MANAGEMENT INFORMATION SYSTEM FOR DECISION MAKING - COMPUTERIZATION OF MEDICAL RECORDS OF ABUTH, ZARIA

BY

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A THESIS SUBMITTED TO THE POSTGRADUATE SCHOOL, AHMADU BELLO UNIVERSITY IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE DEGREE OF MASTER OF SCIENCE (COMPUTER SCIENCE)

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DECLARATION

I hereby declare that this thesis has been composed by myself and that it is a record of my own research work. It has not been accepted in any previous application for a higher degree. All quotations are distinguished by quotation marks and the sources of information are specifically acknowledged by means of references.

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1983

ABSTRACT

The Medical Records System is one of several subsystems that make up a Medical Information System. It plays an important role in the development of Medical Sciences, and in planning individual patient care. So far these records are usually maintained manually. Naturally, it has severe limitations. In this dissertation a11 such limitations has been identified and a computerized medical Records System have been proposed.

Obviously, it is relatively more reliable, economical and faster. In addition, it is capable of offering much more than the current system. The proposed system has been tested on live data collected from Ahmadu Bello University Teaching Hospital, Zaria. The programs and their outputs have been included towards the end of this dissertation with the processing details fully explained in the text. The system comprises of essentially three subsystems. They are: Data Check and Store (DCS) subsystem, which is designed to store the coded information on treated in-patients in two different files after record validation one of the files is an active on stored on magnetic disc for frequent processing. The other having a greater records length is infrequently used and is stored on a magnetic tape kept away to be activated and deactivated according to needs.

A second subsystem, Report Genera ting (RG), is responsible for producing both the reports that are manually possible, and certain others that are not being produced by the manual system due to size and complexity even though they are qually desirable.

To cope with the growing number of recuests for patients' data necessary for research, an interactive Health Inquiry (H..I) subsystem is introduced to handle inquiries on the frequency of any of the 999 major disease groups for a given period and their associated mortality counts.

As far as the information goes this attempt is perhaps the first of its kind in the country.

The Medical Records Department of ABUTH, Zaria is now all set to implement the proposed system and the Medical Reoords Department of ABUTH, Kaduna will soon follow suit.

PREFACE

This study proposes a new approach to the problems of storage, access method and a guideline for analysis of data applicable to the medical Records Department of the Ahmadu Bello University Teaching Hospital Zaria. It is worthy of note that the researcher did not take the Teaching Hospital, Zaria in isolation. The resulting design is made flexible enough to fit any of the teaching hospitals under the teaching hospital management. With little modifications it will meet the needs of other hospitals in the country which are interested in well organized medical records system.

The computerized system is user-oriented. So that very minimum effort is required to be able to use it without imposing on the user the need to be knowledgeable in computer sciences.

Hospital management staff, medical practioners, government agencies charged with health care delivery, researchers and computer science students will benefit immersely from the study. Hospital administrators will find the generated reports useful for planning and prompt decision making, as they show the most frequent diseases according to sex, age-groups, length of stay in hospital and occupation.

Most importantly, the problems of the Medical Records Department are well taken care of in the study.

ACKNOWLEDGEMENTS

The road leading to the completion of this research study cannot be described as a royal one. At various points there were different hurdles to cross over. However many people made their unique contributions to make it possible for the project to be completed successfully. To them I want to register my heart-felt appreciation.

I am particularly grateful to the Head of the Mathematics Department and then Acting Director of my Computer Centre, Professor I.B. Mohammmed. Without his good guidiance and moral support at all stages of my study and the project, the completion of both would have been abortive.

To my supervisor, Dr, S.C. Mathur, I want to put on record my sincere gratitude for his interest and invaluable contributions to this study. His timely suggestions were very helpful.

The special advisory role played by Dr. U.S. Ahmadu of Advanced Teachers' College, Minna, which gave me the external motivation to start the study will continue to be remembered. For the concern and moral support I received from my reliable friend, Mr. A. Oyedum, I am forever grateful.

I cannot forget to mention Messers C. Anikweze of A.T.C. Kafanchan and G. Inikori of A.T.C. Zaria who did not cease at any stage of the study to wish that the end has come.

Mr. A.K. Afuye, formerly of the Medical Records department, Zaria helped in no small way with different printed materials used for the study. To him I am highly indebted. To the different members of Kashim Ibrahim Library who helped me to obtain photocopies of related studies from other libraries in Britain, I must be thankful.

Mr. T. Olayemi of the Medical Records Department (ABUTH, Kaduna) and Mr. D. Dawah of the Medical Records Department (ABUTH, Zaria) made very

useful contributions through their objective criticisms of the proposed system. To them I will always remain grateful.

The list of contributors will be incomplete if Mr. W.N. Ekemezie of the Iya Abubakar Computer Centre, is left out. At all the stages his continued moral support will be remembered for all times. Mrs D.F. Opoola and Mr. Isaac Ogwuche who helped me with the typing of the document did no mean job. I am highly indebted to them.

The last but not the least is the role played by the members of my family. My wife and my brother, Onyabevwe remained the rocky foundation on which the study was founded and completed. I will forever be grateful to them.

E.O. OKORO

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CHAPTER ONE

INTRODUCTION

1.1. BACKGROUND

This project investigates and analyses the current manual system being used by the Medical Records Department of the Ahmadu Bello University Teaching Hospital (ABUTH), Zaria. ABUTH, Zaria, is a part of a complex system comprising of three hospitals located at Zaria, Kaduna and Malumfashi. In these three hospitals the Medical Records Departments perform identical duties - storing and providing access methods to medical records to obtain vital health care information.

During the year 1980, attendances at specialist clinics show that Zaria Specialist clinics saw 14,991 patients. In the same year a total of 17,800 patients were admitted and treated for different diseases. According to Huffmann (1981) "Medical record practitioners are surrounded by vast amounts of medical care data that are sometimes extracted or abstracted, but which can remain buried in millions of words and tonnes of paper. To retrieve requested information easily and exactly requires no small degree of skill". Adequate systems for coding and indexing patient information in an orderly fashion are vital for the future evaluation of patient care.

For a hospital that is open to an ever growing population, it is obvious that if some efficient and quick method of storing and accessing medical records is not found, it may not be long before this major source of data for medical research will constitute a bottle-neck to progress in that direction. The problem and the inefficiencies inherent in the manual system are identified.

A computerized medical record system aimed at achieving a higher level of efficient performance is proposed.

1.2. PREVIOUS WORK IN AUTOMATED MEDICAL RECORDS

Attempts to computerize medical records started in the late 1960s. "During the decade of the 1970s health informatics began to make great in-roads into the traditional health professions so that many sophisticated medical applications are currently in operation throughout North America, Europe, Japan, Singapore, and Australia", Shires (1982). In their work Davis et al. (1968) stated, "For the past three years, computer-stored medical records have been used to handle patient information from an Automated Multiphasic Screening (AMS) Project, and more than 125,000 examination records already have been stored on magnetic tape".

By April 1970, the Department of Information Science of the University of Missouri-Columbia has completed work on a state-wide medical information system. Lindberg, in examining the usefulness of such a system asked one vital question, "Is it the real purpose of a state-wide medical information system to provide a database for research by health care practitioners, administrators and planners?" Lindberg (1970).

The Kaiser-Permanente Medical Information System was designed to meet the needs of large medical data storage. "Its major objective is the development of a multi-facility computer-based system which will support the medical data requirements of a population of 1,000,000 persons and 1,000 physicians", Brunt (1970).

In the developing countries, however, very little can be said about computer applications. "Only in recent times have the developing countries either expressed interest in health informatics or realized the potential role that it could play in restructuring their health systems to meet population needs within their limited available resources". Shires (1982).

In Nigeria, automated medical records systems are yet to be developed. "The Nigerians who graduated in overseas countries other than U.K. are the worst hit having been trained with automated systems of recording medical data. It is obvious that Nigeria is still far away from the automation millenium", Adisa (1980). In his contribution, Agbalajobi, (1981) stated ,"in the area of patient administration, developing countries can benefit from the supportive roles which computers play in Medical record-keeping, bed allocation and waiting list, nursing allocation and drug monitoring and control".

1.3. APPROACH TO THE PROJECT

To achieve the desired goal the project was undertaken in stages as shown below:

1. System Investigation And Analysis

   Detailed investigation and analysis of the current manual system was carried out. This involved knowing new information needs, repetitive task, specific demands, as well as inquiries. It also, covered the volume of information demanded, the frequency and speed of retrieving such information. The researcher also obtained information about essential and

exceptional demands.

2. System Design

The system design stage involves the design of the recommended computerized system, made up of three subsystems. The subsystems are capable of performing jobs that are presently done manually with high speed and accuracy. The Data Check and Store (DCS) subsystem validates records for correctness and transfers them in whole or parts into two databases for further processing. The Report Generating (RG) subsystem produces in addition reports which though desirable were not being produced in the manual system because of the tedious nature of the processing involved in obtaining such output. Also these are the reports on the length of stay and the occupation of the patients by disease groups.

The third subsystem, Health Inquiry, (H.I) is slightly different from the others. It is an interactive system which addresses itself to different request concerning the frequency of various diseases for a specified period.

1.4. PROGRAM DEVELOPMENT AND IMPLEMENTATION

Methods used in the development of the programs are discussed at this stage. Since all reports are not necessarily needed at the same time, a modular approach is adopted. Even though the implementation is developed on the Ahmadu Bello University Computer Centre machine, the CDC Cyber 72 series system, the programs are not machine dependent.

Efforts are made to train the affected personnel at all levels with respect to the objectives, scope, and rationale of the methods

employed in the design. This is because such a training is central to the successful implementation of a new system in a working environment.

CHAPTER TWO

SYSTEMS INVESTIGATION AND ANALYSIS

2.1. THE CURRENT SYSTEM

2.1.1. PURPOSE OF MEDICAL RECORDS

Medical details, when recorded, are a highly valuable form of data for all times. They play an important role in the development of medical sciences, in as much as they sustain and:-

1. provide a means of communication between the physician and other health care professionals contributing to the patients' care. In this way it is possible for a physician to carry on with the treatment of a patient without waiting to see the former physician.
2. serve as a basis for planning individual patient care.
3. furnish documentary evidence of the course of the patient's illness and treatment during each hospital admission or treatment visit.
4. serve as a basis for analysis, study, and evaluation of the quality of care rendered to the patients.
5. assist in protecting legal interests of the patients' hospital and physician
6. provide clinical data for use in research and education.

According to Huffman, (1981) "the history of medical records runs parallel with the history of medicine. Records are as necessary for the practice of medicine as medications are for effective treatment, and they seem to have been made from earliest antiquity".

2.1.2. THE MEDICAL RECORDS DEPARTMENT

The Medical Records Department of the ABUTH provides storage and access methods of patients' data for the effective administration of health care needs of the patients. In performing its duties the department has to depend on the different specialties within the hospital set up. At present six specialties are operational in the hospital. They are Medical, Surgical, Ophthalmology, Paediatrics, Obstetrics and Gynaecology, and Orthopeadic.

2.1.3. INPUT/OUTPUT

1. Input

The Medical Records Department obtains its input data from different sources within the hospital. The sources include:-

(a) admission/discharge summary sheet

(b) In-patient notes

(c) treatment sheet

(d) special investigation report mount

(e) operation notes

(f) labour records

(g) observation notes

(h) consultation form

(i) fluid balance chart

(j) consent of operation and

(k) weight chart.

These sources can be summarized as shown in Figure 1 to obtain the relevant data for a medical record.

2. Output

The following outputs are obtained from the current system:-

(a) statistical report of sex by disease groups of in-patients.

(b) statistical report of age-groups by disease groups.

(c) extraction of data requested by research students and other interested persons.

2.1.4. FILES AND RECORDS

For every patient on admission, there is a file in the form of a folder, which contains both the personal and clinical data. The information contained in each folder constitutes one record. On the average, 1500 such records are processed every month in the Zaria Teaching Hospital.

2.1.5. PROCESSING

The processing is done manually and the details are discussed below.

For every in-patient there is a file containing the relevant data. These include any or all of the following: inpatient notes, treatment sheets, special investigation report mount, operation notes, labour records, observation notes, and discharge summary sheet. On discharge, the file is sent to the medical records department from the appropriate specialty.

