	5	4	4	4	5	5	32	

DEPENDENCY CATEGORY III	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7	Units	Mins
Daily total care units	30	78	89	82	56	16	40	391	3910
Daily total number of patients in sample	2	3	5	3	2	1	2	18	

DEPENDENCY CATEGORY IV	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7	Units	Mins
Daily total care units	72	74	68	104	137	142	101	698	6980
Daily total number of patients in sample	2	3	3	3	5	4	3	23	

TRANSFER TOTALS IN MINUTES FOR EACH DEPENDENCY CATEGORY

To calculate daily mean average time Direct Care dependency category - divide total minutes of direct care by number of patients in sample.

DEPENDENCY CATEGORY	I	II	III	IV
Total minutes direct care	3380	5800	3910	6980
Total number of patients	33	32	18	23
Daily mean average time in minutes per 24 hours	102	181	217	303

1: 1.8 : 2.1 : 3.0

DIRECT CARE SAMPLING FORM (I) Date: 7/3/90. Day of Study: 1

DAILY TOTALS - DIRECT CARE UNITS PER DEPENDENCY CATEGORY Ward 66

DEPENDENCY CATEGORY I	UNITS OF CARE FROM FORMS E, F, G & H				
Patients in sample No: Name:	E	F	G	H	Total Units
1. Shacat Bacachondra	3	1	1	2	7
2. Pam Ashish	4	2	2	2	10
3. Ahmed Mohd Ali	4	6	1	2	13
4. Abdul Wahab Ahmed	4	1	-	1	6
5.					

TOTAL for day = 36

DEPENDENCY CATEGORY II	UNITS OF CARE FROM FORMS				
Patients in sample No: Name:	E	F	G	H	Total Units
1. Jassim Mohd	13	3	2	1	19
2. Abdulla Abd Hassan	15	5	3	3	26
3. Sameera Salim	8	2	1	1	12
4. Abdul R. Hassan	3	3	-	1	7
5. Ali Abd Jalil	3	1	-	2	6

TOTAL for day = 70

DEPENDENCY CATEGORY III	UNITS OF CARE FROM FORMS				
Patients in sample No: Name:	E	F	G	H	Total Units
1. Saleh Md Abdulla	8	3	3	2	16
2. Essa Ali Abdulla	4	6	1	3	14
3					
4					
5					

TOTAL for day = 30

DEPENDENCY CATEGORY IV	UNITS OF CARE FROM FORMS				
Patient in sample No: Name:	E	F	G	H	Total Units
1. Ebrahim Ahmed	13	6	3	4	26
2. S. Nasser S. Majid	16	5	1	4	26
3					
4					
5					

TOTAL for day = 52

DIRECT CARE SAMPLING FORM (I) Date: 8/3/90 Day of Study: 2

DAILY TOTALS - DIRECT CARE UNITS PER DEPENDENCY CATEGORY Ward 66

DEPENDENCY CATEGORY I	UNITS OF CARE FROM FORMS E, F, G & H				
Patients in sample No: Name:	E	F	G	H	Total Units
1 .Shauat Balacbandre	2	4	3	1	10
2 .Essa Ali Abdulla	-	3	2	2	7
3 . Ran Ashish Ran	4	5	2	3	14
4 .Ahmed Md. Ali	3	3	1	2	9
5 .Abdul W.Ahmed	1	5	2	2	10
			TOTAL for day =		50

DEPENDENCY CATEGORY II	UNITS OF CARE FROM FORMS				
Patients in sample No: Name:	E	F	G	H	Total Units
1 .Ahmed Hassan Abd	6	4	3	5	18
2 .Abdul R. Hassan	5	3	3	2	13
3 .Waleed K.S.Wahab	8	2	2	3	15
4 .Mariam Jawad	7	4	7	3	21
5 .Sameera S.Makki	8	2	1	6	17
			TOTAL for day =		84

DEPENDENCY CATEGORY III	UNITS OF CARE FROM FORMS				
Patients in sample No: Name:	E	F	G	H	Total Units
1 .Mustafa Md.Abd	7	5	2	3	17
2 .Saleh Md.Abd	8	9	4	4	25
3 .Ahmed.N. A.Rahman	21	6	2	7	36
4					
5					
			TOTAL for day =		78

DEPENDENCY CATEGORY IV	UNITS OF CARE FROM FORMS				
Patient in sample No: Name:	E	F	G	H	Total Units
1 .Ebrahim Ahmed	16	4	2	4	26
2 .Radi Md.Maki	12	1	9	2	24
3 .S.Nasser S. Majeed	10	4	5	5	24
4					
5					
			TOTAL for day =		74

DIRECT CARE SAMPLING FORM (I) Date: 9/3/90 Day of Study: 3

DAILY TOTALS - DIRECT CARE UNITS PER DEPENDENCY CATEGORY Ward 66

DEPENDENCY CATEGORY I	UNITS OF CARE FROM FORMS E, F, G & H				
Patients in sample No: Name:	E	F	G	H	Total Units
1. Isa Ali Abdulla	2	1	1	5	9
2. Ran Ashish	1	1	1	1	4
3. Abdul W. Ahmed	2	1	1	1	5
4. S. Jaffer S. Alawi	4	2	2	2	10
5. Ali Abdul Jalil	3	2	2	2	9
			TOTAL for day =		37

DEPENDENCY CATEGORY II	UNITS OF CARE FROM FORMS				
Patients in sample No: Name:	E	F	G	H	Total Units
1. Jassim Mohd	6	1	2	3	12
2. Abdul R.Hassan	6	4	1	3	14
3. Waleed Khalid	2	2	1	6	11
4. Mariam Jawad	6	2	4	3	15
5					
			TOTAL for day =		52

DEPENDENCY CATEGORY III	UNITS OF CARE FROM FORMS				
Patients in sample No: Name:	E	F	G	H	Total Units
1. Mustafa Mohd	5	2	6	3	16
2. Saleh Md. Abd	3	3	3	4	13
3. Ahmed Noor	4	7	3	5	19
4. Fadi Nabeel Md	12	3	3	6	24
5. Abd. Abdul Hussain	4	4	4	5	17
			TOTAL for day =		89

DEPENDENCY CATEGORY IV	UNITS OF CARE FROM FORMS				
Patient in sample No: Name:	E	F	G	H	Total Units
1. Ebrahim Ahmed	6	4	6	4	20
2. Radi Md.Makki	7	5	6	4	22
3. S.Nasser S. Majeed	9	6	5	6	26
4					
5					
			TOTAL for day =		68

DIRECT CARE SAMPLING FORM (I) Date: 10/3/90 Day of Study: 4

DAILY TOTALS - DIRECT CARE UNITS PER DEPENDENCY CATEGORY Ward 66

DEPENDENCY CATEGORY I	UNITS OF CARE FROM FORMS E, F, G & H				
Patients in sample No: Name:	E	F	G	H	Total Units
1.Abdul Wahab	10	4	-	2	16
2.S.Jaffer S.Alawi	9	3	2	1	15
3.Ahmed Md.Ali	2	2	2	1	7
4.Abdul R. Hassan	6	3	-	4	13
5.Ali Abdul Jalil	1	1	1	4	7
			TOTAL for day =		58

DEPENDENCY CATEGORY II	UNITS OF CARE FROM FORMS				
Patients in sample No: Name:	E	F	G	H	Total Units
1.Jassim Mohd	10	2	1	1	14
2.Sharat Bacasband	5	2	1	1	9
3.Mariam Jawad	16	2	3	2	23
4.Massaf dad Mohd	4	2	-	2	8
5					
			TOTAL for day =		54

DEPENDENCY CATEGORY III	UNITS OF CARE FROM FORMS				
Patients in sample No: Name:	E	F	G	H	Total Units
1.Saleh Md. Abd	14	8	-	3	25
2.Abd . Hussain	20	11	7	4	42
3.Radi Md. Makki	11	2	-	2	15
4					
5					
			TOTAL for day =		82

DEPENDENCY CATEGORY IV	UNITS OF CARE FROM FORMS				
Patient in sample No: Name:	E	F	G	H	Total Units
1Ebrahim Ahmed	19	8	4	7	38
2Abdul Hussain	20	11	7	4	42
3S.Nasser Majeed	15	3	3	3	24
4					
5					
			TOTAL for day =		104

DIRECT CARE SAMPLING FORM (I) Date: 11/3/90 Day of Study: 5

DAILY TOTALS - DIRECT CARE UNITS PER DEPENDENCY CATEGORY Ward 66

DEPENDENCY CATEGORY I	UNITS OF CARE FROM FORMS E, F, G & H				
Patients in sample No: Name:	E	F	G	H	Total Units
1. Essa Ali Abdulla	5	3	1	1	10
2. Ran Ashish	5	1	1	1	8
3. Ahmed Mohd Ali	4	1	1	1	7
4. Abdul W. Ahmed	7	2	5	3	17
5					

TOTAL for day = 42

DEPENDENCY CATEGORY II	UNITS OF CARE FROM FORMS				
Patients in sample No: Name:	E	F	G	H	Total Units
1. Hassan Abd Wahab	4	7	8	7	26
2. Jassim Mohd	4	2	2	3	11
3. Ali Abdulla Jalil	7	3	1	2	13
4. Mansaf Dad Mohd	12	2	4	2	20
5					

TOTAL for day = 70

DEPENDENCY CATEGORY III	UNITS OF CARE FROM FORMS				
Patients in sample No: Name:	E	F	G	H	Total Units
1. Saleh Md. Abdulla	10	5	4	3	22
2. Abdulla Abd Hassan	14	10	4	6	34
3					
4					
5					

TOTAL for day = 56

DEPENDENCY CATEGORY IV	UNITS OF CARE FROM FORMS				
Patient in sample No: Name:	E	F	G	H	Total Units
1. Ebrahim Ahmed	18	5	4	4	31
2. Mohd Abd . Hussain	8	6	7	3	24
3. A. Hussain Ahmed	19	9	6	4	38
4. S. Nasser S. Majeed	9	5	1	7	22
5. Mariam Jawad	13	5	2	2	22

TOTAL for day = 137

DIRECT CARE SAMPLING FORM (I) Date: 12/3/90 Day of Study: 6

DAILY TOTALS - DIRECT CARE UNITS PER DEPENDENCY CATEGORY Ward 66

DEPENDENCY CATEGORY I	UNITS OF CARE FROM FORMS E, F, G & H				
Patients in sample No: Name:	E	F	G	H	Total Units
1 .Essa Ali Abdulla	7	2	1	1	11
2 .Ran Ashish	8	1	-	1	10
3 .Ali Abdull Jalil	3	2	3	2	10
4 .Abdul Rahman Hassan	9	2	3	1	15
5 .S.Abdul Aziz	10	2	1	1	14
			TOTAL for day =		60

DEPENDENCY CATEGORY II	UNITS OF CARE FROM FORMS				
Patients in sample No: Name:	E	F	G	H	Total Units
1 .Hassan A.Wahab	2	5	5	6	18
2 .Saleh Md .Abdulla	11	7	3	1	22
3 .Jassim Mohd	3	1	3	2	9
4 .Abdulla Abdul Hussain	26	35	5	5	71
5 .Mariam Jawad	10	3	7	4	24
			TOTAL for day =		144

DEPENDENCY CATEGORY III	UNITS OF CARE FROM FORMS				
Patients in sample No: Name:	E	F	G	H	Total Units
1 .Mohd Abd Hussain	7	5	2	2	16
2					
3					
4					
5					
			TOTAL for day =		16

DEPENDENCY CATEGORY IV	UNITS OF CARE FROM FORMS				
Patient in sample No: Name:	E	F	G	H	Total Units
1Ebrahim Ah. Ebrahim	17	5	4	2	28
2A.Hussain Ahmed	38	5	5	4	52
3Radi Mohd Makki	29	6	3	2	40
4S.Nasser S. Majeed	14	1	4	3	22
5					
			TOTAL for day =		142

DIRECT CARE SAMPLING FORM (I) Date: 13/3/90 Day of Study: 7

DAILY TOTALS - DIRECT CARE UNITS PER DEPENDENCY CATEGORY Ward 66

DEPENDENCY CATEGORY I	UNITS OF CARE FROM FORMS E, F, G & H				
Patients in sample No: Name:	E	F	G	H	Total Units
1 .Lulwa Mohd Ali	14	2	1	2	19
2 .P. Raueedne	1	1	1	1	4
3 .Ran Oshish	8	2	1	1	12
4 .Ahmed Md.Ali	4	1	2	3	10
5 .Mohd Iqbal Basheed	3	5	1	1	10
			TOTAL for day =		55

DEPENDENCY CATEGORY II	UNITS OF CARE FROM FORMS				
Patients in sample No: Name:	E	F	G	H	Total Units
1 .Hassan Abdul Wahab	7	7	3	3	20
2 .Jassim Mohd	7	3	4	1	15
3 .Faisal Mansoor	14	6	3	2	25
4 .Abd Abdul Hussain	11	3	4	4	22
5 .Mariam Jawad	14	5	2	3	24
			TOTAL for day =		106

DEPENDENCY CATEGORY III	UNITS OF CARE FROM FORMS				
Patients in sample No: Name:	E	F	G	H	Total Units
1 .Saeed A.Aziz	9	6	1	2	18
2 .Radi Mohd Makki	15	4	2	1	22
3					
4					
5					
			TOTAL for day =		40

DEPENDENCY CATEGORY IV	UNITS OF CARE FROM FORMS				
Patient in sample No: Name:	E	F	G	H	Total Units
1 .Ebrahim Ahmed	18	10	6	1	35
2 .Abdul Hussain Ahmed	17	12	6	5	40
3 .S.Nasser S. Majeed	10	7	4	5	26
4					
5					
			TOTAL for day =		101

DIRECT CARE SAMPLING FORM (J)

WEEKLY AVERAGE - DIRECT CARE PER DEPENDENCY CATEGORY

Mins = Units x 10

WARD 53

	DAYS OF STUDY							TOTALS	
DEPENDENCY CATEGORY I	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7	Units	Mins
Daily total care units (FORM I)	39	38	27	40	19	41	19	223	2230
Daily total number of patients in sample	3	3	3	3	3	3	3	21	

DEPENDENCY CATEGORY II	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7	Units	Mins
Daily total care units	39	28	36	43	40	42	24	252	2520
Daily total number of patients in sample	3	3	2	3	3	3	2	18	

DEPENDENCY CATEGORY III	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7	Units	Mins
Daily total care units	69	51	59	49	51	21	18	318	3180
Daily total number of patients in sample	3	2	2	2	2	1	1	15	

DEPENDENCY CATEGORY IV	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7	Units	Mins
Daily total care units	42	43	45	48	56	31	172	437	4370
Daily total number of patients in sample	1	1	1	1	1	1	1	7	

TRANSFER TOTALS IN MINUTES FOR EACH DEPENDENCY CATEGORY

To calculate daily mean average time Direct Care dependency category - divide total minutes of direct care by number of patients in sample.

DEPENDENCY CATEGORY	I	II	III	IV
Total minutes direct care	2230	2520	3180	4370
Total number of patients	21	18	15	7
Daily mean average time in minutes per 24 hours	106	140	212	264

1 : 1.3 : 2.0 : 5.9

DIRECT CARE SAMPLING FORM (I) Date: 19/2/90 Day of Study:

DAILY TOTALS - DIRECT CARE UNITS PER DEPENDENCY CATEGORY Ward 53

DEPENDENCY CATEGORY I	UNITS OF CARE FROM FORMS E, F, G & H				
Patients in sample No: Name:	E	F	G	H	Total Units
1 . Hussain Haji Ghuloom	4	10	1	7	22
2 . Abdul Hussain Issa	4	4	2	1	11
3 . Taj Bibi	1	2	2	1	6
4					
5					

TOTAL for day = 39

DEPENDENCY CATEGORY II	UNITS OF CARE FROM FORMS				
Patients in sample No: Name:	E	F	G	H	Total Units
1 . Abbas Salman Mohd	3	3	3	4	13
2 . Bhupind Kuan	3	2	4	6	15
3 . Khatoon Ali Maskkan	4	2	2	3	11
4					
5					

TOTAL for day = 39

DEPENDENCY CATEGORY III	UNITS OF CARE FROM FORMS				
Patients in sample No: Name:	E	F	G	H	Total Units
1 . Nissa Yousif Mohd	4	4	7	7	22
2 . Ahmed Abd Matrook	11	3	5	7	26
3 . Fatima Radi Salman	5	3	8	5	21
4					
5					

TOTAL for day = 69

DEPENDENCY CATEGORY IV	UNITS OF CARE FROM FORMS				
Patient in sample No: Name:	E	F	G	H	Total Units
1 . Yousif Ebrahim	5	12	15	10	42
2					
3					
4					
5					

TOTAL for day = 42

DIRECT CARE SAMPLING FORM (I) Date: 20/2/90 Day of Study: 2

DAILY TOTALS - DIRECT CARE UNITS PER DEPENDENCY CATEGORY Ward 53

DEPENDENCY CATEGORY I	UNITS OF CARE FROM FORMS E, F, G & H				
Patients in sample No: Name:	E	F	G	H	Total Units
1. Hussain Haji Ghuloom	4	1	1	1	7
2. S. Baqer S. Alawi	3	4	1	-	8
3. Taj Bibi	8	13	1	1	23
4					
5					

TOTAL for day = 38

DEPENDENCY CATEGORY II	UNITS OF CARE FROM FORMS				
Patients in sample No: Name:	E	F	G	H	Total Units
1. Abbas S. Mohd	4	2	1	2	8
2. Khatoon Ali Mansoor	1	1	-	1	3
3. Bhupinder Kan	11	4	-	2	17
4					
5					

TOTAL for day = 28

DEPENDENCY CATEGORY III	UNITS OF CARE FROM FORMS				
Patients in sample No: Name:	E	F	G	H	Total Units
1. Nissa Yousif Md	8	7	7	6	28
2. Fatima Radi Fardan	6	12	3	2	23
3					
4					
5					

TOTAL for day = 51

DEPENDENCY CATEGORY IV	UNITS OF CARE FROM FORMS				
Patient in sample No: Name:	E	F	G	H	Total Units
1. Yousif Ebrahim	10	9	5	19	43
2					
3					
4					
5					

TOTAL for day = 43

DIRECT CARE SAMPLING FORM (I) Date: 21/2/90 Day of Study: 3

DAILY TOTALS - DIRECT CARE UNITS PER DEPENDENCY CATEGORY Ward 53

DEPENDENCY CATEGORY I	UNITS OF CARE FROM FORMS E, F, G & H				
Patients in sample No: Name:	E	F	G	H	Total Units
1 . Majid S. Majid	7	3	1	1	12
2 . Zainab Ali Mahmood	1	-	4	1	6
3 . Bhupinder Kan	3	5	1	-	9
4					
5					

TOTAL for day = 27

DEPENDENCY CATEGORY II	UNITS OF CARE FROM FORMS				
Patients in sample No: Name:	E	F	G	H	Total Units
1 . Abbas Salman Md	12	5	3	-	20
2 . Khatoon Ali Marhoon	6	3	4	3	16
3					
4					
5					

TOTAL for day = 36

DEPENDENCY CATEGORY III	UNITS OF CARE FROM FORMS				
Patients in sample No: Name:	E	F	G	H	Total Units
1 . Nissa Yousif	13	7	9	10	39
2 . Ghuloom R. Ghuloom	12	4	2	2	20
3					
4					
5					

TOTAL for day = 59

DEPENDENCY CATEGORY IV	UNITS OF CARE FROM FORMS				
Patient in sample No: Name:	E	F	G	H	Total Units
1 . Yousif Ebrahim	11	16	9	9	45
2					
3					
4					
5					

TOTAL for day = 45

DIRECT CARE SAMPLING FORM (I) Date: 22/2/90 Day of Study: 4

DAILY TOTALS - DIRECT CARE UNITS PER DEPENDENCY CATEGORY Ward 53

DEPENDENCY CATEGORY I	UNITS OF CARE FROM FORMS E, F, G & H				
Patients in sample No: Name:	E	F	G	H	Total Units
1. Hussain Haji Ghuloom	3	6	3	2	14
2. Majid Saeed Majid	2	5	4	1	12
3. Taj Bibi	2	8	3	1	14
4					
5					

TOTAL for day = 40

DEPENDENCY CATEGORY II	UNITS OF CARE FROM FORMS				
Patients in sample No: Name:	E	F	G	H	Total Units
1. Ghuloom R. Ghuloom	6	-	1	5	12
2. Khatoon Ali Mashhoor	7	8	2	1	18
3. Fatima Radi Salman	5	2	3	3	13
4					
5					

TOTAL for day = 43

DEPENDENCY CATEGORY III	UNITS OF CARE FROM FORMS				
Patients in sample No: Name:	E	F	G	H	Total Units
1. Nissa Yousif Mahmood	8	9	8	5	30
2. Abbas Salman Mahmood	8	4	2	5	19
3					
4					
5					

TOTAL for day = 49

DEPENDENCY CATEGORY IV	UNITS OF CARE FROM FORMS				
Patient in sample No: Name:	E	F	G	H	Total Units
1. Yousif Ebrahim	10	12	10	16	48
2					
3					
4					
5					

TOTAL for day = 48

DIRECT CARE SAMPLING FORM (I) Date: 23/2/90 Day of Study: 5

DAILY TOTALS - DIRECT CARE UNITS PER DEPENDENCY CATEGORY Ward 53

DEPENDENCY CATEGORY I	UNITS OF CARE FROM FORMS E, F, G & H				
Patients in sample No: Name:	E	F	G	H	Total Units
1. Majid Saud Majid	2	2	2	-	6
2. Ghuloom R. Ghuloom	2	3	1	-	6
3. Taj Bibi	1	2	2	2	7
4					
5					

TOTAL for day = 19

DEPENDENCY CATEGORY II	UNITS OF CARE FROM FORMS				
Patients in sample No: Name:	E	F	G	H	Total Units
1. Khatoon Ali Mansoor	3	3	4	4	14
2. Zainab Ali Mahmood	3	3	3	1	10
3. Fatima Radi Salman	4	5	5	2	16
4					
5					

TOTAL for day = 40

DEPENDENCY CATEGORY III	UNITS OF CARE FROM FORMS				
Patients in sample No: Name:	E	F	G	H	Total Units
1. Nissa Yousif Mahmood	8	8	8	8	33
2. Abbas Salman Mahmood	5	6	4	3	18
3					
4					
5					

TOTAL for day = 51

DEPENDENCY CATEGORY IV	UNITS OF CARE FROM FORMS				
Patient in sample No: Name:	E	F	G	H	Total Units
1. Yousif Ebrahim	6	13	22	15	56
2					
3					
4					
5					

TOTAL for day = 56

DIRECT CARE SAMPLING FORM (I) Date: 24/2/90 Day of Study: 6

DAILY TOTALS - DIRECT CARE UNITS PER DEPENDENCY CATEGORY Ward 53

DEPENDENCY CATEGORY I	UNITS OF CARE FROM FORMS E, F, G & H				
Patients in sample No: Name:	E	F	G	H	Total Units
1 . Hussain Haji Ghuloom	4	8	2	2	16
2 . Ghuloom R. Ghuloom	7	4	1	1	13
3 . Zainab Ali Mohd	6	4	1	1	12
4					
5					

TOTAL for day = 41

DEPENDENCY CATEGORY II	UNITS OF CARE FROM FORMS				
Patients in sample No: Name:	E	F	G	H	Total Units
1 . Nissa Yousif Mohd	12	7	3	2	24
2 . Sakina Abbas Karimi	7	6	4	1	18
3 . Fatima Radi Fardan					
4					
5					

TOTAL for day = 42

DEPENDENCY CATEGORY III	UNITS OF CARE FROM FORMS				
Patients in sample No: Name:	E	F	G	H	Total Units
1 . Abbas Salman Mohd	7	5	5	4	21
2					
3					
4					
5					

TOTAL for day = 21

DEPENDENCY CATEGORY IV	UNITS OF CARE FROM FORMS				
Patient in sample No: Name:	E	F	G	H	Total Units
1 .Yousif Ebrahim	7	8	6	10	31
2					
3					
4					
5					

TOTAL for day = 31

DIRECT CARE SAMPLING FORM (I) Date: 25/2/90 Day of Study: 7

DAILY TOTALS - DIRECT CARE UNITS PER DEPENDENCY CATEGORY Ward 53

DEPENDENCY CATEGORY I	UNITS OF CARE FROM FORMS E, F, G & H				
Patients in sample No: Name:	E	F	G	H	Total Units
1 . Majeed Saeed Majid	1	-	-	-	1
2 . Zainab Ali Mohd	5	7	3	-	15
3 . Bhupindar Kan	-	2	1	-	3
4					
5					

TOTAL for day = 19

DEPENDENCY CATEGORY II	UNITS OF CARE FROM FORMS				
Patients in sample No: Name:	E	F	G	H	Total Units
1 .Nissa Yousif Md	5	3	5	1	14
2 . Fatima Radi Salman	2	4	2	2	10
3					
4					
5					

TOTAL for day = 24

DEPENDENCY CATEGORY III	UNITS OF CARE FROM FORMS				
Patients in sample No: Name:	E	F	G	H	Total Units
1 . Abbas Salman Mohd	7	4	4	3	18
2					
3					
4					
5					

TOTAL for day = 18

DEPENDENCY CATEGORY IV	UNITS OF CARE FROM FORMS				
Patient in sample No: Name:	E	F	G	H	Total Units
1 . Yousif Ebrahim	7	7	1	13	38
2 . Hussain Md Fadel	30	22	12	14	78
3 . Khadija Md Juma	10	11	14	21	56
4					
5					

TOTAL for day = 172

DIRECT CARE SAMPLING FORM (J)

WEEKLY AVERAGE - DIRECT CARE PER DEPENDENCY CATEGORY

Mins = Units x 10

WARD 56

	DAYS OF STUDY							TOTALS	
DEPENDENCY CATEGORY I	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7	Units	Mins
Daily total care units (FORM I)	56	64	54	38	59	42	46	359	3591
Daily total number of patients in sample	5	5	5	5	5	3	3	31	

DEPENDENCY CATEGORY II	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7	Units	Mins
Daily total care units	98	64	67	40	47	82	87	485	4850
Daily total number of patients in sample	5	5	5	5	4	4	5	28	

DEPENDENCY CATEGORY III	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7	Units	Mins
Daily total care units	31	41	38	56	38	150	23	377	3770
Daily total number of patients in sample	1	1	1	3	2	4	1	13	

DEPENDENCY CATEGORY IV	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7	Units	Mins
Daily total care units	98	285	73	74	57	170	130	887	8870
Daily total number of patients in sample	2	3	3	3	2	3	1	17	

TRANSFER TOTALS IN MINUTES FOR EACH DEPENDENCY CATEGORY

To calculate daily mean average time Direct Care dependency category - divide total minutes of direct care by number of patients in sample.

DEPENDENCY CATEGORY	I	II	III	IV
Total minutes direct care	3591	4850	3770	8870
Total number of patients	31	28	13	17
Daily mean average time in minutes per 24 hours	116	173	290	522
	1.0	1.5	2.5	4.5

DIRECT CARE SAMPLING FORM (I) Date: 27/2/90 Day of Study: 1

DAILY TOTALS - DIRECT CARE UNITS PER DEPENDENCY CATEGORY Ward 56

DEPENDENCY CATEGORY I	UNITS OF CARE FROM FORMS E, F, G & H				
Patients in sample No: Name:	E	F	G	H	Total Units
1 . Fatima Mirza Ab.Kader	6	4	2	1	13
2 . Sared Singh	6	4	2	1	13
3 . Nihaya Sad Mohd	4	3	1	1	9
4 . Mahmood A.K Yacoob	5	2	1	3	11
5 . Abdulla Muhiddin	3	4	1	2	10
			TOTAL for day =		56

DEPENDENCY CATEGORY II	UNITS OF CARE FROM FORMS				
Patients in sample No: Name:	E	F	G	H	Total Units
1 . Layla Salman Ahmed	6	2	6	12	26
2 . Hassan Ali Habib	9	4	2	3	18
3 . Habib Hassan Al - Bana	14	4	1	9	27
4 .Sh. Ali Bin Hamad	5	6	-	1	12
5 . Asma Idris Nasser	5	5	4	1	15
			TOTAL for day =		98

DEPENDENCY CATEGORY III	UNITS OF CARE FROM FORMS				
Patients in sample No: Name:	E	F	G	H	Total Units
1 . Mariam Mohd Ali	10	9	6	6	31
2					
3					
4					
5					
			TOTAL for day =		31

DEPENDENCY CATEGORY IV	UNITS OF CARE FROM FORMS				
Patient in sample No: Name:	E	F	G	H	Total Units
1 . Khatoon Abd Salman	14	13	6	6	39
2 . Yousif Eb Yousif	16	15	14	14	59
3					
4					
5					
			TOTAL for day =		98

DIRECT CARE SAMPLING FORM (I) Date: 28 / 2/90 Day of Study: 2

DAILY TOTALS - DIRECT CARE UNITS PER DEPENDENCY CATEGORY Ward 56

DEPENDENCY CATEGORY I	UNITS OF CARE FROM FORMS E, F, G & H				
Patients in sample No: Name:	E	F	G	H	Total Units
1. Fatima Mirza Ahmed	2	2	4	1	9
2. Mohsin Ali Ahmed	12	6	5	2	25
3. Mohd Ezzat A. Wahab	6	4	1	1	12
4. Sargeat Singh	4	1	2	3	10
5. Abdulla Mohiddin	3	2	2	1	8
			TOTAL for day =		64

DEPENDENCY CATEGORY II	UNITS OF CARE FROM FORMS				
Patients in sample No: Name:	E	F	G	H	Total Units
1. Laiya Salman Ahmed	2	4	1	2	9
2. Hassan Ali Habib	5	4	2	2	13
3. Shaikh Ali Bin Hamad	4	3	1	1	9
4. Vijayaa Kanghatt	3	2	2	5	12
5. Saada H. Jassim	15	2	1	3	21
			TOTAL for day =		64

DEPENDENCY CATEGORY III	UNITS OF CARE FROM FORMS				
Patients in sample No: Name:	E	F	G	H	Total Units
1. Padmalayan Devanand	8	15	9	9	41
2.					
3					
4					
5					
			TOTAL for day =		41

DEPENDENCY CATEGORY IV	UNITS OF CARE FROM FORMS				
Patient in sample No: Name:	E	F	G	H	Total Units
1. Ahmed Yousif Jamal	108	42	5	28	183
2. Khatoon Abd Salma	27	14	8	8	57
3. Yousif Eb. Yousif	13	10	8	14	45
4					
5					
			TOTAL for day =		285

DIRECT CARE SAMPLING FORM (I) Date: 1/3/90 Day of Study: 3

DAILY TOTALS - DIRECT CARE UNITS PER DEPENDENCY CATEGORY Ward 56

DEPENDENCY CATEGORY I	UNITS OF CARE FROM FORMS E, F, G & H				
Patients in sample No: Name:	E	F	G	H	Total Units
1.Fatima Mirza Ahmed	2	1	1	2	6
2.Mohsin Ali Ahmed	8	2	3	1	14
3.Mohd Ezzat A.Wahab	2	1	8	6	17
4.Sargeet Singh	3	1	2	1	7
5.Hassan Ali Habib	4	3	2	1	10
				TOTAL for day =	54

DEPENDENCY CATEGORY II	UNITS OF CARE FROM FORMS				
Patients in sample No: Name:	E	F	G	H	Total Units
1. Saada Hassan Jassim	3	4	4	4	15
2. Habib Hassan Al-Banna	4	4	3	1	12
3. Laiya Salman Ahmed	3	3	5	5	16
4. Khadija Ab. Hassan	6	2	2	2	12
5.Vijayan Kanghatt	2	5	3	2	12
				TOTAL for day =	67