It is the duty of the medical record personnel to examine the diagnostic notes and assign the appropriate diagnostic code or codes according to the International Classification of

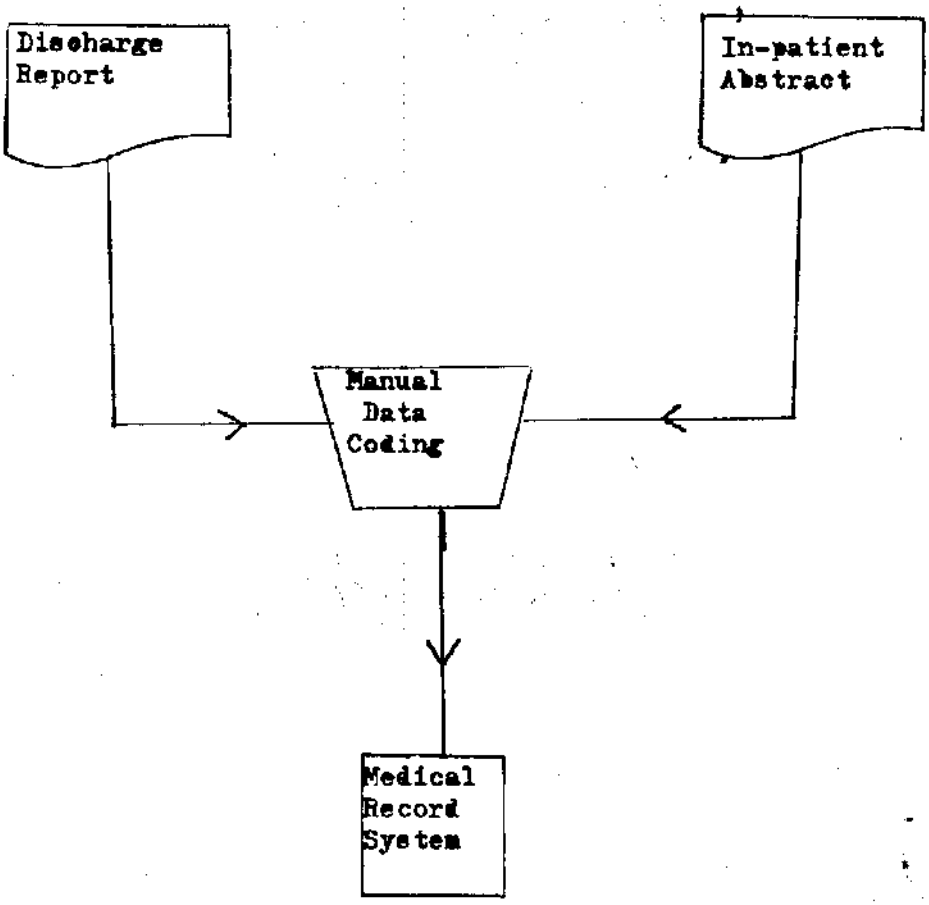


Figure 1: Basic Data Input Flow Associated With the Medical Record System

Diseases (I.C.D.), the nineth edition of which is now in use. After the classification of the disease, the next stage is to abstract the sex, and the age-group, and finally to ascertain whether the patient died or not.

When this has been done for all the patients admitted for a given month, the reports of diseases group by sex and age group, are then produced.

2.2. PROBLEMS OF THE CURRENT SYSTEM

During the investigation, the following problems were identified:

1. Classification of Diseases

The number of diseases to be coded is large. "The 3,000 diseases recognised in 1900 had increased tenfold by 1970", (Gremy, F. and Goldberg, M. (1982).

The medical record staff has to look through each patients file to assign each of these diseases as in basic tabulation list to any of the sixty seven groups contained in the ICD detailed list. This is indeed a time consuming process and prone to errors also.

2. Classification of Patients According To Sex

To be able to produce the report be sex over 1,000 records have to be examined and classified according to sex. This may sound simple for a monthly report but for a quarterly report, it becomes a very boring activity.

3. Classification By Age-Groups

Five groups are required for the purpose of this

classification. These are those under one year, between one year and four years, between five and fourteen years, between fifteen and forty four years, and those above forty four years. This is a painstaking process that can hardly be error-free.

4. Classification By Length of Stay

The length of stay before the discharge of a patient is classified into ten different groups. The separation of the days into the appropriate groups is indeed a tedious job in a hospital with high potential for growth. It is not being done as at now.

5. Classification By Occupation

To achieve uniformity thirty three different occupations are identified and the medical record personnel is to examine each patient's record and place him or her into the appropriate occupation. This imposes a great strain on the medical record officer. It is therefore not being practiced at the moment.

6. Classification By Mortality

For each of the above classifications the number of patients admitted and of those who died, during the period in question, has to be reported. If the period covers more than one month the tedious nature of the calculation involved could introduce errors into the final report which is supposed to be used for planning and research.

If however, the source of data is error-prone, the final analysis decision based on such data, will tend to be unreliable.

Added to the difficulties the medical record personnel has to process through various stages, thereby causing delay in producing the required results.

7. Problems Associated With Inquiries

Being a teaching hospital, it is not uncommon for researchers to make exceptional demands. One such demand could be a request about the frequency of amoebiasis or measles in a given month or period of a particular year. It is not easy to extract this vital piece of information in the manual system.

2.3. CONSTRAINTS

The medical records department was very liberal about this study. No particular constraints were imposed;all the same it expects a better system to be recommended at the end of the investigation.

2.4. SYSTEM PROPOSAL

2.4.1. OBJECTIVES

A critical analysis of the current system shows that with the introduction of a computer the following could be achieved:

1. a faster and efficient grouping of diseases, length of stay, age and sex of patients ,
2. the timely production of accurate statistical reports for planning ,
3. up to date response to inquiries by researchers.,
4. the provision of a data base for research by health care

practitioners, administrators, and planners;

5. time-critical requests will be satisfied with minimum delay.

2.4.2. POSSIBLE APPROACHES

1. Off-Line Approach

By this approach the coded patients' data can be stored in punched cards and transferred to magnetic media such as disks, before programs are run at convenient time. While terminals are frequently used when immediate access to a Central Processing Unit (CPU) is desired, it is also possible to use terminals for batch processing. In this case data is usually entered on a terminal and is then converted to high-speed media such as magnetic disk. The conversion is not under the control of the CPU. Thus it qualifies as an off-line procedure.

When all the data has been entered and stored in an off-line operation, the entire file created, which in this case, will contain monthly data can be transmitted to the CPU in batch processing mode.

Advantages :

1. The amount of communication time is significantly reduced,
2. Data can be entered on terminal after peak period to reduce cost,
3. The process involved is a simple one,
4. It does not cost much to implement,

Disadvantages :

1. It is not possible to implement an inquiry system.

2. Inquiry

This requires that a central computer with files of data stored on a medium such as a disk may be accessed by remote terminals for the purpose of requesting information.

This approach will make it possible for the various inquiries to be implemented. The data files will be accessed and information relating to a particular month of a given year will be obtained on the spot.

Advantages

1. Up to date information can be obtained through this approach.
2. It provides very high time effectiveness in processing queries as researchers will have to spend less time to obtain required vital medical information.

Disadvantages

1. It is not suitable for jobs that are not relatively time-critical.

3. Mixed Approach

This approach makes provision for both off-line and inquiry capabilities. In effect, activities requiring batch processing will be handled by programs designed to handle such jobs while those for inquiry will be handled accordingly.

Advantages

1. Researchers requiring medical information could easily be satisfied.
2. Regular reports will be produced by this approach.

Disadvantage

1. It is a relatively expensive system.

2.4.3. COMPUTING RESOURCES AVAILABLE

At the Iya Abubakar Computer Centre there is the Control Data Corporation Cyber 72 series machine supported by the Network Operating System (NOS) which has provision for both batch and interactive processing. The system has sixty four kilo bytes of memory. There are three disk drives, each disk being one hundred and ten mega-bytes and a fourth one of two hundred and twenty mega-bytes is awaiting installation. There are two tape drives, one card reader and one line printer.

A remote job entry printer serves as a back-up to the only main printer. Within the computer centre there are twenty terminals including two hard-copy Diablo terminals.

Investigation shows that the entire system is under-utilised and can cope with the requirements of the Medical Records.

The system is powered by a generator which gives un-interrupted power supply.

2.4.4. JUSTIFICATION FOR A COMPUTER BASED SYSTEM

The choice of a computerised medical record is based on the following considerations:

1. Generally, the initial cost of computerised system is higher than the one for initiating manual systems. In the past few years there have been striking advances in electronic data processing technology. During this time attempts have been and are being made to adapt various data processing methods to selected aspects of medical care. The rationale for this approach has been that computer methods can be expected to improve the accuracy and utility

of medical records and, if not reduce the absolute costs of data storage and transfer, at least make manageable a larger volume of data for the same costs. On costing grounds, it is therefore justifiable to adopt a computerized approach.

2. The Number of Records To Be Stored

As was mentioned in Chapter One, ABUTH, Zaria treated 17,800 in-patients in 1980 and the number has continued to grow each year. For each patient's record there are over five hundred characters to be stored. When such records span over several years(a medical record has a life-span of up to ten years) a lot of physical space will be required to store such manually operated files which could be stored in few magnetic files.

3. The Number And Type Of Reports Generated

Three reports were mentioned in 2.1.3. While these reports may be considered to be of moderate size but demanding a lot of boring computation, the exceptional demands described in 2.1.3, could be bulky and time consuming. It is not easy to access archived files to obtain the information needed to satisfy such queries.

4. Benefits

A computer-based medical record system will among other things provide the following benefits

1. faster access to medical records
2. greater facility to carry out managerial and clerical functions in the medical and records department
3. improved decision making at all levels of management
4. promotion of effective use of employees and services

5. enhancement of prompt communication with other departments in the hospital
6. relative low cost of data storage and accurate transfer of information
7. reduction in duplication and recreation of medical records
8. elimination of peak period volume reports
9. increase in the medical record officer's awareness of out of-control conditions in medical records management.

2.4.5. RECOMMENDATIONS

Based on the above benefits and the vital role that medical records play in the practice of medicine, it is therefore, appropriate to recommend a computerised medical records system.

As neither the off-line or inquiry processing can stand alone to meet the identified needs of the department, the mixed approach is to be adopted.

CHAPTER THREE

SYSTEM DESIGN

3.1. SCOPE

The proposed design of the system would, in fact be concerned with the design of its various subsystems as mentioned in 2. above. However, in addition it should have room enough to allow future developments whenever necessary. It would certainly add to the complexity of this design, nevertheless, this consideration has been suitably taken care of while developing the proposed system.

Consequently, it will be possible to extract information on the patients based on their state of origin or marital status according to future needs. Room is also made for researchers who may be interested later on methods of diagnosis and current therapy in practice in the hospital.

The proposed system involves the activities listed below:

1. Creation of a file, RAWDATA, from cards or through terminal.
2. Creation and maintenance of both infrequently used master and dynamic files.
3. Production of reports according to sex, age-groups, occupation of patients and their length of stay in the hospital.
4. Provision for inquiries on the ICD three digit classification 999 diseases. For the sake of completeness, the system has facility for the five digit classification as some medical doctors or other interested persons might be interested in such detailed research.

3.2. SYSTEM REQUIREMENTS

In the design of the computerised system the following vital

issues were taken into consideration:

1. Human Factors

According to Tomeski (1977) "a number of authorities and studies support the contention that computer systems and applications are designed without adequate consideration being given to human factors". Consequently, the usage of the system is made as simple as possible to make it useful to non-computer experts. The medical record personnel to operate the system were actively involved in the planning and design phase. They were made to do the coding of the test-run data after series of talks on data coding (see Appendix 11).

2. Flexibility

It is believed that some parts of the medical records not being used in any analysis today might be useful for tomorrow. This is considered relevant in the design of the main file; although it contains as many as 326 characters belonging to fifty six fields, it is broken down into two records. They are the frequently and infrequently used records. The frequently used record has only fourteen fields containing a total of forty five characters. It is stored on a high-speed and more expensive device, a magnetic disk, while the infrequently used one is stored on a low-cost device such as a magnetic tape.

3. Reliability

The importance of accurate medical record data base demands that both the software and hardware be reliable.

4. Indeginization through Adaptation

A successful application of health informatics demands

a computer technology which is well-adapted to the practice of medicine among other things. The hardware that is chosen is the one that is locally available in the Ahmadu Bello University.

5. Security and Privacy

Security and privacy are given adequate importance in the design.

3.2.1. Hardware

1. Data Collection Equipment

As mentioned in 3.2.1.4 above the hardware available at the Ahmadu Bello University Computer Centre is considered to adequately meet the data entry needs. This is not to say that other fast data capturing equipment, when available, will not be useful. The collection of the data is not time-critical. It is the storage and processing of the data that constitute a real bottle-neck to research activities. Cards and terminals will be used as input media.

2. Data Storage

Mangnetic tapes will provide very inexpensive and handy storage medium for the medical records. There is enough mass storage space available from the disk packs in the Computer Centre.

3.3. MACRO SYSTEM CHART

A schematic view of the computer-based medical record system is shown in figure 2. It consists of three subsystems each interacting with one or two data bases. The three subsystems are the Data Check and Store (DCS) Report Generating (RG) and Health

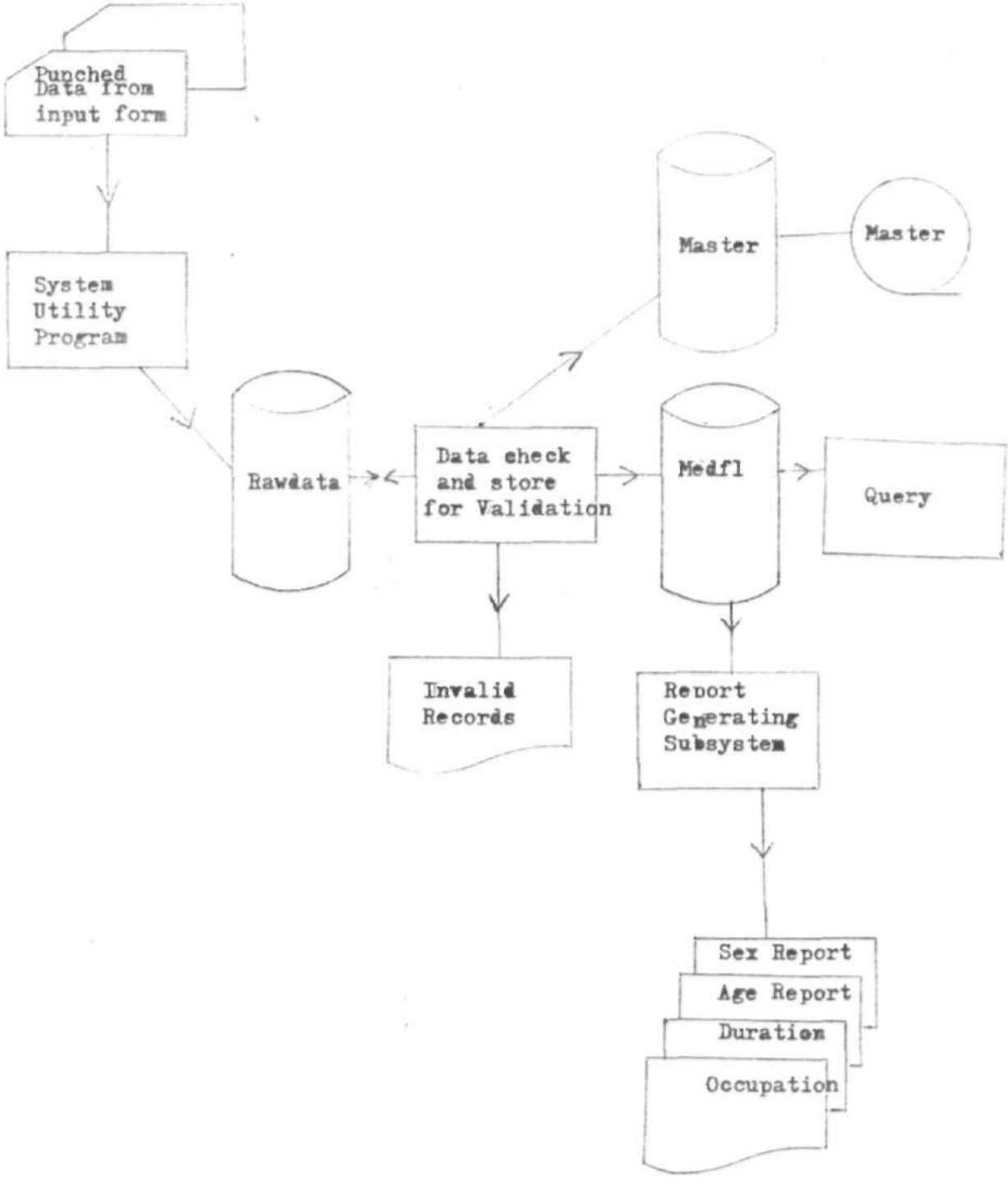


Figure 2: A schematic view of the Computer-Based Medical Records System

Inquiry (HI) subsystems. The DCS subsystem is responsible for creating and maintaining the MEDFL and MASTER data bases. The RG subsystem produces reports according to sex, age-group, length of stay and occupation by disease groups of patients. The HI subsystem handles inquiries covering information based on the 999 diseases using the three-digit ICD classification as well as their subdivisions making provision for up to two decimal places (see World Health Organization 1977, PP 3 - 665).

The two vital data bases to the entire systems are the MEDFL and MASTER. MEDFILE contains the active portion of MASTER which is activated or deactivated according to need. RAWDATA is produced from cards or through terminal and is destroyed as soon as it is processed to create MEDFL, MASTER and generate error Report.

3.4. THE PROPOSED COMPUTER SYSTEM

This section describes the various data bases, subsystem and their programs, and the contents of the files.

3.4.1. Organization of the Data Bases

A Serial organisation is chosen for the following reasons:

(i) It is simple

(ii) It is easy to control

(iii) Back up is easy to implement

(v) Cheap storage medium such as magnetic tapes could be used.

(vi) For most of the time the activities will require going through every record.

(vii) The different diseases which form the most important part of the system are often duplicated as patients in certain age-groups or occupation could suffer from identical diseases thus unique keys do not exist within the records.

3.4.2. MEDFL Data Base

This is made up of one file - MEDFL (See Figure 3). For file specification) which contains the active portion of the patient's record. It is held in a disk where it is accessible to both HQ and RG subrystems. It is capable of handling up to 180,000 records, the projected records for ten consecutive years. It could be assumed that after ten years a history case of a patient may not be considered useful in the active portion of the medical record system. Each record contains forty five characters. The vital data items include hospital code, sex, occupation, age, date of admission, specialty or ward, length of stay, diagnostic codes and discharge status. Other stored though not in use yet include marital status, state of origin, admission code, method of diagnosis and current therapy. The flexibility and future expansion needs of the system favour sorting the above fourteen items.

The MEDFL data base will take ten years to attain its maximum size. At the end of the tenth year the ten year old records will be purged or stored away in an archive to make room for the records of the following year to be stored in the data base. Following the same principle, it is possible for records in the active portion to have an active life of five years. It follows that by the use of archive tapes the life span of medical records can be made as long as time and research needs may dictate.

3.4.3. MASTER Data Base

This is a comprehensive data base containing one file (see FIG 4) MASTER. It contains both the personal and clinical

FILE/RECORD DESCRIPTION

File Name....MEDFL..... Program No.....

Header Label..... System.....

File Organisation...SERIAL..... Creating Program...VETDATA.....

Keyed on/Sequence.....

Block Size.....

Record Size...45 Characters.....

File Size.....

Level No	Field Name	Picture	Description/Comments
	HC	9	Hospital Code
	Sex	9	1 Male 2 Female
	MS	9	Marital Status
	Occupation	99	Occupation of Patients
	Age	9(5)	Actual age in years and months
	State	99	Patient's State of origin
	Date-Of-Admission	9(6)	Actual date of admission (DDMMYY)
	Ward	99	Ward or Specialty
	Admission Code	9	
	Method of Diagnosis	9	
	Current-Therapy	9	
	Duration	999	Actual length of stay during Admission in days
	Diagnostic Code	3(9999V99)	
	Discharge-Status	9	

Fig. 3

FILE/RECORD DESCRIPTION

File Name....MASTER..... Program No.....

Header Label..... System.....

File Organisation ....SERIAL..... Creating Program. System Utility

Keyed on/Sequence.....

Blick Size.....

Record Size...320 Characters.....

File Size.....

Level No.	Field Name	Picture	Description/Comments
	HC	9	Hospital Code 1 Kaduna 2 Zaria 3 Malumfashi
	Unit Number	9(6)	Hospital Unit number
	Surname	X(15)	Patient's Surname
	Initials	X(4)	Patient's Initials
	Sex	9	1 Male 2 Female
	Marital Status	9	1 Married 2 Widowed 3 Separated 4 Divorced 5 Single
	Date-of-birth	9(6)	Actual date of birth
	Occupation	99	01 through 33
	Religion	9	1 Catholic 2 Protestant 3 Islam 4 Others
	Race	9	1 Negro 2 Caucasian 3 Others 4 Unknown
	Female-Column	9	If ever pregnant 1 Yes 2 No 3 Unknown 4 Male

FILE/RECORD DESCRIPTION

MASTER CONTD.

File Name..... Program No.....

Header Label..... System.....

File Organisation..... Creating Program.....

Keyed on Sequence.....

Block Size.....

Record Size.....

File Size.....

Level No.	Field Name	Picture	Description/Comments
	Birth place	x(10)	
	Age	9(5)	actual age
	Patient's tribe	x(10)	
	Patient's state	99	01 thru 21
	Patient's house no.	9(4)	
	Patient's street name	x(15)	
	Patient's town	x(10)	
	Patient's state of residence	99	01 thru 21
	Patient's post office address	9(6)	
	Patient's telephone number	9(9)	
	Next-of-kin surname	x(14)	
	Next-of-kin initiate	x(4)	
	Next-of-kin house number	9(4)	
	Next-of-kin street name	x(15)	
	Next-of-kin town	x(10)	
	Next-of-kin state	99	01 thru 21
	Next-of-kin post office address	9(6)	

Fig 4 Cont.

FILE/RECORD DESCRIPTION

File Name..... Program No.....

Header Label..... System.....

File Organisation..... Creating Program.....

Keyed on/Sequence.....

Block Size.....

Record Size.....

File Size.....

Level No.	Field Name	Picture	Description/Comments
	Next-of-kin telephone number	9(9)	
	Date-of-admission	9(6)	Actual date of admission (DDMMYY)
	Ward/Specialty	99	
	Admission	9	1 thru 4
	Consultant Code	999V9	Hospital Assigned numbers
	Ref-Doctor-Name	X(17)	The name of the doctor who referred the patient if applicable
	Previous Hospital	X(20)	Name of hospital that transferred the patient
	Previous Diagnostics	2(9(4)V99)	At most two diseases that led to previous admission
	Method of Diagnosis	9	Current method of diagnosis 1 Xray 2 Edoscopy 3 Laboratory
	Current therapy	9	1 Surgical 2 Chemotherapy 3 Physiotherapy 4 Radio-therapy

Fig 4 Cont.

FILE/RECORD DESCRIPTION

File Name MASTER CONT ..... Program No. .....

Header Label..... System.....

File Organisation..... Creating Program.....

Keyed on/Sequence.....

Block Size.....

Record Size.....

File Size.....

Level No.	Field Name	Picture	Description/Comments
	Diet-Comment	(20)	Whether patient is placed on a special diet.
	Op-Flag	9	Operation flag 1 Yes 2 No operation
	Operation Codes	4(9(3)V9)	Provision is made for up to four different operations.
	Surgeon-Code	2(9(3)V9)	
	Date-of-discharge	9(6)	Actual date of discharge
	Duration	999	Length of stay during the period of hospitalisation
	Diagnostic Codes	3(9(4)V99)	Current diagnostic. Provide for up to 3 diseases. 1 cured 2 Improved 3 No improvement 4 Transferred to other unit or hospital 5 Abscounded 6 Died
	Date-of-Death	9(6)	Actual date if applicable
	Autopsy	9	1 Yes 2 No autopsy done

Fig 4 Cont.

information on each in-patient discharged from the hospital. Both the active and de-activated data-items are stored in the data base for completeness. It has the same number of records as MEDFL, but the record lengths differ considerably. To minimize storage cost, all the records in the data base are stored in a cheap medium (magnetic tapes) and are transferred to disk only when the need arises.

One other reason why it is necessary to use magnetic tapes as the appropriate store for the data base borders on security and privacy. The personal data include items such as names and address of individuals. Storing such data items in tapes to be made available by authorized persons when needed provides tight security and meets the privacy needs of medical records.

The life span of each record is the same as those containd in the MEDFL data base described in 3.4.2. above.

3.4.4. Transient Data Base

The data base contains one file (see fig. 5 for input form called RAWDATA. The data base serves as a collection centre to the entire system from where the DCS subsystem obtains and distribute re-formatted correct records to the MEDFL and MASTER data bases. The records are received through cards or terminals in the form that they are coded from the Medical Records Department. Data from different specialties reach the department at different times of the year. Such data can be punched into cards or entered through terminal and stored in RAWDATA till time of processing. As soon as such records are proved to be

AHMADU BELLO UNIVERSITY TEACHING HOSPITAL

In-Patients' Medical Records Input Form

HC [1] Unit Number [2–7] Surname [8–22] Initials [23–26] Sex [27]: 1 Male, 2 Female

MS [28]: 1 Married, 2 Widowed, 3 Separated, 4 Divorced, 5 Single

Date of Birth [29–34] Occup [35] Rel [37]: 1 Catholic, 2 Protestant, 3 Islam, 4 Others

Race [38]: 1 Negro, 2 Caucasian, 3 Others, 4 Unknown

If Female Ever Pregnant? 1 Yes, 2 No, 3 Unknown, 4 Male

Place of Birth [40–49] Age [50–54] Tribe [55–64] State of Origin [65]

House No. [67–70] Name of Street [71–85] Town/City [86–95] State of Residence [96–97]

P.O. Box [98–103] Telephone No. [104–112] Surname Of Next of Kin [113–126] Initials [127–130]

House No. [131–134] Name of Street [135–149] Town/City [150–159] State [161]

P.O. Box [162–167] Telephone No. [168–176]

Date Admitted [177–182] Ward [183–185] Adm. Code [186] Consult Code [187–190] Referred By (Dr's Name) [191–207]

Previous Hospital [208–227] Previous Diagnostic Code [228–241]

Diagnostic Method [242]: 1 Xray, 2 Edoscopy, 3 Lab.

Current Therapy [243]: 1 Surgical, 2 Chemotherapy, 3 Physiotherapy, 4 Radio Therapy

Diet Comment [244–263]

Operation Flag [264]: 1 Yes, 2 No

Operation Codes [265–284] Surgeons' Codes [285–294]

Date Discharged [295–300] Length of Stay [301–303] Diagnostic Codes [304–324]

Disch. State [325] Date Of Death [326–331] Autopsy [332]: 1 Yes, 2 No Autopsy

Fig 5

error-free they are written into MEDFL and MASTER. RAWDATA is then purged and created on the receipt of new records.

In RAWDATA there is provision for holding the decimal points contained in the diagnostic codes found in the ICD being used by the Medical Records Department. The rationale here is to make the coding clerks do accurate coding the way they have been used to form their training, and in accordance with what is found in the essential reference book in the performance of their duties. The decimal points are however removed before the records are stored in the other two data bases to save space and make the values affected data items to be used in arithmetic process as numeric fields.

3.4.5. DCS Subsystem

The Data Check and Store subsystem consists of one program (Appendix 1) VETDATA which has RAWDATA as its input file. It is a validation program. All the fields are checked for correctness within some specified constraints. When a record satisfies the validation tests, the twelve decimal points are removed before it is stored in MASTER and MEDFL data bases according to their respective formats. Records found in error are rejected and written into a file called ERRORFL signifying the input line where the error has occured.

Subsequent runs of the validation program using corrected and lately prepared records produce updates of MASTER and MEDFL until the entire records for a given month or months are ready

for further processing.

3.4.6. RG Subsystem

MEDFL data base is the source of input data to the RG subsystem which is made up of four programs. The programs are discussed briefly below.

1. SEXP

This is the program responsible for generating the report of sex by disease groups. The 999 diseases (see ICD PP49-546) are classified into sixty seven disease groups for this purpose in the basic tabulation list (see ICD PP746 - 755).

For a given month or months the output from SEXP will show the number of in-patients treated according to sex and disease-groups. In addition the number of deaths out of the total number of cases in each group is also reported (Appendices 2 and 3)

As it is possible to build up the data base to accommodate records from one month to ten years, SEXP can then produce reports according to a given period. These may be monthly, quarterly annually or bi-decade reports.