DEPENDENCY CATEGORY III	UNITS OF CARE FROM FORMS				
Patients in sample No: Name:	E	F	G	H	Total Units
1. Majeed A.Rasool	14	7	7	10	38
2					
3					
4					
5					
				TOTAL for day =	38

DEPENDENCY CATEGORY IV	UNITS OF CARE FROM FORMS				
Patient in sample No: Name:	E	F	G	H	Total Units
1. A.Jalil Ali Hassan	3	3	3	6	15
2.Khatoon Abd. Salman	6	9	3	6	24
3.Yousif Eb.Yousif	6	8	7	13	34
4					
5					
				TOTAL for day =	73

DIRECT CARE SAMPLING FORM (I) Date: 2/3/90 Day of Study: 4

DAILY TOTALS - DIRECT CARE UNITS PER DEPENDENCY CATEGORY Ward 56

DEPENDENCY CATEGORY I	UNITS OF CARE FROM FORMS E, F, G & H				
Patients in sample No: Name:	E	F	G	H	Total Units
1. Fatima Mirza Ahmed	2	2	1	1	6
2. Hassan Ali Habib	4	3	5	1	13
3. Mohsin Ali Ahmed	3	-	1	1	5
4. Mohd Ezzat A.Wahab	4	1	1	2	8
5. Sargeet Singh	2	-	3	1	6
			TOTAL for day =		38

DEPENDENCY CATEGORY II	UNITS OF CARE FROM FORMS				
Patients in sample No: Name:	E	F	G	H	Total Units
1. Laiya Salman Ahmed	2	1	3	3	9
2. Hassan Md. Ali Ahmed	1	4	1	2	8
3. Sh. Ali Bin Hamad	1	3	-	1	5
4. Vijayan Kanghatt	1	1	3	1	6
5. Saad H. Jassim	4	4	3	1	12
			TOTAL for day =		40

DEPENDENCY CATEGORY III	UNITS OF CARE FROM FORMS				
Patients in sample No: Name:	E	F	G	H	Total Units
1. Habib Hassan Al-Banna	5	3	4	3	15
2. Majeed Yousif	9	10	3	6	28
3. Khadija Eb.Hassan	6	2	3	2	13
4					
5					
			TOTAL for day =		56

DEPENDENCY CATEGORY IV	UNITS OF CARE FROM FORMS				
Patient in sample No: Name:	E	F	G	H	Total Units
1. A.Jalil Ali Hassan	12	2	3	5	22
2. Khatoon Abd Salma	6	6	6	5	23
3. Yousif Eb.Yousif	5	5	9	10	29
4					
5					
			TOTAL for day =		74

DIRECT CARE SAMPLING FORM (I) Date: 3/3/90 Day of Study: 5

DAILY TOTALS - DIRECT CARE UNITS PER DEPENDENCY CATEGORY Ward 56

DEPENDENCY CATEGORY I	UNITS OF CARE FROM FORMS E, F, G & H				
Patients in sample No: Name:	E	F	G	H	Total Units
1. Fatima Mirza Ahmed	8	-	5	1	14
2. Hassan Ali Habib	7	3	1	2	13
3. Mohd Ezzat A.Wahab	3	2	2	1	8
4. Vijayan Koghatt	8	4	4	-	16
5. Lakkanne Jainanifhli	2	-	3	3	8
			TOTAL for day =		59

DEPENDENCY CATEGORY II	UNITS OF CARE FROM FORMS				
Patients in sample No: Name:	E	F	G	H	Total Units
1. Hassan Md. Ali Mohd	3	9	4	3	19
2. Habib Hassan Al- Banna	2	1	2	-	5
3. Khadija Eb. Hassan	3	-	2	3	8
4. Sada Hassan Jassim	5	5	2	3	15
5					
			TOTAL for day =		47

DEPENDENCY CATEGORY III	UNITS OF CARE FROM FORMS				
Patients in sample No: Name:	E	F	G	H	Total Units
1. Majeeda Yousif	4	3	8	7	22
2. Mohd Jaber Shaker	4	4	5	3	16
3					
4					
5					
			TOTAL for day =		38

DEPENDENCY CATEGORY IV	UNITS OF CARE FROM FORMS				
Patient in sample No: Name:	E	F	G	H	Total Units
1. Khatoon Abd. Salman	14	5	8	3	30
2. Yousif Eb. Yousif	5	6	8	8	27
3					
4					
5					
			TOTAL for day =		57

DIRECT CARE SAMPLING FORM (I) Date: 4/3/90 Day of Study: 6

DAILY TOTALS - DIRECT CARE UNITS PER DEPENDENCY CATEGORY Ward 56

DEPENDENCY CATEGORY I	UNITS OF CARE FROM FORMS E, F, G & H				
Patients in sample No: Name:	E	F	G	H	Total Units
1 . Fatima Mirza Ahmed	9	1	1	1	12
2 . Hassan Ali Habib	9	5	1	-	15
3 . Mohd Mahmood	10	2	1	3	15
4					
5					

TOTAL for day = 42

DEPENDENCY CATEGORY II	UNITS OF CARE FROM FORMS				
Patients in sample No: Name:	E	F	G	H	Total Units
1 . A.Hadi Salman	9	2	-	7	18
2 . Laiya Sal . Ahmed	7	3	5	12	27
3 . Hassan Md Ali	9	5	1	-	15
4 . Sada H.Jassim	8	4	6	4	22
5					

TOTAL for day = 82

DEPENDENCY CATEGORY III	UNITS OF CARE FROM FORMS				
Patients in sample No: Name:	E	F	G	H	Total Units
1 . Habib Hassan Al- Banna	5	4	5	4	18
2 . Majeeda Yousif	10	5	3	5	23
3 . Mohd Ezzat A. Wahab	79	5	4	3	91
4 . Mohd Taher Shakoor	11	3	2	2	18
5					

TOTAL for day = 150

DEPENDENCY CATEGORY IV	UNITS OF CARE FROM FORMS				
Patient in sample No: Name:	E	F	G	H	Total Units
1 . Khatoon Abd Salman	8	7	4	3	22
2 . Mohd A. Razak	39	23	23	30	115
3 . Yousif Ebrahim	9	6	6	12	33
4					
5					

TOTAL for day = 170

DIRECT CARE SAMPLING FORM (I) Date: 5/3/90 Day of Study: 7

DAILY TOTALS - DIRECT CARE UNITS PER DEPENDENCY CATEGORY Ward 56

DEPENDENCY CATEGORY I	UNITS OF CARE FROM FORMS E, F, G & H				
Patients in sample No: Name:	E	F	G	H	Total Units
1.Fatima Mirza Ahmed	2	1	2	9	14
2.Mohd Mahmood	5	1	-	3	9
3.Mohd Taker Shaker	6	13	1	3	23
4					
5					

TOTAL for day = 46

DEPENDENCY CATEGORY II	UNITS OF CARE FROM FORMS				
Patients in sample No: Name:	E	F	G	H	Total Units
1.Hassan Mohd Ali	8	2	1	1	12
2.Mahmood Ghuloom Redha	6	3	2	5	16
3.Mohd Ezzat	8	4	-	-	12
4.Yousif Eb.Yousif	16	3	15	5	39
5.Mundy T.Saji	3	2	2	1	8

TOTAL for day = 87

DEPENDENCY CATEGORY III	UNITS OF CARE FROM FORMS				
Patients in sample No: Name:	E	F	G	H	Total Units
1.Khatoon Abd Salma	10	6	3	4	23
2					
3					
4					
5					

TOTAL for day = 23

DEPENDENCY CATEGORY IV	UNITS OF CARE FROM FORMS				
Patient in sample No: Name:	E	F	G	H	Total Units
1.Mohd A.Razak	26	40	32	32	130
2					
3					
4					
5					

TOTAL for day = 130

DIRECT CARE SAMPLING FORM (J)

WEEKLY AVERAGE - DIRECT CARE PER DEPENDENCY CATEGORY

Ward 51

Mins = Units x 10

	DAYS OF STUDY							TOTALS	
DEPENDENCY CATEGORY I	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7	Units	Mins
Daily total care units (FORM I)	19	-	-	-	-	-	-	19	190
Daily total number of patients in sample	2	-	-	-	-	-	-	-	

DEPENDENCY CATEGORY II	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7	Units	Mins
Daily total care units	55	77	49	52	44	54	68	399	3990
Daily total number of patients in sample	5	5	5	5	5	5	5	35	

DEPENDENCY CATEGORY III	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7	Units	Mins
Daily total care units	-	-	-	56	38	29	36	159	1590
Daily total number of patients in sample	-	-	-	3	2	1	1	7	

DEPENDENCY CATEGORY IV	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7	Units	Mins
Daily total care units	67	73	70	53	82	87	228	712	7120
Daily total number of patients in sample	5	5	5	5	5	5	5	35	

TRANSFER TOTALS IN MINUTES FOR EACH DEPENDENCY CATEGORY

To calculate daily mean average time Direct Care dependency category - divide total minutes of direct care by number of patients in sample.

DEPENDENCY CATEGORY	I	II	III	IV
Total minutes direct care	190	3990	1590	7120
Total number of patients	2	35	7	25
Daily mean average time in minutes per 24 hours	95	114	228	285

1 : 1.2 : 2.4 : 3.0

DIRECT CARE SAMPLING FORM (I) Date: 11/2 Day of Study: 1

DAILY TOTALS - DIRECT CARE UNITS PER DEPENDENCY CATEGORY Ward 51

DEPENDENCY CATEGORY I	UNITS OF CARE FROM FORMS E, F, G & H				
Patients in sample No: Name:	E	F	G	H	Total Units
1 . Hassan Abd Al - Zein	3	3	-	9	15
2 . Aysha Z. Ismail	2	2	-	-	4
3					
4					
5					

TOTAL for day = 19

DEPENDENCY CATEGORY II	UNITS OF CARE FROM FORMS				
Patients in sample No: Name:	E	F	G	H	Total Units
1 . Mohd Hassan Abd	3	1	-	1	5
2 . Naeema Jassim Al- Ban	1	4	2	2	9
3 . Fatima Ahmed Nasser	4	3	1	1	9
4 . Mohd Ali Essa	6	1	2	5	14
5 Ali Md. A. Rashed	6	5	4	3	18

TOTAL for day = 55

DEPENDENCY CATEGORY III	UNITS OF CARE FROM FORMS				
Patients in sample No: Name:	E	F	G	H	Total Units
1					
2					
3					
4					
5					

TOTAL for day =

DEPENDENCY CATEGORY IV	UNITS OF CARE FROM FORMS				
Patient in sample No: Name:	E	F	G	H	Total Units
1 . Fatima A. Rahman	7	3	6	6	22
2 . Salama Ah. Md.	6	2	3	2	13
3 . A. Aziz Hassan	7	2	10	1	20
4 . Ah. Mohd Ahmed	1	2	2	3	8
5 . Saeed Hussain	2	4	2	3	11

TOTAL for day = 74

DIRECT CARE SAMPLING FORM (I) Date: 12.2.90 Day of Study: 2

Ward 51

DAILY TOTALS - DIRECT CARE UNITS PER DEPENDENCY CATEGORY

DEPENDENCY CATEGORY I	UNITS OF CARE FROM FORMS E, F, G & H				
Patients in sample No: Name:	E	F	G	H	Total Units
1					
2					
3					
4					
5					

TOTAL for day =

DEPENDENCY CATEGORY II	UNITS OF CARE FROM FORMS				
Patients in sample No: Name:	E	F	G	H	Total Units
1. Mohd Hussain Abd	2	5	6	2	15
2. Hassan Abd Al - Zain	3	2	2	2	9
3. Ali Mohd A. Razak	6	4	2	10	22
4. Khadija H. Ahmed	7	4	2	2	15
5. Naeema J. Al Banna	7	4	2	3	16

TOTAL for day = 77

DEPENDENCY CATEGORY III	UNITS OF CARE FROM FORMS				
Patients in sample No: Name:	E	F	G	H	Total Units
1					
2					
3					
4					
5					

TOTAL for day =

DEPENDENCY CATEGORY IV	UNITS OF CARE FROM FORMS				
Patient in sample No: Name:	E	F	G	H	Total Units
1. Ahmed H. Ali	8	6	5	2	21
2. Ahmed M. Ahmed	1	5	1	3	12
3. A.Aziz Hassan	4	2	3	2	11
4. Zainab H. Mohd	5	6	3	2	16
5. Aliya Ali Yousif	13	1	4	2	20

TOTAL for day = 80

DIRECT CARE SAMPLING FORM (I) Date: 13/2/90 Day of Study: 3

DAILY TOTALS - DIRECT CARE UNITS PER DEPENDENCY CATEGORY Ward 51

DEPENDENCY CATEGORY I	UNITS OF CARE FROM FORMS E, F, G & H				
Patients in sample No: Name:	E	F	G	H	Total Units
1					
2					
3					
4					
5					

TOTAL for day =

DEPENDENCY CATEGORY II	UNITS OF CARE FROM FORMS				
Patients in sample No: Name:	E	F	G	H	Total Units
1. Yacob Y. Habib	3	1	3	1	8
2. Hassan A- Al - Zain	3	1	1	3	8
3. Naeema J. Al - Banna	2	3	2	3	10
4. Fatima Ah. Nasser	2	1	4	2	9
5. Mohd Abd . Haji	6	3	2	3	14

TOTAL for day = 49

DEPENDENCY CATEGORY III	UNITS OF CARE FROM FORMS				
Patients in sample No: Name:	E	F	G	H	Total Units
1					
2					
3					
4					
5					

TOTAL for day =

DEPENDENCY CATEGORY IV	UNITS OF CARE FROM FORMS				
Patient in sample No: Name:	E	F	G	H	Total Units
1. Ahmed H . Ali	7	3	3	4	17
2. Ahmed Md. Ahmed	4	2	4	2	12
3. Awad S. Rashid	2	4	2	6	14
4. Zainab H. Mohd	7	2	3	2	14
5. Fatima A. Rahman	5	8	2	6	21
				TOTAL for day =	78

DIRECT CARE SAMPLING FORM (I) Date: 14/2 Day of Study: 4

DAILY TOTALS - DIRECT CARE UNITS PER DEPENDENCY CATEGORY Ward 51

DEPENDENCY CATEGORY I	UNITS OF CARE FROM FORMS E, F, G & H				
Patients in sample No: Name:	E	F	G	H	Total Units
1					
2					
3					
4					
5					

TOTAL for day =

DEPENDENCY CATEGORY II	UNITS OF CARE FROM FORMS				
Patients in sample No: Name:	E	F	G	H	Total Units
1. Mohd Abd Haji	5	1	2	1	9
2. Hassan Abd Al Zain	2	2	1	2	7
3. Zainab H. Mohd	11	4	3	2	20
4. Yacoob Y. Habib	4	1	1	1	7
5. Aliyia Ali Yousif	3	2	2	2	9

TOTAL for day = 52

DEPENDENCY CATEGORY III	UNITS OF CARE FROM FORMS				
Patients in sample No: Name:	E	F	G	H	Total Units
1. Mohd Abd Hussain	6	4	6	3	19
2. Ebrahim H. Mohd	7	4	5	2	18
3. Mariam Ali Ramadan	11	1	4	4	20
4					
5					

TOTAL for day = 57

DEPENDENCY CATEGORY IV	UNITS OF CARE FROM FORMS				
Patient in sample No: Name:	E	F	G	H	Total Units
1. Salama Ah. Mohd	3	2	6	5	16
2. Saeed H. Ali	3	4	2	2	11
3. Ahmed H. Ali	1	5	1	2	9
4. Fatima A. Rahman	8	8	4	6	26
5					

TOTAL for day = 62

DIRECT CARE SAMPLING FORM (I) Date: 15/2 Day of Study: 5

DAILY TOTALS - DIRECT CARE UNITS PER DEPENDENCY CATEGORY

DEPENDENCY CATEGORY I	UNITS OF CARE FROM FORMS E, F, G & H				
Patients in sample No: Name:	E	F	G	H	Total Units
1					
2					
3					
4					
5					

TOTAL for day =

DEPENDENCY CATEGORY II	UNITS OF CARE FROM FORMS				
Patients in sample No: Name:	E	F	G	H	Total Units
1. Hassan Abd .Al Zain	6	1	2	3	12
2. Yacoob Yousif Habib	2	2	2	2	8
3. Abbas Abd Salman	2	1	3	3	9
4. Fatima Ab. Nasser	1	2	3	2	8
5. Aliya Ali Yousif	3	1	2	1	7

TOTAL for day = 44

DEPENDENCY CATEGORY III	UNITS OF CARE FROM FORMS				
Patients in sample No: Name:	E	F	G	H	Total Units
1 . Mohd Abd . Hussain	8	5	5	5	23
2 . Zainab Habib Mohd	4	3	4	4	15
3					
4					
5					

TOTAL for day = 38

DEPENDENCY CATEGORY IV	UNITS OF CARE FROM FORMS				
Patient in sample No: Name:	E	F	G	H	Total Units
1 . Salma Ah. Mohd	5	3	4	5	17
2 . Ahmed H. Ali	6	5	1	4	16
3 . Ahmed Md.Ahmed	5	3	2	4	14
4 . Saeed H. Ali	4	1	2	2	8
5 . Fatima A. Rahman	8	7	15	4	34

TOTAL for day = 89

DIRECT CARE SAMPLING FORM (I) Date: 16/2 Day of Study: 6

DAILY TOTALS - DIRECT CARE UNITS PER DEPENDENCY CATEGORY Ward 51

DEPENDENCY CATEGORY I	UNITS OF CARE FROM FORMS E, F, G & H				
Patients in sample No: Name:	E	F	G	H	Total Units
1					
2					
3					
4					
5					

TOTAL for day =

DEPENDENCY CATEGORY II	UNITS OF CARE FROM FORMS				
Patients in sample No: Name:	E	F	G	H	Total Units
1 . Mohd Abd . Hassan	2	5	6	1	14
2 . Ebrahim H. Mohd	5	-	4	2	11
3 . Mohd Abd. Haji	1	1	1	1	4
4 . Mariam Ali Ramadan	3	1	1	8	13
5 . Aysha Z . Ismail	2	4	4	2	12

TOTAL for day = 54

DEPENDENCY CATEGORY III	UNITS OF CARE FROM FORMS				
Patients in sample No: Name:	E	F	G	H	Total Units
1 . Zainab H. Mohd	11	5	6	7	29
2					
3					
4					
5					

TOTAL for day = 29

DEPENDENCY CATEGORY IV	UNITS OF CARE FROM FORMS				
Patient in sample No: Name:	E	F	G	H	Total Units
1 . Salama Ah. Mohd	2	2	6	3	13
2 . Saeed Al. H. Ali	6	2	3	2	13
3 . Ahmed Hassan Ali	7	3	2	4	16
4 . Ahmed Mohd Ahmed	4	3	4	4	15
5 . Fatima A. Rahman	8	6	12	11	37

TOTAL for day = 94

DIRECT CARE SAMPLING FORM (I) Date: 17/2 Day of Study: 7

DAILY TOTALS - DIRECT CARE UNITS PER DEPENDENCY CATEGORY Ward 51

DEPENDENCY CATEGORY I	UNITS OF CARE FROM FORMS E, F, G & H				
Patients in sample No: Name:	E	F	G	H	Total Units
1					
2					
3					
4					
5					

TOTAL for day =

DEPENDENCY CATEGORY II	UNITS OF CARE FROM FORMS				
Patients in sample No: Name:	E	F	G	H	Total Units
1 . Mohd Abd Hassan	6	4	6	2	18
2 . Mariam Ali Ramadan	6	4	2	2	14
3 . Moosa Ghuloom Ali	2	2	3	3	10
4 . Alia Ali Yousif	6	3	2	3	14
5 . Naeema J.Al- Banna	3	3	4	2	12

TOTAL for day = 68

DEPENDENCY CATEGORY III	UNITS OF CARE FROM FORMS				
Patients in sample No: Name:	E	F	G	H	Total Units
1 .Zainab H. Mohd	13	6	5	12	36
2					
3					
4					
5					

TOTAL for day =

DEPENDENCY CATEGORY IV	UNITS OF CARE FROM FORMS				
Patient in sample No: Name:	E	F	G	H	Total Units
1 . Salma Ali Md	4	5	4	13	26
2 . Saeed H. Ali	3	4	5	5	18
3 . Ahmed h. Ali	17	5	6	7	35
4 . Ahmed Md. Ahmed	4	3	3	5	15
5 . Fatima A.Rahman	42	27	31	41	141

TOTAL for day = 235

DIRECT CARE SAMPLING FORM (J)

WEEKLY AVERAGE - DIRECT CARE PER DEPENDENCY CATEGORY

Mins = Units x 10

WARD 43

	DAYS OF STUDY							TOTALS	
DEPENDENCY CATEGORY I	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7	Units	Mins
Daily total care units (FORM I)	45	24	47	56	65	34	38	309	3090
Daily total number of patients in sample	5	4	5	5	5	5	5	34	

DEPENDENCY CATEGORY II	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7	Units	Mins
Daily total care units	87	57	77	62	40	45	53	421	4210
Daily total number of patients in sample	4	3	5	5	4	5	5	31	

DEPENDENCY CATEGORY III	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7	Units	Mins
Daily total care units	53	0	0	0	47	22	0	122	1220
Daily total number of patients in sample	2	0	0	0	2	1	0	5	

DEPENDENCY CATEGORY IV	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7	Units	Mins
Daily total care units	150	163	-	155	167	-	-	635	6350
Daily total number of patients in sample	2	4	0	4	4	0	0	14	

TRANSFER TOTALS IN MINUTES FOR EACH DEPENDENCY CATEGORY

To calculate daily mean average time Direct Care dependency category - divide total minutes of direct care by number of patients in sample.

DEPENDENCY CATEGORY	I	II	III	IV
Total minutes direct care	3090	4210	1220	6350
Total number of patients	34	31	5	14
Daily mean average time in minutes per 24 hours	90.8	136	244	454

1 : 1.5 : 2.7 : 5

DIRECT CARE SAMPLING FORM (I) Date: 3/2/90 Day of Study:

DAILY TOTALS - DIRECT CARE UNITS PER DEPENDENCY CATEGORY Ward 43

DEPENDENCY CATEGORY I	UNITS OF CARE FROM FORMS E, F, G & H				
Patients in sample No: Name:	E	F	G	H	Total Units
1 . Saleh Masood Al- Haji	10	6	2	1	19
2 . B.S.Sukhomd	1	2	-	1	4
3 . Khalifa R.Mohd	-	1	2	2	5
4 . Atif Nadeef Atiya	2	3	-	1	6
5 . Hassan Abdulla H	2	2	2	1	7
			TOTAL for day =		41

DEPENDENCY CATEGORY II	UNITS OF CARE FROM FORMS				
Patients in sample No: Name:	E	F	G	H	Total Units
1. Mohd A.Aziz	13	12	5	6	36
2. A.Nabi Bager Ali	4	5	2	1	12
3. Shaika M. Mohd	3	4	6	4	17
4. Shuba Ab. Shuber	3	6	5	8	22
5					
			TOTAL for day =		87

DEPENDENCY CATEGORY III	UNITS OF CARE FROM FORMS				
Patients in sample No: Name:	E	F	G	H	Total Units
1. Mohd.Nasser Mohd	10	6	7	8	31
2. Bassam Sharif	4	6	4	8	22
3					
4					
5					
			TOTAL for day =		53

DEPENDENCY CATEGORY IV	UNITS OF CARE FROM FORMS				
Patient in sample No: Name:	E	F	G	H	Total Units
1 . Eid Ahmed Eid	18	15	16	18	67
2 . Mohd A. Aziz	23	22	18	20	83
3					
4					
5					
			TOTAL for day =		150

DIRECT CARE SAMPLING FORM (I) Date: 4/2/90 Day of Study: 2

DAILY TOTALS - DIRECT CARE UNITS PER DEPENDENCY CATEGORY Ward 43

DEPENDENCY CATEGORY I	UNITS OF CARE FROM FORMS E, F, G & H				
Patients in sample No: Name:	E	F	G	H	Total Units
1. Ahmed Abd Hassan	5	3	-	1	9
2. Khalifa R. Mohd	2	2	-	2	6
3. Atif Nadef Atiya	1	-	-	2	3
4. Abdulla Mohd Abd	2	-	2	2	6
5					

TOTAL for day = 24

DEPENDENCY CATEGORY II	UNITS OF CARE FROM FORMS				
Patients in sample No: Name:	E	F	G	H	Total Units
1. Shubar Eb. Shuber	7	8	6	6	27
2. Ali Amir Mohd	9	3	3	2	17
3. Shanikar Mansoor	6	2	2	3	13
4					
5					

TOTAL for day = 57

DEPENDENCY CATEGORY III	UNITS OF CARE FROM FORMS				
Patients in sample No: Name:	E	F	G	H	Total Units
1.					
2					
3					
4					
5					

TOTAL for day =

DEPENDENCY CATEGORY IV	UNITS OF CARE FROM FORMS				
Patient in sample No: Name:	E	F	G	H	Total Units
1. Mirza Hassan Ebrahim	7	8	15	13	43
2. Malla Kadim Basha	9	10	11	9	39
3. Kadim Abd Kadem	10	9	10	12	41
4. A.Nabi Baqer Ali	11	9	8	12	40
5					

TOTAL for day = 163

DIRECT CARE SAMPLING FORM (I) Date: 5/2/90 Day of Study: 3

DAILY TOTALS - DIRECT CARE UNITS PER DEPENDENCY CATEGORY

DEPENDENCY CATEGORY I	UNITS OF CARE FROM FORMS E, F, G & H				
Patients in sample No: Name:	E	F	G	H	Total Units
1 . Ebrahim Eb Al-Hafed	4	4	1	1	10
2 . A.Nabi Baqer	4	4	1	1	10
3 . Mohd A. Aziz	5	1	3	2	11
4 . Abdulla Mohd	1	2	2	1	6
5 . Oysha Vilas	1	5	3	1	10

TOTAL for day = 47

DEPENDENCY CATEGORY II	UNITS OF CARE FROM FORMS				
Patients in sample No: Name:	E	F	G	H	Total Units
1 . Mirza Hassan	5	6	3	2	16
2 . S.Hashim Marhoon	3	4	2	1	10
3 . Mohd Nasser Mohd	8	6	5	4	23
4 . Atif Nadef Atiya	4	4	3	3	14
5 . Rezal Karim	6	5	-	3	14

TOTAL for day = 77

DEPENDENCY CATEGORY III	UNITS OF CARE FROM FORMS				
Patients in sample No: Name:	E	F	G	H	Total Units
1					
2					
3					
4					
5					

TOTAL for day =

DEPENDENCY CATEGORY IV	UNITS OF CARE FROM FORMS				
Patient in sample No: Name:	E	F	G	H	Total Units
1					
2					
3					
4					
5					

TOTAL for day =

DIRECT CARE SAMPLING FORM (I) Date: 6/2/90 Day of Study: 4

DAILY TOTALS - DIRECT CARE UNITS PER DEPENDENCY CATEGORY Ward 43

DEPENDENCY CATEGORY I	UNITS OF CARE FROM FORMS E, F, G & H				
Patients in sample No: Name:	E	F	G	H	Total Units
1. Kadim Abdulla	5	5	1	3	14
2. A.Nabi Baqer	2	2	1	1	6
3. Mohd A. Aziz	5	8	4	2	19
4. Hassan Ali H	2	2	3	-	7
5. Abdulla Mohd	2	5	2	1	

TOTAL for day = 46

DEPENDENCY CATEGORY II	UNITS OF CARE FROM FORMS				
Patients in sample No: Name:	E	F	G	H	Total Units
1. S.Jawad S. Ali	2	3	2	4	11
2. Mirza Hassan Ebrahim	1	2	1	3	7
3. S.Hashim Mansoor Ali	4	8	3	4	19
4. Ahmed Abdulla	1	2	4	2	9
5. Mohd Nasser	9	4	2	1	16

TOTAL for day = 62

DEPENDENCY CATEGORY III	UNITS OF CARE FROM FORMS				
Patients in sample No: Name:	E	F	G	H	Total Units
1					
2					
3					
4					
5					

TOTAL for day =

DEPENDENCY CATEGORY IV	UNITS OF CARE FROM FORMS				
Patient in sample No: Name:	E	F	G	H	Total Units
1. Abdul Salam Na	10	11	8	5	34
2. Khalifa Rashid	14	15	9	12	50
3. Taher Taher Taher	12	10	9	8	39
4. Rezal Karim	9	8	9	6	32
5					

TOTAL for day = 155

DIRECT CARE SAMPLING FORM (I) Date: 7/2/90 Day of Study: 5

DAILY TOTALS - DIRECT CARE UNITS PER DEPENDENCY CATEGORY Ward 43

DEPENDENCY CATEGORY I	UNITS OF CARE FROM FORMS E, F, G & H				
Patients in sample No: Name:	E	F	G	H	Total Units
1 . Mulla Kader Basha	11	1	2	3	17
2 . Kadim Abd Kadim	12	1	3	1	17
3 . Mulla Kader Basha	11	1	2	3	17
4 . Abdul Shaker Abd	4	-	1	1	6
5 . Abd Md.Ah. Abd	4	2	2	-	8

TOTAL for day = 65

DEPENDENCY CATEGORY II	UNITS OF CARE FROM FORMS				
Patients in sample No: Name:	E	F	G	H	Total Units
1 . Shanikar Mansoor	7	2	4	1	14
2 . Ahmed Abd Hassan	6	2	3	1	12
3 . Taher Jaber Taher	-	1	-	2	3
4 . Razal Karim	3	4	2	2	11
5					

TOTAL for day = 40

DEPENDENCY CATEGORY III	UNITS OF CARE FROM FORMS				
Patients in sample No: Name:	E	F	G	H	Total Units
1 . Mohd Nasser Mohd	6	2	6	5	19
2 . Atif Nadif Atiya	16	4	5	3	28
3					
4					
5					

TOTAL for day = 47

DEPENDENCY CATEGORY IV	UNITS OF CARE FROM FORMS				
Patient in sample No: Name:	E	F	G	H	Total Units
1 . S.Jawad Ali Mohd	15	8	9	8	40
2 . Ebrahim Ebrahim	15	9	11	8	43
3 . S. Hashim Ebrahim	13	9	11	10	43
4 . Hassan Ali Hassan	12	12	9	8	41
5					

TOTAL for day = 167

DIRECT CARE SAMPLING FORM (I) Date: 8/2/90 Day of Study: 6

DAILY TOTALS - DIRECT CARE UNITS PER DEPENDENCY CATEGORY Ward 43

DEPENDENCY CATEGORY I	UNITS OF CARE FROM FORMS E, F, G & H				
Patients in sample No: Name:	E	F	G	H	Total Units
1 . Kadim Abd .Kadim	2	1	-	1	4
2 . Mulla Khader Basha	2	2	3	1	8
3 . Saleh Masood Al- Haji	3	-	1	2	6
4 . Rezal Karim	7	6	1	1	15
5 . Aysha Vilas	-	1	-	-	1

TOTAL for day = 34

DEPENDENCY CATEGORY II	UNITS OF CARE FROM FORMS				
Patients in sample No: Name:	E	F	G	H	Total Units
1 . Shubber Ebrahim	-	4	3	3	10
2 . S.Jawad S. Ali	2	3	2	1	8
3 . Ebrahim Eb. Al- Hafed	3	5	-	2	10
4 . Mohd Nasser Mohd	1	5	-	3	9
5 . Hassan Ali Hassan	3	2	1	2	8

TOTAL for day = 45

DEPENDENCY CATEGORY III	UNITS OF CARE FROM FORMS				
Patients in sample No: Name:	E	F	G	H	Total Units
1 . Atif Nadef	6	4	5	7	22
2					
3					
4					
5					