2. AGEP

AGEP is used to produce a similar report based on sixty seven disease-groups but according to age-groups in accordance with the current practice of the Medical Records Department (Appendices 4 and 5).

3. STAYP

Like the two programs mentioned above STAYP produces a

report on the sixty seven disease groups. This is however, done according to the length of stay of the patients during their period of hospitalisation. Such a report which is not been produced at the Ahmadu Bello University Teaching Hospital, Zaria, due to complexity, will serve as an indicator to the diseases for which more man-hours of hospital staff are needed. (Appendices 6 and 7).

4. OCCUP

OCCUP is another program producing a report that was hitherto not produced due to its complexity. The report is a classification of the sixty seven disease-groups, by thirty three occupation groups identified for this purpose. It will serve as a pointer to the occupation groups that are more prone to certain diseases (Appendices 8 and 9).

3.4.7. HI Subsystem

The HI subsystem consists of one program, QUERY. It is an interactive program meant to answer inquiries on the number of in-patients treated for a given disease in a specified month of a given year. The design proviles for inquiries on more than one month to be answered such as those involving the second quarter of 1982 by obtaining information for April, May and June on a given disease or diseases. For completeness, inquiries are answered on both the ICD three-digit and five-digit classification. Being an interactive system, the user is guided to obtain the desired result through friendly conversation between the computer and the user.

The program is invaluable to the Medical Records Department and other interested persons who will obtain vital data needed for research and planning on the spot, and quickly too, without having to search through several pages of manual files for days or weeks to compile the same (Appendix 10).

3.5. SYSTEM CONTROLS

For the purpose of detecting, correcting and re-processing errors it is important to build in controls into any meaningful computer system. "Failure to build in adequate control has caused many expensive system failures"; Oliver and Chapman, (1981). Three different controls built into the system are discussed below.

1. Manual Controls

These involve the checking of source documents. Measures include scrutiny to detect missing entries, illegible entries, illogical or unlikely entries; and reference of the record to a file to verify entries to reduce errors.

2. Data Preparation Controls

The data punched into cards are to be listed out and checked against the source document for correctness. Where there are errors, affected cards are removed and correction effected. Where data are entered through the terminal there are in-built checks in the receiving program for correcting errors on the spot.

3. Validation Checks

A computer cannot notice errors the way a coding clerk does. Validation checks are aimed at building into the computer

program powers of judgement so that incorrect items of data are detected and reported. The following validation checks are used:

(a) Presence - records are checked to ensure that all fields are present.

(b) Size - Fields are checked to see that they contain the correct number of characters.

(c) Range - Numbers and codes are checked to ensure that they are within the permissible range. An example is to get a record with number greater than three in the first column where the numbers one to three are assigned to the three teaching hospitals.

(d) Character check - Fields are checked to ensure that they contain only characters of the correct type. In other words a field containing the age of patients must not contain alphabetic or alpha-numeric characters. Also the field containing a patient's name must be completely alphabetic.

(e) Reasonableness - The values of data items are checked to make sure that they are neither too high nor too low.

3.6. SECURITY AND PRIVACY

It is essential that the security of the medical records be guaranteed. "The term security is used here to mean the protection of the data in the data base against unauthorized disclosure, alteration, or destruction", Date (1977).

Security is exercised at both the physical and operational

levels. Physical security of the files and programs ensures that no damage is done to the files while they are awaiting processing while the operational security ensures that data are not lost during the actual processing.

To achieve the desired security goals only authorized persons are allowed to carry out operation on a data base. Apart from making sure that the user - number for the system be kept secret, only authorized users will be able to pass the authentication test such as the request for a password to be demanded by the computer system before any files could be accessed.

The solution to the problem of alteration of data by unauthorized persons can be solved by maintaining the integrity of the data base at all times. The accuracy of the data is preserved for all times by the built in controls discussed in 3.5.3. above.

Protection of the data against destruction by fire and other disasters is achieved by making provision for back-up copies of all files to be stored at safe locations. Magnetic tape provides cheap back-up and is useful even when hardware and software failures occur. In case of prolonged hardware failures, the back-up tapes can be taken to another computer centre when it is inevitable that reports must be produced.

The problem of invasion of personal privacy has always attracted attention of system designers. "The question of invasion of personal privacy is the dominant problem in construction of very large publicly supported data bases - at least

those that retain the association of individual data items with the identification of the person. Obviously, a system must retain such identification in order to be really useful", Lindberg (1970). The system is to be accessed by authorised persons only. The part of the records that contain personal identification will be stored on tapes as de-activated records. Even when the records are activated, the coding nature of the data using numeric representation for diseases makes it difficult for other to make sense out of the data.

3.7. BACK-UP, RECOVERY AND DATA BASE RECONSTITUTION

The bare truth is that computers do fail, and also require scheduled down-time for preventive maintenance and for installation of engineering and software changes. Any of the above could lead to the computerised medical system crashing. For the purpose of uninterrupted utilisation of the system with its invaluable data it is necessary that there should be good back-up for quick recovery and reconstitution of the data bases.

1. Back-up

The desired back-up can be achieved by making provision for periodic dump of all data and programs held in magnetic disk to tapes. If there are any changes in the data, these should be correctly documented and the archive tapes be overwritten by copying the latest version onto them.

It may be necessary to produce more than one copy of the required reports so that one of them can serve as the

duplicate copy.

2. Recovery

In case of system malfunctioning, files may be corrupted and the recovery of such files should not be delayed. The back-up stored in tapes can provide the source from which recovery can be effected. There is an in-built facility in the recommended computer software for recovering a given file or files previously dumped unto magnetic tapes.

3. Data Base Reconstitution

Total lost or destruction of all files stored in a computer system is a rare happening. But should it occur there should be a way of bringing back the system to a normal operational status. Reconstitution can be accomplished by obtaining the archive copy of the MASTER data base and the programs. MEDFL data base is a subset of the MASTER and where MEDFL is lost it can be reconstructed from it. The most important thing is to make sure that the latest versions of all data bases and programs are dumped to tapes from time to time and up-to-date documentation is done to reflect any vital changes.

CHAPTER FOUR

SYSTEM DEVELOPMENT AND IMPLEMENTATION

4.1. PROGRAM DEVELOPMENT

The development of the various programs is estimated to take about thirty two man-weeks. The coding and punching of a month's data into cards is estimated to take about three man-weeks to complete.

The first stage of the program development involves the RAW_ATA creation program. All the other programs depend on the completion of this program.

The next in the series is VETDATA mentioned in 3.4.5. Once completed, the six programs accessing MEDFL can be developed independently of one another.

4.2. Implementation Language

The language chosen for implementing the system is the COMON BUSINESS ORIENTED LANGUAGE (COBOL). It is taught in the University and widely used by both the staff and the students. In the Computer Centre, most members of its staff are experts in COBOL programing. Furthermore, all the COBOL programs developed for the system are, to a great extent, self documentary and will be quite easy for other programmers to maintain. That the Computer Centres at nearby Universities also implement COBOL in their systems makes the choice of the language all the more attractive as it would easily meet the back-up needs of the developed system.

4.3. Implementation

The implementation plan chosen is Parallel run. Essentially,

this means that the new system will be run initially at the same time that the current system is working", Orilia et al (1977). This is to make sure that all people involved in the running of the new system become familiar with it.

The main advantage of such implementation is that it ensures the continuity of the current system in the event of unforeseen failure of the new system at the outset.

4.3.1. User Education

As mentioned in 3.2.1., the human factor is very important in the successful implementation of any computer system. Provisision has been made for the training of the Medical Records Department on the smooth running of the system.

Researchefs and other interested person will not find it difficult to use the HI subsystem to get their queries answered because of the friendly user interface adopted in its design.

CHAPTER FIVE

FUTURE DEVELOPMENT

One of the features of a good management information system is to allow considerations for future expansion. Such considerations are discussed below.

5.1. SYSTEM EVALUATION

Ahmadu Bello University Teaching Hospital, Zaria is not a fee-paying hospital, but if for any reasons, fees are introduced, it will be possible to incorporate such a change in the dynamic portion of the data base with little modifications. This can be done as part of the system evaluation phase.

5.2. INCLUSION OF CLINICAL REPORTS

The system designed by the researcher depends much on discharge reports for its data. There may be future needs to add laboratory reports as part of the input data that may make current theraphy and method of diagnosis more relevant to practising doctors.

5.3. SHARING OF RESOURCES

The Medical Records System is one of several systems that make up a Medical Information System (See Fig 6).. It is likely that the development of the computerised Medical Records System will provide data and manpower that will support similar computerisation of other areas.

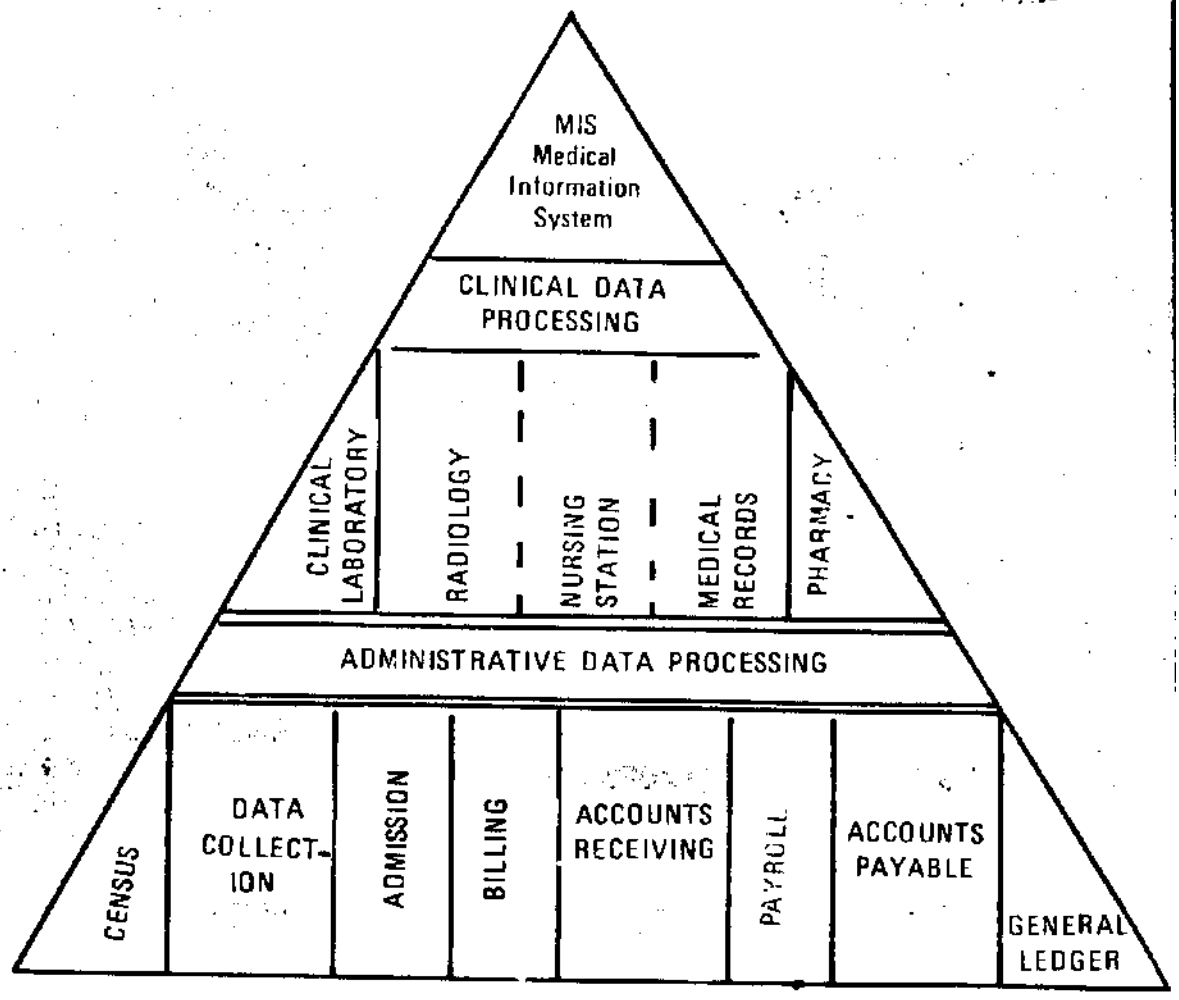


Figure 6: A Hospital Information System Structure /courtesy M.J. Ball Datamation September 1975/

CHAPTER SIX

CONCLUSION

The system investigation and analysis of the manual process of the Ahmadu Bello University Teaching Hospital, Zaria has been completed in this study. A computerised Medical Records System is proposed to replace the manual one as a solution to the identified problems.

It is the hope of the researcher that a lasting solution has been found and that all concerned will contribute their maximum quota so that the system, though no one is perfect, can be painfully run to achieve its objectives.