TOTAL for day = 22

DEPENDENCY CATEGORY IV	UNITS OF CARE FROM FORMS				
Patient in sample No: Name:	E	F	G	H	Total Units
1					
2					
3					
4					
5					

TOTAL for day =

DIRECT CARE SAMPLING FORM (I) Date: 9/2/90 Day of Study: 7

DAILY TOTALS - DIRECT CARE UNITS PER DEPENDENCY CATEGORY Ward 43

DEPENDENCY CATEGORY I	UNITS OF CARE FROM FORMS E, F, G & H				
Patients in sample No: Name:	E	F	G	H	Total Units
1 . Mirza H. Ebrahim	-	1	2	1	4
2 . Mulla Khader	3	3	1	1	8
3 . Khalifa Rashid	3	4	4	2	13
4 . Razal Karim	1	1	1	1	4
5 . Hassan Ali Hassan	3	1	3	2	9

TOTAL for day = 38

DEPENDENCY CATEGORY II	UNITS OF CARE FROM FORMS				
Patients in sample No: Name:	E	F	G	H	Total Units
1 . Hadi Radi Essa	3	2	2	1	8
2 . S.Hashim Marhoon	6	11	2	3	22
3 . Mohd Nasser	4	2	2	1	9
4 . Hassan Essa Ahmed	3	1	2	2	8
5 . S.Yousif Abdulla	-	1	3	2	6

TOTAL for day = 53

DEPENDENCY CATEGORY III	UNITS OF CARE FROM FORMS				
Patients in sample No: Name:	E	F	G	H	Total Units
1					
2					
3					
4					
5					

TOTAL for day =

DEPENDENCY CATEGORY IV	UNITS OF CARE FROM FORMS				
Patient in sample No: Name:	E	F	G	H	Total Units
1					
2					
3					
4					
5					

TOTAL for day =

APPENDIX S
ALL NURSE ACTIVITY FORM B

ALL NURSE ACTIVITY SAMPLING FORM (B) Hospital: Ward: Date:
Study Day No:

DAILY TOTALS

PART 1 All nurse activities	Total from hourly activity forms (A) PART I Form numbers																								Daily Total
	1	2	3	4	5	6	S/T	7	8	9	10	11	12	13	14	S/T	15	16	17	18	19	20	21	22	23	24	S/T	
1 - 12 Direct Care																												
21 - 13 Indirect Care																												
31 - 36 Associated Work																												
40 Personal/miscellaneous																												

PART 2
Shift totals from hourly forms (A)

TOTAL ALL ACTIVITIES

Form Numbers	1 - 6 a.m. Shift	7 - 14 p.m. Shift	15-24 Night Shift
Direct Care			
Indirect Care			
Associated Work			
Personal/miscellaneous			
TOTAL ALL ACTIVITIES			

APPENDIX T
ALL NURSE ACTIVITY FORM C

ALL NURSE ACTIVITY SAMPLING FORM (C)

Hospital:

Dates of study: Day 1 .../...../19

Ward:

7 ./...../19

PART 1	Totals from Daily Forms (B)							Total Units	%
All nurse activities	DAY 1	DAY 2	DAY 3	DAY 4	DAY 5	DAY 6	DAY 7		
Direct Care									
Indirect Care									
Associated Work									
Personal/Miscellaneous									
TOTAL ALL ACTIVITIES:									

PART 2 — Shift Totals from Daily Forms (B)

	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7	Total Units	%
(1) A.M. SHIFT									
Direct Care									
Indirect Care									
Associated Work									
Personal/Miscellaneous									
TOTAL ALL ACTIVITIES:									
(2) P.M. SHIFT									
Direct Care									
Indirect Care									
Associated Work									
Personal/Miscellaneous									
TOTAL ALL ACTIVITIES									
(3) NIGHT SHIFT									
Direct Care									
Indirect Care									
Associated Work									
Personal/miscellaneous									
TOTAL ALL ACTIVITIES									

SOURCE : CRITERIA FOR CARE (Ball, Goldstone and Collier, 1984)

APPENDIX U
DETAILS OF ALL NURSING ACTIVITY ASSESSMENT IN THE SIX SURVEYED WARDS

ALL NURSE ACTIVITY SAMPLING FORM (C)

Hospital: SMC

Dates of study: Day 1 27./...2../1990

7 .5./...3../1990

Ward: 56

PART 1	Totals from Daily Forms (B)							Total Units	%
All nurse activities	DAY 1	DAY 2	DAY 3	DAY 4	DAY 5	DAY 6	DAY 7		
Direct Care	180	259	154	155	198	233	207	1386	43.6
Indirect Care	78	87	78	50	85	91	113	582	18.3
Associated Work	153	135	79	81	185	181	150	964	30.3
Personal/Miscellaneous	23	44	20	30	29	50	51	247	7.8
TOTAL ALL ACTIVITIES:	434	525	331	316	497	555	521	3179	100.0

PART 2 Shift Totals from Daily Forms (B)

(1) A.M. SHIFT	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7	Total Units	%
Direct Care	59	105	39	38	68	91	46	461	42.8
Indirect Care	34	32	25	13	25	33	32	194	18.0
Associated Work	66	52	20	14	72	52	63	339	31.5
Personal/Miscellaneous	6	23	10	9	7	16	12	83	7.7
TOTAL ALL ACTIVITIES:	165	212	94	74	172	192	168	1077	100.0
(2) P.M.SHIFT Direct Care	68	84	55	65	55	66	90	483	47.2
Indirect Care	19	16	21	15	23	28	41	163	15.9
Associated Work	41	47	26	20	64	77	44	319	31.2
Personal/Miscellaneous	5	6	5	7	8	18	9	58	5.7
TOTAL ALL ACTIVITIES	133	153	107	107	150	189	184	1023	100.0
(3) NIGHT SHIFT Direct Care	53	70	60	52	75	76	56	442	41.0
Indirect Care	25	39	32	22	37	30	40	225	20.9
Associated Work	46	36	33	47	49	52	43	306	28.4
Personal/miscellaneous	12	15	5	14	14	16	30	106	9.8
TOTAL ALL ACTIVITIES	136	160	130	135	175	174	169	1079	100.0

The percentage of all nursing activities spent on Direct Care is 43.6

Indirect Care 18.3

Associated Work 30.3

Personal / Misc 7.8

Percentage of all nursing activities performed by night shift is 33.9

ALL NURSE ACTIVITY SAMPLING FORM (B) HOSPITAL: SMC WARD: 56 DATE: 27/2/90
STUDY DAY NO: 1

DAILY TOTALS

a.m only

Students

PART 1	TOTAL FROM HOURLY ACTIVITY FORMS (A) PART 1 - FORM NUMBERS																										DAILY TOTAL
All nurse Activities	1	2	3	4	5	6	S/T	7	8	9	10	11	12	13	14	S/T	15	16	17	18	19	20	21	22	23	24	S/T	
1 - 12 Direct Care	16	9	9	9	7	9	59	11	6	7	7	8	11	8	10	68	3	7	6	3	3	3	5	2	11	10	53	180+ 78 = 258
21 - 23 Indirect Care	2	7	8	5	10	2	34	8	6	1	2	1	–	1	–	19	4	4	2	5	5	4	–	1	–	–	25	78+ 28 = 106
31 - 36 Associated Work	7	12	11	11	10	15	66	9	18	5	3	2	1	1	2	41	4	5	4	4	3	2	3	7	–	14	46	153+ 1 = 154
40 Personal Miscellaneous	–	–	–	3	1	2	6	–	–	1	–	1	–	2	1	5	1	–	–	–	1	3	4	2	1	–	12	23+ 19 = 42
																											TOTAL ALL ACTIVITIES	434 + 126 / 560

PART 2
Shift Totals from hourly forms (A) students

Form Numbers	1 - 6 a.m. shift		7 - 24 p.m. shift	15 - 24 Night shift
Direct Care	59	78	78	53
Indirect Care	34	28	19	25
Associate Work	66	1	41	46
Personal/ Miscellaneous	6	19	5	12
TOTAL ALL ACTIVITIES	165	126	133	136

ALL NURSE ACTIVITY SAMPLING FORM (B) HOSPITAL: SMC WARD: 56 DATE: 28/ 2/90
STUDY DAY NO: 2

DAILY TOTALS

PART 1	TOTAL FROM HOURLY ACTIVITY FORMS (A) PART 1 - FORM NUMBERS																									DAILY TOTAL
All nurse Activities	1	2	3	4	5	6	S/T	7	8	9	10	11	12	13	14	S/T	15	16	17	18	19	20	21	22	23	24	S/T	
1 - 12 Direct Care	22	21	22	14	12	14	105	16	10	8	10	9	13	8	10	84	7	2	6	9	5	6	4	10	15	6	70	259 + 84 = 343
21 - 23 Indirect Care	4	4	3	10	6	5	32	1	3	4	1	2	2	2	1	16	2	4	7	4	8	3	6	1	–	4	39	87 + 39 = 126
31 - 36 Associated Work	12	7	8	6	6	13	52	11	17	8	4	2	1	4	–	47	2	9	3	2	2	4	3	2	1	8	36	135 + 18 = 153
40 Personal Miscellaneous	–	4	3	6	8	2	23	–	–	–	1	3	–	1	1	6	1	2	1	1	1	3	3	3	–	–	15	44 + 24 = 68

TOTAL ALL ACTIVITIES 525 + 165 / 690

a.m only students

PART 2
Shift Totals from hourly forms (A) ST

Form Numbers	1 - 6 a.m. shift		7 - 24 p.m. shift	15 - 24 Night shift
Direct Care	105	84	84	70
Indirect Care	32	39	16	39
Associate Work	52	18	47	36
Personal/ Miscellaneous	23	24	6	15
TOTAL ALL ACTIVITIES	212	165	153	160

ALL NURSE ACTIVITY SAMPLING FORM (B) HOSPITAL: SMC WARD: 56 DATE: 1/3/90
STUDY DAY NO: 3
DAILY TOTALS

PART 1	TOTAL FROM HOURLY ACTIVITY FORMS (A) PART 1 - FORM NUMBERS																											DAILY TOTAL
All nurse Activities	1	2	3	4	5	6	S/T	7	8	9	10	11	12	13	14	S/T	15	16	17	18	19	20	21	22	23	24	S/T	
1 - 12 Direct Care	3	10	9	6	4	7	39	4	5	2	10	9	10	6	9	55	4	4	4	5	5	6	4	9	11	8	60	154
21 - 23 Indirect Care	3	4	5	3	7	3	25	3	7	5	1	2	-	2	1	21	5	2	6	4	3	4	6	1	-	1	32	78
31 - 36 Associated Work	9	2	2	2	2	3	20	5	8	5	2	-	1	3	2	26	2	10	4	1	4	2	2	-	1	7	33	79
40 Personal Miscellaneous	-	-	-	5	3	2	10	1	-	2	-	-	1	1	-	5	1	-	-	2	-	-	-	2	-	-	5	20
																											TOTAL ALL ACTIVITIES	331

PART 2
Shift Totals from hourly forms (A)

Form Numbers	1 - 6 a.m. shift	7 - 24 p.m. shift	15 - 24 Night shift
Direct Care	39	55	60
Indirect Care	25	21	32
Associate Work	20	26	33
Personal/ Miscellaneous	10	5	5
TOTAL ALL ACTIVITIES	94	107	130

ALL NURSE ACTIVITY SAMPLING FORM (B) HOSPITAL: SMC WARD: 56 DATE: 2/3/90
DAILY TOTALS STUDY DAY NO: 4

PART 1	TOTAL FROM HOURLY ACTIVITY FORMS (A) PART 1 - FORM NUMBERS																										DAILY TOTAL
All nurse Activities	1	2	3	4	5	6	S/T	7	8	9	10	11	12	13	14	S/T	15	16	17	18	19	20	21	22	23	24	S/T	
1 - 12 Direct Care	8	7	7	10	-	6	38	7	14	8	9	9	9	3	6	65	8	4	6	5	13	3	4	8	7	4	52	155
21 - 23 Indirect Care	2	3	2	-	3	3	13	2	2	2	-	1	2	2	4	15	2	3	2	1	4	5	1	-	1	3	22	50
31 - 36 Associated Work	4	2	2	-	5	1	14	3	4	4	3	-	-	4	2	20	2	10	3	5	2	1	4	4	2	14	47	81
40 Personal Miscellaneous	-	-	1	2	4	2	9	-	-	-	-	2	1	3	1	7	-	1	1	1	3	3	3	-	2	-	14	30
																										TOTAL ALL ACTIVITIES		316

PART 2
Shift Totals from hourly forms (A)

Form Numbers	1 - 6 a.m. shift	7 - 24 p.m. shift	15 - 24 Night shift
Direct Care	38	65	52
Indirect Care	13	15	22
Associate Work	14	20	47
Personal/ Miscellaneous	9	7	14
TOTAL ALL ACTIVITIES	74	107	135

ALL NURSE ACTIVITY SAMPLING FORM (B) HOSPITAL: SMC WARD: 56 DATE:3/3/90
DAILY TOTALS STUDY DAY NO: 5

PART 1	TOTAL FROM HOURLY ACTIVITY FORMS (A) PART 1 - FORM NUMBERS																									DAILY TOTAL
All nurse Activities	1	2	3	4	5	6	S/T	7	8	9	10	11	12	13	14	S/T	15	16	17	18	19	20	21	22	23	24	S/T	
1 - 12 Direct Care	9	9	11	14	12	13	68	5	5	3	6	5	11	8	12	55	16	6	5	5	7	4	5	12	10	5	75	195 + 49 = 247
21 - 23 indirect Core	3	5	8	4	3	2	25	3	7	3	3	2	1	1	3	23	3	3	6	5	3	7	2	1	3	4	37	85 + 29 = 114
31 - 36 Associated Work	18	14	9	6	10	15	72	20	20	9	3	4	3	3	2	64	-	9	6	6	5	2	5	3	2	11	49	185 + 24 = 209
40 Personal Miscellaneous	-	-	-	4	3	-	7	-	1	2	-	-	-	3	2	8	1	2	1	-	1	3	4	-	1	1	14	29 + 22 = 51
																												497 + 124
																												621

a.m only students

TOTAL ALL ACTIVITIES

PART 2
Shift Totals from hourly forms (A) ST

Form Numbers	1 - 6 s.m. shift		7 - 24 p.m. shift	15 - 24 Night shift
Direct Care	68	49	55	75
Indirect Care	25	29	23	37
Associate Work	72	24	64	49
Personal/ Miscellaneous	7	22	8	14
TOTAL ALL ACTIVITIES	172	124	150	175

ALL NURSE ACTIVITY SAMPLING FORM (B) HOSPITAL: SMC WARD: 56 DATE: 4/3/90
STUDY DAY NO: 6

DAILY TOTALS

PART 1	TOTAL FROM HOURLY ACTIVITY FORMS (A) PART 1 - FORM NUMBERS																										DAILY TOTAL
All nurse Activities	1	2	3	4	5	6	S/T	7	8	9	10	11	12	13	14	S/T	15	16	17	18	19	20	21	22	23	24	S/T	
1 - 12 Direct Care	16	21	20	15	12	7	91	11	8	5	11	7	11	5	7	66	8	5	7	6	14	2	3	8	12	11	76	233+ 51 = 284
21 - 23 Indirect Care	5	5	5	6	9	3	33	5	3	4	1	5	3	3	4	28	4	4	2	5	-	7	3	2	2	1	30	91+ 31 = 122
31 - 36 Associated Work	11	5	5	6	7	18	52	14	23	8	8	5	1	10	8	77	6	11	7	4	2	2	7	5	1	12	52	181+ 12 = 193
40 Personal Miscellaneous	-	1	2	5	4	4	16	3	2	2	-	3	5	3	-	18	2	3	-	1	-	5	3	1	1	-	16	50+ 22 = 72

TOTAL ALL ACTIVITIES 555+116 / 671

a.m only students

PART 2
Shift Totals from hourly forms (A) ST

Form Numbers	1 - 6 a.m. shift		7 - 24 p.m. shift	15 - 24 Night shift
Direct Care	91	51	66	76
Indirect Care	33	31	28	30
Associate Work	52	12	77	52
Personal/ Miscellaneous	16	22	18	16
TOTAL ALL ACTIVITIES	192	116	189	174

ALL NURSE ACTIVITY SAMPLING FORM (B) HOSPITAL: SMC WARD: 56 DATE: 5/3/90
STUDY DAY NO: 7

DAILY TOTALS

PART 1	TOTAL FROM HOURLY ACTIVITY FORMS (A) PART 1 - FORM NUMBERS																										DAILY TOTAL
All nurse Activities	1	2	3	4	5	6	S/T	7	8	9	10	11	12	13	14	S/T	15	16	17	18	19	20	21	22	23	24	S/T	
1 - 12 Direct Care	9	11	14	8	12	7	61	12	13	10	13	9	10	9	14	90	6	4	5	4	5	4	1	14	9	4	56	207 + 71 = 278
21 - 23 Indirect Care	4	7	5	7	4	5	32	4	5	8	4	6	5	7	2	41	8	5	5	5	3	2	4	-	4	4	40	113 + 24 = 137
31 - 36 Associated Work	15	10	8	8	8	14	63	11	14	4	2	4	5	3	1	44	4	9	7	6	1	-	8	2	1	5	43	150 + 8 =158
40 Personal Miscellaneous	-	-	1	5	4	2	12	1	1	1	1	1	-	1	3	9	2	4	1	1	7	10	3	-	2	-	30	51 + 21 = 72
																											TOTAL ALL ACTIVITIES	521 + 124 / 645

a.m only students

PART 2
Shift Totals from hourly forms (A) ST

Form Numbers	1 - 6 a.m. shift		7 - 24 p.m. shift	15 - 24 Night shift
Direct Care	61	71	90	56
Indirect Care	32	24	41	40
Associate Work	63	8	44	43
Personal/ Miscellaneous	12	21	9	30
TOTAL ALL ACTIVITIES	168	124	184	169

ALL NURSE ACTIVITY SAMPLING FORM (C)

Hospital: SMC

Dates of study: Day 1 .4./...6../1989

7 10./..6../1989

Ward: 41

PART 1	Totals from Daily Forms (B)							Total Units	%
All nurse activities	DAY 1	DAY 2	DAY 3	DAY 4	DAY 5	DAY 6	DAY 7		
Direct Care	169	149	211	184	206	136	184	1239	43.9
Indirect Care	78	91	79	98	79	69	101	595	21.1
Associated Work	107	123	110	104	99	56	112	711	25.2
Personal/Miscellaneous	49	37	16	37	51	51	35	276	9.8
TOTAL ALL ACTIVITIES:	403	400	416	423	435	312	432	2821	100.0

PART 2 Shift Totals from Daily Forms (B)

(1) A.M. SHIFT	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7	Total Units	%
Direct Care	68	60	68	73	93	34	65	461	42.2
Indirect Care	25	20	35	22	22	10	28	162	14.8
Associated Work	46	55	65	56	56	23	79	380	34.8
Personal/Miscellaneous	18	8	12	12	20	5	10	85	7.8
TOTAL ALL ACTIVITIES:	157	148	180	163	191	72	182	1093	100.0
(2) P.M.SHIFT									
Direct Care	54	46	65	58	61	53	62	399	47.8
Indirect Care	26	24	14	27	24	31	23	169	20.2
Associated Work	23	36	31	25	25	16	16	172	20.6
Personal/Miscellaneous	19	14	4	20	19	7	12	95	11.4
TOTAL ALL ACTIVITIES	122	120	114	130	129	107	113	835	100.0
(3) NIGHT SHIFT									
Direct Care	47	43	78	53	52	49	57	379	42.2
Indirect Care	27	47	30	49	33	28	50	264	29.4
Associated Work	38	32	14	23	18	17	17	159	17.7
Personal/miscellaneous	12	15	0	5	12	39	13	96	10.7
TOTAL ALL ACTIVITIES	124	137	122	130	115	133	137	898	100

The Percentage of all nursing activities spent on Direct Care is 42.4

Indirect Care 20.4

Associated Work 24.3

Personal/ Misec 9.4

Percentage of all activities performed by night shift = 31.8

ALL NURSE ACTIVITY SAMPLING FORM (B) HOSPITAL: SMC WARD: 41 DATE: 4/6/89
DAILY TOTALS STUDY DAY NO: 1

PART 1	TOTAL FROM HOURLY ACTIVITY FORMS (A) PART 1 - FORM NUMBERS																									DAILY TOTAL
All nurse Activities	1	2	3	4	5	6	S/T	7	8	9	10	11	12	13	14	S/T	15	16	17	18	19	20	21	22	23	24	S/T	
1 - 12 Direct Care	13	13	15	11	9	7	68	10	15	2	8	5	6	4	4	54	5	3	4	3	4	3	7	6	9	3	47	169
21 - 23 Indirect Care	5	4	2	4	5	5	25	6	6	6	-	3	1	1	3	26	5	4	4	6	2	1	-	2	1	2	27	78
31 - 36 Associated Work	8	11	7	5	7	8	46	5	4	1	1	2	2	4	4	23	2	8	3	1	3	7	1	1	2	10	38	107
40 Personal Miscellaneous	3	-	4	4	3	4	18	1	3	3	3	2	3	3	1	19	-	-	1	-	3	1	4	3	-	-	12	49

PART 2 TOTAL ALL ACTIVITIES 403
Shift Totals from hourly forms (A)

Form Numbers	1 - 6 a.m. shift	7 - 24 p.m. shift	15 - 24 Night shift
Direct Care	68	54	47
Indirect Care	25	26	27
Associate Work	46	23	38
Personal/ Miscellaneous	18	19	12
TOTAL ALL ACTIVITIES	157	122	124

ALL NURSE ACTIVITY SAMPLING FORM (B) HOSPITAL: SMC WARD: 41 DATE: 5/6/89
DAILY TOTALS STUDY DAY NO: 2

PART I	TOTAL FROM HOURLY ACTIVITY FORMS (A) PART I - FORM NUMBERS																									DAILY TOTAL
All nurse Activities	1	2	3	4	5	6	S/T	7	8	9	10	11	12	13	14	S/T	15	16	17	18	19	20	21	22	23	24	S/T	
1 - 12 Direct Care	7	10	14	11	12	6	60	5	4	-	5	8	7	8	9	46	9	1	3	4	5	5	3	2	8	3	43	149
21 - 23 Indirect Care	4	3	3	5	-	5	20	9	10	3	1	-	-	1	-	24	-	11	7	3	3	3	2	6	2	10	47	91
31 - 36 Associated Work	11	10	6	7	10	11	55	5	11	2	5	3	5	2	3	36	-	2	5	4	4	3	5	2	2	5	32	123
40 Personal Miscellaneous	1	1	1	1	2	2	8	1	3	7	1	1	-	1	-	14	3	2	-	1	2	1	2	2	-	2	15	37

PART 2 TOTAL ALL ACTIVITIES 400
Shift Totals from hourly forms (A)

Form Numbers	1 - 6 a.m. shift	7 - 24 p.m. shift	15 - 24 Night shift
Direct Care	60	46	43
Indirect Care	20	24	47
Associate Work	55	36	32
Personal/ Miscellaneous	8	14	15
TOTAL ALL ACTIVITIES	143	120	137

ALL NURSE ACTIVITY SAMPLING FORM (B) HOSPITAL: SMC WARD: 41 DATE: 6.6.78
DAILY TOTALS STUDY DAY NO: 3

PART I	TOTAL FROM HOURLY ACTIVITY FORMS (A) PART I - FORM NUMBERS																									DAILY TOTAL
All nurse Activities	1	2	3	4	5	6	S/T	7	8	9	10	11	12	13	14	S/T	15	16	17	18	19	20	21	22	23	24	S/T	
1 - 12 Direct Care	14	10	15	12	8	9	68	10	4	7	7	6	11	9	11	65	8	2	3	6	3	9	2	11	18	16	78	211
21 - 23 Indirect Care	8	11	6	1	5	4	35	4	3	3	3	-	-	1	-	14	1	-	4	3	3	2	3	5	8	1	30	79
31 - 36 Associated Work	7	11	10	15	12	10	65	4	16	2	2	5	1	1	-	31	3	-	4	1	1	1	1	-	2	1	14	110
40 Personal Miscellaneous	-	-	-	1	3	8	12	1	2	-	-	1	-	-	-	4	-	-	-	-	-	-	-	-	-	-	0	16

PART 2 TOTAL ALL ACTIVITIES 416
Shift Totals from hourly forms (A)

Form Numbers	1 - 6 a.m. shift	7 - 24 p.m. shift	15 - 24 Night shift
Direct Care	68	65	78
Indirect Care	35	14	30
Associate Work	65	31	14
Personal/ Miscellaneous	12	4	0
TOTAL ALL ACTIVITIES	180	114	122

ALL NURSE ACTIVITY SAMPLING FORM (B) HOSPITAL: SMC WARD: 41 DATE: 7.6.89
DAILY TOTALS STUDY DAY NO: 4

PART 1	TOTAL FROM HOURLY ACTIVITY FORMS (A) PART 1 - FORM NUMBERS																									DAILY TOTAL
All nurse Activities	1	2	3	4	5	6	S/T	7	8	9	10	11	12	13	14	S/T	15	16	17	18	19	20	21	22	23	24	S/T	
1 - 12 Direct Care	16	15	19	8	7	8	73	12	16	5	9	8	3	2	3	58	6	-	6	5	3	7	7	3	7	9	53	184
21 - 23 Indirect Care	3	6	2	2	3	6	22	10	4	3	2	-	3	3	2	27	3	7	2	6	5	4	3	8	3	8	49	98
31 - 36 Associated Work	8	7	5	10	13	18	56	2	12	4	-	3	-	2	2	25	2	6	4	1	2	1	1	1	2	3	23	104
40 Personal Miscellaneous	-	-	-	6	5	1	12	2	5	-	1	1	3	3	5	20	-	2	-	-	2	-	1	-	-	-	5	37

PART 2 TOTAL ALL ACTIVITIES 423
Shift Totals from hourly forms (A)

Form Numbers	1 - 6 a.m. shift	7 - 24 p.m. shift	15 - 24 Night shift
Direct Care	73	58	53
Indirect Care	22	27	49
Associate Work	56	25	23
Personal/ Miscellaneous	12	20	5
TOTAL ALL ACTIVITIES	163	130	130

ALL NURSE ACTIVITY SAMPLING FORM (B) HOSPITAL: SMC WARD: 41 DATE: 8/6/89
DAILY TOTALS STUDY DAY NO: 5

PART I	TOTAL FROM HOURLY ACTIVITY FORMS (A) PART I - FORM NUMBERS																										DAILY TOTAL
All nurse Activities	1	2	3	4	5	6	S/T	7	8	9	10	11	12	13	14	S/T	15	16	17	18	19	20	21	22	23	24	S/T	
1 - 12 Direct Care	24	15	14	13	13	14	93	9	21	5	6	3	8	2	7	61	4	7	3	2	4	1	3	8	8	12	52	206
21 - 23 Indirect Care	2	5	7	3	4	1	22	7	5	3	2	-	-	4	3	24	4	5	5	5	2	3	1	2	3	3	33	79
31 - 36 Associated Work	3	12	8	15	9	9	56	6	4	3	3	2	4	2	1	25	5	2	2	2	2	1	2	-	-	2	18	99
40 Personal Miscellaneous	2	-	3	1	6	8	20	4	1	1	1	6	-	4	2	19	2	-	1	2	4	1	2	-	-	-	12	51

PART 2 TOTAL ALL ACTIVITIES 435
Shift Totals from hourly forms (A)

Form Numbers	1 - 6 a.m. shift	7 - 24 p.m. shift	15 - 24 Night shift
Direct Care	93	61	52
Indirect Care	22	24	33
Associate Work	56	25	18
Personal/ Miscellaneous	20	19	12
TOTAL ALL ACTIVITIES	191	129	115

ALL NURSE ACTIVITY SAMPLING FORM (B) HOSPITAL: SMC WARD: 41 DATE: 9/6/89
DAILY TOTALS STUDY DAY NO: 6

PART 1	TOTAL FROM HOURLY ACTIVITY FORMS (A) PART 1 - FORM NUMBERS																										DAILY TOTAL
All nurse Activities	1	2	3	4	5	6	S/T	7	8	9	10	11	12	13	14	S/T	15	16	17	18	19	20	21	22	23	24	S/T	
1 - 12 Direct Care	5	7		8	4	5	34	9	11	6	8	3	6	4	6	53	10	7	6	2	-	2	1	3	8	10	49	136
21 - 23 Indirect Care	2	2	3	1	1	1	10	-	5	6	2	4	6	4	4	31	4	3	-	5	4	2	5	2	2	1	28	69
31 - 36 Associated Work	4	1	1	5	6	6	23	2	2	4	1	3	-	1	3	16	2	2	-	1	3	4	2	2	1	-	17	
40 Personal Miscellaneous	1	2	-	1	1	-	5	-	-	-	2	2	-	3	-	7	-	3	6	4	4	4	4	5	1	8	39	

PART 2 TOTAL ALL ACTIVITIES 312
Shift Totals from hourly forms (A)

Form Numbers	1 - 6 a.m. shift	7 - 24 p.m. shift	15 - 24 Night shift
Direct Care	34	53	49
Indirect Care	10	31	28
Associate Work	23	16	17
Personal/ Miscellaneous	5	7	39
TOTAL ALL ACTIVITIES	72	107	133

ALL NURSE ACTIVITY SAMPLING FORM (B) HOSPITAL: SMC WARD: 41 DATE: 10/6/89
DAILY TOTALS STUDY DAY NO: 7

PART I	TOTAL FROM HOURLY ACTIVITY FORMS (A) PART I - FORM NUMBERS																										DAILY TOTAL
All nurse Activities	1	2	3	4	5	6	S/T	7	8	9	10	11	12	13	14	S/T	15	16	17	18	19	20	21	22	23	24	S/T	
1 - 12 Direct Care	15	14	13	11	3	9	65	10	15	3	9	3	5	8	9	62	10	4	4	6	1	4	3	8	7	10	57	184
21 - 23 Indirect Care	4	5	3	3	2	11	28	7	5	5	2	1	2	1	-	23	4	6	5	3	7	5	3	2	4	11		101
31 - 36 Associated Work	11	12	14	18	18	6	79	1	2	4	-	5	3	-	1	16	-	4	2	3	1	-	3	2	1	1	17	112
40 Personal Miscellaneous	1	1	2	-	5	1	10	-	-	-	1	3	2	3	3	12	2	1	1	-	3	3	3	-	-	-	13	35

PART 2 TOTAL ALL ACTIVITIES
Shift Totals from hourly forms (A)

Form Numbers	1 - 6 a.m. shift	7 - 24 p.m. shift	15 - 24 Night shift
Direct Care	65	62	57
Indirect Care	28	23	50
Associate Work	79	16	17
Personal/ Miscellaneous	10	12	13
TOTAL ALL ACTIVITIES	182	113	137

ALL NURSE ACTIVITY SAMPLING FORM (C)

Hospital: SMC

Dates of study: Day 1 .3./...2../1990 Ward: 43

7 .9./...2../1990

PART 1	Totals from Daily Forms (B)							Total Units	%
All nurse activities	DAY 1	DAY 2	DAY 3	DAY 4	DAY 5	DAY 6	DAY 7		
Direct Care	163	181	139	159	148	104	114	1008	42.0
Indirect Care	80	84	89	70	77	68	60	528	21.9
Associated Work	104	71	99	141	114	51	60	640	26.6
Personal/Miscellaneous	24	21	37	28	34	51	33	228	9.5
TOTAL ALL ACTIVITIES:	371	357	364	398	373	274	267	2402	100

PART 2 Shift Totals from Daily Forms (B)

(1) A.M. SHIFT	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7	Total Units	%
Direct Care	83	76	69	70	77	44	45	464	50.7
Indirect Care	24	25	19	15	24	15	11	133	14.5
Associated Work	33	35	43	66	52	11	12	252	27.5
Personal/Miscellaneous	9	9	10	17	14	4	3	66	7.2
TOTAL ALL ACTIVITIES:	149	145	141	168	167	74	71	915	100.0
(2) P.M.SHIFT Direct Care	58	76	53	70	60	50	55	422	49.6
Indirect Care	27	24	33	23	25	20	18	170	20.0
Associated Work	37	16	29	39	27	18	25	191	22.4
Personal/Miscellaneous	9	8	12	4	3	21	11	68	8.0
TOTAL ALL ACTIVITIES	131	124	127	136	115	109	109	851	100.0
(3) NIGHT SHIFT Direct Care	40	44	32	34	26	25	29	230	36.2
Indirect Care	21	28	29	25	21	26	25	175	27.5
Associated Work	27	15	22	31	30	17	18	160	25.2
Personal/miscellaneous	1	1	12	4	14	23	16	71	11.2
TOTAL ALL ACTIVITIES	89	88	95	94	91	91	88	636	100.0

The percentage of all nursing activities spent on Direct Care is 42.0
Indirect Care = 21.9
Associated Work 26.6
Personal/Misec = 9.5

Percentage of all activities performed by night Shift = 26.5

ALL NURSE ACTIVITY SAMPLING FORM (B) HOSPITAL: SMC WARD: 43 DATE: 3.2.90
DAILY TOTALS STUDY DAY NO:1

PART 1	TOTAL FROM HOURLY ACTIVITY FORMS (A) PART 1 - FORM NUMBERS																										DAILY TOTAL
All nurse Activities	1	2	3	4	5	6	S/T	7	8	9	10	11	12	13	14	S/T	15	16	17	18	19	20	21	22	23	24	S/T	
1 - 12 Direct Care	17	15	11	4	17	13	77	12	4	8	2	6	9	4	7	52	3	1	3	2	1	4	3	4	8	5	34	163
21 - 23 Indirect Care	4	5	4	9	2	4	28	7	7	2	3	1	2	4	1	27	5	3	3	3	6	1	1	3	-	-	25	80
31 - 36 Associated Work	5	11	10	6	1	4	37	7	17	2	5	2	-	3	1	37	-	9	3	4	-	2	3	1	-	8	30	104
40 Personal Miscellaneous	-	-	-	5	5	1	11	-	5	1	1	3	-	-	-	10	-	-	-	-	-	-	3	-	-	-	3	24

TOTAL ALL ACTIVITIES

PART 2
Shift Totals from hourly forms (A)

Form Numbers	1 - 6 a.m. shift	7 - 24 p.m. shift	15 - 24 Night shift
Direct Care	83	58	40
Indirect Care	24	27	21
Associate Work	33	37	27
Personal/ Miscellaneous	9	9	1
TOTAL ALL ACTIVITIES	144	131	89

ALL NURSE ACTIVITY SAMPLING FORM (B) HOSPITAL: SMC WARD: 43 DATE: 4/2/90
DAILY TOTALS STUDY DAY NO: 2

PART 1	TOTAL FROM HOURLY ACTIVITY FORMS (A) PART 1 - FORM NUMBERS																										DAILY TOTAL
All nurse Activities	1	2	3	4	5	6	S/T	7	8	9	10	11	12	13	14	S/T	15	16	17	18	19	20	21	22	23	24	S/T	
1 - 12 Direct Care	16	14	6	11	11	13	71	16	10	8	6	7	9	5	10	71	3	1	5	4	2	2	4	7	8	3	39	181
21 - 23 Indirect Care	1	3	9	6	4	5	28	4	8	3	4	3	2	4	-	28	4	4	1	3	5	5	4	-	-	2	28	84
31 - 36 Associated Work	7	8	9	7	4	5	40	4	9	1	-	-	-	2	-	16	-	7	1	-	-	-	-	1	-	6	15	71
40 Personal Miscellaneous	-	2	2	2	5	1	12	-	3	-	1	1	1	2	-	8	-	-	-	1	-	-	-	-	-	-	1	21
																												TOTAL ALL ACTIVITIES

PART 2
Shift Totals from hourly forms (A)

Form Numbers	1 - 6 a.m. shift	7 - 24 p.m. shift	15 - 24 Night shift
Direct Care	76	76	44
Indirect Care	25	24	28
Associate Work	35	16	15
Personal/ Miscellaneous	9	8	1
TOTAL ALL ACTIVITIES	145	124	88

ALL NURSE ACTIVITY SAMPLING FORM (B) HOSPITAL: SMC WARD: 43 DATE: 5/2/90
DAILY TOTALS STUDY DAY NO: 3

PART 1	TOTAL FROM HOURLY ACTIVITY FORMS (A) PART 1 - FORM NUMBERS																										DAILY TOTAL
All nurse Activities	1	2	3	4	5	6	S/T	7	8	9	10	11	12	13	14	S/T	15	16	17	18	19	20	21	22	23	24	S/T	
1 - 12 Direct Care	12	13	15	12	8	4	64	11	8	5	8	4	4	3	5	48	3	-	1	2	1	2	1	5	8	4	27	139
21 - 23 Indirect Care	5	4	4	4	1	5	23	1	13	4	4	3	4	4	4	37	4	3	3	5	4	-	5	2	-	3	29	89
31 - 36 Associated Work	7	8	3	7	11	9	45	11	11	3	-	1	3	2	1	32	-	8	2	-	2	-	-	-	-	10	22	99
40 Personal Miscellaneous	-	-	-	2	4	6	12	4	2	1	-	3	1	3	-	14	-	1	1	-	1	4	1	1	-	2	11	37

TOTAL ALL ACTIVITIES 151

PART 2
Shift Totals from hourly forms (A)

Form Numbers	1 - 6 a.m. shift	7 - 24 p.m. shift	15 - 24 Night shift
Direct Care	69	53	32
Indirect Care	19	33	29
Associate Work	43	29	22
Personal/ Miscellaneous	10	12	12
TOTAL ALL ACTIVITIES	141	127	95

ALL NURSE ACTIVITY SAMPLING FORM (B) HOSPITAL: SMC WARD: 43 DATE: 6/2/90
DAILY TOTALS STUDY DAY NO: 4

PART 1	TOTAL FROM HOURLY ACTIVITY FORMS (A) PART 1 - FORM NUMBERS																										DAILY TOTAL
All nurse Activities	1	2	3	4	5	6	S/T	7	8	9	10	11	12	13	14	S/T	15	16	17	18	19	20	21	22	23	24	S/T	
1 - 12 Direct Care	11	20	14	7	10	3	65	9	13	4	4	8	12	8	7	65	4	1	1	1	1	3	3	6	7	2	29	159
21 - 23 Indirect Care	-	2	2	4	4	6	18	5	5	-	6	4	-	2	3	26	4	4	-	3	7	2	3	-	-	3	26	70
31 - 36 Associated Work	15	7	10	12	8	16	68	15	15	7	1	-	-	1	2	41	-	6	6	2	-	-	-	2	1	15	32	141
40 Personal Miscellaneous	3	-	2	5	5	3	18	-	1	-	-	-	-	4	-	5	-	-	-	2	-	2	1	-	-	-	5	28

TOTAL ALL ACTIVITIES

PART 2
Shift Totals from hourly forms (A)

Form Numbers	1 - 6 a.m. shift	7 - 24 p.m. shift	15 - 24 Night shift
Direct Care	70	70	34
Indirect Care	15	23	25
Associate Work	66	39	31
Personal/ Miscellaneous	17	4	4
TOTAL ALL ACTIVITIES	168	136	94

ALL NURSE ACTIVITY SAMPLING FORM (B) HOSPITAL: SMC WARD: 43 DATE: 7/2/90
DAILY TOTALS STUDY DAY NO: 5

PART 1	TOTAL FROM HOURLY ACTIVITY FORMS (A) PART 1 - FORM NUMBERS																										DAILY TOTAL
All nurse Activities	1	2	3	4	5	6	S/T	7	8	9	10	11	12	13	14	S/T	15	16	17	18	19	20	21	22	23	24	S/T	
1 - 12 Direct Care	11	17	13	6	12	13	72	11	7	7	5	1	8	6	10	55	3	1	3	-	1	2	1	1	5	4	21	148
21 - 23 Indirect Care	3	8	5	6	4	1	27	6	5	-	4	6	2	3	2	28	5	4	2	2	3	1	-	3	2	-	22	77
31 - 36 Associated Work	14	4	8	9	9	10	54	6	12	2	2	4	2	1	-	29	2	6	3	6	4	1	-	1	-	8	31	114
40 Personal Miscellaneous	-	-	3	6	2	4	15	-	-	-	2	-	-	2	-	4	3	-	-	-	-	3	6	3	-	-	15	34

TOTAL ALL ACTIVITIES

PART 2
Shift Totals from hourly forms (A)

Form Numbers	1 - 6 a.m. shift	7 - 24 p.m. shift	15 - 24 Night shift
Direct Care	77	60	26
Indirect Care	24	25	27
Associate Work	52	27	30
Personal/ Miscellaneous	14	3	14
TOTAL ALL ACTIVITIES	167	115	91

ALL NURSE ACTIVITY SAMPLING FORM (B) HOSPITAL: SMC WARD: 43 DATE: 8/2/90
DAILY TOTALS STUDY DAY NO: 6

PART 1	TOTAL FROM HOURLY ACTIVITY FORMS (A) PART 1 - FORM NUMBERS																										DAILY TOTAL
All nurse Activities	1	2	3	4	5	6	S/T	7	8	9	10	11	12	13	14	S/T	15	16	17	18	19	20	21	22	23	24	S/T	
1 - 12 Direct Care	10	9	8	3	3	6	39	2	6	9	5	7	5	6	5	45	4	1	1	2	2	–	1	1	2	6	20	104
21 - 23 Indirect Care	–	3	3	4	4	4	18	7	5	2	1	–	4	2	2	23	6	5	4	5	2	–	–	4	1	–	27	68
31 - 36 Associated Work	4	–	2	2	3	2	13	4	8	2	3	–	–	2	1	20	2	4	3	–	1	4	–	–	4	–	18	51
40 Personal Miscellaneous	–	–	–	4	1	–	5	–	–	–	4	4	5	5	4	22	2	2	–	–	2	4	7	3	–	4	24	51

PART 2 TOTAL ALL ACTIVITIES
Shift Totals from hourly forms (A)

Form Numbers	1 - 6 a.m. shift	7 - 24 p.m. shift	15 - 24 Night shift
Direct Care	44	50	25
Indirect Care	15	20	26
Associate Work	11	18	17
Personal/ Miscellaneous	4	21	23
TOTAL ALL ACTIVITIES	74	109	91

ALL NURSE ACTIVITY SAMPLING FORM (B) HOSPITAL: SMC WARD: 43 DATE: 9/2/90
DAILY TOTALS STUDY DAY NO: 7

PART 1	TOTAL FROM HOURLY ACTIVITY FORMS (A) PART 1 - FORM NUMBERS																										DAILY TOTAL
All nurse Activities	1	2	3	4	5	6	S/T	7	8	9	10	11	12	13	14	S/T	15	16	17	18	19	20	21	22	23	24	S/T	
1 - 12 Direct Care	9	6	8	5	6	6	40	8	4	6	7	7	7	4	7	50	7	1	1	-	1	1	1	4	6	2	24	114
21 - 23 Indirect Care	2	3	-	-	4	4	13	5	4	2	2	1	3	2	1	20	-	3	4	6	3	1	4	4	1	1	27	60
31 - 36 Associated Work	2	3	3	5	1	-	14	-	17	-	-	3	-	4	3	27	-	8	3	-	1	-	-	-	-	7	19	60
40 Personal Miscellaneous	-	-	-	1	-	3	4	1	-	4	2	1	2	2	-	12	-	-	2	2	2	5	2	-	-	4	17	33

TOTAL ALL ACTIVITIES

PART 2
Shift Totals from hourly forms (A)

Form Numbers	1 - 6 a.m. shift	7 - 24 p.m. shift	15 - 24 Night shift
Direct Care	45	55	29
Indirect Care	11	18	25
Associate Work	12	25	18
Personal/ Miscellaneous	3	11	16
TOTAL ALL ACTIVITIES	71	109	88

ALL NURSE ACTIVITY SAMPLING FORM (C)

Hospital: SMC

Dates of study: Day 1 19./.2..../1990

Ward: 53

7 25./.2..../1990

PART 1	Totals from Daily Forms (B)							Total Units	%
All nurse activities	DAY 1	DAY 2	DAY 3	DAY 4	DAY 5	DAY 6	DAY 7		
Direct Care	150	145	146	140	128	156	185	1050	42.2
Indirect Care	72	58	70	71	72	94	58	495	19.9
Associated Work	106	126	110	84	46	109	109	690	27.7
Personal/Miscellaneous	36	27	38	31	53	33	33	254	10.2
TOTAL ALL ACTIVITIES:	364	356	364	326	284	412	385	2484	100

PART 2 Shift Totals from Daily Forms (B)

(1) A.M. SHIFT	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7	Total Units	%
Direct Care	48	50	52	46	29	56	78	359	45.6
Indirect Care	25	20	16	20	10	32	15	138	17.5
Associated Work	37	44	38	24	7	43	38	231	29.4
Personal/Miscellaneous	10	7	9	6	2	12	14	60	7.6
TOTAL ALL ACTIVITIES:	120	120	115	96	48	143	145	787	100.0
(2) P.M.SHIFT									
Direct Care	55	59	50	50	51	52	70	387	47.8
Indirect Care	16	21	26	20	16	28	16	143	17.7
Associated Work	34	36	38	36	18	29	25	216	26.7
Personal/Miscellaneous	15	7	9	5	15	7	5	63	7.8
TOTAL ALL ACTIVITIES	120	123	123	111	100	116	116	809	100.0
(3) NIGHT SHIFT									
Direct Care	59	48	56	54	58	58	57	390	42.6
Indirect Care	27	14	25	30	42	31	24	193	21.1
Associated Work	33	45	33	20	17	33	42	223	24.4
Personal/miscellaneous	8	11	17	17	14	31	11	109	11.9
TOTAL ALL ACTIVITIES	127	118	131	121	131	153	134	915	100.0

The perce-tage of all Nursing activities spent on Direct Care is 42.2

Indirect Care 19.9

Associated Work 27.7

Personal / miscellaneous 10.2

Percentage of all activities performed by night shift is 36.4

ALL NURSE ACTIVITY SAMPLING FORM (B) HOSPITAL: SMC WARD: 53 DATE: 19/2/90
DAILY TOTALS STUDY DAY NO: 1

PART 1	TOTAL FROM HOURLY ACTIVITY FORMS (A) PART 1 - FORM NUMBERS																										DAILY TOTAL
All nurse Activities	1	2	3	4	5	6	S/T	7	8	9	10	11	12	13	14	S/T	15	16	17	18	19	20	21	22	23	24	S/T	
1 - 12 Direct Care	4	6	10	10	7	7	44	5	6	8	6	8	5	5	8	51	7	3	1	6	3	5	8	8	11	3	55	150
21 - 23 Indirect Care	5	8	5	1	6	3	27	3	5	1	2	2	3	1	1	18	-	1	8	3	4	4	2	1	-	4	27	72
31 - 36 Associated Work	11	6	5	4	3	9	38	7	16	1	2	2	2	4	1	35	-	10	2	2	3	1	1	-	1	13	33	106
40 Personal Miscellaneous	2	-	-	4	4	1	11	7	2	1	1	-	2	2	1	16	-	-	-	-	2	2	1	3	-	-	9	36

PART 2 TOTAL ALL ACTIVITIES
Shift Totals from hourly forms (A)

Form Numbers	1 - 6 a.m. shift	7 - 24 p.m. shift	15 - 24 Night shift
Direct Care	48	55	59
Indirect Care	25	16	27
Associate Work	37	34	33
Personal/ Miscellaneous	10	15	8
TOTAL ALL ACTIVITIES	120	120	127

ALL NURSE ACTIVITY SAMPLING FORM (B) HOSPITAL: SMC WARD: 53 DATE: 20/2/90
DAILY TOTALS STUDY DAY NO: 2

PART I	TOTAL FROM HOURLY ACTIVITY FORMS (A) PART I - FORM NUMBERS																										DAILY TOTAL
All nurse Activities	1	2	3	4	5	6	S/T	7	8	9	10	11	12	13	14	S/T	15	16	17	18	19	20	21	22	23	24	S/T	
1 - 12 Direct Care	4	7	12	9	6	8	46	6	18	2	5	4	7	4	9	55	7	-	1	5	6	6	-	4	11	4	44	145
21 - 23 Indirect Care	1	6	1	5	4	2	19	1	2	3	2	6	2	4	-	20	-	3	3	1	-	-	2	3	-	1	13	58
31 - 36 Associated Work	15	6	5	3	8	8	45	9	7	8	2	2	3	4	1	36	-	7	8	4	4	4	5	3	1	9	45	126
40 Personal Miscellaneous	-	-	2	3	2	2	9	4	-	-	2	-	-	-	1	7	-	1	-	1	1	1	5	2	-	-	11	27

PART 2
Shift Totals from hourly forms (A)

TOTAL ALL ACTIVITIES

Form Numbers	1 - 6 a.m. shift	7 - 24 p.m. shift	15 - 24 Night shift
Direct Care	50	59	48
Indirect Care	20	21	14
Associate Work	44	36	45
Personal/ Miscellaneous	7	7	11
TOTAL ALL ACTIVITIES	121	123	118

ALL NURSE ACTIVITY SAMPLING FORM (B) HOSPITAL: SMC WARD: 53 DATE: 21/2/90
DAILY TOTALS STUDY DAY NO: 3

PART 1	TOTAL FROM HOURLY ACTIVITY FORMS (A) PART 1 - FORM NUMBERS																									DAILY TOTAL
All nurse Activities	1	2	3	4	5	6	S/T	7	8	9	10	11	12	13	14	S/T	15	16	17	18	19	20	21	22	23	24	S/T	
1 - 12 Direct Care	4	6	9	11	6	12	48	7	8	6	6	6	6	3	4	46	5	1	-	4	10	3	8	10	10	1	52	146
21 - 23 Indirect Care	4	5	2	3	3	-	17	4	2	4	3	4	5	4	1	27	1	-	7	6	1	4	3	-	1	1	26	70
31 - 36 Associated Work	10	7	6	3	5	8	39	10	15	4	2	1	-	4	3	38	3	11	1	-	1	-	-	2	-	15	33	110
40 Personal Miscellaneous	-	-	-	4	6	-	10	-	2	-	1	1	1	1	4	10	2	2	3	2	-	5	1	-	1	2	18	38

PART 2
Shift Totals from hourly forms (A)

TOTAL ALL ACTIVITIES

Form Numbers	1 - 6 a.m. shift	7 - 24 p.m. shift	15 - 24 Night shift
Direct Care	52	50	56
Indirect Care	16	26	25
Associate Work	38	38	33
Personal/ Miscellaneous	9	9	17
TOTAL ALL ACTIVITIES	115	123	131

ALL NURSE ACTIVITY SAMPLING FORM (B) HOSPITAL: SMC WARD: 53 DATE: 22/2/90
DAILY TOTALS STUDY DAY NO: 4

PART 1	TOTAL FROM HOURLY ACTIVITY FORMS (A) PART 1 - FORM NUMBERS																										DAILY TOTAL
All nurse Activities	1	2	3	4	5	6	S/T	7	8	9	10	11	12	13	14	S/T	15	16	17	18	19	20	21	22	23	24	S/T	
1 - 12 Direct Care	14	8	6	4	4	7	42	1	6	7	6	2	7	5	11	46	6	4	3	4	7	6	2	8	10	2	52	140
21 - 23 Indirect Care	2	2	1	6	6	4	21	4	1	1	2	4	3	4	1	20	3	5	6	3	2	2	3	2	2	2	30	71
31 - 36 Associated Work	-	1	5	1	4	1	12	4	10	2	1	4	1	2	-	24	1	1	1	2	-	-	1	1	-	3	10	46
40 Personal Miscellaneous	-	-	2	3	-	2	7	4	-	-	-	1	-	1	6	6	-	-	2	-	3	4	6	-	-	3	18	31

TOTAL ALL ACTIVITIES

PART 2
Shift Totals from hourly forms (A)

Form Numbers	1 - 6 a.m. shift	7 - 24 p.m. shift	15 - 24 Night shift
Direct Care	46	50	54
Indirect Care	20	20	30
Associate Work	24	36	20
Personal/ Miscellaneous	6	5	17
TOTAL ALL ACTIVITIES	96	111	121

160

ALL NURSE ACTIVITY SAMPLING FORM (B) HOSPITAL: SMC WARD: 53 DATE: 23/2/90
DAILY TOTALS STUDY DAY NO: 5

PART 1	TOTAL FROM HOURLY ACTIVITY FORMS (A) PART 1 - FORM NUMBERS																										DAILY TOTAL
All nurse Activities	1	2	3	4	5	6	S/T	7	8	9	10	11	12	13	14	S/T	15	16	17	18	19	20	21	22	23	24	S/T	
1 - 12 Direct Care	5	5	2	3	4	6	25	5	3	1	7	8	8	5	10	47	7	1	2	8	4	5	1	3	10	13	56	128
21 - 23 Indirect Care	2	-	6	2	2	-	12	2	7	3	1	2	2	-	1	18	3	5	7	3	6	4	7	3	1	3	42	72
31 - 36 Associated Work	2	3	-	-	2	2	9	2	11	5	-	1	-	1	-	20	1	2	2	1	1	1	4	3	1	1	17	46
40 Personal Miscellaneous	-	-	-	5	-	-	5	-	-	3	4	2	2	6	1	18	5	5	-	-	1	2	-	1	-	1	15	38

PART 2
Shift Totals from hourly forms (A)

TOTAL ALL ACTIVITIES

Form Numbers	1 - 6 a.m. shift	7 - 24 p.m. shift	15 - 24 Night shift
Direct Care	29	51	58
Indirect Care	10	16	42
Associate Work	7	18	17
Personal/ Miscellaneous	2	15	14
TOTAL ALL ACTIVITIES	48	100	131

ALL NURSE ACTIVITY SAMPLING FORM (B) HOSPITAL: SMC WARD: 53 DATE: 24/2/90
DAILY TOTALS STUDY DAY NO: 6

PART 1	TOTAL FROM HOURLY ACTIVITY FORMS (A) PART 1 - FORM NUMBERS																										DAILY TOTAL
All nurse Activities	1	2	3	4	5	6	S/T	7	8	9	10	11	12	13	14	S/T	15	16	17	18	19	20	21	22	23	24	S/T	
1 - 12 Direct Care	12	9	7	5	9	10	52	8	3	6	4	8	7	3	9	48	6	10	4	3	1	5	1	7	10	9	56	156
21 - 23 Indirect Care	9	5	4	6	5	4	33	5	3	6	4	3	2	4	2	29	4	5	4	5	5	2	3	2	1	1	32	94
31 - 36 Associated Work	3	9	12	6	5		45	4	15	-	3	1	2	3	3	31	7	3	2	4	4	4	4	-	1	6	34	109
40 Personal Miscellaneous	-	2	-	6	5	-	13	4	1	-	-	-	1	2	-	8	17	2	2	-	2	1	4	3	-	1	32	53

PART 2 TOTAL ALL ACTIVITIES
Shift Totals from hourly forms (A)

Form Numbers	1 - 6 a.m. shift	7 - 24 p.m. shift	15 - 24 Night shift
Direct Care	56	52	58
Indirect Care	32	28	31
Associate Work	43	29	33
Personal/ Miscellaneous	12	7	31
TOTAL ALL ACTIVITIES	143	116	153

ALL NURSE ACTIVITY SAMPLING FORM (B) HOSPITAL: SMC WARD: 53 DATE: 25/2/90
DAILY TOTALS STUDY DAY NO: 7

PART 1	TOTAL FROM HOURLY ACTIVITY FORMS (A) PART 1 - FORM NUMBERS																										DAILY TOTAL
All nurse Activities	1	2	3	4	5	6	S/T	7	8	9	10	11	12	13	14	S/T	15	16	17	18	19	20	21	22	23	24	S/T	
1 - 12 Direct Care	14	13	12	8	11	14	72	10	10	6	11	4	6	7	10	64	8	5	2	7	3	5	3	6	9	3	49	185
21 - 23 Indirect Care	5	1	3	4	2	2	26	3	3	2	-	3	2	3	1	17	3	4	4	1	3	4	5	-	-	1	25	58
31 - 36 Associated Work	7	10	8	7	2	6	40	9	5	3	-	4	3	2	1	27	5	7	5	2	2	1	3	5	1	11	42	109
40 Personal Miscellaneous	-	-	6	6	9	3	24	-	8	4	-	-	-	-	3	15	-	-	-	2	4	2	1	1	2	2	14	53

PART 2
Shift Totals from hourly forms (A)

TOTAL ALL ACTIVITIES

Form Numbers	1 - 6 a.m. shift	7 - 24 p.m. shift	15 - 24 Night shift
Direct Care	78	70	57
Indirect Care	15	16	24
Associate Work	38	25	42
Personal/ Miscellaneous	14	5	11
TOTAL ALL ACTIVITIES	145	116	134

ALL NURSE ACTIVITY SAMPLING FORM (C)

Dates of study: Day 1 .11/..2../1990
7 .17/..2../1990

Hospital: SMC
Ward: 51

PART 1	Totals from Daily Forms (B)							Total Units	%
All nurse activities	DAY 1	DAY 2	DAY 3	DAY 4	DAY 5	DAY 6	DAY 7		
Direct Care	170	191	173	158	146	134	208	1080	42.0
Indirect Care	99	85	107	93	88	62	108	642	22.9
Associated Work	110	96	159	114	89	80	120	768	27.3
Personal/Miscellaneous	21	22	32	32	44	39	30	220	7.8
TOTAL ALL ACTIVITIES:	400	394	471	397	367	315	466	2810	100

PART 2 — Shift Totals from Daily Forms (B)

(1) A.M. SHIFT	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7	Total Units	%
Direct Care	78	94	95	79	63	35	96	558	56.0
Indirect Care	26	26	34	22	35	10	27	180	18.1
Associated Work	29	38	55	32	15	9	36	214	21.5
Personal/Miscellaneous	3	7	8	11	7	0	9	45	4.5
TOTAL ALL ACTIVITIES:	136	165	192	144	120	72	168	997	100.0
(2) P.M.SHIFT									
Direct Care	53	75	55	61	62	62	74	442	47.7
Indirect Care	23	20	33	27	13	19	39	174	18.8
Associated Work	49	38	60	27	27	18	38	257	27.7
Personal/Miscellaneous	4	3	4	7	13	11	12	54	5.8
TOTAL ALL ACTIVITIES	129	136	152	122	115	110	163	927	100.0
(3) NIGHT SHIFT									
Direct Care	61	44	48	40	43	41	60	337	38.3
Indirect Care	37	32	33	37	33	26	35	233	26.5
Associated Work	22	12	36	47	39	45	38	239	27.2
Personal/miscellaneous	5	5	13	7	17	21	2	70	8.0
TOTAL ALL ACTIVITIES	125	93	130	131	132	133	135	879	100.0

The percentage of all nursing activities spent on Direct Care is = 42.0
Indirect Care = 22.9
Associated Work = 27.3
Personal/ Misc = 7.8

Percentage of all activities Performed by Night Shift = 31.4

ALL NURSE ACTIVITY SAMPLING FORM (B) HOSPITAL: SMC WARD: 51 DATE: 11/2/90
DAILY TOTALS STUDY DAY NO: 1

PART 1	TOTAL FROM HOURLY ACTIVITY FORMS (A) PART 1 - FORM NUMBERS																										DAILY TOTAL
All nurse Activities	1	2	3	4	5	6	S/T	7	8	9	10	11	12	13	14	S/T	15	16	17	18	19	20	21	22	23	24	S/T	
1 - 12 Direct Care	12	14	11	12	7	15	71	3	3	7	2	9	9	5	8	46	7	10	6	6	4	-	6	5	7	2	53	170
21 - 23 Indirect Care	4	3	7	5	10	3	32	5	6	3	7	2	-	3	3	29	-	5	6	5	3	8	1	3	4	6	38	99
31 - 36 Associated Work	6	7	8	4	5	4	34	17	25	3	3	2	2	1	1	54	-	-	1	1	4	1	3	3	-	9	22	110
40 Personal Miscellaneous	-	-	-	-	6	-	6	2	-	-	2	-	-	3	-	7	-	-	-	-	-	4	2	-	-	2	8	21
																												TOTAL ALL ACTIVITIES

PART 2
Shift Totals from hourly forms (A)

Form Numbers	1 - 6 a.m. shift	7 - 24 p.m. shift	15 - 24 Night shift
Direct Care	78	53	61
Indirect Care	26	23	37
Associate Work	29	49	22
Personal/ Miscellaneous	3	4	5
TOTAL ALL ACTIVITIES	136	129	125

ALL NURSE ACTIVITY SAMPLING FORM (B) HOSPITAL: SMC WARD: 51 DATE: 12/2/90
STUDY DAY NO: 2

DAILY TOTALS

PART 1	TOTAL FROM HOURLY ACTIVITY FORMS (A) PART 1 - FORM NUMBERS																										DAILY TOTAL
All nurse Activities	1	2	3	4	5	6	S/T	7	8	9	10	11	12	13	14	S/T	15	16	17	18	19	20	21	22	23	24	S/T	
1 - 12 Direct Care	20	16	16	11	13	11	87	7	13	10	6	6	10	6	10	68	7	2	1	1	1	2	2	4	5	11	36	191
21 - 23 Indirect Care	-	5	6	7	5	10	33	6	-	6	2	3	-	2	1	20	-	8	5	4	5	2	3	2	1	2	32	85
31 - 36 Associated Work	4	6	5	7	10	6	38	14	18	-	3	1	-	1	1	38	-	1	3	1	1	1	2	-	1	2	12	88
40 Personal Miscellaneous	-	2	2	4	-	6	14	-	-	-	-	1	1	2	-	3	-	-	-	1	-	2	-	1	1	-	5	22

TOTAL ALL ACTIVITIES

PART 2
Shift Totals from hourly forms (A)

Form Numbers	1 - 6 a.m. shift	7 - 24 p.m. shift	15 - 24 Night shift
Direct Care	94	75	44
Indirect Care	26	20	32
Associate Work	38	38	12
Personal/ Miscellaneous	7	3	5
TOTAL ALL ACTIVITIES	165	136	93

ALL NURSE ACTIVITY SAMPLING FORM (B) HOSPITAL: SMC WARD: 51 DATE: 13/2/90
DAILY TOTALS STUDY DAY NO: 3

PART 1	TOTAL FROM HOURLY ACTIVITY FORMS (A) PART 1 - FORM NUMBERS																										DAILY TOTAL
All nurse Activities	1	2	3	4	5	6	S/T	7	8	9	10	11	12	13	14	S/T	15	16	17	18	19	20	21	22	23	24	S/T	
1 - 12 Direct Care	10	15	19	10	18	15	87	10	3	5	6	2	8	5	8	47	5	2	8	-	1	-	3	11	7	2	39	173
21 - 23 Indirect Care	7	3	5	8	4	7	34	5	10	5	4	5	-	7	4	40	3	5	-	6	5	7	3	-	2	2	33	107
31 - 36 Associated Work	13	12	3	8	8	11	55	18	26	4	3	6	7	2	2	68	2	6	3	6	1	3	-	-	2	13	36	159
40 Personal Miscellaneous	-	-	4	4	-	-	8	2	3	2	-	-	1	-	3	11	-	2	-	-	4	2	5	-	-	-	13	32