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APPENDICES

APPENDIX I

```
AO 0011          PROGRAM VETDATA          COBOL    V4.5  L42a 83/0

IDENTIFICATION DIVISION.
PROGRAM-ID.  HEALTH.
DATE-WRITTEN.  10/10/82.
AUTHOR. E.O.OKORO  M.SC. PROJECT.
REMARKS.
        THIS PROGRAM READS PATIENTS' RECORDS.
         CHECKS FOR CORRECTNESS AND WRITES
         CORRECT RECORDS INTO TWO FILES
         MEDFL AND MASTER ACCORDING TO THEIR
         FORMATS AND RECORDS IN ERROR INTO
         A FILE. ERRORFL FOR CORRECTIONS.
ENVIRONMENT DIVISION.
CONFIGURATION SECTION.
SOURCE-COMPUTER.  CYBER72.
OBJECT-COMPUTER.  CYBER72.
SPECIAL NAMES.
     "1" IS PAGE-TOP.
     TERMINAL IS TTY.
INPUT-OUTPUT SECTION.
FILE-CONTROL.
    SELECT RAWDATA ASSIGN RAWDATA-FZ
        ORGANIZATION IS SEQUENTIAL.
    SELECT MEDFL ASSIGN MEDFL-FZ
        ORGANIZATION IS SEQUENTIAL.
   SELECT CORRECT ASSIGN MASTER-FZ
        ORGANIZATION IS SEQUENTIAL.
   SELECT ERRFL ASSIGN ERRORFL-FZ
       ORGANIZATION IS SEQUENTIAL.
DATA DIVISION.
FILE SECTION.
FD  RAWDATA
        LABEL RECORDS ARE OMITTED
     RECORD CONTAINS 338 CHARACTERS
        DATA RECORD IS PATREC.
01  PATREC.
    02  HOSPITAL-CODE          PIC 9.
        88  HC-CODE            VALUE 1 THRU 3.
    02  UNIT-NUMBER             PIC 9(6).
    02  SURNAME                 PIC X(15).
    02  INITIALS                PIC X(5).
    02  SEX                     PIC 9.
        88 SEX-CODE             VALUE 1 THRU 3.
    02  MAR-STATUS              PIC 9.
        88 MAR-STATUS-CODE      VALUE 1 THRU 5.
    02  DATE-OF-BIRTH           PIC 9(6).
    02  OCCUPATION              PIC  99.
        88 OCCUP-CODE VALUE 01 THRU 33.
    02  RELIGION                PIC 9.
        88  REL-CODE VALUE 1 THRU 4.
    02  RACE                    PIC 9.
        88  RACE-CODE VALUE 1 THRU 4.
    02  FEMALE-COLUMN           PIC 9.
      88  PREGNANCY-CODE VALUE 0 THRU 4.
    02  BIRTH-PLACE             PIC X(10).
    02  AGE                     PIC 9(5).
    02  TRIBE                   PIC X(10).
```

```
02  PATIENT-STATE              PIC 99.
    88 STATE-CODE VALUE 1 THRU 21.
02  PATIENT-HOUSE-NO          PIC 9(4).
02  PATIENT-STR-NAME          PIC X(15).
02  PATIENT-TOWN              PIC X(10).
02  PATIENT-RES-STATE         PIC 99.
    88 RES-STATE-CODE VALUE 1 THRU 21.
02  PO-BOX                    PIC 9(6).
02  TELEPHONE-NO              PIC 9(9).
02  NEXT-OF-KIN-SURNAME       PIC X(14).
02  NEXT-OF-KIN-INITIAL       PIC X(5).
02  N-OF-KIN-HSE-NO           PIC 9(4).
02  N-OF-KIN-STR-NAME         PIC X(15).
02  N-OF-KIN-TOWN              PIC X(10).
02  N-OF-KIN-STATE            PIC 99.
    88 KIN-ST-CODE VALUE 1 THRU 21.
02  N-OF-KIN-PO-BOX           PIC 9(6).
02  N-OF-KIN-TEL              PIC 9(9).
02  DATE-OF-ADMISSION         PIC 9(6).
02  WARD                      PIC 99.
    88  WARD-CODE VALUE  01 THRU 06.
02  ADMISSION                 PIC 9.
    88  ADM-CODE VALUE  1 THRU 4.
02  CONSULTANT-CODE           PIC 999.
02  POINT-VALUE               PIC X.
    88  POINT-CODE VALUE  ".".
02  LAST-PART                 PIC 9.
02  REF-DOCTOR-NAME           PIC X(17).
02  PREV-HOSPITAL-NAME        PIC X(20).
02  PREV-DIAGN-PART1          PIC 9(4).
02  POINT1                    PIC X.
    88  POINT1-CODE VALUE  ".".
02  LAST-PART1                PIC 99.
02  PREV-DIAGN-PART2          PIC 9(4).
02  POINT2                    PIC X.
    88  POINT2-CODE  VALUE ".".
02  LAST-PART2                PIC 99.
02  DIAGN-METHOD              PIC 9.
    88 DIAGN-CODE VALUE 1 THRU 3.
02  CURRENT-THERAPY           PIC 9.
    88  THERAPY-CODE VALUE  1 THRU 4.
02  DIET-COMMENT              PIC X(20).
02  OP-FLAG                   PIC 9.
    88  OP-FLAG-CODE  VALUE  1 THRU 2.
02  OP-CODE1-PART1            PIC 999.
02  OP-CODE1-PT1              PIC X.
    88  OP-KODE1-CODE VALUE ".".
02  OP-CODE1-LAST             PIC 9.
02  OP-CODE2-PART1            PIC 999.
02  OP-CODE2-PT2              PIC X.
    88  OP-KODE2-CODE VALUE  ".".
02  OP-CODE2-LAST             PIC 9.
02  OP-CODE3-PART1            PIC 999.
02  OP-CODE3-PT3              PIC X.
    88  OP-KODE3-CODE  VALUE ".".
02  OP-CODE3-LAST             PIC 9.
```

```
    02  OP-CODE4-PART1          PIC 999.
    02  OP-CODE4-PT4            PIC X.
        88  OP-KODE4-CODE VALUE  ".".
    02  OP-CODE4-LAST           PIC 9.
    02  SURGEON-CODE1-PART1     PIC 999.
    02  SURG-CODE1-PT1          PIC X.
        88  SURG-PT1-CODE VALUE  ".".
    02  SURG1-LAST              PIC 9.
    02  SURGEON-CODE2-PART1     PIC 999.
    02  SURG-CODE2-PT2          PIC X.
        88  SURG-PT2-CODE VALUE  ".".
    02  SURG2-LAST              PIC 9.
    02  DISCHARGE-DATE          PIC 9(6).
    02  DURATION                PIC 999.
    02  DIAGN-CODE1-PART1       PIC 9(4).
    02  DIAGN-PT1               PIC X.
        88  DIAGN-PT1-CODE VALUE  ".".
    02  DIAGN1-LAST             PIC 99.
    02  DIAGN-CODE2-PART1       PIC 9(4).
    02  DIAGN-PT2               PIC X.
        88  DIAGN-PT2-CODE VALUE ".".
    02  DIAGN2-LAST             PIC 99.
    02  DIAGN-CODE3-PART1       PIC 9(4).
    02  DIAGN-PT3               PIC X.
        88  DIAGN-PT3-CODE VALUE ".".
    02  DIAGN3-LAST             PIC 99.
    02  DISCHARGE-STATUS        PIC 9.
        88  DISCHARGE-CODE VALUE  1 THRU 6.
    02  DATE-OF-DEATH           PIC 9(6).
    02  AUTOPSY                 PIC 9.
        88  AUTOPSY-CODE VALUE  1 THRU 2.
    02  ABSTRACTOR-ID           PIC 99.
    02  MED-ATTENDANT           PIC 99.
FD  MEDFL
      LABEL RECORDS ARE OMITTED
      RECORD CONTAINS 45 CHARACTERS
      DATA RECORD IS ACTIVE-REC.
01  ACTIVE-REC.
    02  HOSPITAL-CODE           PIC 9.
    02  SEX                     PIC 9.
    02  MAR-STATUS              PIC 9.
    02  OCCUPATION              PIC 99.
    02  AGE                     PIC 9(5).
    02  PATIENT-STATE           PIC 99.
    02  DATE-OF-ADMISSION       PIC 9(6).
    02  WARD                    PIC 99.
    02  ADMISSION               PIC 9.
    02  DIAGN-METHOD            PIC 9.
    02  CURRENT-THERAPY         PIC 9.
    02  DURATION                PIC 999.
    02  DIAGN-CODE1-PART1        PIC 9(4).
    02  DIAGN1-LAST              PIC 99.
    02  DIAGN-CODE2-PART1        PIC 9(4).
    02  DIAGN2-LAST              PIC 99.
    02  DIAGN-CODE3-PART1        PIC 9(4).
    02  DIAGN3-LAST              PIC 99.
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    02  DISCHARGE-STATUS        PIC 9.
FD  CORRECT
        LABEL RECORDS ARE OMITTED
        DATA RECORD IS MED-REC.
01  MED-REC.
    02  HOSPITAL-CODE          PIC 9.
    02  UNIT-NUMBER             PIC 9(6).
    02  SURNAME                 PIC X(15).
    02  INITIALS                PIC X(5).
    02  SEX                     PIC 9.
    02  MAR-STATUS              PIC 9.
    02  DATE-OF-BIRTH           PIC 9(6).
    02  OCCUPATION              PIC  99.
    02  RELIGION                PIC 9.
    02  RACE                    PIC 9.
    02  FEMALE-COLUMN            PIC 9.
    02  BIRTH-PLACE              PIC X(10).
    02  AGE                      PIC 9(5).
    02  TRIBE                    PIC X(10).
    02  PATIENT-STATE            PIC 99.
    02  PATIENT-HOUSE-NO         PIC 9(4).
    02  PATIENT-STR-NAME         PIC X(15).
    02  PATIENT-TOWN             PIC X(10).
    02  PATIENT-RES-STATE        PIC 99.
    02  PO-BOX                   PIC 9(6).
    02  TELEPHONE-NO             PIC 9(9).
    02  NEXT-OF-KIN-SURNAME      PIC X(14).
    02  NEXT-OF-KIN-INITIAL      PIC X(5).
    02  N-OF-KIN-HSE-NO          PIC 9(4).
    02  N-OF-KIN-STR-NAME        PIC X(15).
    02  N-OF-KIN-TOWN      PIC X(10).
    02  N-OF-KIN-STATE           PIC 99.
    02  N-OF-KIN-PO-BOX          PIC 9(6).
    02  N-OF-KIN-TEL             PIC 9(9).
    02  DATE-OF-ADMISSION        PIC 9(6).
    02  WARD                     PIC 99.
    02  ADMISSION                PIC 9.
    02  CONSULTANT-CODE          PIC 999.
    02  LAST-PART                PIC 9.
    02  REF-DOCTOR-NAME          PIC X(17).
    02  PREV-HOSPITAL-NAME       PIC X(20).
    02  PREV-DIAGN-PART1         PIC 9(4).
    02  LAST-PART1               PIC 99.
    02  PREV-DIAGN-PART2         PIC 9(4).
    02  LAST-PART2               PIC 99.
    02  DIAGN-METHOD             PIC 9.
    02  CURRENT-THERAPY          PIC 9.
    02  DIET-COMMENT             PIC X(20).
    02  OP-FLAG                  PIC 9.
    02  OP-CODE1-PART1           PIC 999.
    02  OP-CODE1-LAST            PIC 9.
    02  OP-CODE2-PART1           PIC 999.
    02  OP-CODE2-LAST            PIC 9.
    02  OP-CODE3-PART1           PIC 999.
    02  OP-CODE3-LAST            PIC 9.
    02  OP-CODE4-PART1           PIC 999.
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    02  OP-CODE4-LAST           PIC 9.
    02  SURGEON-CODE1-PART1     PIC 999.
    02  SURG1-LAST              PIC 9.
    02  SURGEON-CODE2-PART1     PIC 999.
    02  SURG2-LAST              PIC 9.
    02  DISCHARGE-DATE          PIC 9(6).
    02  DURATION                PIC 999.
    02  DIAGN-CODE1-PART1       PIC 9(4).
    02  DIAGN1-LAST             PIC 99.
    02  DIAGN-CODE2-PART1       PIC 9(4).
    02  DIAGN2-LAST             PIC 99.
    02  DIAGN-CODE3-PART1       PIC 9(4).
    02  DIAGN3-LAST             PIC 99.
    02  DISCHARGE-STATUS        PIC 9.
    02  DATE-OF-DEATH           PIC 9(6).
    02  AUTOPSY                 PIC 9.
    02  ABSTRACTOR-ID           PIC 99.
    02  MED-ATTENDANT           PIC 99.
FD  ERRFL
        LABEL RECORDS ARE OMITTED
      DATA RECORD IS PRITLN.
01  PRITLN.
    02  FILLER              PIC X.