TOTAL ALL ACTIVITIES

PART 2
Shift Totals from hourly forms (A)

Form Numbers	1 - 6 a.m. shift	7 - 24 p.m. shift	15 - 24 Night shift
Direct Care	95	55	48
Indirect Care	34	33	33
Associate Work	55	60	36
Personal/ Miscellaneous	8	4	13
TOTAL ALL ACTIVITIES	192	152	130

ALL NURSE ACTIVITY SAMPLING FORM (B) HOSPITAL: SMC WARD: 51 DATE: 14/2/90
STUDY DAY NO: 4

DAILY TOTALS

PART 1	TOTAL FROM HOURLY ACTIVITY FORMS (A) PART 1 - FORM NUMBERS																										DAILY TOTAL
All nurse Activities	1	2	3	4	5	6	S/T	7	8	9	10	11	12	13	14	S/T	15	16	17	18	19	20	21	22	23	24	S/T	
1 - 12 Direct Care	14	12	9	14	14	9	72	5	11	6	7	4	7	5	9	54	6	2	5	-	2	1	2	4	6	2	31	158
21 - 23 Indirect Care	-	5	6	4	4	10	29	4	4	5	1	6	2	4	1	27	2	4	5	4	6	3	3	3	3	4	37	93
31 - 36 Associated Work	12	9	7	4	4	4	40	6	10	4	3	-	-	2	2	27	3	7	1	3	3	7	4	4	1	14	47	114
40 Personal Miscellaneous	-	-	6	5	5	2	18	3	1	-	-	1	2	-	-	7	-	1	-	4	-	-	2	-	-	-	7	32

TOTAL ALL ACTIVITIES

PART 2
Shift Totals from hourly forms (A)

Form Numbers	1 - 6 s.m. shift	7 - 24 p.m. shift	15 - 24 Night shift
Direct Care	79	61	40
Indirect Care	22	27	37
Associate Work	32	27	47
Personal/ Miscellaneous	11	7	7
TOTAL ALL ACTIVITIES	144	122	131

ALL NURSE ACTIVITY SAMPLING FORM (B) HOSPITAL: SMC WARD: 51 DATE: 15/2/90
DAILY TOTALS STUDY DAY NO: 5

PART 1	TOTAL FROM HOURLY ACTIVITY FORMS (A) PART 1 - FORM NUMBERS																										DAILY TOTAL
All nurse Activities	1	2	3	4	5	6	S/T	7	8	9	10	11	12	13	14	S/T	15	16	17	18	19	20	21	22	23	24	S/T	
1 - 12 Direct Core	16	10	7	6	3	14	56	8	4	9	6	5	7	6	10	55	6	1	4	1	3	6	2	2	8	2	35	146
21 - 23 Indirect Core	2	7	9	8	9	7	42	3	2	-	4	1	-	3	-	13	3	6	4	6	1	3	5	1	1	3	33	88
31 - 36 Associated Work	1	3	3	6	2	-	15	4	14	2	1	3	3	-	-	27	3	9	2	4	8	2	3	4	2	10	47	89
40 Personal Miscellaneous	-	-	1	-	6	-	7	1	5	-	-	2	1	2	2	13	5	3	2	2	-	2	3	7	-	-	24	44

PART 2
Shift Totals from hourly forms (A)

TOTAL ALL ACTIVITIES

Form Numbers	1 - 6 a.m. shift	7 - 24 p.m. shift	15 - 24 Night shift
Direct Core	63	62	43
Indirect Core	35	13	33
Associate Work	15	27	39
Personal/ Miscellaneous	7	13	17
TOTAL ALL ACTIVITIES	120	115	132

ALL NURSE ACTIVITY SAMPLING FORM (B) HOSPITAL: SMC WARD: 51 DATE: 16/2/90
DAILY TOTALS STUDY DAY NO: 6

PART 1	TOTAL FROM HOURLY ACTIVITY FORMS (A) PART 1 - FORM NUMBERS																										DAILY TOTAL
All nurse Activities	1	2	3	4	5	6	S/T	7	8	9	10	11	12	13	14	S/T	15	16	17	18	19	20	21	22	23	24	S/T	
1 - 12 Direct Care	6	9	9	8	6	8	46	6	8	9	6	3	9	5	9	55	3	6	2	3	1	1	1	4	6	6	33	134
21 - 23 Indirect Care	3	3	3	-	4	4	17	5	8	1	3	-	-	1	1	19	5	4	5	3	-	-	2	2	2	3	26	62
31 - 36 Associated Work	3	-	1	3	1	1	9	2	6	1	2	4	1	2	-	18	2	4	5	6	7	4	5	4	4	12	53	80
40 Personal Miscellaneous	-	-	-	-	-	-	0	-	2	-	-	5	1	5	5	18	2	2	-	-	6	4	6	1	-	-	21	39

PART 2
Shift Totals from hourly forms (A)

TOTAL ALL ACTIVITIES

Form Numbers	1 - 6 a.m. shift	7 - 24 p.m. shift	15 - 24 Night shift
Direct Care	53	62	41
Indirect Care	10	19	26
Associate Work	9	18	45
Personal/ Miscellaneous	0	11	21
TOTAL ALL ACTIVITIES	72	110	133

ALL NURSE ACTIVITY SAMPLING FORM (B) HOSPITAL: SMC WARD: 51 DATE: 17 / 2/90
DAILY TOTALS STUDY DAY NO: 7

PART 1	TOTAL FROM HOURLY ACTIVITY FORMS (A) PART 1 - FORM NUMBERS																										DAILY TOTAL
All nurse Activities	1	2	3	4	5	6	S/T	7	8	9	10	11	12	13	14	S/T	15	16	17	18	19	20	21	22	23	24	S/T	
1 - 12 Direct Care	9	20	17	15	14	14	89	8	7	10	9	6	6	11	10	67	7	1	7	4	5	5	4	8	9	2	52	208
21 - 23 Indirect Care	7	3	4	5	9	6	34	10	12	1	1	5	5	2	3	39	4	5	3	4	3	4	2	1	3	6	35	108
31 - 36 Associated Work	10	6	8	6	5	9	44	7	17	2	3	2	4	1	2	38	-	13	1	3	3	2	5	1	-	10	38	120
40 Personal Miscellaneous	2	2	2	3	2	5	16	3	2	2	2	2	-	1	-	12	-	-	-	-	-	-	-	1	-	1	2	30

PART 2
Shift Totals from hourly forms (A)

TOTAL ALL ACTIVITIES

Form Numbers	1 - 6 a.m. shift	7 - 24 p.m. shift	15 - 24 Night shift
Direct Care	96	74	60
Indirect Care	27	39	35
Associate Work	36	38	38
Personal/ Miscellaneous	9	12	2
TOTAL ALL ACTIVITIES	168	163	135

ALL NURSE ACTIVITY SAMPLING FORM (C)

Hospital: SMC

Ward: 66

Dates of study: Day 1 7.../...3.../1990

7 13 /...3../1990

PART 1	Totals from Daily Forms (B)							Total Units	%
All nurse activities	DAY 1	DAY 2	DAY 3	DAY 4	DAY 5	DAY 6	DAY 7		
Direct Care	185	204	166	216	161	194	218	1344	43.0
Indirect Care	91	86	51	86	83	76	82	555	17.8
Associated Work	173	68	73	151	155	169	146	935	29.9
Personal/Miscellaneous	43	65	31	31	35	47	38	290	9.3
TOTAL ALL ACTIVITIES:	492	423	321	484	434	486	484	3124	100.0

PART 2	Shift Totals from Daily Forms (B)								
(1) A.M. SHIFT	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7	Total Units	%
Direct Care	78	87	57	118	67	99	106	612	47.6
Indirect Care	36	23	6	36	23	28	36	188	14.6
Associated Work	81	22	14	63	61	68	55	364	28.3
Personal/Miscellaneous	19	12	6	23	19	23	21	123	9.6
TOTAL ALL ACTIVITIES:	214	144	83	240	170	218	218	1287	100.0
(2) P.M.SHIFT									
Direct Care	67	68	66	61	56	50	58	426	46.6
Indirect Care	20	24	22	20	15	21	21	143	15.6
Associated Work	55	24	13	63	50	48	45	298	32.6
Personal/Miscellaneous	9	5	4	7	4	8	10	47	5.1
TOTAL ALL ACTIVITIES	151	121	105	151	125	127	134	914	100.0
(3) NIGHT SHIFT									
Direct Care	40	49	43	37	38	45	54	306	33.2
Indirect Care	35	39	23	30	45	27	25	224	24.3
Associated Work	37	22	46	25	44	53	46	273	29.6
Personal/miscellaneous	15	48	21	1	12	16	7	120	13.0
TOTAL ALL ACTIVITIES	127	158	133	93	139	141	132	923	100.0

The percentage of all nursing activities spent on

Direct Care is 43.0

Indirect Care 17.8

Associated Work 29.9

Personal/ Misc 9.3

29.5

% of all activities performed by night shift is

ALL NURSE ACTIVITY SAMPLING FORM (B) HOSPITAL: SMC WARD: 66 DATE: 7/3/90
STUDY DAY NO: 1

DAILY TOTALS

PART 1	TOTAL FROM HOURLY ACTIVITY FORMS (A) PART 1 - FORM NUMBERS																										DAILY TOTAL	
All nurse Activities	1	2	3	4	5	6	S/T	7	8	9	10	11	12	13	14	S/T	15	16	17	18	19	20	21	22	23	24	S/T		a.m only Students
1 - 12 Direct Care	19	20	21	7	5	6	78	10	9	9	6	7	11	6	9	67	4	1	3	12	1	4	3	10	6	6	40	185	+38=223
21 - 23 Indirect Care	3	5	3	5	7	13	36	9	5	2	2	2	-	-	-	20	4	4	3	6	4	2	2	-	3	7	35	91	+26=117
31 - 36 Associated Work	12	11	11	16	16	15	81	16	22	7	2	3	1	3	1	55	-	9	6	-	4	6	1	1	2	8	37	173	+25=198
40 Personal Miscellaneous	-	-	1	8	8	2	19	1	-	-	2	4	-	5	1	9	-	-	-	4	3	-	6	1	1	-	15	43	+19=62

TOTAL ALL ACTIVITIES 492 + 108 = 600

PART 2
Shift Totals from hourly forms (A)

Form Numbers	1 - 6 a.m. shift		7 - 24 p.m. shift	15 - 24 Night shift
Direct Care	78	38	67	40
Indirect Care	36	26	20	35
Associate Work	81	25	55	37
Personal/ Miscellaneous	19	19	9	15
TOTAL ALL ACTIVITIES	214	108	151	127

ALL NURSE ACTIVITY SAMPLING FORM (B) HOSPITAL: SMC WARD: 66 DATE: 8/3/90
STUDY DAY NO: 2

DAILY TOTALS

PART 1	TOTAL FROM HOURLY ACTIVITY FORMS (A) PART 1 - FORM NUMBERS																									DAILY TOTAL
All nurse Activities	1	2	3	4	5	6	S/T	7	8	9	10	11	12	13	14	S/T	15	16	17	18	19	20	21	22	23	24	S/T	
1 - 12 Direct Care	16	19	17	13	3	19	87	11	5	7	9	8	9	8	11	68	5	4	4	4	6	1	3	10	9	3	49	204
21 - 23 Indirect Core	7	1	2	2	9	2	23	5	8	3	1	3	3	-	1	24	5	3	8	7	2	-	1	3	4	6	39	86
31 - 36 Associated Work	1	4	5	5	5	2	22	4	15	2	2	1	-	-	-	24	1	7	1	-	2	-	4	-	-	7	22	68
40 Personal Miscellaneous	-	-	-	4	7	1	12	1	-	-	-	-	-	4	-	5	1	3	3	5	6	15	8	3	3	1	48	65
																										TOTAL ALL ACTIVITIES		423

a.m only students

No data

PART 2
Shift Totals from hourly forms (A)

Form Numbers	1 - 6 a.m. shift	7 - 24 p.m. shift	15 - 24 Night shift
Direct Care	87	68	49
Indirect Core	23	24	39
Associate Work	22	24	22
Personal/ Miscellaneous	12	5	48
TOTAL ALL ACTIVITIES	144	121	158

ALL NURSE ACTIVITY SAMPLING FORM (B) HOSPITAL: SMC WARD: 66 DATE: 9/3/90
DAILY TOTALS STUDY DAY NO: 3

PART 1	TOTAL FROM HOURLY ACTIVITY FORMS (A) PART 1 - FORM NUMBERS																									DAILY TOTAL
All nurse Activities	1	2	3	4	5	6	S/T	7	8	9	10	11	12	13	14	S/T	15	16	17	18	19	20	21	22	23	24	S/T	
1 - 12 Direct Care	10	13	11	8	7	8	57	6	16	6	11	6	8	4	9	66	5	-	9	3	4	4	3	6	3	6	43	166
21 - 23 Indirect Care	3	1	-	1	-	1	6	3	3	4	2	5	2	3	-	22	3	2	1	6	4	1	1	1	4	-	23	51
31 - 36 Associated Work	3	2	2	3	4	-	14	3	-	2	-	1	2	4	1	13	4	10	1	2	1	3	6	1	3	15	46	73
40 Personal Miscellaneous	-	-	2	-	1	3	6	-	1	2	-	-	-	1	-	4	-	3	1	1	3	4	2	4	2	1	21	31

TOTAL ALL ACTIVITIES 321

PART 2
Shift Totals from hourly forms (A)

Form Numbers	1 - 6 a.m. shift	7 - 24 p.m. shift	15 - 24 Night shift
Direct Care	57	66	43
Indirect Care	6	22	23
Associate Work	14	13	46
Personal/ Miscellaneous	6	4	21
TOTAL ALL ACTIVITIES	83	105	133

a.m only

students

No Data

ALL NURSE ACTIVITY SAMPLING FORM (B) HOSPITAL: SMC WARD: 66 DATE: 10/3/90
DAILY TOTALS STUDY DAY NO: 4

PART 1	TOTAL FROM HOURLY ACTIVITY FORMS (A) PART 1 - FORM NUMBERS																									DAILY TOTAL
All nurse Activities	1	2	3	4	5	6	S/T	7	8	9	10	11	12	13	14	S/T	15	16	17	18	19	20	21	22	23	24	S/T	
1 - 12 Direct Care	27	26	24	8	16	17	118	13	3	8	7	7	6	7	10	61	2	4	3	4	5	4	3	4	6	2	37	216 +71=287
21 - 23 Indirect Care	4	5	6	9	6	6	36	8	3	2	4	1	1	1	-	20	5	3	3	2	3	4	3	3	2	2	30	86+15=101
31 - 36 Associated Work	9	9	10	11	9	15	63	19	34	2	1	4	2	1	-	63	1	5	2	2	-	-	2	-	-	13	25	151 + 13=164
40 Personal Miscellaneous	-	-	-	12	9	2	23	-	-	-	-	-	3	3	1	7	-	-	-	-	-	-	-	1	-	-	1	31 + 22= 53

TOTAL ALL ACTIVITIES 484 + 121 / 605

PART 2
Shift Totals from hourly forms (A)

Form Numbers	1 - 6 a.m. shift		7 - 24 p.m. shift	15 - 24 Night shift
Direct Care	118	71	61	37
Indirect Care	36	15	20	30
Associate Work	63	13	63	25
Personal/ Miscellaneous	23	22	7	1
TOTAL ALL ACTIVITIES	240	121	151	93

a.m onl
student

ALL NURSE ACTIVITY SAMPLING FORM (B) HOSPITAL: SMC WARD: 66 DATE: 11/3/90
DAILY TOTALS STUDY DAY NO: 5

PART 1	TOTAL FROM HOURLY ACTIVITY FORMS (A) PART 1 - FORM NUMBERS																									DAILY TOTAL
All nurse Activities	1	2	3	4	5	6	S/T	7	8	9	10	11	12	13	14	S/T	15	16	17	18	19	20	21	22	23	24	S/T	
1 - 12 Direct Care	11	8	17	7	15	9	67	8	5	3	8	7	9	7	9	56	5	3	1	3	3	3	4	8	7	1	38	161 + 93= 254
21 - 23 Indirect Care	2	5	2	4	3	7	23	3	1	2	-	2	2	2	3	15	6	2	6	5	5	6	7	1	4	3	45	83 + 21=104
31 - 36 Associated Work	16	14	4	11	7	9	61	11	22	6	4	3	1	3	-	50	3	9	5	4	1	1	-	2	-	19	44	155 + 12=167
40 Personal Miscellaneous	1	1	5	6	3	3	19	2	-	2	-	-	-	-	-	4	2	2	-	-	3	2	1	1	1	-	12	35 + 13=48

a.m only student

PART 2
Shift Totals from hourly forms (A) ST

Form Numbers	1 - 6 a.m. shift	7 - 24 p.m. shift	15 - 24 Night shift
Direct Care	67 93	56	38
Indirect Care	23 21	15	45
Associate Work	61 12	50	44
Personal/ Miscellaneous	19 13	4	12
TOTAL ALL ACTIVITIES	170 139	125	139

TOTAL ALL ACTIVITIES 434+ 139 = 573

ALL NURSE ACTIVITY SAMPLING FORM (B) HOSPITAL: SMC WARD: 66 DATE: 12/3/90
DAILY TOTALS STUDY DAY NO: 6

PART 1	TOTAL FROM HOURLY ACTIVITY FORMS (A) PART 1 - FORM NUMBERS																									DAILY TOTAL
All nurse Activities	1	2	3	4	5	6	S/T	7	8	9	10	11	12	13	14	S/T	15	16	17	18	19	20	21	22	23	24	S/T	
1 - 12 Direct Care	16	23	21	10	16	13	99	12	4	6	4	3	8	2	11	50	5	5	4	4	2	6	2	5	9	3	45	194 + 66=260
21 - 23 Indirect Care	6	5	4	4	4	5	28	8	3	4	1	3	-	1	1	21	4	2	2	-	6	4	6	1	-	2	27	76 + 19=95
31 - 36 Associated Work	16	8	10	10	8	16	68	11	21	2	4	1	1	8	-	48	3	12	6	8	1	-	3	1	3	16	53	169 + 11=180
40 Personal Miscellaneous	-	-	1	12	8	2	23	2	2	-	2	1	-	1	-	8	3	2	-	-	3	2	1	5	-	-	16	47 + 24=71

a.m only
Student

TOTAL ALL ACTIVITIES 486 + 120

606

PART 2
Shift Totals from hourly forms (A) ST

Form Numbers	1 - 6 a.m. shift		7 - 24 p.m. shift	15 - 24 Night shift
Direct Care	99	66	50	45
Indirect Care	28	19	21	27
Associate Work	68	11	48	53
Personal/ Miscellaneous	23	24	8	16
TOTAL ALL ACTIVITIES	218	120	127	141

ALL NURSE ACTIVITY SAMPLING FORM (S) HOSPITAL: SMC WARD: 66 DATE: 13/3/90
DAILY TOTALS STUDY DAY NO: 7

PART 1	TOTAL FROM HOURLY ACTIVITY FORMS (A) PART 1 - FORM NUMBERS																									DAILY TOTAL
All nurse Activities	1	2	3	4	5	6	S/T	7	8	9	10	11	12	13	14	S/T	15	16	17	18	19	20	21	22	23	24	S/T	
1 - 12 Direct Care	17	21	22	12	18	16	106	12	5	9	6	3	7	6	10	58	3	1	4	11	5	4	2	7	10	7	54	218 + 87 = 305
21 - 23 Indirect Care	4	7	6	8	2	9	36	4	1	3	3	3	-	4	3	21	5	2	3	-	4	6	1	2	1	1	25	82 + 21 = 103
31 - 36 Associated Work	17	9	8	10	4	8	55	13	23	-	3	2	1	2	1	45	5	8	5	1	3	2	7	2	1	13	46	146 + 15 = 161
40 Personal Miscellaneous	-	-	-	6	12	3	21	2	-	-	-	4	4	-	-	10	3	1	-	-	-	-	2	1	-	-	7	38 + 21 = 59

TOTAL ALL ACTIVITIES 484 + 144 = 628

a.m only Students

PART 2
Shift Totals from hourly forms (A) ST

Form Numbers	1 - 6 a.m. shift	7 - 24 p.m. shift	15 - 24 Night shift
Direct Care	106 87	58	54
Indirect Care	36 21	21	25
Associate Work	55 15	45	46
Personal/ Miscellaneous	21 21	10	7
TOTAL ALL ACTIVITIES	218 144	134	132

APPENDIX V
NURSE SATISFACTION QUESTIONNAIRE SCORES

NURSE SATISFACTION QUESTIONNAIRE

SCORES ANALYSIS

WARD: 41

STAFF CODE	S C O R E S		
	1 - 18 Patient Care	19 - 34 Staffing	1 - 34 Total
A	43	30	73
B	45	32	77
C	44	33	77
D	43	32	75
E	44	32	76
Totals	219	159	378
Number of respondents	5	5	5
Average score	43.8	31.8	75.6
% Rating	81.0	66.2	74.1

Maximum possible scores : 1 - 18 Patient Care : 54
19 - 34 Staffing : 48
1 - 34 Total : 102

NURSE SATISFACTION QUESTIONNAIRE
SCORES ANALYSIS

WARD : 43

STAFF CODE	S C O R E S		
	1 - 18 Patient Care	19 - 34 Staffing	1 - 34 Total
A	49	37	86
B	48	38	86
C	49	36	85
D	47	37	84
E	49	38	87
Totals	242	186	428
Number of respondents	5	5	5
Average score	48.4	37.2	85.6
% Rating	89.6	77.5	83.9

Maximum possible scores

1 - 18 Patient Care : 54
19 - 34 Staffing : 48
1 - 34 Total : 102

NURSE SATISFACTION QUESTIONNAIRE SCORES ANALYSIS

WARD: 53

STAFF CODE	S C O R E S		
	1 - 18 Patient Care	19 - 34 Staffing	1 - 34 Total
A	49	34	83
B	45	32	77
C	47	35	82
D	48	34	82
E	45	36	81
Totals	234	171	405
Number of respondents	5	5	5
Average Score	46.8	34.2	81
% Rating	86.6	71.3	79.4

Maximum possible scores : 1 - 18 Patient Care : 54
19 - 34 Staffing : 48
1 - 34 Total : 102

NURSE SATISFACTION QUESTIONNAIRE SCORES ANALYSIS

WARD: 51

STAFF CODE	S C O R E S		
	1 - 18 Patient Care	19 - 34 Staffing	1 - 34 Total
A	47	30	77
B	46	29	75
C	48	31	79
D	47	29	76
E	48	30	78
Totals	236	149	385
Number of respondents	5	5	5
Average Score	47.2	29.8	77.0
% Rating	87.4	62.0	75.4

Maximum possible scores

1 - 18 Patient Care : 54
19 - 34 Staffing : 48
1 - 34 Total : 102

NURSE SATISFACTION QUESTIONNAIRE
SCORES ANALYSIS

WARD : 56

STAFF CODE	S C O R E S		
	1 - 18 Patient Care	19 - 34 Staffing	1 - 34 Total
A	48	33	81
B	46	34	80
C	48	32	80
D	47	33	80
E	48	33	81
Totals	237	165	402
Number of respondents	5	5	5
Average score	47.4	33	80.4
% Rating	87.7	68.7	78.8

Maximum possible scores :

1 - 18 Patient Care	: 54
19 - 34 Staffing	: 48
1 - 34 Total	: 102

NURSE SATISFACTION QUESTIONNAIRE
SCORES ANALYSIS

WARD: 66

STAFF CODE	S C O R E S		
	1 - 18 Patient Care	19- 34 Staffing	1 - 34 Total
A	48	31	79
B	48	30	78
C	47	32	79
D	48	32	80
E	47	31	78
Totals	238	156	394
Number of respondents	5	5	5
Average score	47.6	31.2	78.8
% Rating	88.1	65.0	77.2

Maximum possible scores : 1 - 18 Patient Care : 54
19 - 34 Staffing : 48
1 - 34 Total : 102

APPENDIX X
DAILY AND MONTHLY NURSING ACTIVITIES IN THE SURVEYED HEALTH CENTRES.

DATE : 29 OCT - 5 NOV 1990

SHIFT : 1 2 3

NURSE :

BUDAYA HEALTH CENTRE

PHC-2 - NURSING CATEGORY ASSESSMENT IN PRIMARY HEALTH CARE

30	29	28	27	26	25	24	23 TOTAL	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6 5/11/90	5 4/11/90	4 3/11/90	3 31/10/90	2 30/10/90	1 29/10/90		
							6																		6					Ante-natal First visit	PREVENTIVE
							11																		4		7			Primi	
							43																		34		9			Multi	
							45																		31		14			Re-visit	
							23																		23					Midwife encounter	
							13																	6	2	1	2	1	1	Post-natal - Mother	
																														- Newborn	
							53																	14	9	9	7	7	7	Child Screening Under 5 yrs	
							89																	27	17		24	10	11	Immunization	
							13																	4			7		2	School service	
							28																		4		22	1	1	Health Education	
							4																			2		1	1	Counselling	
							497																	87		103	132	97	78	Communication	
							76																	15	16	17	9	4	15	Injections	CURATIVE
							14																	2	6	6				Special Injections	
							6																	1		3	1			I.V. Administration	
							272																	41	41	50	53	50	29	Dressing	
																														Circumcision	
																														Cryotherapy	
							1																				1			Cauterization	
							3																			1	2			Excision-Lesion	
							2																			2				Biopsies	
							1																			1				Suture wound	
							1																			8				Suture removal	
							2																			2				Incision Abscess	
																														Remove - Foreign body	
																														First Aid	
							2																		2					Ear Lobe Pierce	
																														Ear Wash	
																														Ear Suction	
							2																					2		Ear Pack	
							1																						1	Eye Wash	
							14																		2	3	1	3	5	Vision test	
							4																			3	1			Tonography	
							5																			3		1	1	Epilation	
							6																	3	2			4		E.C.G.	
																														Vitalograph	
							2																				1		1	O2 Administration	
							17																	4	2			5	5	Nebulization	
																														Control Nose Haemorrhage	
							2																					1	1	P.P.D Test	
																														Other Tests	
																														Enema	
																														Cold Sponge	
																														I.U.C.D.	
							1																			3				Vital Signs . TPR/BP	
							22																		6	10		6		Home Visit - Mother	Locat-ion
																														- Child	
																														- Adult	
																														- Elderly	
							693																	136	101	105	162	102	87	Clerical	Associat-ed work
																														Meeting	
							12																		2	2	2	1	6	Escorting	
							23																		10	5	7	1		Personal & Miscellaneous	
							137																	13	32	19	26	6	39	Others	
																														Male	Sex
																														Female	
																														Initial contact- new patient	
																														Under 5 years	Age Band
																														5 - 15 years	
																														16 - 24 years	
																														25 - 34 years	
																														35 - 44 years	
																														45 - 54 years	
																														55 - 64 years	
																														Total Time	
																														Total Score	
																														Category	

PHC-2 NURSING CATEGORY ASSESSMENT IN PRIMARY HEALTH CARE

NATIONAL BANK OF BAHRAIN HEALTH CENTRE

DATE : OCT - NOV 1990

SHIFT : 1 2 3

NURSE :

	30	29	28	27	26	25	24	23	22	21	20	19	TOTAL	17	16	15	14	13	12	11	10	9	8	7	6	5 (4/11/90)	4 (5/11/90)	3 (31/10/90)	2 (30/10/90)	1 (29/10/90)		
Ante-natal First visit																															PREVENTIVE	
Primi													3																3			
Multi													7																7			
Re-visit													10																10			
Midwife encounter																																
Post-natal - Mother													10													5	1	1		3		
- Newborn																																
Child Screening Under 5 yrs													50													9	11	13	7	10		
Immunization													56													13	14	14		15		
School service													2																	2		
Health Education													79													16	18	19	14	12		
Counselling													89																11	78		
Communication													298													82	80	85	51			
Injections													27															14	13			
Special Injections													10														6	2	4	4		
I.V. Administration													2																2			
Dressing													152													34	37	17	12	52		
Circumcision																																
Cryotherapy																																
Cauterization																																
Excision-Lesion													1															1				
Biopsies																																
Suture wound													4														3	1				
Suture removal													5														3			2		
Incision Abscess																																
Remove - Foreign body																																
First Aid																																
Ear Lobe Pierce																															CURATIVE	
Ear Wash													3														2			1		
Ear Suction																																
Ear Pack																																
Eye Wash																																
Vision test													20													7	6	7				
Tonography																																
Epilation													2																	2		
E.C.G.													18													5	7	6				
Vitalograph																																
O2 Administration																																
Nebulization													6														2	2	2			
Control Nose Haemorrhage																																
P.P.D. Test													3														1		2			
Other Tests													13														10		3			
Enema													1														1					
Cold Sponge																																
I.U.C.D.																																
Vital Signs . TPR/BP													21													2	14	5				
Home Visit - Mother													9														9				Location	
- Child																																
- Adult																																
- Elderly																																
Clerical													266													82		85	51	48		
Meeting																															Associated work	
Escorting													8													4		3	1			
Personal & Miscellaneous																																
Others													163													30		40	33	60		
Male																															Sex	
Female																																
Initial contact- new patient																															Age Band	
Under 5 years																																
5 - 15 years																																
16 - 24 years																																
25 - 34 years																																
35 - 44 years																																
45 - 54 years																																
55 - 64 years																																
Total Time																																
Total Score																																
Category																																

PHC-2 NURSING CATEGORY ASSESSMENT IN PRIMARY HEALTH CARE

DATE : OCT - NOV 1990

SHIFT : 1 2 3

NURSE :

DAIR HEALTH CENTRE

Group	Item	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
	Date	28/10/90	30/10/90	31/10/90	3/11/90	4/11/90	5/11/90															TOTAL									
PREVENTIVE	Ante-natal First visit																														
	Primi																														
	Multi																														
	Re-visit																														
	Midwife encounter																														
	Post-natal - Mother	3	2	6	6	2																21									
	- Newborn	1	5	8	5	2																21									
	Child Screening Under 5 yrs	1		5	5	5																14									
	Immunization	6	7	12	6	13	13															59									
	School service																														
	Health Education	14	13	13	22	17	33															112									
	Counselling				3	4																7									
	Communication	87	44	90	98	71	56															456									
CURATIVE	Injections	14	10	16	15	22	7															83									
	Special Injections																														
	I.V. Administration				4																	4									
	Dressing	32	14	46	40	23	24															179									
	Circumcision		1				1															2									
	Cryotherapy																														
	Cauterization																														
	Excision-Lesion																														
	Biopsies																														
	Suture wound																														
	Suture removal	2				1	3															6									
	Incision Abscess					1																1									
	Remove - Foreign body																														
	First Aid																														
	Ear Lobe Pierce	1																				1									
	Ear Wash	3																				3									
	Ear Suction																														
	Ear Pack	1					2															3									
	Eye Wash	1					1															2									
	Vision test	5	3	3	5	1	1															17									
	Tonography																														
	Epilation	1				1																2									
	E.C.G.	1	4	1	1	3	4															14									
	Vitalograph		1																			1									
	O2 Administration	1																				1									
	Nebulization		1	1	2	3	2															9									
	Control Nose Haemorrhage																														
	P.P.D. Test																														
	Other Tests		1																			1									
	Enema																														
	Cold Sponge	1																				1									
	I.U.C.D.																														
	Vital Signs . TPR/BP	1																				1									
Location	Home Visit - Mother	5																				5									
	- Child																														
	- Adult	6																				6									
	- Elderly	1																				1									
Associated work	Clerical	74	47	88	115	84	93															501									
	Meeting	15		5	11	10																41									
	Escorting	6			1	2																9									
	Personal & Miscellaneous	11	4	10	20	8	15															68									
	Others	19		13	9	13	8															62									
Sex	Male																														
	Female																														
	Initial contact- new patient																														
Age Band	Under 5 years																														
	5 - 15 years																														
	16 - 24 years																														
	25 - 34 years																														
	35 - 44 years																														
	45 - 54 years																														
	55 - 64 years																														
	Total Time																														
	Total Score																														
	Category																														

PHC-2 NURSING CATEGORY ASSESSMENT IN PRIMARY HEALTH CARE

DATE : 10 FEB - 10 MARCH 1990

SHIFT : 1 2 3

NURSE :

MAIN HEALTH CENTRE

	30	29	28	27	26	25	24	23 TOTAL	22	21 19/3/90	20 18/3/90	19 17/3/90	18 14/3/90	17 13/3/90	16 12/3/90	15 11/3/90	14 10/3/90	13 7/3/90	12 6/3/90	11 5/3/90	10 4/3/90	9 3/3/90	8 28/2/90	7 27/2/90	6 26/2/90	5 25/2/90	4 24/2/90	3 21/2/90	2 20/2/90	1 19/2/90		
Ante-natal First visit								48				4				1	5	9				10	8									
Primi								111				23					23	12				20	17					11				
Multi																												16				
Re-visit								156				26					23	21				30	25				2	27				
Midwife encounter								155				26					25	21				30	25					27		1		
Post-natal - Mother								49		3	2	2	2	4	3	1	2	2	5	3	8	3	2	2	3	2				2	
- Newborn								42		2		1	1	1	1	1		1							21	1			2	1	
Child Screening Under 5 yrs								152		6	9	7	10	8	4	3		9	12	3	19	14	15	7	13	1			7	6	
Immunization								272		9	16	19	15	19	6	20		13	23	3	26	27	25	11	24	1			7	8	
School service								15			3	3				1		1	1			4			3						
Health Education								518		22		40	17	25	30	61	41	38	25	19	48	33	13	13	20	15	27		30	21	
Counselling								490		25		64	4	3	20	45	47	20	23	25	48	34	13	24	25	25			30	23	
Communication								2218		27	22	130	111	148	110	155	140	134	113	105	158	108	103	111	108	45	96	218	30	25	
Injections								552			37	37	28	31	30	30	41	25	44	28	31	39	26	33	41	8	27	18			
Special Injections								28							1	2	1		2	3	1	7			8	1	11				
I.V. Administration								15					1		1	1							1			7	1	3			
Dressing								470				29	28	26	28	28	33	28	29	24	28	11	30	28	25	33		29	34			
Circumcision								13						1		1			3	2	1	1			1	2			1			
Cryotherapy								16					3				5		4		1			3					1			
Cauterization																																
Excision-Lesion								5					1	1	2									1								
Biopsies																																
Suture wound								18					3	1		2	1		1	1			2					1				
Suture removal								18						1	1	3			2	2	1	1	2	1	2			2				
Incision Abscess								5												1	1				1		1	1				
Remove - Foreign body								6									2	2				1	1									
First Aid								28					2	2			1		3	3	1	1		2	4	1		10				
Ear Lobe Pierce								11					1		2		1			1			3		1			1				
Ear Wash								2																	1			1				
Ear Suction								2							1				1													
Ear Pack																																
Eye Wash								6					1	2			1				1			1								
Vision test								27					2	3				2	3		1		2	1	5		7	6			
Tonography								2													1					1						
Epilation								6										2	1		1			2								
E.C.G.								69		3	2	4	6	5	33	5		6	5	3	5	2	2	10			4	3				
Vitalograph																																
O2 Administration								8													3	1			1	1	3	1				
Nebulization								44				2	2	5	2	2	2	2		4	1		5		6	2	5	5				
Control Nose Haemorrhage								3																			2					
P.P.D. Test								2								1					1											
Other Tests								22					1	1	2	1	3				3		2	2		3	4					
Enema																																
Cold Sponge																																
I.U.C.D.								4						1				1						1				2				
Vital Signs . TPR/BP								54				2	2	3	4	3	2	2	3	3	2	5	3	1	2	6	1		10			
Home Visit - Mother								148		8				2	4	20	1	17	8	10	13		11	2	12	3	7			24	7	
- Child								2								1											1					
- Adult								3											2			1										
- Elderly								8					2								1											
Clerical								1857		20	21	127	105	125	86	124	117	85	82	81	131	135	105	102	102	46	95	119	30	9	
Meeting								85		7		4		15			7		3	2				18	23			1		7	
Escorting								421		18	5	17	19	56	16	25	12	22	26	8	15	21	18	28	34	11	4	8	30	18	
Personal & Miscellaneous								135		2	6	6	1	1	1	6	7	9	4	1	6	16		3	25	2	8	8		2	
Others								479				16	44	40	48	14	49	38	7	11	13	44	38	8	17	47	3	27	8	3		
Male																																
Female																																
Initial contact- new patient																																
Under 5 years																																
5 - 15 years																																
16 - 24 years																																
25 - 34 years																																
35 - 44 years																																
45 - 54 years																																
55 - 64 years																																
Total Time																																
Total Score																																
Category																																

PREVENTIVE

CURATIVE

Location

Associated work

Sex

Age Band

PHC-2 NURSING CATEGORY ASSESSMENT IN PRIMARY HEALTH CARE

DATE : OCT - NOV 1990

SHIFT : 1 2 3

NURSE :

AYER HEALTH CENTRE

30	29	28	27	26	25	24	23	22	21	20	19 TOTAL	18	17	16	15	14	13	12	11	10	9	8	7	6 5/11/90	5 4/11/90	4 3/11/90	3 31/10/90	2 30/10/90	1 29/10/90		
											4														4					Ante-natal First visit	PREVENTIVE	
											4														4					Primi		
											39														39					Multi		
											36														36					Re-visit		
											21														21					Midwife encounter		
																														Post-natal - Mother		
																														- Newborn		
											27													13		11	3			Child Screening Under 5 yrs		
											32													16		12	7			Immunization		
											5																		5	School service		
											93													12	39	14	7	8	13	Health Education		
											12														1	2	3	2	4	Counselling		
											99													8	4		10	4	3	Communication		
											41													10	13		3	6	9	Injections		
											21													2			1		18	Special Injections		
																														I.V. Administration		
											198													30		39	23	20	36	Dressing		
																														Circumcision		
																														Cryotherapy		
											1																1			Cauterization		
																														Excision-Lesion		
																														Biopsies		
											1															1				Suture wound		
																														Suture removal		
											3																	2	1	Incision Abscess		
											1														1					Remove - Foreign body		
																														First Aid		
											4														1	3				Ear Lobe Pierce	CURATIVE	
																														Ear Wash		
																														Ear Suction		
																														Ear Pack		
											2																	2		Eye Wash		
											18													1	4	8		2	3	Vision test		
																														Tonography		
											4															3			1	Epilation		
											5													1				1	3	E.C.G.		
											1																	1		Vitalograph		
											2															1			1	O2 Administration		
											6													1	2			1	2	Nebulization		
																														Control Nose Haemorrhage		
																														P.P.D. Test		
											1																		1	Other Tests		
																														Enema		
																														Cold Sponge		
											1																	1		I.U.C.D.		
											44													12				1	1	Vital Signs , TPR/BP		
																														Home Visit - Mother	Location	
											7													7						- Child		
											2													2						- Adult		
																														- Elderly		
											448													70	108	89	54	53	72	Clerical	Associated work	
																														Meeting		
																														Escorting		
											25													6			5	3	11	Personal & Miscellaneous		
																														Others		
																														Male	Sex	
																														Female		
																														Initial contact- new patient		
																														Under 5 years	Age Band	
																														5 - 15 years		
																														16 - 24 years		
																														25 - 34 years		
																														35 - 44 years		
																														45 - 54 years		
																														55 - 64 years		
																														Total Time		
																														Total Score		
																														Category		

DATE : 1 FEB - 19 MARCH 1990

SHIFT : 1 2 3

NURSE :

PHC-2 NURSING CATEGORY ASSESSMENT IN PRIMARY HEALTH CARE

BK. SABAH HEALTH CENTRE

30	29	28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1		
							TOTAL		19/3/90	18/3/90	17/3/90	16/3/90	15/3/90	12/3/90	11/3/90	10/3/90	7/3/90	6/3/90	5/3/90	4/3/90	3/3/90	28/2/90	27/2/90	26/2/90	25/2/90	24/2/90	23/2/90	22/2/90	19/2/90		
							104				1	3	23	1	1	1	2	35			3		24	2	6			5	4	Ante-natal First visit	PREVENTIVE
							166		3	2	2	3	41			1		23			1		59		5			1	29	Primi	
							217						46					78					61						33	Multi	
							81				1		16					30				2							32	Re-visit	
							38		1	2	2	1	1	4	2	1	2	1	4		2			3	4			2	3	Midwife encounter	
							5				2	1					2													Post-natal - Mother	
							107		3	5	2	6	1	6	7	9	9	4	5		18	3	2	7	5			10	4	- Newborn	
							164		12	15	4	12	8	21	22	13	15	10	7		35	8	11	11	16			22	12	Child Screening Under 5 yrs	
							15		1			1				3			1			1		2	1			4		Immunization	
							650		19	25	18	23	73	13	15	19	20	97	10		81	18	86	20	31			41	48	School service	
							706		24	26	25	24	64	14	20	30	31	108	27		70	13	91	18	24			31	49	Health Education	
							1863		85	93	87	82	145	74	83	96	91	139	91	53	142	18	156	79	85		31	88	48	Counselling	
							100		2	3		2	5	3	1	3	3	5	6	4		24	25	5	3		6	2	10	Communication	CURATIVE
							207		11	19	17	9	13	8	19	5	7	14	8	8	12	53	13	5	7		6	5	10	Injections	
							13		2		1		1	1		1		1			1	5		1			1		2	Special Injections	
							495		27	28	12	28	26	30	32	21	32	27	27	23	29	3	30	10	20		23	20	22	I.V. Administration	
							5													1	1	1		1					1	Dressing	
							32					9										15					4			Circumcision	
							5		2																		3			Cryotherapy	
							12		1								1			2	5			1		1	2			Cauterization	
																														Excision-Lesion	
							9					1		1				1		1			3			2	1			Biopsies	
							32					2	2	1		3			4		4	4				2	1			Suture wound	
							11			1					2				2		1	2					2	1		Suture removal	
							6							1			1				1	1							1	Incision Abscess	
							2																					1		Remove - Foreign body	
							2																							First Aid	
							2													1	1				1					Ear Lobe Pierce	
							3														1							1	1	Ear Wash	
							1															1								Ear Suction	
																														Ear Pack	
							18		4	2		1		1				1	1	1					2	1	2	1		Eye Wash	
							33		4	4	1	1	4	2	1			2			1		3	1	2	2	1	1	3	1	Vision test	
							5			1												1	1					1	1	Tonography	
							10		1	1						1	1	2	2				1						1	Epilation	
							64		6	6	4	5	2		3	3	5		2			4	1	4	4	5	3	4	3	E.C.G.	
							1																		1					Vitalograph	
							5		2	1								1											1	O2 Administration	
							72		5	3	3	2	4	1	5	1	5	3	4	2	3	2	3	4	5	3	3	5	7	Nebulization	
																														Control Nose Haemorrhage	
							7			1				2		1				1					1	1				P.P.D. Test	
							31							30						1										Other Tests	
																														Enema	
							5								2	1	1								1					Cold Sponge	
							3										1			1					1					I.U.C.D.	
							209		2	3	3	3	21	10	2	3	8	2	56	3		3	3	46	3	4	7		8	Vital Signs . TPR/BP	
							3							1								1						1		Home Visit - Mother	Liaison
							3															1						2		- Child	
							7															1						4		- Adult	
							3													2						1				- Elderly	
							1,574		60	69	87	84	81	130	71	72	92	85	142	83	48	122	42	121	69	70		69	54	Clerical	Associated work
							5													1					4		2			Meeting	
							5															2				1	2			Escorting	
							128		1		1		10	8	7	2	3	11	4	1	11	4	10	28	10		2	12	3	Personal & Miscellaneous	
							400		6	7	7	9	53	17	13	6	3	104		5		21	12	77	11	7		3	37	Others	
																														Male	Sex
																														Female	
																														Initial contact- new patient	Age Band
																														Under 5 years	
																														5 - 15 years	
																														16 - 24 years	
																														25 - 34 years	
																														35 - 44 years	
																														45 - 54 years	
																														55 - 64 years	
																														Total Time	
																														Total Score	
																														Category	

PHC-2 NURSING CATEGORY ASSESSMENT IN PRIMARY HEALTH CARE

DATE : OCT - NOV 1990

SHIFT : 1 2 3

NURSE :

WEST RIFA'A HEALTH CENTRE

Section	Item	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
		29/10/90	30/10/90	31/10/90	3/11/90	4/11/90																		TOTAL							
PREVENTIVE	Ante-natal First visit																														
	Primi																														
	Multi																														
	Re-visit																														
	Midwife encounter																														
	Post-natal - Mother																														
	- Newborn																														
	Child Screening Under 5 yrs	4		2																				6							
	Immunization	14																						14							
	School service																														
	Health Education	17	10	8	8	41																		85							
	Counselling		14	12	18	43																		87							
	Communication		31	34	33	50																		148							
CURATIVE	Injections	15	15	14	14	15																		73							
	Special injections				1																			1							
	I.V. Administration		1																					1							
	Dressing	15	20	12	16	16																		78							
	Circumcision		3																					3							
	Cryotherapy																														
	Cauterization																														
	Excision-Lesion	2																						2							
	Biopsies																														
	Suture wound			1																				1							
	Suture removal				1																			1							
	Incision Abscess																														
	Remove - Foreign body			1	1																			2							
	First Aid			1																				1							
	Ear Lobe Pierce																														
	Ear Wash																														
	Ear Suction																														
	Ear Pack																														
	Eye Wash																														
	Vision test	2		3																				5							
	Tonography																														
	Epilation																														
	E.C.G.					1																		1							
	Vitalograph																														
	O2 Administration																														
	Nebulization	3	5	2	5	7																		22							
	Control Nose Haemorrhage																														
	P.P.D. Test																														
	Other Tests																														
	Enema																														
	Cold Sponge																														
	I.U.C.D.																														
	Vital Signs . TPR/BP																														
Location	Home Visit - Mother																														
	- Child																														
	- Adult																														
	- Elderly																														
Associated work	Clerical	44	50	49	39	52																		234							
	Meeting																														
	Escorting																														
	Personal & Miscellaneous																														
	Others				6	5																		11							
Sex	Male																														
	Female																														
	Initial contact- new patient																														
Age Band	Under 5 years																														
	5 - 15 years																														
	16 - 24 years																														
	25 - 34 years																														
	35 - 44 years																														
	45 - 54 years																														
	55 - 64 years																														
	Total Time																														
	Total Score																														
	Category																														

PHC-2 NURSING CATEGORY ASSESSMENT IN PRIMARY HEALTH CARE

DATE : 19 FEB - 18 MARCH 1990

SHIFT : 1 2 3

NURSE :

JITOKATS HEALTH CENTRE

	30	29	28	27	26	25 TOTAL	24	23	22	21 19/3/90	20 18/3/90	19 17/3/90	18 16/3/90	17 15/3/90	16 14/3/90	15 13/3/90	14 12/3/90	13 11/3/90	12 10/3/90	11 9/3/90	10 8/3/90	9 7/3/90	8 6/3/90	7 5/3/90	6 4/3/90	5 3/3/90	4 2/3/90	3 1/3/90	2 28/2/90	1 27/2/90	
PREVENTIVE						238				6	14	43				27	27				43	39				15	28				Ante-natal First visit
						390				21	52	81				30	27				34	53				54	38				Primi
						444				37	65	94				35	34				43	58				50	39				Multi
						194				22	49	41				3	3				16	37				16	4		3		Re-visit
						8																			2	2	1		2		Midwife encounter
						23																			5	5		2	5	6	Post-natal - Mother
						352				7	22	41	13	13	5	15	15	28	21	18	24	19	25	20	17	14	18	8	10		- Newborn
						655				25	18	45	36	28	28	24	29	42	42	41	27	14	48	34	32	31	13	44	36	21	Child Screening Under 5 yrs
						302				11	11	2	8	10	17	8	1	17	51	20	2	8	29	14	40	1		18	33	13	Immunization
						305				48	48	13	9	4	8	20	21	4		6	18	40	2	2		20	25	10	7	3	School service
						59				3	6	10		1				2	7	1	2	1		3	1	5	2	7	5	1	Health Education
						3635				111	123	232	179	224	261	149	216	256	167	206	196	115	131	215	154	144	129	180	129	87	Counselling
						669				5	9	21	42	39	64	29	35	50	32	32	40	88	23	43	29	39	36	39	30	18	Communication
						74				1	1	1	1	1	1	6	1	12	2	1	30		2	11		5	2	8			Injections
						20					1			3	1	1	23	2	1	4	3					1	1				Special Injections
						718				36	37	41	28	25	67	22	32	47	32	36	47	28	32	32	46	23	42	35	19	8	I.V. Administration
						29				8			4					1					3					3		10	Dressing
																															Circumcision
																															Cryotherapy
						14					2				1	2		2			1				1			1		2	Cauterization
						3									1			1		1											Excision-Lesion
																															Biopsies
						21				1	1		1	0	6		1	2	5		1	1	1	1	1						Suture wound
						61				3	4	4	2	1	3	1	3	4		1	4	8	3	4	4	1	7	3	1		Suture removal
						23					1	3	1	1	1		2	1	1	1	2		1		4	2	2				Incision Abscess
						7							1		2	1	1	1										1			Remove - Foreign body
CURATIVE																															First Aid
						33				3	2	5	3	1	2		3	3	3	4	1		1		1		1				Ear Lobe Pierce
																															Ear Wash
																															Ear Suction
																															Ear Pack
						31											3	3						1		3	3				Eye Wash
						58						1	1		2	7	2	8	2	8	5	1	4	5	2	3	3	1	4		Vision test
						1																			1						Tonometry
						30				3	1		3		1	3	1	4		3	4	1	4		3	3	1	4	1		Epilation
						49					4	3	4	1	1	3	2	3	6	3	2	2	2	3	2	3	1	2	3		E.C.G.
						1																				1					Vitalograph
						1																					1				O2 Administration
						65					4	4		3	1	5	7	10	8	3	6	1	4	8	8		3	1	3		Nebulization
						1																								1	Control Nose Haemorrhage
						6												1				1	1				3				P.P.D. Test
																															Other Tests
																															Enema
																															Cold Sponge
																															I.U.C.D.
						17						5		1		4	3	1		1			1						1		Vital Signs . TPR/BP
						14					3							1	4	3						2			1		Home Visit - Mother
						2												1		1											- Child
						2														2											- Adult
																															- Elderly
Location						5628				213	234	392	169	236	250	249	211	250	269	282	292	282	202	281	304	379	286	267	288	176	Clerical
Associated work						20								1	4	1	1	1			14	3						1			Meeting
																															Escorting
						47				1	2	4	2	3	3	3	3	3	4	2	2	1	3	2	3	2	4				Personal & Miscellaneous
						736				29	41	33	28	43	39	32	30	36	35	35	44	37	24	36	32	29	35	38	57	36	Others
Sex																															Male
																															Female
Age Band																															Initial contact- new patient
																															Under 5 years
																															5 - 15 years
																															16 - 24 years
																															25 - 34 years
																															35 - 44 years
																															45 - 54 years
																															55 - 64 years
																															Total Time
																															Total Score
																															Category

DATE : 19 FEB - 19 MARCH 1990

SHIFT : 1 2 3

NURSE :

ISA TOWN HEALTH CENTRE

PHC-2 NURSING CATEGORY ASSESSMENT IN PRIMARY HEALTH CARE

30	29	28 Total	27	26	25 19/3/90	24 18/3/90	23 17/3/90	22 16/3/90	21 15/3/90	20 14/3/90	19 13/3/90	18 12/3/90	17 11/3/90	16 10/3/90	15 9/3/90	14 8/3/90	13 7/3/90	12 6/3/90	11 5/3/90	10 4/3/90	9 3/3/90	8 28/2/90	7 27/2/90	6 26/2/90	5 25/2/90	4 24/2/90	3 23/2/90	2 22/2/90	1 19/2/90		
		55									3	5					4	3					14					12	14	Ante-natal First visit
		125									18	17					11	7					33					23	19	Primi
		183									17	23					15	10					45			4		35	33	Multi
		166									17	17					15	6					41					34	34	Re-visit
		75										14						1			2	4	1	7	4	15	22	8	Midwife encounter
		40																				8	3	9	8	4			Post-natal - Mother
		154																											- Newborn
		268																			16	33	8	32	21	37	28		Child Screening Under 5 yrs
		80															1				36	34	20	46	32	53	35	10	Immunization
		376									14	22	1				15	10			16	16	12	15	1	11	14		School service
		185																			14	25	3	17	65	81	63	55	Health Education
		2778			129	162	130	79	120	130	115	131	82	145	88	136	138	138	170	118	142	3	6		23	62	48	31	31	Counselling
		487			1	18		6	37	11	13	11		11	7	16	50	17	16	15	17	1	4	4	31	88	116	56	Communication
		2211			54	7	51	43	32	40	45	98	30	52	51	66	23	57	50	47	41	6	34	6	44	50	18	60	56	Injections
		16			1	1	1			1		3		1							2	53	81	55	44	80	83	33	44	Special Injections
		1143			41	47	45	16	35	40	33	57	18	56	30	46	44	36	40	104	56	31	71	44	27	48	42	74	62	I.V. Administration
		45			2	2				2	2	3		3				1	2	2		2	1		2		3	3	18	Dressing
																														Circumcision
		3				2																		1						Cryotherapy
																														Cauterization
																														Excision-Lesion
																														Biopsies
		39					1		1		1				6	4	3	4	3	2	5	1			8	2	1	1		Suture wound
		44					5	4	6			3	1		1	1	2	4	11	5		1								Suture removal
		3					1													1	1									Incision Abscess
		9					1																							Remove - Foreign body
		10									2	2	1					2		1	2				2		2	1		First Aid
		6																2										2		Ear Lobe Pierce
		4																			2							2		Ear Wash
		1																												Ear Suction
		9			3	1	3								1	1						2					1			Ear Pack
		285			16	8	9	1			8	16	9		19	16	18	16	16	16	8	12	36	15	21	13	13	8	14	Eye Wash
		1																					1							Vision test
		16										2	1				1	2					1							Tonography
		94			2	3	5	2	1		5	15	6		2	5	5	2	7		5	2	6	3	2	6		5	5	Epilation
		3																										3		E.C.G.
		11									1	1						1	1									1		Vitalograph
		123					11		8		5	8	2		3	7	2	4	8	13	4	2	14	6	3	8	3	13	11	O2 Administration
		11										1	1			2	2													Nebulization
		10																								1	1	3		Control Nose Haemorrhage
		2																							1			5		P.P.D. Test
		3																					1							Other Tests
		4																										1	1	Enema
		11																										2	1	Cold Sponge
		17																							1	1			1	I.U.C.D.
		2																												Vital Signs . TPR/BP
		7																								17				Home Visit - Mother
		4203			245	132	130	79	120	130	280	396	82	145	68	128	138	182	213	218	142	113	231	129	154	206	169	229	224	- Child
		99																												- Adult
		115																							20	24	37	17	1	- Elderly
		126																							20	27	39	21	9	Clerical
		159																							20	23	23	43	11	Meeting
																						55	1	22	22	51	38	20	Escorting
																														Personal & Miscellaneous
																														Others
																														Male
																														Female
																														Initial contact- new patient
																														Under 5 years
																														5 - 15 years
																														16 - 24 years
																														25 - 34 years
																														35 - 44 years
																														45 - 54 years
																														55 - 64 years
																														Total Time
																														Total Score
																														Caterory

PREVENTIVE

CURATIVE

Location

Associated work

Sex

Age Band

PHC-2 NURSING CATEGORY ASSESSMENT IN PRIMARY HEALTH CARE

DATE : FEBRUARY 18 - MARCH 19,1990

SHIFT : 1 2 3

NURSE : SITRA HEALTH CENTRE

	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1		
								Total		19/3/90	18/3/90	17/3/90	16/3/90	15/3/90	14/3/90	13/3/90	12/3/90	11/3/90	10/3/90	9/3/90	8/3/90	7/3/90	6/3/90	5/3/90	4/3/90	3/3/90	2/3/90	1/3/90	28/2/90	27/2/90	26/2/90	25/2/90	24/2/90	23/2/90	22/2/90	21/2/90	20/2/90	19/2/90		
								134			21		18			16		22				16		18			13		14			Ante-natal First visit	PREVENTIVE
								233			35		13			33		30				25		70			30		30			Primi	
								196			28		13			16		38				31		24			29		30			Multi	
								89			9		1					13				18		17			17		14			Re-visit	
								11			1				1	1		1				2		3	1		2					Midwife encounter	
								15			1		2		2		1	1	1	3			4								Post-natal - Mother	
								161		9	8	17	17	9	6	4	10	9	9	7	13	10	8	2	2	8	7	3	5		- Newborn	
								478		20	20	37	23	21	16	18	25	28	18	20	19	27	41	23	29	17	27	8	21		Child Screening Under 5 yrs	
								108		14	4	10	1	8	3	2	2	7	3	7	1	4	7	4	6	6	10	4	5		Immunization	
								1023		58	73	64	59	31	45	39	43	50	31	52	41	35	67	41	35	58	43	62	51	28	School service	
								55			12			1		1	2	3	1		5	6			1	6	1	6	6		Health Education	
								3357		152	218	195	219	116	149	147	145	183	125	153	154	165	166	149	126	183	192	185	117	118	Counselling	
								222		9	16	21	13	9	2	12	13	8	6	10	9	15	7	11	12	13	12	10	12	4	Communication	
								139		6	8	8	8	8	5	7	6	7	7	8	8	5	3	7	6	4	7	8	7	8	Injections	CURATIVE
								18				1			1	1	1	1	1	4	1		4	3		1		1	3		Special Injections	
								923		30	43	67	34	35	46	36	47	41	33	60	33	48	27	36	39	47	70	91	39	42	I.V. Administration	
								30		2	2		7	1	2	2		2		1			2	2		2	1		2	2	Dressing	
								2						1												1					Circumcision	
								1																		1					Cryotherapy	
								1														1									Cauterization	
								22		3	1	2	1	1		1	1			2			2		2	1	1	2	1	2	Excision-Lesion	
								43		2	1	5	5	4	2		6			2	5	3	3	1		4	1	1			Biopsies	
								22		2				2	1			2		2			2	3	5		2	1			Suture wound	
								9					1	3	1					1	1	1								1	Suture removal	
								19		3	2		1	3	2						3	1	3								Incision Abscess	
								22		4	3	1		1	3	1				2	1		2	1		1	1				Remove - Foreign body	
								7					1				1														First Aid	
								22		4	3	1		3	1		3		2	3			2	3		1	1	1			Ear Lobe Pierce	
								7					1		1								1	1			1	2			Ear Wash	
								3				2			1																Ear Suction	
								31		1	1	10	1	5			1		2	1	1	1	1			1	1	3	1		Ear Pack	
								140		8	9		9	7	6	11	6	7	4	3	8	8	9	10	7	16	4	8	2		Eye Wash	
								2		1	1																				Vision test	
								17		3	4			2		2	1	1	3	1		1									Topography	
								31			1	1		2	1	3	1	4	2	1		1	1	1	4	3	1	1	1	1	Epilation	
																															E.C.G.	
								1														11									Vitalocraph	
								47		2	3	1	3	1	2	1	4	4		4	4		1	2	2	1	2	3	3	5	O2 Administration	
								2							1			1													Nebulization	
								1										1													Control Nose Haemorrhage	
								2							1			1													P.P.D. Test	
								8						3				2								1		3	1		Other Tests	
																															Enema	
								49		4	9	1	2	2	4	2	2	1	4		3	1	5	1	1	3		3	1	2	Cold Sponge	
								52						2	7	1		1						18		2	4	13	4		I.U.C.D.	
								33							1	1			10			10						13			Vital Signs . TPR/BP	
								4						1	3																Home Visit - Mother	Location
								4								1						2									- Child	
								3397		152	218	180	200	100	139	163	158	201	129	133	158	165	149	139	124	185	192	186	100	118	- Adult	
								23		1	1	1			2	2	1	1		2	3	2	1		2	2	1			1	- Elderly	
								165		21	18	7	3	9	3	8	11	12	9	7	3	6	3	6	2	2	4	2	4	4	Clerical	Associated work
								432		26	21	17	23	12	21	15	18	17	19	16	24	17	37	27	25	28	25	16	24	4	Meeting	
								422		4	36	6	37	8	8	37	14	41	5	10	43	8	43	16	33	39	8	50	4	1	Escorting	
																															Personal & Miscellaneous	
																															Others	
																															Male	Sex
																															Female	
																															Initial contact- new patient	
																															Under 5 years	Age Band
																															5 - 15 years	
																															16 - 24 years	
																															25 - 34 years	
																															35 - 44 years	
																															45 - 54 years	
																															55 - 64 years	
																															Total Time	
																															Total Score	
																															Category	

PHC-2 NURSING CATEGORY ASSESSMENT IN PRIMARY HEALTH CARE

DATE : OCT - NOV 1990

SHIFT : 1 2 3

NURSE :

KUWAIT HEALTH CENTRE

Section	Item	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
		29/10/90	30/10/90	31/10/90	3/11/90	4/11/90	5/11/90													TOTAL											
PREVENTIVE	Ante-natal First visit	8	1	8																18											
	Primi																														
	Multi	8	1	9																19											
	Re-visit	18	5	9		10														42											
	Midwife encounter	13		20																33											
	Post-natal - Mother	7																		7											
	- Newborn																														
	Child Screening Under 5 yrs	24	8	10	13	12														66											
	Immunization	22	12	5		9														48											
	School service	8	3		3															13											
	Health Education	44	6	35																85											
	Counselling	29	8			11														48											
	Communication	49	33	33		22														137											
CURATIVE	Injections	40	26	18		20														104											
	Special Injections	1																		1											
	I.V. Administration					1														1											
	Dressing	63	45	15		24														147											
	Circumcision																														
	Cryotherapy																														
	Cauterization																														
	Excision-Lesion																														
	Biopsies																														
	Suture wound			2		2														4											
	Suture removal			1																1											
	Incision Abscess																														
	Remove - Foreign body																														
	First Aid																														
	Ear Lobe Pierce																														
	Ear Wash																														
	Ear Suction																														
	Ear Pack																														
	Eye Wash			2																2											
	Vision test			3	1		2													6											
	Tonography																														
	Epilation		2	1	1		3													7											
	E.C.G.			1			1													2											
	Vitalograph																														
	O2 Administration																														
	Nebulization		1		1															2											
	Control Nose Haemorrhage																														
	P.P.D. Test																														
	Other Tests																														
	Enema																														
	Cold Sponge			1																1											
	I.U.C.D.			1		1														2											
	Vital Signs . TPR/BP	28		11																39											
Location	Home Visit - Mother	1	9																	10											
	- Child		3																	3											
	- Adult		7																	7											
	- Elderly		1																	1											
Associated work	Clerical	32	11	31	22															96											
	Meeting	3																		3											
	Escorting																														
	Personal & Miscellaneous																														
	Others																														
Sex	Male																														
	Female																														
	Initial contact- new patient																														
Age Band	Under 5 years																														
	5 - 15 years																														
	16 - 24 years																														
	25 - 34 years																														
	35 - 44 years																														
	45 - 54 years																														
	55 - 64 years																														
	Total Time																														
	Total Score																														
	Category																														