    02  REASON              PIC X(135).
WORKING-STORAGE SECTION.
77  W-RECORD-CNT            PIC S9(5) COMP-3 VALUE ZERO.
77  W-RECORD-ERR            PIC S9(5) COMP-3 VALUE ZERO.
77  W-MEDFILET-RECORDS      PIC S9(9) COMP-3 VALUE ZERO.
01  HEAD1.
    02  FILLER              PIC X VALUE SPACE.
    02  FILLER PIC X(24) VALUE "MEDICAL RECORDS IN ERROR".
    02  FILLER PIC X(63) VALUE SPACE.
01  HEAD2.
    02  FILLER              PIC X VALUE SPACE.
    02  RECORD-IN-ERROR     PIC S9(9) COMP VALUE ZERO.
    02  FILLER              PIC X(126) VALUE SPACE.
01  HEAD3.
    02  FILLER              PIC X VALUE SPACE.
    02  FILLER PIC X(18) VALUE "RECORDS PROCESSED:".
    02  CNTRC               PIC ZZZ779.
    02  FILLER PIC X(17) VALUE "RECORDS IN ERROR:".
    02  CNTERR              PIC ZZZ79.
    02  FILLER PIC X(16) VALUE "MEDFILET RECORDS:".
    02  MEDFILET-CNT PIC ZZZZZZZ779.
    02  FILLER              PIC X(54) VALUE SPACE.
01  HEAD4.
    02  FILLER            PIC X VALUE SPACE.
    02  FILLER   PIC X(28) VALUE "HOSPITAL CODE & UNIT NUMBER:".
    02  W-HOSPITAL-CODE          PIC ZZ9.
    02  W-UNIT-NUMBER          PIC 9(6).
    02  FILLER            PIC X(98) VALUE SPACES.
01  FLAG.
    02  OUT-OF-DATA-FLAG PIC X VALUE "N".
        88  OUT-OF-DATA VALUE "Y".
01  MESSAGE-1  PIC X(27) VALUE "ERROR IN INPUT FORM LINE 1.".
01  MESSAGE-2  PIC X(27)  VALUE "ERROR IN INPUT FORM LINE 2.".
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01  MESSAGE-3  PIC X(27)  VALUE "ERROR IN INPUT FORM LINE 3.".
01  MESSAGE-4  PIC X(27)  VALUE "ERROR IN INPUT FORM LINE 4.".
01  MESSAGE-5  PIC X(27)  VALUE "ERROR IN INPUT FORM LINE 5.".
01  MESSAGE-6  PIC X(27)  VALUE "ERROR IN INPUT FORM LINE 6.".
01  MESSAGE-7  PIC X(27)  VALUE "ERROR IN INPUT FORM LINE 7.".
01  MESSAGE-8  PIC X(27)  VALUE "ERROR IN INPUT FORM LINE 8.".
01  MESSAGE-9  PIC X(27)  VALUE "ERROR IN INPUT FORM LINE 9.".
01  MESSAGE-10 PIC X(28)  VALUE "ERROR IN INPUT FORM LINE 10.".
01  MESSAGE-11 PIC X(28)  VALUE "ERROR IN INPUT FORM LINE 11.".
01  MESSAGE-12 PIC X(28)  VALUE "ERROR IN INPUT FORM LINE 12.".
01  MESSAGE-13 PIC X(28)  VALUE "ERROR IN INPUT FORM LINE 13.".
01  ERROR-FLAGS.
    88  RECORD-OK      VALUE SPACE.
    02  ERROR-IN-LINE-1   PIC X.
    02  ERROR-IN-LINE-2   PIC X.
    02  ERROR-IN-LINE-3   PIC X.
    02  ERROR-IN-LINE-4   PIC X.
    02  ERROR-IN-LINE-5   PIC X.
    02  ERROR-IN-LINE-6   PIC X.
    02  ERROR-IN-LINE-7   PIC X.
    02  ERROR-IN-LINE-8   PIC X.
    02  ERROR-IN-LINE-9   PIC X.
    02  ERROR-IN-LINE-10  PIC X.
    02  ERROR-IN-LINE-11  PIC X.
    02  ERROR-IN-LINE-12  PIC X.
    02  ERROR-IN-LINE-13  PIC X.
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PROCEDURE DIVISION.
10-CHECK-RECORD.
    OPEN INPUT RAWDATA
         OUTPUT CORRECT MEDFL  ERRFL.
    READ RAWDATA
        AT END MOVE "Y" TO OUT-OF-DATA-FLAG.
        ADD 1 TO W-RECORD-CNT.
    PERFORM 20-CHECK-LINES UNTIL OUT-OF-DATA.
    CLOSE RAWDATA CORRECT MEDFL  ERRFL.
    STOP RUN.
20-CHECK-LINES.
         MOVE SPACES TO ERROR-FLAGS.
    IF   NOT HC-CODE
         OR UNIT-NUMBER OF PATREC IS NOT NUMERIC
         OR SURNAME OF PATREC IS NOT ALPHABETIC
         OR INITIALS OF PATREC IS NUMERIC
         OR NOT SEX-CODE
         MOVE "X" TO ERROR-IN-LINE-1.
    IF   NOT MAR-STATUS-CODE
         OR DATE-OF-BIRTH OF PATREC IS NOT NUMERIC
         OR NOT OCCUP-CODE
         OR NOT REL-CODE
         OR NOT PREGNANCY-CODE
         MOVE "X" TO ERROR-IN-LINE-2.
    IF   BIRTH-PLACE OF PATREC IS NOT ALPHABETIC
         OR AGE OF PATREC IS NOT NUMERIC
         OR TRIBE OF PATREC IS NOT ALPHABETIC
         OR NOT STATE-CODE
         MOVE "X" TO ERROR-IN-LINE-3.
    IF   PATIENT-HOUSE-NO OF PATREC IS NOT NUMERIC
         OR PATIENT-STR-NAME OF PATREC IS NOT ALPHABETIC
         OR PATIENT-TOWN OF PATREC IS NOT ALPHABETIC
         OR NOT RES-STATE-CODE
         MOVE "X" TO ERROR-IN-LINE-4.
    IF   PO-BOX OF PATREC IS NOT NUMERIC
         OR TELEPHONE-NO OF PATREC IS NOT NUMERIC
         OR NEXT-OF-KIN-SURNAME OF PATREC NOT ALPHABETIC
         OR NEXT-OF-KIN-INITIAL OF PATREC NUMERIC
         MOVE "X" TO ERROR-IN-LINE-5.
    IF   N-OF-KIN-HSE-NO OF PATREC IS NOT NUMERIC
         OR N-OF-KIN-STR-NAME OF PATREC IS NOT ALPHABETIC
         OR N-OF-KIN-TOWN OF PATREC IS NOT ALPHABETIC
         OR NOT KIN-ST-CODE
         MOVE "X" TO ERROR-IN-LINE-6.
   IF  N-OF-KIN-PO-BOX OF PATREC NOT NUMERIC
       OR N-OF-KIN-TEL OF PATREC NOT NUMERIC
       MOVE "X" TO ERROR-IN-LINE-7.
    IF  DATE-OF-ADMISSION OF PATREC IS NOT NUMERIC
       OR  NOT WARD-CODE
       OR  NOT ADM-CODE
       OR  CONSULTANT-CODE OF PATREC IS NOT NUMERIC
       OR  NOT POINT-CODE
       OR  LAST-PART OF PATREC IS NOT NUMERIC
       OR  REF-DOCTOR-NAME OF PATREC IS NOT ALPHABETIC
       MOVE "X" TO ERROR-IN-LINE-8.
    IF  PREV-HOSPITAL-NAME OF PATREC IS NOT ALPHABETIC
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    OR PREV-DIAGN-PART1 OF PATREC IS NOT NUMERIC
    OR NOT POINT1-CODE
    OR LAST-PART1 OF PATREC NOT NUMERIC
    OR PREV-DIAGN-PART2 OF PATREC IS NOT NUMERIC
    OR NOT POINT2-CODE
    OR LAST-PART2 OF PATREC NOT NUMERIC
    MOVE "X" TO ERROR-IN-LINE-9.
 IF  NOT DIAGN-CODE
    OR  NOT THERAPY-CODE
    OR  DIET-COMMENT OF PATREC IS NOT ALPHABETIC
    OR  NOT OP-FLAG-CODE
    MOVE "X" TO ERROR-IN-LINE-10.
 IF  OP-CODE1-PART1 OF PATREC IS NOT NUMERIC
    OR  NOT OP-KODE1-CODE
    OR  OP-CODE1-LAST OF PATREC NOT NUMERIC
    OR  OP-CODE2-PART1 OF PATREC IS NOT NUMERIC
    OR  NOT OP-KODE2-CODE
    OR  OP-CODE2-LAST OF PATREC IS NOT NUMERIC
    OR  OP-CODE3-PART1 OF PATREC IS NOT NUMERIC
    OR  NOT OP-KODE3-CODE
    OR  OP-CODE3-LAST OF PATREC IS NOT NUMERIC
    OR  OP-CODE4-PART1 OF PATREC IS NOT NUMERIC
    OR  NOT OP-KODE4-CODE
    OR  OP-CODE4-LAST OF PATREC IS NOT NUMERIC
    OR  SURGEON-CODE1-PART1 OF PATREC IS NOT NUMERIC
    OR  NOT SURG-PT1-CODE
    OR  SURG1-LAST OF PATREC IS NOT NUMERIC
    OR  SURGEON-CODE2-PART1 OF PATREC IS NOT NUMERIC
    OR  NOT SURG-PT2-CODE
    OR  SURG2-LAST OF PATREC IS NOT NUMERIC
    MOVE "X" TO ERROR-IN-LINE-11.
 IF  DISCHARGE-DATE OF PATREC IS NOT NUMERIC
    OR  DURATION OF PATREC IS NOT NUMERIC
    OR  DIAGN-CODE1-PART1 OF PATREC IS NOT NUMERIC
    OR NOT DIAGN-PT1-CODE
    OR  DIAGN1-LAST OF PATREC IS NOT NUMERIC
    OR  DIAGN-CODE2-PART1 OF PATREC IS NOT NUMERIC
    OR  NOT DIAGN-PT2-CODE
    OR  DIAGN2-LAST OF PATREC IS NOT NUMERIC
    OR  DIAGN-CODE3-PART1 OF PATREC IS NOT NUMERIC
    OR  NOT DIAGN-PT3-CODE
    OR  DIAGN3-LAST OF PATREC IS NOT NUMERIC
    MOVE "X" TO ERROR-IN-LINE-12.
 IF  NOT  DISCHARGE-CODE
    OR  DATE-OF-DEATH OF PATREC IS NOT NUMERIC
    OR  NOT AUTOPSY-CODE
    OR  ABSTRACTOR-ID OF PATREC IS NOT NUMERIC
    OR  MED-ATTENDANT OF PATREC IS NOT NUMERIC
    MOVE "X" TO ERROR-IN-LINE-13.
 IF  RECORD-OK
      MOVE CORRESPONDING PATREC TO ACTIVE-REC
      WRITE ACTIVE-REC
   MOVE CORRESPONDING PATREC TO MED-REC
    WRITE MED-REC
    ELSE
    MOVE HOSPITAL-CODE OF PATREC TO W-HOSPITAL-CODE
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           MOVE UNIT-NUMBER OF PATREC TO W-UNIT-NUMBER
           MOVE HEAD4 TO PRITLN
          WRITE PRITLN AFTER 2.
          PERFORM WRITE-MESSAGES.
       READ  RAWDATA
           AT END MOVE "Y" TO OUT-OF-DATA-FLAG.
           ADD 1 TO W-RECORD-CNT.
  WRITE-MESSAGES.
       IF  ERROR-IN-LINE-1 EQUAL "X"
            MOVE MESSAGE-1 TO REASON
           WRITE PRITLN  AFTER ADVANCING 1.
       IF ERROR-IN-LINE-2 EQUAL "X"
           MOVE MESSAGE-2 TO REASON
           WRITE PRITLN AFTER ADVANCING 1.
       IF ERROR-IN-LINE-3 EQUAL "X"
           MOVE MESSAGE-3 TO REASON
           WRITE PRITLN AFTER ADVANCING 1.
       IF ERROR-IN-LINE-4 EQUAL "X"
           MOVE MESSAGE-4 TO REASON
           WRITE PRITLN.
       IF ERROR-IN-LINE-5 EQUAL "X"
           MOVE MESSAGE-5 TO REASON
           WRITE PRITLN.
         IF ERROR-IN-LINE-6 EQUAL "X"
           MOVE MESSAGE-6 TO REASON
           WRITE PRITLN AFTER ADVANCING 1.
       IF ERROR-IN-LINE-7 EQUAL "X"
           MOVE MESSAGE-7 TO REASON
           WRITE PRITLN.
       IF ERROR-IN-LINE-8 EQUAL "X"
           MOVE MESSAGE-8 TO REASON
           WRITE PRITLN.
       IF ERROR-IN-LINE-9 EQUAL "X"
           MOVE MESSAGE-9 TO REASON
           WRITE PRITLN.
       IF ERROR-IN-LINE-10 EQUAL "X"
           MOVE MESSAGE-10 TO REASON
           WRITE PRITLN.
       IF ERROR-IN-LINE-11 EQUAL "X"
           MOVE MESSAGE-11 TO REASON
           WRITE PRITLN.
       IF ERROR-IN-LINE-12 EQUAL "X"
           MOVE MESSAGE-12 TO REASON
           WRITE PRITLN.
       IF ERROR-IN-LINE-13 EQUAL "X"
           MOVE MESSAGE-13 TO REASON
           WRITE PRITLN.
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APPENDIX 2

AQ.0011 COBOL V4.5 L42A 83/0

PROGRAM SEXP

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IDENTIFICATION DIVISION.
PROGRAM-ID.  HEALTH.
DATE-WRITTEN.  10/10/82.
AUTHOR. E.O.OKORO  M.SC. PROJECT.
REMARKS.
      THIS PROGRAM READS MEDFILE AND PRODUCES A
      STATISTICAL REPORT BY SEX AND DISEASE-GROUPS.
ENVIRONMENT DIVISION.
CONFIGURATION SECTION.
SOURCE-COMPUTER.  CYBER72.
OBJECT-COMPUTER.  CYBER72.
SPECIAL-NAMES.
    "1" IS PAGE-TOP.
    TERMINAL IS TTY.
INPUT-OUTPUT SECTION.
FILE-CONTROL.
    SELECT MEDFL ASSIGN MEDFL-FZ
        ORGANIZATION IS SEQUENTIAL.
    SELECT OSEX ASSIGN OSEX-FZ
        ORGANIZATION IS SEQUENTIAL.
DATA DIVISION.
FILE SECTION.
FD  MEDFL
        LABEL RECORDS ARE OMITTED
        DATA RECORD IS MEDFL-REC.
01  MEDFL-REC.
    02  HOSPITAL-CODE          PIC 9.