PHC-2 NURSING CATEGORY ASSESSMENT IN PRIMARY HEALTH CARE

DATE : OCT - NOV 1990

SHIFT : 1 2 3

NURSE :

AL NOORA HEALTH CENTRE

Section	Item	1 29/10/90	2 30/10/90	3 31/10/90	4 3/11/90	5 4/11/90	6 5/11/90	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23 TOTAL	24	25	26	27	28	29	30
PREVENTIVE	Ante-natal First visit		11																					11							
	Primi		26																					26							
	Multi		73	1	1																			73							
	Re-visit			21	29	30	25																	105							
	Midwife encounter		28																					28							
	Post-natal - Mother	2	2	8		3	5																	21							
	- Newborn			2	25	5	3																	37							
	Child Screening Under 5 yrs			10	12	15	11																	48							
	Immunization			19	14	8	10																	51							
	School service																														
	Health Education		50	31	28	13	14																	142							
	Counselling		28				5																	33							
	Communication	80	208	122	58	77	74																	619							
CURATIVE	Injections	2	5	3			2																	11							
	Special Injections	10	22	18		17	14																	75							
	I.V. Administration						1																	1							
	Dressing	10	23	14	3	8	18																	75							
	Circumcision																														
	Cryotherapy																														
	Cauterization																														
	Excision-Lesion																														
	Biopsies																														
	Suture wound																														
	Suture removal	3		2		1	2																	7							
	Incision Abscess																														
	Remove - Foreign body		1																					1							
	First Aid	2																						2							
	Ear Lobe Pierce				1	1																		2							
	Ear Wash				1																			1							
	Ear Suction																														
	Ear Pack																														
	Eye Wash	1					1																	2							
	Vision test		2			3																		5							
	Tonography																														
	Epilation	1																						1							
	E.C.G.	1				1	2																	4							
	Vitalograph	4																						4							
	O2 Administration		2																					2							
	Nebulization		3	2	2		1																	8							
	Control Nose Haemorrhage																														
	P.P.D. Test																														
	Other Tests			41																				41							
	Enema																														
	Cold Sponge																														
	I.U.C.D.																														
	Vital Signs , TPR/BP	59	105	25	39		8																	227							
Location	Home Visit - Mother		26	2																				28							
	- Child		1	12	9	9																		31							
	- Adult			8	6																			14							
	- Elderly				6																			6							
Associated work	Clerical	63	150	91	79	84	66																	534							
	Meeting			4																				4							
	Escorting		4	2																				6							
	Personal & Miscellaneous	9	4	2	1																			16							
	Others	46	43	3	28	14	19																	157							
Sex	Male																														
	Female																														
	Initial contact- new patient																														
Age Band	Under 5 years																														
	5 - 15 years																														
	16 - 24 years																														
	25 - 34 years																														
	35 - 44 years																														
	45 - 54 years																														
	55 - 64 years																														
	Total Time																														
	Total Score																														
	Category																														

PHC-2 NURSING CATEGORY ASSESSMENT IN PRIMARY HEALTH CARE

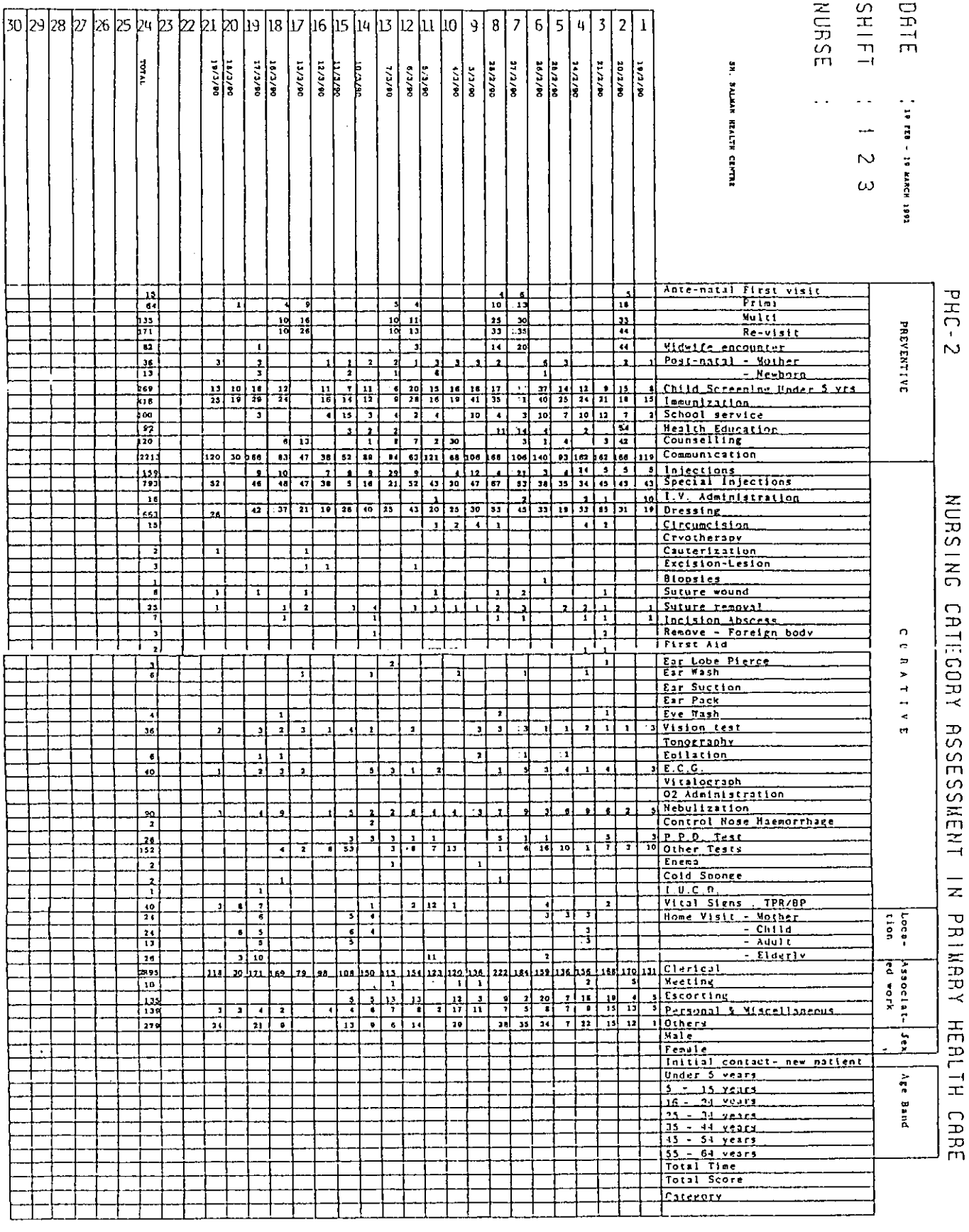
DATE : OCT - NOV 1990

SHIFT : 1 2 3

NURSE :

BUKIT ALI-GADIS HEALTH CENTRE

30	29	28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1				
							TOTAL																		4/11/90	3/11/90	31/10/90	30/10/90	29/10/90				
							7																		7					Ante-natal First visit	PREVENTIVE		
							3																		3					Primi			
							7																		7					Multi			
							37																		37					Re-visit			
							8																		8					Midwife encounter			
							26																		20		3	3	2	Post-natal - Mother			
							4																			1	2	1		- Newborn			
							42																			8	9	12	13	Child Screening Under 5 yrs			
							49																			10	10	10	19	Immunization			
							2																						2	School service			
							13																			1		2		Health Education			
							3																			2	1			Counselling			
							411																		100	93	95	70	53	Communication			
							55																		14	14	6	13	4	Injections	CURATIVE		
							80																		13	10	12	14	11	Special Injections			
							2																				1		1	I.V. Administration			
							110																		12	23	37	19	20	Dressing			
							22																		21		1			Circumcision			
																														Cryotherapy			
																														Cauterization			
							1																					1		Excision-Lesion			
																														Biopsies			
																														Suture wound			
							5																		2		1		2	Suture removal			
							4																		1		3			Incision Abscess			
																														Remove - Foreign body			
																														First Aid			
							2																							Ear Lobe Pierce			
																									2					Ear Wash			
																														Ear Suction			
																														Ear Pack			
							1																				1			Eye Wash			
							10																		4		3	2	1	Vision test			
																														Tonography			
							6																			4		1	1	Epilation			
							8																		2		4	2		E.C.G.			
																														Vitalograph			
																														O2 Administration			
							10																		1	3	3	2	1	Nebulization			
																														Control Nose Haemorrhage			
							2																				2			P.P.D. Test			
																														Other Tests			
																														Enema			
							1																			1				Cold Sponge			
																														I.U.C.D.			
							59																		51	1	2		5	Vital Signs : TPR/BP			
							8																			3				Home Visit - Mother	Locomotive		
							3																			1				- Child			
							1																			1				- Adult			
							2																			2				- Elderly			
							550																		133	88	80	85	115	Clerical	Associated work		
																														Meeting			
							6																				2	3	1	Escorting			
							16																		6			5	5	Personal & Miscellaneous			
							169																		51	35	28	31	44	Others			
																														Male	Sex		
																														Female			
																														Initial contact- new patient			
																														Under 5 years	Age Band		
																														5 - 15 years			
																														16 - 24 years			
																														25 - 34 years			
																														35 - 44 years			
																														45 - 54 years			
																														55 - 64 years			
																														Total Time			
																														Total Score			
																														Category			



PHC-2 NURSING CATEGORY ASSESSMENT IN PRIMARY HEALTH CARE

DATE : 19 FEB - 15 MARCH 1992

SHIFT : 1 2 3

NURSE :

SK. RAJAWAN HEALTH CENTRE

		30	29	28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	
								TOTAL			19/3/92	18/3/92	17/3/92	16/3/92	13/3/92	12/3/92	11/3/92	10/3/92	7/3/92	6/3/92	5/3/92	4/3/92	3/3/92	28/2/92	27/2/92	26/2/92	25/2/92	24/2/92	21/2/92	20/2/92	19/2/92		
PREVENTIVE	Ante-natal First visit							13																4	6					3		
	Primi							64				1		4	9				5	4				10	13					18		
	Multi							133						10	16				10	11				25	30					33		
	Re-visit							371						10	26				10	13				33	35					44		
	Midwife encounter							82					1							3				14	20					44		
	Post-natal - Mother							36			3		2			1	1	2	2	1	3	3	3	2		6	3			2	1	
	- Newborn							13					3				2		1		6					1						
	Child Screening Under 5 yrs							269			13	10	18	12		11	7	11	6	20	15	16	18	17		37	14	12	9	15	8	
	Immunization							418			25	19	29	24		16	14	12	9	28	16	19	41	35	31	40	25	24	31	18	15	
	School service							200					3			4	15	3	4	2	4		10	4	3	10	7	10	12	7	2	
	Health Education							92									3	2	2					11	14	4		2		54		
	Counselling							120						6	13			1	8	7	2	30			3	1	4		3	42		
	Communication							2211			120	30	66	83	47	38	52	88	84	63	121	68	106	68	106	140	93	102	82	166	119	
CURATIVE	Injections							159					9	10		7	8	9	29	9		4	12	4	21	3	4	14	5	5	5	
	Special Injections							793			52		46	48	47	38	5	16	21	52	43	30	67	67	37	38	35	34	45	43	43	
	I.V. Administration							16													1				2			3	1		10	
	Dressing							663			28		42	37	21	19	28	40	25	43	20	25	30	33	45	33	19	33	85	31	19	
	Circumcision							15													3	2	4	1				4	2			
	Cryotherapy																															
	Cauterization							2			1				1																	
	Excision-Lesion							3							1	1				1												
	Biopsies							1																		1						
	Suture wound							8			1		1		1						1			2	2				1			
	Suture removal							25			1			1	2			1	4	1	1	1	1	2	3		2	2	1		1	
	Incision Abscess							7						1					1					1	1			1	1		1	
	Remove - Foreign body							3											1										2			
	First Aid							2																				1	1			
	Ear Lobe Pierce							3												2									1			
	Ear Wash							6							1				3				1		1			1				
	Ear Suction																															
	Ear Pack																															
	Eye Wash							4						1										2					1			
	Vision test							36			2		3	2	3	1	4	1		2			3	3	3	1	1	2	1	1	3	
	Tonography																															
	Epilation							6					1	1									2		1		1					
	E.C.G.							40			1		2	3	3			5	3	1	2			1	5	3	4	1	4		3	
	Vitalograph																															
	O2 Administration																															
	Nebulization							90			1		4	9		1	5	2	2	6	4	4	3	7	9	3	6	9	6	2	5	
	Control Nose Haemorrhage							2										2														
	P.P.D. Test							28									3	3	3	3	3			5	1	1			5		3	
	Other Tests							152						4	2	8	53		3	8	7	13		1	6	16	10	1	7	2	10	
	Enema							2											3				1									
	Cold Sponge							2						1										1								
	I.U.C.D.							1					1																			
	Vital Signs . TPR/BP							40			3	8	7					1		2	12	1				4			2			
Loco-tion	Home Visit - Mother							24					6				5	4								3	3	3				
	- Child							24				8	5				6	4										3				
	- Adult							13					5				5											3				
	- Elderly							26				3	10								11					2						
Associated work	Clerical							2895			118	20	171	169	79	98	108	150	113	154	123	120	136	222	184	159	136	136	168	170	131	
	Meeting							10											1				1					2		5		
	Escorting							135									5	3	13	13		12	3	9	2	20	7	18	18	4	5	
	Personal & Miscellaneous							139			3	3	4	2		4	4	6	7	8	2	17	11	7	5	8	7	8	15	13	5	
	Others							279			24		21	9			13	9	6	14		29		38	35	34	7	22	15	12	1	
Sex	Male																															
	Female																															
Age Band	Initial contact- new patient																															
	Under 5 years																															
	5 - 15 years																															
	16 - 24 years																															
	25 - 34 years																															
	35 - 44 years																															
	45 - 54 years																															
	55 - 64 years																															
	Total Time																															
	Total Score																															
	Category																															

APPENDIX Y
COMPUTER PROGRAM MENU FOR ASSESSMENT OF NURSE ESTABLISHMENTS IN HEALTH CENTRES

1	Ministry of Health		MASTER	
2	Primary Health Care			
3				
4	Preventive	Total	Total Hrs.	Percent Hrs.
5				
6				
7	Ante-natal Primi		+D7*20/60	+E7/E$76
8	Multi		+D8*30/60	+E8/E$76
9	Revisit		+D9*10/60	+E9/E$76
10	Midwife encounter		+D10*15/60	+E10/E$76
11	Post-natal Mother		+D11*20/60	+E11/E$76
12	Newborn		+D12*20/60	+E12/E$76
13	Child Screening Under 5 Years		+D13*20/60	+E13/E$76
14	Immunization		+D14*12/60	+E14/E$76
15	School Service		+D15*15/60	+E15/E$76
16	Health Education		+D16*20/60	+E16/E$76
17	Counselling		+D17*15/60	+E17/E$76
18	Communication		+D18*5/60	+E18/E$76
19	Home Visit - Mother		+D19*45/60	+E19/E$76
20	- Child		+D20*45/60	+E20/E$76
21	- Adult		+D21*30/60	+E21/E$76
22	- Elderly		+D22*45/60	+E22/E$76
23	Total	0	@SUM(E7..E22)	+E23/E$76
24				
25	Curative			
26				
27	Injections		+D27*5/60	+E27/E$76
28	Special Injections		+D28*10/60	+E28/E$76
29	I.V. Administration		+D29*10/60	+E29/E$76
30	Dressing		+D30*20/60	+E30/E$76
31	Circumcision		+D31*30/60	+E31/E$76
32	Cryotherapy		+D32*10/60	+E32/E$76
33	Cauterization		+D33*10/60	+E33/E$76
34	Excision-Lesion		+D34*20/60	+E34/E$76
35	Biopsies		+D35*20/60	+E35/E$76
36	Suture Wound		+D36*20/60	+E36/E$76
37	Suture Removal		+D37*10/60	+E37/E$76
38	Incision Abcess		+D38*10/60	+E38/E$76
39	Remove - Foreign Body		+D39*15/60	+E39/E$76
40	First Aid		+D40*30/60	+E40/E$76
41	Ear Lobe Pierce		+D41*3/60	+E41/E$76
42	Ear Wash		+D42*10/60	+E42/E$76
43	Ear Suction		+D43*10/60	+E43/E$76
44	Ear Pack		+D44*5/60	+E44/E$76
45	Eye Wash		+D45*5/60	+E45/E$76
46	Vision Test		+D46*5/60	+E46/E$76
47	Tonography		+D47*10/60	+E47/E$76
48	Epilation		+D48*7/60	+E48/E$76
49	E.C.G.		+D49*15/60	+E49/E$76
50	Vitalograph		+D50*10/60	+E50/E$76
51	O2 Administration		+D51*10/60	+E51/E$76
52	Nebulization		+D52*10/60	+E52/E$76
53	Control Nose Haemorrhage		+D53*10/60	+E53/E$76
54	P.P.D. Test		+D54*5/60	+E54/E$76
55	Other Tests		+D55*5/60	+E55/E$76
56	Enema		+D56*20/60	+E56/E$76

57	Cold Sponge		+D57*30/60	+E57/E$76
58	I.U.C.D.		+D58*20/60	+E58/E$76
59	Vital Signs TPR/BP		+D59*7/60	+E59/E$76
60	Total	0	@SUM(E27..E59)	+E60/E$76
61				
62	Associated Work			
63	---			
64	Clerical		+D64*5/60	+E64/E$76
65	Meeting		+D65*60/60	+E65/E$76
66	Escorting		+D66*60/60	+E66/E$76
67	Personal & Miscellaneous		+D67*10/60	+E67/E$76
68	Others		+D68*30/60	+E68/E$76
69	Total	0	@SUM(E64..E68)	+E69/E$76
70				
71	Summary		Total Hrs.	Percent Hrs.
72	---			
73	Preventative	0	+E23	+E73/E$76*100
74	Curative	0	+E60	+E74/E$76*100
75	Associated Work	0	+E69	+E75/E$76*100
76	Total	0	@SUM(E73..E75)	+E76/E$76*100
77				
78	Establishment	Total	WTE's	
79	Total	0	+E76*1.7/4/36	
80	Sister in-charge	0	+D80*1.7/4/36	
81	Staff Nurse	0	+D81*1.7/4/36	
82	Midwive	0	+D82*1.7/4/36	
83	Community Health Nurse	0	+D83*1.7/4/36	
84	M.C.H.	0	+D84*1.7/4/36	
85	Practical Nurse	0	+D85*1.7/4/36	

APPENDIX Z
CALCULATION OF NURSING ESTABLISHMENTS IN THE FOURTEEN HEALTH CENTRES

Ministry of Health
Primary Health Care

JIDHAFS HEALTH CENTER
Feb 19 - Mar 19,1990

Preventive	Total	Total Hrs.	Percent Hrs.
Ante-natal Primi	239	80	4.0%
Multi	390	195	9.8%
Revisit	444	74	3.7%
Midwife encounter	193	48	2.4%
Post-natal Mother	35	12	0.6%
Newborn	89	30	1.5%
Child Screening Under 5 Years	412	137	6.9%
Immunization	656	131	6.6%
School Service	302	76	3.8%
Health Education	305	102	5.1%
Counselling	59	15	0.7%
Communication	3634	121	6.1%
Home Visit - Mother	14	7	0.4%
- Child	2	1	0.1%
- Adult	2	1	0.1%
- Elderly	3	2	0.1%
Total	6779	1030	52.0%
Curative			
Injections	669	56	2.8%
Special Injections	74	12	0.6%
I.V. Administration	20	3	0.2%
Dressing	718	239	12.1%
Circumcision	29	15	0.7%
Cryotherapy	0	0	0.0%
Cauterization	15	3	0.1%
Excision-Lesion	4	1	0.1%
Biopsies	0	0	0.0%
Suture Wound	21	7	0.4%
Suture Removal	61	10	0.5%
Incision Abcess	23	4	0.2%
Remove - Foreign Body	7	2	0.1%
First Aid	0	0	0.0%
Ear Lobe Pierce	33	2	0.1%
Ear Wash	0	0	0.0%
Ear Suction	0	0	0.0%
Ear Pack	1	0	0.0%
Eye Wash	8	1	0.0%
Vision Test	57	5	0.2%
Tonography	3	1	0.0%
Epilation	31	4	0.2%
E.C.G.	47	12	0.6%
Vitalograph	1	0	0.0%
O2 Administration	2	0	0.0%
Nebulization	85	14	0.7%
Control Nose Haemorrhage	1	0	0.0%
P.P.D. Test	6	1	0.0%

55	Other Tests	0	0	0.0%
56	Enema	0	0	0.0%
57	Cold Sponge	1	1	0.0%
58	I.U.C.D.	1	0	0.0%
59	Vital Signs TPR/BP	17	2	0.1%
60	Total	1935	393	19.8%
61				
62	Associated Work			
63				
64	Clerical	5557	278	14.0%
65	Meeting	26	26	1.3%
66	Escorting	0	0	0.0%
67	Personal & Miscellaneous	49	8	0.4%
68	Others	739	246	12.4%
69	Total	6371	558	28.2%
70				
71	Summary		Total Hrs.	Percent Hrs.
72				
73	Preventative	6779	1030	52.0
74	Curative	1935	393	19.8
75	Associated Work	6371	558	28.2
76	Total	15085	1982	100.0
77				
78	Establishment	Total	WTE's	
79	Total	1982	23.39	
80	Sister in-charge	267	3.16	
81	Staff Nurse	298	3.52	
82	Midwive	356	4.20	
83	Community Health Nurse	387	4.57	
84	M.C.H.	443	5.22	
85	Practical Nurse	231	2.73	

Ministry of Health
Primary Health Care

NAIM HEALTH CENTER
Feb 19 - Mar 19,1990

Preventive	Total	Total Hrs.	Percent Hrs.
Ante-natal Primi	48	16	1.0%
Multi	111	56	3.5%
Revisit	156	26	1.7%
Midwife encounter	155	39	2.5%
Post-natal Mother	49	16	1.0%
Newborn	42	14	0.9%
Child Screening Under 5 Years	152	51	3.2%
Immunization	272	54	3.5%
School Service	15	4	0.2%
Health Education	514	171	10.9%
Counselling	490	123	7.8%
Communication	2218	74	4.7%
Home Visit - Mother	148	74	4.7%
- Child	2	1	0.1%
- Adult	3	2	0.1%
- Elderly	8	4	0.3%
Total	4383	724	46.1%
Curative			
Injections	552	46	2.9%
Special Injections	36	6	0.4%
I.V. Administration	15	3	0.2%
Dressing	470	157	10.0%
Circumcision	13	7	0.4%
Cryotherapy	16	3	0.2%
Cauterization	0	0	0.0%
Excision-Lesion	5	2	0.1%
Biopsies	0	0	0.0%
Suture Wound	13	4	0.3%
Suture Removal	18	3	0.2%
Incision Abcess	5	1	0.1%
Remove - Foreign Body	6	2	0.1%
First Aid	24	12	0.8%
Ear Lobe Pierce	11	1	0.0%
Ear Wash	2	0	0.0%
Ear Suction	2	0	0.0%
Ear Pack	0	0	0.0%
Eye Wash	6	1	0.0%
Vision Test	27	2	0.1%
Tonography	2	0	0.0%
Epilation	6	1	0.0%
E.C.G.	64	16	1.0%
Vitalograph	0	0	0.0%
02 Administration	8	1	0.1%
Nebulization	44	7	0.5%
Control Nose Haemorrhage	2	0	0.0%
P.P.D. Test	2	0	0.0%

55	Other Tests	22	2	0.1%
56	Enema	0	0	0.0%
57	Cold Sponge	0	0	0.0%
58	I.U.C.D.	5	2	0.1%
59	Vital Signs TPR/BP	54	6	0.4%
60	Total	1430	283	18.0%
61				
62	Associated Work			
63				
64	Clerical	1857	93	5.9%
65	Meeting	85	85	5.4%
66	Escorting	421	211	13.4%
67	Personal & Miscellaneous	115	19	1.2%
68	Others	470	157	10.0%
69	Total	2948	564	35.9%
70				
71	Summary		Total Hrs.	Percent Hrs.
72				
73	Preventative	4383	724	46.1
74	Curative	1430	283	18.0
75	Associated Work	2948	564	35.9
76	Total	8761	1571	100.0
77				
78	Establishment	Total WTE's		
79	Total	1571	18.5	
80	Sister in-charge	250	3.0	
81	Staff Nurse	256	3.0	
82	Midwive	246	2.9	
83	Community Health Nurse	293	3.5	
84	M.C.H.	306	3.6	
85	Practical Nurse	220	2.6	

Ministry of Health
Primary Health Care

SH. SALMAN HEALTH CENTER
Feb 19 - Mar 19,1990

Preventive	Total	Total Hrs.	Percent Hrs.
Ante-natal Primi	79	26	2.0%
Multi	135	68	5.2%
Revisit	171	29	2.2%
Midwife encounter	82	21	1.6%
Post-natal Mother	36	12	0.9%
Newborn	13	4	0.3%
Child Screening Under 5 Years	269	90	6.9%
Immunization	418	84	6.4%
School Service	100	25	1.9%
Health Education	92	31	2.4%
Counselling	120	30	2.3%
Communication	2213	74	5.7%
Home Visit - Mother	24	12	0.9%
- Child	24	12	0.9%
- Adult	13	7	0.5%
- Elderly	26	13	1.0%
Total	3815	535	41.1%
Curative			
Injections	159	13	1.0%
Special Injections	793	132	10.2%
I.V. Administration	16	3	0.2%
Dressing	633	211	16.2%
Circumcision	15	8	0.6%
Cryotherapy	0	0	0.0%
Cauterization	2	0	0.0%
Excision-Lesion	3	1	0.1%
Biopsies	1	0	0.0%
Suture Wound	8	3	0.2%
Suture Removal	25	4	0.3%
Incision Abcess	7	1	0.1%
Remove - Foreign Body	3	1	0.1%
First Aid	0	0	0.0%
Ear Lobe Pierce	3	0	0.0%
Ear Wash	0	0	0.0%
Ear Suction	0	0	0.0%
Ear Pack	0	0	0.0%
Eye Wash	3	0	0.0%
Vision Test	36	3	0.2%
Tonography	0	0	0.0%
Epilation	6	1	0.1%
E.C.G.	40	10	0.8%
Vitalograph	0	0	0.0%
O2 Administration	0	0	0.0%
Nebulization	90	15	1.2%
Control Nose Haemorrhage	2	0	0.0%
P.P.D. Test	26	2	0.2%
Other Tests	152	13	1.0%
Enema	2	1	0.1%

Cold Sponge	2	1	0.1%
I.U.C.D.	1	0	0.0%
Vital Signs TPR/BP	40	5	0.4%
Total	2068	428	32.9%

Associated Work

Clerical	2895	145	11.1%
Meeting	10	10	0.8%
Escorting	135	68	5.2%
Personal & Miscellaneous	139	23	1.8%
Others	279	93	7.1%
Total	3458	338	26.0%

Summary

	Total Hrs.	Percent Hrs.
Preventative	3815	535	41.1
Curative	2068	428	32.9
Associated Work	3458	338	26.0
Total	9341	1302	100.0

Establishment	Total WTE's	
Total	1302	15.4
Sister in-charge	241	2.8
Staff Nurse	265	3.1
Midwive	161	1.9
Community Health Nurse	250	3.0
M.C.H.	225	2.7
Practical Nurse	159	1.9

Ministry of Health
Primary Health Care

ISA TOWN HEALTH CENTER
Feb 19 - Mar 19,1990

Preventive	Total	Total Hrs.	Percent Hrs.
Ante-natal Primi	62	21	1.2%
Multi	158	79	4.6%
Revisit	223	37	2.2%
Midwife encounter	206	52	3.0%
Post-natal Mother	75	25	1.5%
Newborn	40	13	0.8%
Child Screening Under 5 Years	154	51	3.0%
Immunization	266	53	3.1%
School Service	84	21	1.2%
Health Education	412	137	8.0%
Counselling	185	46	2.7%
Communication	2362	79	4.6%
Home Visit - Mother	17	9	0.5%
- Child	2	1	0.1%
- Adult	0	0	0.0%
- Elderly	2	1	0.1%
Total	4248	625	36.6%
Curative			
Injections	427	36	2.1%
Special Injections	1012	169	9.9%
I.V. Administration	16	3	0.2%
Dressing	1016	339	19.8%
Circumcision	41	21	1.2%
Cryotherapy	0	0	0.0%
Cauterization	4	1	0.0%
Excision-Lesion	0	0	0.0%
Biopsies	1	0	0.0%
Suture Wound	32	11	0.6%
Suture Removal	36	6	0.4%
Incision Abcess	5	1	0.0%
Remove - Foreign Body	13	3	0.2%
First Aid	7	4	0.2%
Ear Lobe Pierce	11	1	0.0%
Ear Wash	0	0	0.0%
Ear Suction	0	0	0.0%
Ear Pack	1	0	0.0%
Eye Wash	11	1	0.1%
Vision Test	259	22	1.3%
Tonography	2	0	0.0%
Epilation	18	2	0.1%
E.C.G.	89	22	1.3%
Vitalograph	3	1	0.0%
O2 Administration	12	2	0.1%
Nebulization	112	19	1.1%
Control Nose Haemorrhage	0	0	0.0%
P.P.D. Test	18	2	0.1%

55	Other Tests	12	1	0.1%
56	Enema	2	1	0.0%
57	Cold Sponge	3	2	0.1%
58	I.U.C.D.	4	1	0.1%
59	Vital Signs TPR/BP	11	1	0.1%
60	Total	3178	668	39.1%
61				
62	**Associated Work**			
63				
64	Clerical	3688	184	10.8%
65	Meeting	99	99	5.8%
66	Escorting	116	58	3.4%
67	Personal & Miscellaneous	128	21	1.2%
68	Others	159	53	3.1%
69	Total	4190	416	24.3%
70				
71	Summary		Total Hrs.	Percent Hrs.
72				
73	Preventative	4248	625	36.6
74	Curative	3178	668	39.1
75	Associated Work	4190	416	24.3
76	Total	11616	1708	100.0
77				
78	Establishment	Total	WTE's	
79	Total	1708	20.17	
80	Sister in-charge	361	4.26	
81	Staff Nurse	383	4.52	
82	Midwive	234	2.76	
83	Community Health Nurse	224	2.64	
84	M.C.H.	252	2.98	
85	Practical Nurse	254	3.00	

Ministry of Health
Primary Health Care

SITRA HEALTH CENTER
Feb 19 - Mar 19, 1990

Preventive	Total	Total Hrs.	Percent Hrs.
Ante-natal Primi	134	45	2.4%
Multi	233	117	6.3%
Revisit	196	33	1.8%
Midwife encounter	89	22	1.2%
Post-natal Mother	11	4	0.2%
Newborn	15	5	0.3%
Child Screening Under 5 Years	161	54	2.9%
Immunization	478	96	5.2%
School Service	108	27	1.5%
Health Education	1023	341	18.4%
Counselling	55	14	0.7%
Communication	3357	112	6.1%
Home Visit - Mother	52	26	1.4%
- Child	36	18	1.0%
- Adult	4	2	0.1%
- Elderly	4	2	0.1%
Total	5956	916	49.5%
Curative			
Injections	222	19	1.0%
Special Injections	139	23	1.3%
I.V. Administration	18	3	0.2%
Dressing	922	307	16.6%
Circumcision	30	15	0.8%
Cryotherapy	2	0	0.0%
Cauterization	1	0	0.0%
Excision-Lesion	1	0	0.0%
Biopsies	1	0	0.0%
Suture Wound	27	9	0.5%
Suture Removal	43	7	0.4%
Incision Abcess	22	4	0.2%
Remove - Foreign Body	9	2	0.1%
First Aid	19	10	0.5%
Ear Lobe Pierce	27	1	0.1%
Ear Wash	7	1	0.0%
Ear Suction	0	0	0.0%
Ear Pack	3	0	0.0%
Eye Wash	31	3	0.1%
Vision Test	149	12	0.7%
Tonography	2	0	0.0%
Epilation	17	2	0.1%
E.C.G.	31	8	0.4%
Vitalograph	0	0	0.0%
02 Administration	1	0	0.0%
Nebulization	47	8	0.4%
Control Nose Haemorrhage	2	0	0.0%
P.P.D. Test	4	0	0.0%