    02  SEX-CODE                    PIC 9.
        88  MALE     VALUE 1.
        88  FEMALE   VALUE 2.
    02  MAR-STATUS              PIC 9.
    02  OCCUPATION              PIC 99.
    02  AGE                     PIC 9(5).
    02  PATIENT-STATE           PIC 99.
    02  DATE-OF-ADMISSION      PIC 9(6).
    02  WARD                    PIC 99.
    02  ADMISSION               PIC 9.
    02  DIAGN-METHOD            PIC 9.
    02  CURRENT-THERAPY         PIC 9.
    02  DURATION          PIC 999.
    02  DIAGNOSTICS             PIC 9(4)V99 OCCURS 3 TIMES.
    02  DISCHARGE-STATUS        PIC 9.
FD  OSEX
        LABEL RECORDS ARE OMITTED
        DATA RECORD IS O-SEX.
01  O-SEX.
    02  FILLER                      PIC X.
    02  OUT-PUT-LINE                PIC X(136).
WORKING-STORAGE SECTION.
77  DEAD-MALE-CNT       PIC S9(5) COMP SYNC VALUE 1.
77  DEAD-TOTAL-CNT      PIC S9(5) COMP SYNC VALUE 1.
77  DEAD-FEMALE-CNT     PIC S9(5) COMP SYNC VALUE 1.
77  MALE-CNT            PIC S9(5) COMP SYNC VALUE 1.
77  FEMALE-CNT          PIC S9(5) COMP SYNC VALUE 1.
77  TOTAL-CNT           PIC S9(5) COMP SYNC VALUE 1.
77  PAGE-CNT            PIC S9(5) COMP SYNC VALUE ZERO.
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AO 0011                                          COBOL    V4.5  L42A  (3/

77  LINE-CNT            PIC S9(5) COMP SYNC VALUE 1.
77  DIAGN-CNT           PIC S9(5) COMP SYNC VALUE 1.
77  KOUNTER             PIC S9(5) COMP SYNC VALUE 1.
77  IGROUP          PIC S9(3) COMP SYNC VALUE 0.
77  W-RECORD-CNT        PIC S9(8) COMP SYNC VALUE 1.
01  DISEASE-TABLE.
    02  MALE-CASE  PIC S9(5) COMP SYNC OCCURS 67 TIMES.
    02  FEMALE-CASE PIC S9(5) COMP SYNC OCCURS 67 TIMES.
    02  TOTAL-CASE  PIC S9(5) COMP SYNC OCCURS 67 TIMES.
    02  DEAD-MALE  PIC S9(5) COMP SYNC OCCURS 67 TIMES.
    02  DEAD-FEMALE PIC S9(5) COMP SYNC OCCURS 67 TIMES.
    02  DEAD-TOTAL  PIC S9(7) COMP SYNC OCCURS 67 TIMES.
01  HEAD-1.
    02  FILLER  PIC X(25) VALUE SPACES.
    02  FILLER PIC X(49) VALUE "AHMADU BELLO UNIVERSITY TEACHING
-   " HOSPITAL ZARIA ".
    02  FILLER  PIC X(50) VALUE SPACES.
    02  WK-PAGE-CNT     PIC Z79.
    02  FILLER          PIC X(5) VALUE SPACES.
01  HEAD2.
    02  FILLER          PIC X(28) VALUE SPACES.
    02  FILLER PIC X(37) VALUE "PATIENTS' STATISTICAL REPORT BY
-   " SEX".
    02  FILLER         PIC X(72) VALUE SPACES.
01  HEAD3.
    02  FILLER         PIC X(32) VALUE SPACES.
    02  FILLER PIC X(29) VALUE "FOR THE MONTH OF JANUARY 1982".
    02  FILLER          PIC X(76) VALUE SPACES.
01  HEAD4.
    02  FILLER          PIC X(13) VALUE SPACES.
    02  FILLER PIC X(41) VALUE "GROUP        MALE      FEMALE
-   "   TOTAL".
01  LINE1.
    02  FILLER   PIC X(20) VALUE SPACES.
    02  FILLER   PIC X(5) VALUE "CASES".
    02  COLUMN1  PIC ZZZ779 VALUE ZERO.
    02  FILLER   PIC XXX VALUE SPACE.
    02  FEMALE-OUT PIC ZZZZ9 VALUE ZERO.
    02  FILLER    PIC X(8) VALUE SPACES.
    02  TOTAL-COL  PIC ZZZZ9 VALUE ZERO.
    02  FILLER   PIC X(84) VALUE SPACES.
01  LINE2.
    02  FILLER     PIC X VALUE SPACE.
    02  GROUP-NO PIC X(30)  .
    02  FILLER     PIC X(105) VALUE SPACES.
01  LINE3.
    02  FILLER    PIC X(20) VALUE SPACES.
    02  FILLER    PIC X(5) VALUE "DIED".
    02  D-MALE    PIC ZZ779 VALUE ZERO.
    02  FILLER    PIC XXX VALUE SPACES.
    02  D-FEMALE  PIC ZZ779 VALUE ZERO.
    02  FILLER    PIC X(8) VALUE SPACES.
    02  D-TOTAL   PIC ZZ779 VALUE ZERO.
    02  FILLER    PIC X(85) VALUE SPACES.
01  FLAG.
    02  OUT-OF-DATA-FLAG PIC X VALUE "N".
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           88 OUT-OF-DATA  VALUE "Y".
       01  ICD-3DIGIT-VALUES.
           02  FILLER  PIC X(30) VALUE "001-009                    ".
           02  FILLER  PIC X(30) VALUE "010-018                    ".
           02  FILLER  PIC X(30) VALUE "020-041                    ".
           02  FILLER  PIC X(30) VALUE "045-079                    ".
           02  FILLER  PIC X(30) VALUE "080-088                    ".
           02  FILLER  PIC X(30) VALUE "090-099                    ".
           02  FILLER  PIC X(30) VALUE "100-139                    ".
           02  FILLER  PIC X(30) VALUE "140-149                    ".
           02  FILLER  PIC X(30) VALUE "150-159                    ".
           02  FILLER  PIC X(30) VALUE "160-165                    ".
           02  FILLER  PIC X(30) VALUE "170-175                    ".
           02  FILLER  PIC X(30) VALUE "179-189                    ".
           02  FILLER  PIC X(30) VALUE "190-199                    ".
           02  FILLER  PIC X(30) VALUE "200-208                    ".
           02  FILLER  PIC X(30) VALUE "210-229                    ".
           02  FILLER  PIC X(30) VALUE "230-234                    ".
           02  FILLER  PIC X(30) VALUE "235-239                    ".
           02  FILLER  PIC X(30) VALUE "240-259 & 270-279          ".
           02  FILLER  PIC X(30) VALUE "260-269                    ".
           02  FILLER  PIC X(30) VALUE "280-289                    ".
           02  FILLER  PIC X(30) VALUE "290-319                    ".
           02  FILLER  PIC X(30) VALUE "320-359                    ".
           02  FILLER  PIC X(30) VALUE "360-379                    ".
           02  FILLER  PIC X(30) VALUE "380-389                    ".
           02  FILLER  PIC X(30) VALUE "390-398                    ".
           02  FILLER  PIC X(30) VALUE "401-405                    ".
           02  FILLER  PIC X(30) VALUE "410-414                    ".
           02  FILLER  PIC X(30) VALUE "415-429                    ".
           02  FILLER  PIC X(30) VALUE "430-438                    ".
           02  FILLER  PIC X(30) VALUE "440-459                    ".
           02  FILLER  PIC X(30) VALUE "460-465 & 470-478          ".
           02  FILLER  PIC X(30) VALUE "466 & 480-519              ".
           02  FILLER  PIC X(30) VALUE "520-529                    ".
           02  FILLER  PIC X(30) VALUE "530-579                    ".
           02  FILLER  PIC X(30) VALUE "580-599                    ".
           02  FILLER  PIC X(30) VALUE "600-608                    ".
           02  FILLER  PIC X(30) VALUE "610-629                    ".
           02  FILLER  PIC X(30) VALUE "630-639                    ".
           02  FILLER  PIC X(30) VALUE "640-646 & 651-676          ".
           02  FILLER  PIC X(30) VALUE "647 & 648                  ".
           02  FILLER  PIC X(30) VALUE "650                        ".
           02  FILLER  PIC X(30) VALUE "680-709                    ".
           02  FILLER  PIC X(30) VALUE "710-739                    ".
           02  FILLER  PIC X(30) VALUE "740-759                    ".
           02  FILLER  PIC X(30) VALUE "760-779                    ".
           02  FILLER  PIC X(30) VALUE "780-799                    ".
           02  FILLER  PIC X(30) VALUE "800-829                    ".
           02  FILLER  PIC X(30) VALUE "830-848                    ".
           02  FILLER  PIC X(30) VALUE "850-869 & 950-957          ".
           02  FILLER  PIC X(30) VALUE "870-904                    ".
           02  FILLER  PIC X(30) VALUE "930-939                    ".
           02  FILLER  PIC X(30) VALUE "940-949                    ".
           02  FILLER  PIC X(30) VALUE "960-989                    ".
           02  FILLER  PIC X(30) VALUE "996-999                    ".
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AO 0011                                                    COBOL    V4.5  L42A 83/09/
     02  FILLER  PIC X(30) VALUE "910-929:958-959:990-995          ".
     02  FILLER  PIC X(30) VALUE "905-909                          ".
     02  FILLER  PIC X(30) VALUE "E800-E848                        ".
     02  FILLER  PIC X(30) VALUE "E850-E869                        ".
     02  FILLER  PIC X(30) VALUE "E870-E879                        ".
     02  FILLER  PIC X(30) VALUE "E880-E888                        ".
     02  FILLER  PIC X(30) VALUE "E890-E899                        ".
     02  FILLER  PIC X(30) VALUE "E900-E929                        ".
     02  FILLER  PIC X(30) VALUE "E930-E949                        ".
     02  FILLER  PIC X(30) VALUE "E950-E959                        ".
     02  FILLER  PIC X(30) VALUE "E960-E969                        ".
     02  FILLER  PIC X(30) VALUE "E970-E999                        ".
     02  FILLER  PIC X(30) VALUE "V00-V82                          ".
01   DISEASE-GROUPS REDEFINES ICD-3DIGIT-VALUES.
     02  THE-GROUPS        PIC X(30) OCCURS 67 TIMES.
01   DISEASES.
     02  DISEASE-CATEGORIES  PIC 9(4)V99.
     88  CAT1  VALUE 0001.00 THRU 0009.99.
     88  CAT2  VALUE 0010.00  THRU 0018.99.
     88  CAT3  VALUE 0020.00 THRU 0041.99.
     88  CAT4  VALUE 0045.00 THRU 0079.99.
     88  CAT5  VALUE 0080.00 THRU 0088.99.
     88  CAT6  VALUE 0090.00 THRU 0099.99.
     88  CAT7  VALUE 0100.00 THRU 0139.99.
     88  CAT8  VALUE 0140.00 THRU 0149.99.
     88  CAT9  VALUE 0150.00 THRU 0159.99.
     88  CAT10 VALUE 0160.00 THRU 0165.99.
     88  CAT11 VALUE 0170.00 THRU 0175.99.
     88  CAT12  VALUE 0179.00 THRU 0189.99.
     88  CAT13  VALUE 0190.00 THRU 0199.99.
     88  CAT14  VALUE 0200.00 THRU 0208.99.
     88  CAT15  VALUE 0210.00 THRU 0229.99.
     88  CAT16  VALUE 0230.00 THRU 0234.99.
     88  CAT17  VALUE 0235.00 THRU 0239.99.
     88  CAT18  VALUE 0240.00 THRU 0259.99 0270.00 THRU 0279.99.
     88  CAT19  VALUE 0260.00 THRU 0269.99.
     88  CAT20  VALUE 0280.00 THRU 0289.99.
     88  CAT21  VALUE 0290.00 THRU 0319.99.