55	Other Tests	2	0	0.0%
56	Enema	0	0	0.0%
57	Cold Sponge	8	4	0.2%
58	I.U.C.D.	0	0	0.0%
59	Vital Signs TPR/BP	49	6	0.3%
60	Total	1836	446	24.1%
61				
62	Associated Work			
63				
64	Clerical	3397	170	9.2%
65	Meeting	23	23	1.2%
66	Escorting	165	83	4.5%
67	Personal & Miscellaneous	432	72	3.9%
68	Others	422	141	7.6%
69	Total	4439	488	26.4%
70				
71	Summary		Total Hrs.	Percent Hrs.
72				
73	Preventative	5956	916	49.5
74	Curative	1836	446	24.1
75	Associated Work	4439	488	26.4
76	Total	12231	1849	100.0
77				
78	Establishment	Total WTE's		
79	Total	1849	21.83	
80	Sister in-charge	305	3.60	
81	Staff Nurse	326	3.85	
82	Midwive	281	3.32	
83	Community Health Nurse	301	3.55	
84	M.C.H.	350	4.13	
85	Practical Nurse	288	3.40	

Ministry of Health
Primary Health Care

SH.SABAH HEALTH CENTER
Feb 19 - Mar 19, 1990

Preventive	Total	Total Hrs.	Percent Hrs.
Ante-natal Primi	104	35	2.7%
Multi	166	83	6.5%
Revisit	217	36	2.8%
Midwife encounter	81	20	1.6%
Post-natal Mother	38	13	1.0%
Newborn	5	2	0.1%
Child Screening Under 5 Years	107	36	2.8%
Immunization	164	33	2.6%
School Service	15	4	0.3%
Health Education	650	217	17.1%
Counselling	706	177	13.9%
Communication	1863	62	4.9%
Home Visit - Mother	3	2	0.1%
- Child	3	2	0.1%
- Adult	7	4	0.3%
- Elderly	3	2	0.1%
Total	4132	724	57.0%
Curative			
Injections	100	8	0.7%
Special Injections	207	35	2.7%
I.V. Administration	13	2	0.2%
Dressing	495	165	13.0%
Circumcision	5	3	0.2%
Cryotherapy	32	5	0.4%
Cauterization	9	2	0.1%
Excision-Lesion	12	4	0.3%
Biopsies	0	0	0.0%
Suture Wound	9	3	0.2%
Suture Removal	22	4	0.3%
Incision Abcess	11	2	0.1%
Remove - Foreign Body	4	1	0.1%
First Aid	2	1	0.1%
Ear Lobe Pierce	2	0	0.0%
Ear Wash	0	0	0.0%
Ear Suction	1	0	0.0%
Ear Pack	1	0	0.0%
Eye Wash	16	1	0.1%
Vision Test	33	3	0.2%
Tonography	5	1	0.1%
Epilation	10	1	0.1%
E.C.G.	64	16	1.3%
Vitalograph	1	0	0.0%
O2 Administration	5	1	0.1%
Nebulization	72	12	0.9%
Control Nose Haemorrhage	0	0	0.0%
P.P.D. Test	7	1	0.0%

55	Other Tests	31	3	0.2%
56	Enema	0	0	0.0%
57	Cold Sponge	5	3	0.2%
58	I.U.C.D.	3	1	0.1%
59	Vital Signs TPR/BP	203	24	1.9%
60	Total	1380	300	23.6%
61				
62	Associated Work			
63				
64	Clerical	1674	84	6.6%
65	Meeting	5	5	0.4%
66	Escorting	5	3	0.2%
67	Personal & Miscellaneous	128	21	1.7%
68	Others	400	133	10.5%
69	Total	2212	246	19.4%
70				
71	Summary		Total Hrs.	Percent Hrs.
72				
73	Preventative	4132	724	57.0
74	Curative	1380	300	23.6
75	Associated Work	2212	246	19.4
76	Total	7724	1269	100.0
77				
78	Establishment	Total	WTE's	
79	Total	1269	14.99	
80	Sister in-charge	220	2.60	
81	Staff Nurse	228	2.70	
82	Midwive	218	2.58	
83	Community Health Nurse	186	2.19	
84	M.C.H.	229	2.71	
85	Practical Nurse	188	2.22	

Ministry of Health
Primary Health Care

WEST RIFA HEALTH CENTER
Oct 29 - Nov 5, 1990

Preventive	Total	Total Hrs.	Percent Hrs.
Ante-natal Primi	0	0	0.0%
Multi	0	0	0.0%
Revisit	0	0	0.0%
Midwife encounter	0	0	0.0%
Post-natal Mother	0	0	0.0%
Newborn	0	0	0.0%
Child Screening Under 5 Years	6	2	1.6%
Immunization	14	3	2.2%
School Service	0	0	0.0%
Health Education	85	28	22.4%
Counselling	87	22	17.2%
Communication	148	5	3.9%
Home Visit - Mother	0	0	0.0%
- Child	0	0	0.0%
- Adult	0	0	0.0%
- Elderly	0	0	0.0%
Total	340	60	47.3%

Curative			
Injections	73	6	4.8%
Special Injections	1	0	0.1%
I.V. Administration	1	0	0.1%
Dressing	79	26	20.8%
Circumcision	3	2	1.2%
Cryotherapy	0	0	0.0%
Cauterization	0	0	0.0%
Excision-Lesion	2	1	0.5%
Biopsies	0	0	0.0%
Suture Wound	1	0	0.3%
Suture Removal	1	0	0.1%
Incision Abcess	2	0	0.3%
Remove - Foreign Body	2	1	0.4%
First Aid	1	1	0.4%
Ear Lobe Pierce	0	0	0.0%
Ear Wash	0	0	0.0%
Ear Suction	0	0	0.0%
Ear Pack	0	0	0.0%
Eye Wash	0	0	0.0%
Vision Test	5	0	0.3%
Tonography	0	0	0.0%
Epilation	0	0	0.0%
E.C.G.	1	0	0.2%
Vitalograph	0	0	0.0%
O2 Administration	0	0	0.0%
Nebulization	22	4	2.9%
Control Nose Haemorrhage	0	0	0.0%
P.P.D. Test	0	0	0.0%

55	Other Tests	1	0	0.1%
56	Enema	0	0	0.0%
57	Cold Sponge	0	0	0.0%
58	I.U.C.D.	0	0	0.0%
59	Vital Signs TPR/BP	0	0	0.0%
60	Total	195	41	32.6%
61				
62	Associated Work			
63	---	---	---	---
64	Clerical	234	12	9.3%
65	Meeting	0	0	0.0%
66	Escorting	12	6	4.7%
67	Personal & Miscellaneous	20	3	2.6%
68	Others	13	4	3.4%
69	Total	279	25	20.1%
70				
71	Summary		Total Hrs.	Percent Hrs.
72	---	---	---	---
73	Preventative	340	60	47.3
74	Curative	195	41	32.6
75	Associated Work	279	25	20.1
76	Total	814	126	100.0
77				
78	Establishment	Total WTE's		
79	Total	126	6.0	
80	Sister in-charge	28	1.3	
81	Staff Nurse	28	1.3	
82	Midwive	13	0.6	
83	Community Health Nurse	17	0.8	
84	M.C.H.	17	0.8	
85	Practical Nurse	24	1.1	

1	Ministry of Health	A"ALI HEALTH CENTER		
2	Primary Health Care	Oct 29 - Nov 5, 1990		
3				
4	Preventive	Total	Total Hrs.	Percent Hrs.
5				
6				
7	Ante-natal Primi	4	1	0.8%
8	Multi	39	20	11.7%
9	Revisit	36	6	3.6%
10	Midwife encounter	21	5	3.1%
11	Post-natal Mother	0	0	0.0%
12	Newborn	0	0	0.0%
13	Child Screening Under 5 Years	27	9	5.4%
14	Immunization	37	7	4.4%
15	School Service	5	1	0.7%
16	Health Education	93	31	18.5%
17	Counselling	12	3	1.8%
18	Communication	29	1	0.6%
19	Home Visit - Mother	0	0	0.0%
20	- Child	7	4	2.1%
21	- Adult	2	1	0.6%
22	- Elderly	0	0	0.0%
23	Total	312	89	53.3%
24				
25	Curative			
26				
27	Injections	41	3	2.0%
28	Special Injections	21	4	2.1%
29	I.V. Administration	0	0	0.0%
30	Dressing	140	47	27.9%
31	Circumcision	0	0	0.0%
32	Cryotherapy	0	0	0.0%
33	Cauterization	1	0	0.1%
34	Excision-Lesion	0	0	0.0%
35	Biopsies	0	0	0.0%
36	Suture Wound	1	0	0.2%
37	Suture Removal	1	0	0.1%
38	Incision Abcess	3	1	0.3%
39	Remove - Foreign Body	1	0	0.1%
40	First Aid	0	0	0.0%
41	Ear Lobe Pierce	4	0	0.1%
42	Ear Wash	0	0	0.0%
43	Ear Suction	0	0	0.0%
44	Ear Pack	0	0	0.0%
45	Eye Wash	2	0	0.1%
46	Vision Test	18	2	0.9%
47	Tonography	0	0	0.0%
48	Epilation	4	0	0.3%
49	E.C.G.	5	1	0.7%
50	Vitalograph	1	0	0.1%
51	O2 Administration	2	0	0.2%
52	Nebulization	6	1	0.6%
53	Control Nose Haemorrhage	0	0	0.0%
54	P.P.D. Test	0	0	0.0%

55	Other Tests	1	0	0.0%
56	Enema	0	0	0.0%
57	Cold Sponge	0	0	0.0%
58	I.U.C.D.	1	0	0.2%
59	Vital Signs TPR/BP	44	5	3.1%
60	Total	297	66	39.3%
61				
62	Associated Work			
63				
64	Clerical	44	2	1.3%
65	Meeting	6	6	3.6%
66	Escorting	0	0	0.0%
67	Personal & Miscellaneous	25	4	2.5%
68	Others	0	0	0.0%
69	Total	75	12	7.4%
70				
71	Summary		Total Hrs.	Percent Hrs.
72				
73	Preventative	312	89	53.3
74	Curative	297	66	39.3
75	Associated Work	75	12	7.4
76	Total	684	167	100.0
77				
78	Establishment	Total WTE's		
79	Total	167	7.90	
80	Sister in-charge	29	1.38	
81	Staff Nurse	31	1.46	
82	Midwive	27	1.29	
83	Community Health Nurse	24	1.14	
84	M.C.H.	30	1.40	
85	Practical Nurse	26	1.22	

Ministry of Health — BUDAYIA HEALTH CENTER
Primary Health Care

Preventive	Total	Total Hrs.	Percent Hrs.
Ante-natal Primi	11	4	1.1%
Multi	43	22	6.7%
Revisit	45	8	2.3%
Midwife encounter	23	6	1.8%
Post-natal Mother	13	4	1.4%
Newborn	0	0	0.0%
Child Screening Under 5 Years	53	18	5.5%
Immunization	89	18	5.5%
School Service	13	3	1.0%
Health Education	28	9	2.9%
Counselling	4	1	0.3%
Communication	497	17	5.2%
Home Visit - Mother	22	11	3.4%
- Child	0	0	0.0%
- Adult	0	0	0.0%
- Elderly	0	0	0.0%
Total	841	119	37.2%
Curative			
Injections	76	6	2.0%
Special Injections	14	2	0.7%
I.V. Administration	6	1	0.3%
Dressing	272	91	28.3%
Circumcision	0	0	0.0%
Cryotherapy	0	0	0.0%
Cauterization	0	0	0.0%
Excision-Lesion	0	0	0.0%
Biopsies	0	0	0.0%
Suture Wound	1	0	0.1%
Suture Removal	3	1	0.2%
Incision Abcess	2	0	0.1%
Remove - Foreign Body	0	0	0.0%
First Aid	0	0	0.0%
Ear Lobe Pierce	2	0	0.0%
Ear Wash	0	0	0.0%
Ear Suction	0	0	0.0%
Ear Pack	2	0	0.1%
Eye Wash	1	0	0.0%
Vision Test	14	1	0.4%
Tonography	4	1	0.2%
Epilation	5	1	0.2%
E.C.G.	8	2	0.6%
Vitalograph	0	0	0.0%
O2 Administration	2	0	0.1%
Nebulization	17	3	0.9%
Control Nose Haemorrhage	0	0	0.0%
P.P.D. Test	2	0	0.1%
Other Tests	0	0	0.0%
Enema	0	0	0.0%

57	Cold Sponge	0	0	0.0%
58	I.U.C.D.	0	0	0.0%
59	Vital Signs TPR/BP	3	0	0.1%
60	Total	434	110	34.3%
61				
62	Associated Work			
63				
64	Clerical	693	35	10.8%
65	Meeting	0	0	0.0%
66	Escorting	13	7	2.0%
67	Personal & Miscellaneous	28	5	1.5%
68	Others	137	46	14.2%
69	Total	871	91	28.5%
70				
71	Summary		Total Hrs.	Percent Hrs.
72				
73	Preventative	841	119	37.2
74	Curative	434	110	34.3
75	Associated Work	871	91	28.5
76	Total	2146	321	100.0
77				
78	Establishment	Total	WTE's	
79	Total	321	15.15	
80	Sister in-charge	57	2.69	
81	Staff Nurse	60	2.81	
82	Midwive	42	1.98	
83	Community Health Nurse	55	2.61	
84	M.C.H.	56	2.64	
85	Practical Nurse	51	2.42	

Ministry of Health
Primary Health Care

HOORA HEALTH CENTER
Oct 29 - Nov 5, 1990

Preventive	Total	Total Hrs.	Percent Hrs.
Ante-natal Primi	26	9	2.1%
Multi	75	38	9.2%
Revisit	105	18	4.3%
Midwife encounter	28	7	1.7%
Post-natal Mother	21	7	1.7%
Newborn	37	12	3.0%
Child Screening Under 5 Years	48	16	3.9%
Immunization	51	10	2.5%
School Service	0	0	0.0%
Health Education	142	47	11.6%
Counselling	33	8	2.0%
Communication	619	21	5.1%
Home Visit - Mother	28	14	3.4%
- Child	31	16	3.8%
- Adult	14	7	1.7%
- Elderly	6	3	0.7%
Total	1264	232	57.0%
Curative			
Injections	11	1	0.2%
Special Injections	75	13	3.1%
I.V. Administration	1	0	0.0%
Dressing	75	25	6.1%
Circumcision	0	0	0.0%
Cryotherapy	0	0	0.0%
Cauterization	0	0	0.0%
Excision-Lesion	0	0	0.0%
Biopsies	0	0	0.0%
Suture Wound	0	0	0.0%
Suture Removal	7	1	0.3%
Incision Abcess	0	0	0.0%
Remove - Foreign Body	1	0	0.1%
First Aid	2	1	0.2%
Ear Lobe Pierce	2	0	0.0%
Ear Wash	1	0	0.0%
Ear Suction	0	0	0.0%
Ear Pack	0	0	0.0%
Eye Wash	2	0	0.0%
Vision Test	5	0	0.1%
Tonography	0	0	0.0%
Epilation	1	0	0.0%
E.C.G.	4	1	0.2%
Vitalograph	4	1	0.2%
O2 Administration	2	0	0.1%
Nebulization	8	1	0.3%
Control Nose Haemorrhage	0	0	0.0%
P.P.D. Test	0	0	0.0%

55	Other Tests	41	3	0.8%
56	Enema	0	0	0.0%
57	Cold Sponge	0	0	0.0%
58	I.U.C.D.	4	1	0.3%
59	Vital Signs TPR/BP	227	26	6.5%
60	Total	473	76	18.8%
61				
62	Associated Work			
63	---			
64	Clerical	537	27	6.6%
65	Meeting	4	4	1.0%
66	Escorting	6	3	0.7%
67	Personal & Miscellaneous	16	3	0.7%
68	Others	185	62	15.2%
69	Total	748	98	24.1%
70				
71	Summary		Total Hrs.	Percent Hrs.
72	---			
73	Preventative	1264	232	57.0
74	Curative	473	76	18.8
75	Associated Work	748	98	24.1
76	Total	2485	407	100.0
77				
78	Establishment	Total WTE's		
79	Total	407	19.2	
80	Sister in-charge	51	2.4	
81	Staff Nurse	55	2.6	
82	Midwive	72	3.4	
83	Community Health Nurse	84	4.0	
84	M.C.H.	100	4.7	
85	Practical Nurse	43	2.0	

Ministry of Health
Primary Health Care

KUWAIT HEALTH CENTER
Oct 29 - Nov 5,1990

Preventive	Total	Total Hrs.	Percent Hrs.
Ante-natal Primi	19	6	2.9%
Multi	0	0	0.0%
Revisit	42	7	3.2%
Midwife encounter	33	8	3.8%
Post-natal Mother	7	2	1.1%
Newborn	0	0	0.0%
Child Screening Under 5 Years	66	22	10.0%
Immunization	48	10	4.4%
School Service	13	3	1.5%
Health Education	85	28	12.9%
Counselling	48	12	5.5%
Communication	137	5	2.1%
Home Visit - Mother	10	5	2.3%
- Child	3	2	0.7%
- Adult	7	4	1.6%
- Elderly	1	1	0.2%
Total	519	114	52.0%

Curative			
Injections	104	9	4.0%
Special Injections	0	0	0.0%
I.V. Administration	1	0	0.1%
Dressing	147	49	22.3%
Circumcision	0	0	0.0%
Cryotherapy	0	0	0.0%
Cauterization	0	0	0.0%
Excision-Lesion	0	0	0.0%
Biopsies	0	0	0.0%
Suture Wound	4	1	0.6%
Suture Removal	1	0	0.1%
Incision Abcess	0	0	0.0%
Remove - Foreign Body	0	0	0.0%
First Aid	0	0	0.0%
Ear Lobe Pierce	0	0	0.0%
Ear Wash	0	0	0.0%
Ear Suction	0	0	0.0%
Ear Pack	0	0	0.0%
Eye Wash	2	0	0.1%
Vision Test	6	1	0.2%
Tonography	0	0	0.0%
Epilation	7	1	0.4%
E.C.G.	2	1	0.2%
Vitalograph	0	0	0.0%
O2 Administration	0	0	0.0%
Nebulization	2	0	0.2%
Control Nose Haemorrhage	0	0	0.0%
P.P.D. Test	0	0	0.0%

55	Other Tests	0	0	0.0%
56	Enema	0	0	0.0%
57	Cold Sponge	1	1	0.2%
58	I.U.C.D.	1	0	0.2%
59	Vital Signs TPR/BP	59	7	3.1%
60	Total	337	69	31.6%
61				
62	Associated Work			
63	---	---	---	---
64	Clerical	300	15	6.8%
65	Meeting	3	3	1.4%
66	Escorting	4	2	0.9%
67	Personal & Miscellaneous	15	3	1.1%
68	Others	40	13	6.1%
69	Total	362	36	16.3%
70				
71	Summary		Total Hrs.	Percent Hrs.
72	---	---	---	---
73	Preventative	519	114	52.0
74	Curative	337	69	31.6
75	Associated Work	362	36	16.3
76	Total	1218	219	100.0
77				
78	Establishment	Total	WTE's	
79	Total	219	10.4	
80	Sister in-charge	35	1.7	
81	Staff Nurse	37	1.7	
82	Midwive	30	1.4	
83	Community Health Nurse	49	2.3	
84	M.C.H.	36	1.7	
85	Practical Nurse	32	1.5	

Ministry of Health
Primary Health Care

DAIR HEALTH CENTER
Oct 29 - Nov 5, 1990

Preventive	Total	Total Hrs.	Percent Hrs.
Ante-natal Primi	0	0	0.0%
Multi	0	0	0.0%
Revisit	0	0	0.0%
Midwife encounter	0	0	0.0%
Post-natal Mother	21	7	2.6%
Newborn	0	0	0.0%
Child Screening Under 5 Years	14	5	1.8%
Immunization	59	12	4.5%
School Service	0	0	0.0%
Health Education	112	37	14.1%
Counselling	7	2	0.7%
Communication	456	15	5.7%
Home Visit - Mother	5	3	0.9%
- Child	0	0	0.0%
- Adult	6	3	1.1%
- Elderly	1	1	0.2%
Total	681	84	31.7%
Curative			
Injections	83	7	2.6%
Special Injections	0	0	0.0%
I.V. Administration	4	1	0.3%
Dressing	179	60	22.6%
Circumcision	2	1	0.4%
Cryotherapy	0	0	0.0%
Cauterization	0	0	0.0%
Excision-Lesion	0	0	0.0%
Biopsies	0	0	0.0%
Suture Wound	1	0	0.1%
Suture Removal	6	1	0.4%
Incision Abcess	0	0	0.0%
Remove - Foreign Body	1	0	0.1%
First Aid	0	0	0.0%
Ear Lobe Pierce	1	0	0.0%
Ear Wash	2	0	0.1%
Ear Suction	0	0	0.0%
Ear Pack	3	0	0.1%
Eye Wash	2	0	0.1%
Vision Test	17	1	0.5%
Tonography	0	0	0.0%
Epilation	2	0	0.1%
E.C.G.	14	4	1.3%
Vitalograph	1	0	0.1%
O2 Administration	1	0	0.1%
Nebulization	9	2	0.6%
Control Nose Haemorrhage	0	0	0.0%
P.P.D. Test	0	0	0.0%

54	P.P.D. Test	0	0	0.0%
55	Other Tests	1	0	0.0%
56	Enema	0	0	0.0%
57	Cold Sponge	1	1	0.2%
58	I.U.C.D.	0	0	0.0%
59	Vital Signs TPR/BP	1	0	0.0%
60	Total	331	78	29.6%
61				
62	Associated Work			
63				
64	Clerical	501	25	9.5%
65	Meeting	41	41	15.5%
66	Escorting	9	5	1.7%
67	Personal & Miscellaneous	68	11	4.3%
68	Others	62	21	7.8%
69	Total	681	103	38.8%
70				
71	Summary		Total Hrs.	Percent Hrs.
72				
73	Preventative	681	84	31.7
74	Curative	331	78	29.6
75	Associated Work	681	103	38.8
76	Total	1693	265	100.0
77				
78	Establishment	Total WTE's		
79	Total	265	12.5	
80	Sister in-charge	52	2.5	
81	Staff Nurse	54	2.5	
82	Midwive	26	1.2	
83	Community Health Nurse	43	2.0	
84	M.C.H.	41	1.9	
85	Practical Nurse	48	2.3	

Ministry of Health
Primary Health Care

NBB HEALTH CENTER
Oct 29 - Nov 5, 1990

Preventive	Total	Total Hrs.	Percent Hrs.
Ante-natal Primi	3	1	0.4%
Multi	7	4	1.4%
Revisit	10	2	0.7%
Midwife encounter	0	0	0.0%
Post-natal Mother	10	3	1.4%
Newborn	0	0	0.0%
Child Screening Under 5 Years	50	17	6.8%
Immunization	56	11	4.5%
School Service	2	1	0.2%
Health Education	79	26	10.7%
Counselling	89	22	9.0%
Communication	298	10	4.0%
Home Visit - Mother	9	5	1.8%
- Child	0	0	0.0%
- Adult	7	4	1.4%
- Elderly	0	0	0.0%
Total	620	104	42.3%
Curative			
Injections	27	2	0.9%
Special Injections	16	3	1.1%
I.V. Administration	2	0	0.1%
Dressing	152	51	20.5%
Circumcision	0	0	0.0%
Cryotherapy	0	0	0.0%
Cauterization	0	0	0.0%
Excision-Lesion	1	0	0.1%
Biopsies	0	0	0.0%
Suture Wound	4	1	0.5%
Suture Removal	5	1	0.3%
Incision Abcess	0	0	0.0%
Remove - Foreign Body	0	0	0.0%
First Aid	0	0	0.0%
Ear Lobe Pierce	0	0	0.0%
Ear Wash	3	0	0.1%
Ear Suction	0	0	0.0%
Ear Pack	0	0	0.0%
Eye Wash	0	0	0.0%
Vision Test	20	2	0.7%
Tonography	2	0	0.1%
Epilation	2	0	0.1%
E.C.G.	18	5	1.8%
Vitalograph	0	0	0.0%
O2 Administration	0	0	0.0%
Nebulization	6	1	0.4%
Control Nose Haemorrhage	0	0	0.0%
P.P.D. Test	3	0	0.1%

55	Other Tests	15	1	0.5%
56	Enema	1	0	0.1%
57	Cold Sponge	0	0	0.0%
58	I.U.C.D.	0	0	0.0%
59	Vital Signs TPR/BP	21	2	1.0%
60	Total	298	71	28.7%
61				
62	Associated Work			
63	---	---	---	---
64	Clerical	266	13	5.4%
65	Meeting	0	0	0.0%
66	Escorting	8	4	1.6%
67	Personal & Miscellaneous	0	0	0.0%
68	Others	163	54	22.0%
69	Total	437	72	29.0%
70				
71	Summary		Total Hrs.	Percent Hrs.
72	---	---	---	---
73	Preventative	620	104	42.3
74	Curative	298	71	28.7
75	Associated Work	437	72	29.0
76	Total	1355	247	100.0
77				
78	Establishment	Total	WTE's	
79	Total	247	11.7	
80	Sister in-charge	45	2.1	
81	Staff Nurse	48	2.3	
82	Midwive	25	1.2	
83	Community Health Nurse	50	2.4	
84	M.C.H.	37	1.8	
85	Practical Nurse	41	1.9	

Ministry of Health
Primary Health Care

BILAD AL-QADIM HC
Oct 29 - Nov 5, 1990

Preventive	Total	Total Hrs.	Percent Hrs.
Ante-natal Primi	10	3	1.0%
Multi	7	4	1.1%
Revisit	37	6	1.9%
Midwife encounter	8	2	0.6%
Post-natal Mother	26	9	2.7%
Newborn	4	1	0.4%
Child Screening Under 5 Years	42	14	4.4%
Immunization	49	10	3.1%
School Service	2	1	0.2%
Health Education	3	1	0.3%
Counselling	3	1	0.2%
Communication	473	39	12.4%
Home Visit - Mother	8	6	1.9%
- Child	3	2	0.7%
- Adult	3	2	0.5%
- Elderly	2	2	0.5%
Total	680	102	31.9%
Curative			
Injections	55	5	1.4%
Special Injections	60	10	3.1%
I.V. Administration	2	0	0.1%
Dressing	110	37	11.5%
Circumcision	22	11	3.4%
Cryotherapy	0	0	0.0%
Cauterization	0	0	0.0%
Excision-Lesion	1	0	0.1%
Biopsies	0	0	0.0%
Suture Wound	4	1	0.4%
Suture Removal	4	1	0.2%
Incision Abcess	0	0	0.0%
Remove - Foreign Body	0	0	0.0%
First Aid	0	0	0.0%
Ear Lobe Pierce	0	0	0.0%
Ear Wash	2	0	0.1%
Ear Suction	0	0	0.0%
Ear Pack	0	0	0.0%
Eye Wash	1	0	0.0%
Vision Test	10	1	0.3%
Tonography	0	0	0.0%
Epilation	6	1	0.2%
E.C.G.	8	2	0.6%
Vitalograph	0	0	0.0%
O2 Administration	1	0	0.1%
Nebulization	10	2	0.5%
Control Nose Haemorrhage	0	0	0.0%
P.P.D. Test	2	0	0.1%
Other Tests	0	0	0.0%

56	Enema	0	0	0.0%
57	Cold Sponge	1	1	0.2%
58	I.U.C.D.	0	0	0.0%
59	Vital Signs TPR/BP	59	7	2.2%
60	Total	358	78	24.5%
61				
62	Associated Work			
63	----------			
64	Clerical	550	46	14.4%
65	Meeting	0	0	0.0%
66	Escorting	6	6	1.9%
67	Personal & Miscellaneous	16	3	0.8%
68	Others	169	85	26.5%
69	Total	741	139	43.6%
70				
71	Summary		Total Hrs.	Percent Hrs.
72	----------			
73	Preventative	680	102	31.9
74	Curative	358	78	24.5
75	Associated Work	741	139	43.6
76	Total	1779	319	100.0
77				
78	Establishment	Total WTE's		
79	Total	319	15.1	
80	Sister in-charge	57	2.7	
81	Staff Nurse	58	2.7	
82	Midwive	40	1.9	
83	Community Health Nurse	61	2.9	
84	M.C.H.	55	2.6	
85	Practical Nurse	49	2.3	

APPENDICES (Volume II)

APPENDIX

A ...	GUIDELINES FOR SELECTION OF DETERMINERS FOR PATIENT CLASSIFICATION	1
B ...	DEFINITION OF NURSING ACTIVITIES	11
C ...	WARD PROFILE QUESTIONNAIRE	19
D ...	PATIENT DEPENDENCY CLASSIFICATION FORM	30
E ...	PATIENT DEPENDENCY CLASSIFICAITON MONTHLY FORM	31
F ...	PATIENT DEPENDENCY YEARLY TOTALS	32
G ...	DIRECT CARE ASSESSMENT FORM	52
H ...	ALL NURSING ACTIVITY SAMPLING FORM A	56
I ...	OBSERVERS FEEDBACK QUESTIONNAIRE	58
J ...	NURSE SATISFACTION QUESTIONNAIRE	61
K ...	OPERATIONAL DEFINITION OF NURSING ACTIVITIES IN THE HEALTH CENTRES	65
L ...	NURSING ACTIVITIES ASSESSMENT FORM IN PRIMARY HEALTH CARE	71
M ...	CONTRIBUTION OF THE COMMUNITY NURSING TEAM IN NURSING ACTIVITIES CHECKLIST	72
N ...	QUESTIONNAIRE TO ASSESS HEALTH OFFICIALS FEEDBACK ON NURSING SITUATION	74
O ...	WARD SAMPLING FORM	79
P ...	DIRECT CARE SAMPLING FORM I: DAILY TOTALS DIRECT CARE UNITS PER DEPENDENCY CATEGORY	80
Q ...	DIRECT CARE SAMPLING FORM J: WEEKLY AVERAGE DIRECT CARE PER DEPENDENCY CATEGORY	81
R ...	DETAILS OF DIRECT CARE ASSESSMENT IN THE SIX SURVEYED WARDS	82
S ...	ALL NURSE ACTIVITY FORM B	130
T ...	ALL NURSE ACTIVITY FORM C	131

U ... DETAILS OF ALL NURSING ACTIVITY ASSESSMENT IN THE SIX SURVEYED WARDS 132

V ... NURSE SATISFACTION QUESTIONNAIRE SCORES 180

X ... DAILY AND MONTHLY NURSING ACTIVITIES IN THE SURVEYED HEALTH CENTRES 186

Y ... COMPUTER PROGRAMME MENU FOR ASSESSMENT OF NURSE ESTABLISHMENTS IN HEALTH CENTRE 200

Z ... CALCULATION OF NURSING ESTABLISHMENTS IN THE FOURTEEN HEALTH CENTRES 202