     88  CAT22  VALUE 0320.00 THRU 0359.99.
     88  CAT23  VALUE 0360.00 THRU 0379.99.
     88  CAT24  VALUE 0380.00 THRU 0389.99.
     88  CAT25  VALUE 0390.00 THRU 0398.99.
     88  CAT26  VALUE 0401.00 THRU 0405.99.
     88  CAT27  VALUE 0410.00 THRU 0414.99.
     88  CAT28  VALUE 0415.00 THRU 0429.99.
     88  CAT29  VALUE 0430.00 THRU 0438.99.
     88  CAT30  VALUE 0440.00 THRU 0459.99.
     88  CAT31  VALUE 0460.00 THRU 0465.99 0470.00 THRU 0478.99.
     88  CAT32  VALUE 0466.00 0480.00 THRU 0519.99.
     88  CAT33  VALUE 0520.00 THRU 0529.99.
     88  CAT34  VALUE 0530.00 THRU 0579.99.
     88  CAT35  VALUE 0580.00 THRU 0599.99.
     88  CAT36  VALUE 0600.00 THRU 0608.99.
     88  CAT37  VALUE 0610.00 THRU 0629.99.
     88  CAT38  VALUE 0630.00 THRU 0639.99.
     88  CAT39  VALUE 0640.00 THRU 0646.99 0651.00 THRU 0676.99.
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88  CAT40  VALUE 0647.00 THRU 0648.99.
88  CAT41  VALUE 0650.00.
88  CAT42  VALUE 0680.00 THRU 0709.99.
88  CAT43  VALUE 0710.00 THRU 0739.99.
88  CAT44  VALUE 0740.00 THRU 0759.99.
88  CAT45  VALUE 0760.00 THRU 0779.99.
88  CAT46  VALUE 0780.00 THRU 0799.99.
88  CAT47  VALUE 0800.00 THRU 0829.99.
88  CAT48  VALUE 0830.00 THRU 0848.99.
88  CAT49  VALUE 0850.00 THRU 0869.99 0950.00 THRU 0957.99.
88  CAT50  VALUE 0870.00 THRU 0904.99.
88  CAT51  VALUE 0930.00 THRU 0939.99.
88  CAT52  VALUE 0940.00 THRU 0949.99.
88  CAT53  VALUE 0960.00 THRU 0989.99.
88  CAT54  VALUE 0996.00 THRU 0999.99.
88  CAT55  VALUE 0910.00 THRU 0929.99 0958.00 THRU 0959.99
                  0990.00 THRU 0995.99.
88  CAT56  VALUE 0905.00 THRU 0909.99.
88  CAT57  VALUE 2800.00 THRU 2848.99.
88  CAT58  VALUE 2850.00 THRU 2869.99.
88  CAT59  VALUE 2870.00 THRU 2879.99.
88  CAT60  VALUE 2880.00 THRU 2888.99.
88  CAT61  VALUE 2890.00 THRU 2899.99.
88  CAT62  VALUE 2900.00 THRU 2929.99.
88  CAT63  VALUE 2930.00 THRU 2949.99.
88  CAT64  VALUE 2950.00 THRU 2959.99.
88  CAT65  VALUE 2960.00 THRU 2969.99.
88  CAT66  VALUE 2970.00 THRU 2999.99.
88  CAT67  VALUE 9900.00 THRU 9982.99.
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AO 0011                                    COBOL    V4.5  L42a 83/
PROCEDURE DIVISION.
HOUSE-KEEPING.
    OPEN INPUT MEDFL OUTPUT OSEX.
    PERFORM HEAD-PRINT.
    ADD 4 TO LINE-CNT.
    MOVE ZERO TO DISEASE-TABLE.
    PERFORM READ-RECORD UNTIL OUT-OF-DATA-FLAG = "Y".
    PERFORM LINE-OUT VARYING KOUNTER FROM 1 BY 1 UNTIL
        KOUNTER > 67.
    CLOSE MEDFL OSEX.
    STOP RUN.
READ-RECORD.
    READ MEDFL AT END MOVE "Y" TO OUT-OF-DATA-FLAG.
        ADD 1 TO W-RECORD-CNT.
    MOVE DIAGNOSTICS ( 1 ) TO DISEASES.
    PERFORM SEARCH-AND-COUNT .
SEARCH-AND-COUNT.
    IF  CAT1 THEN MOVE 1 TO IGROUP PERFORM CAT-CNT.
    IF CAT2 MOVE 2 TO IGROUP PERFORM CAT-CNT.
     IF CAT3 MOVE 3 TO IGROUP PERFORM CAT-CNT.
     IF CAT4 MOVE 4 TO IGROUP PERFORM CAT-CNT.
    IF CAT5 MOVE 5 TO IGROUP PERFORM CAT-CNT.
    IF CAT6 MOVE 6 TO IGROUP PERFORM CAT-CNT.
    IF CAT7 MOVE 7 TO IGROUP PERFORM CAT-CNT.
    IF CAT8 MOVE 8 TO IGROUP PERFORM CAT-CNT.
    IF CAT9 MOVE 9 TO IGROUP PERFORM CAT-CNT.
    IF CAT10 MOVE 10 TO IGROUP PERFORM CAT-CNT.
    IF CAT11 MOVE 11 TO IGROUP PERFORM CAT-CNT.
    IF CAT12 MOVE 12 TO IGROUP PERFORM CAT-CNT.
    IF CAT13 MOVE 13 TO IGROUP PERFORM CAT-CNT.
    IF CAT14 MOVE 14 TO IGROUP PERFORM CAT-CNT.
    IF CAT15 MOVE 15 TO IGROUP PERFORM CAT-CNT.
    IF CAT16 MOVE 16 TO IGROUP PERFORM CAT-CNT.
    IF CAT17 MOVE 17 TO IGROUP PERFORM CAT-CNT.
    IF CAT18 MOVE 18 TO IGROUP PERFORM CAT-CNT.
    IF CAT19 MOVE 19 TO IGROUP PERFORM CAT-CNT.
    IF CAT20 MOVE 20 TO IGROUP PERFORM CAT-CNT.
    IF CAT21 MOVE 21 TO IGROUP PERFORM CAT-CNT.
    IF CAT22 MOVE 22 TO IGROUP PERFORM CAT-CNT.
    IF CAT23 MOVE 23 TO IGROUP PERFORM CAT-CNT.
    IF CAT24 MOVE 24 TO IGROUP PERFORM CAT-CNT.
    IF CAT25 MOVE 25 TO IGROUP PERFORM CAT-CNT.
    IF CAT26 MOVE 26 TO IGROUP PERFORM CAT-CNT.
    IF CAT27 MOVE 27 TO IGROUP PERFORM CAT-CNT.
    IF CAT28 MOVE 28 TO IGROUP PERFORM CAT-CNT.
    IF CAT29 MOVE 29 TO IGROUP PERFORM CAT-CNT.
    IF CAT30 MOVE 30 TO IGROUP PERFORM CAT-CNT.
    IF CAT31 MOVE 31 TO IGROUP PERFORM CAT-CNT.
    IF CAT32 MOVE 32 TO IGROUP PERFORM CAT-CNT.
    IF CAT33 MOVE 33 TO IGROUP PERFORM CAT-CNT.
    IF CAT34 MOVE 34 TO IGROUP PERFORM CAT-CNT.
    IF CAT35 MOVE 35 TO IGROUP PERFORM CAT-CNT.
    IF CAT36 MOVE 36 TO IGROUP PERFORM CAT-CNT.
    IF CAT37 MOVE 37 TO IGROUP PERFORM CAT-CNT.
    IF CAT38 MOVE 38 TO IGROUP PERFORM CAT-CNT.
    IF CAT39 MOVE 39 TO IGROUP PERFORM CAT-CNT.
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     IF CAT40 MOVE 40 TO IGROUP PERFORM CAT-CNT.
     IF CAT41 MOVE 41 TO IGROUP PERFORM CAT-CNT.
     IF CAT42 MOVE 42 TO IGROUP PERFORM CAT-CNT.
     IF CAT43 MOVE 43 TO IGROUP PERFORM CAT-CNT.
     IF CAT44 MOVE 44 TO IGROUP PERFORM CAT-CNT.
     IF CAT45 MOVE 45 TO IGROUP PERFORM CAT-CNT.
     IF CAT46 MOVE 46 TO IGROUP PERFORM CAT-CNT.
     IF CAT47 MOVE 47 TO IGROUP PERFORM CAT-CNT.
     IF CAT48 MOVE 48 TO IGROUP PERFORM CAT-CNT.
     IF CAT49 MOVE 49 TO IGROUP PERFORM CAT-CNT.
     IF CAT50 MOVE 50 TO IGROUP PERFORM CAT-CNT.
     IF CAT51 MOVE 51 TO IGROUP PERFORM CAT-CNT.
     IF CAT52 MOVE 52 TO IGROUP PERFORM CAT-CNT.
     IF CAT53 MOVE 53 TO IGROUP PERFORM CAT-CNT.
     IF CAT54 MOVE 54 TO IGROUP PERFORM CAT-CNT.
     IF CAT55 MOVE 55 TO IGROUP PERFORM CAT-CNT.
     IF CAT56 MOVE 56 TO IGROUP PERFORM CAT-CNT.
     IF CAT57 MOVE 57 TO IGROUP PERFORM CAT-CNT.
     IF CAT58 MOVE 58 TO IGROUP PERFORM CAT-CNT.
     IF CAT59 MOVE 59 TO IGROUP PERFORM CAT-CNT.
     IF CAT60 MOVE 60 TO IGROUP PERFORM CAT-CNT.
     IF CAT61 MOVE 61 TO IGROUP PERFORM CAT-CNT.
     IF CAT62 MOVE 62 TO IGROUP PERFORM CAT-CNT.
     IF CAT63 MOVE 63 TO IGROUP PERFORM CAT-CNT.
     IF CAT64 MOVE 64 TO IGROUP PERFORM CAT-CNT.
     IF CAT65 MOVE 65 TO IGROUP PERFORM CAT-CNT.
     IF CAT66 MOVE 66 TO IGROUP PERFORM CAT-CNT.
     IF CAT67 MOVE 67 TO IGROUP PERFORM CAT-CNT.
LINE-OUT.
     MOVE MALE-CASE (KOUNTER) TO COLUMN1.
     MOVE FEMALE-CASE (KOUNTER) TO FEMALE-OUT .
     MOVE TOTAL-CASE (KOUNTER) TO TOTAL-COL.
     MOVE DEAD-MALE (KOUNTER) TO D-MALE.
     MOVE DEAD-FEMALE (KOUNTER) TO D-FEMALE.
     MOVE DEAD-TOTAL (KOUNTER) TO D-TOTAL.
     WRITE O-SEX FROM LINE1 AFTER 2 LINES.
     MOVE THE-GROUPS ( KOUNTER ) TO GROUP-NO.
     WRITE O-SEX FROM LINE2.
     WRITE O-SEX FROM LINE3.
     ADD 1 TO LINE-CNT.
     IF LINE-CNT GREATER THAN 11
        MOVE ZERO TO LINE-CNT
          PERFORM HEAD-PRINT  .
HEAD-PRINT.
     MOVE SPACES TO O-SEX.
      ADD 1 TO PAGE-CNT.
     MOVE PAGE-CNT TO WK-PAGE-CNT.
         MOVE HEAD-1 TO OUT-PUT-LINE.
      WRITE O-SEX AFTER ADVANCING PAGE-TOP .
     MOVE HEAD2 TO OUT-PUT-LINE.
        WRITE O-SEX.
     MOVE HEAD3 TO OUT-PUT-LINE.
       WRITE O-SEX.
     MOVE HEAD4 TO OUT-PUT-LINE.
     WRITE O-SEX .
     MOVE SPACES TO O-SEX.
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ALTH            AO 0011                                  COBOL    V4.5  L42a A3

                CAT-CNT.
                    IF MALE ADD 1 TO MALE-CASE ( IGROUP ) TOTAL-CASE (IGROUP).
                    IF MALE AND DISCHARGE-STATUS EQUAL 6
                       ADD 1 TO DEAD-MALE ( IGROUP ) DEAD-TOTAL (IGROUP ).
                    IF FEMALE ADD 1 TO FEMALE-CASE ( IGROUP ) TOTAL-CASE
                       ( IGROUP ).
                    IF FEMALE AND DISCHARGE-STATUS EQUAL 6
                       ADD 1 TO DEAD-FEMALE ( IGROUP ) DEAD-TOTAL ( IGROUP ).
GTH IS  005603
M USED
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APPENDIX 3

AHMADU BELLO UNIVERSITY TEACHING HOSPITAL ZARIA
PATIENTS' STATISTICAL REPORT BY SEX
FOR THE MONTH OF JANUARY 1982

GROUP		MALE	FEMALE	TOTAL
00-009	CASES	35	25	60
	DIED	3	1	4
10-018	CASES	3	4	7
	DIED	0	0	0
020-041	CASES	7	4	11
	DIED	1	1	2
045-079	CASES	53	60	113
	DIED	3	14	17
080-088	CASES	12	8	20
	DIED	1	0	1
090-099	CASES	0	0	0
	DIED	0	0	0
100-139	CASES	1	1	2
	DIED	0	0	0

AHMADU BELLO UNIVERSITY TEACHING HOSPITAL ZARIA
PATIENTS' STATISTICAL REPORT BY SEX
FOR THE MONTH OF JANUARY 1982

GROUP		MALE	FEMALE	TOTAL
140-149	CASES	0	0	0
	DIED	0	0	0
150-159	CASES	3	2	5
	DIED	1	0	1
160-165	CASES	0	0	0
	DIED	0	0	0
170-175	CASES	0	0	0
	DIED	0	0	0
179-189	CASES	0	0	0
	DIED	0	0	0
190-199	CASES	0	0	0
	DIED	0	0	0
200-208	CASES	1	0	1
	DIED	1	0	1
210-229	CASES	0	2	2
	DIED	0	0	0
230-234	CASES	0	0	0
	DIED	0	0	0
235-239	CASES	0	0	0
	DIED	0	0	0
240-259 & 270-279	CASES	4	3	7
	DIED	0	1	1
260-269	CASES	7	10	17
	DIED	1	3	4

AHMADU BELLO UNIVERSITY TEACHING HOSPITAL ZARIA
PATIENTS' STATISTICAL REPORT BY SEX
FOR THE MONTH OF JANUARY 1982

GROUP		MALE	FEMALE	TOTAL
280-289	CASES	15	15	30
	DIED	2	0	2
290-319	CASES	0	1	1
	DIED	0	0	0
320-359	CASES	21	11	32
	DIED	6	3	9
360-379	CASES	4	0	4
	DIED	0	0	0
380-389	CASES	0	1	1
	DIED	0	0	0
390-398	CASES	0	2	2
	DIED	0	0	0
401-405	CASES	4	1	5
	DIED	1	0	1
410-414	CASES	0	0	0
	DIED	0	0	0
415-429	CASES	5	5	10
	DIED	2	2	4
430-438	CASES	2	1	3
	DIED	2	0	2
440-459	CASES	1	0	1
	DIED	1	0	1
460-465 & 470-478	CASES	2	4	6
	DIED	0	0	0

AHMADU BELLO UNIVERSITY TEACHING HOSPITAL ZARIA
PATIENTS' STATISTICAL REPORT BY SEX
FOR THE MONTH OF JANUARY 1982

GROUP		MALE	FEMALE	TOTAL
466 & 480-519	CASES	50	22	72
	DIED	5	6	11
520-529	CASES	0	0	0
	DIED	0	0	0
530-579	CASES	10	8	18
	DIED	5	3	8
580-599	CASES	5	3	8
	DIED	2	1	3
600-608	CASES	1	0	1
	DIED	0	0	0
610-629	CASES	0	8	8
	DIED	0	0	0
630-639	CASES	0	14	14
	DIED	0	1	1
640-646 & 651-676	CASES	1	45	46
	DIED	0	0	0
647 & 648	CASES	0	2	2
	DIED	0	0	0
650	CASES	0	302	302
	DIED	0	0	0
680-709	CASES	3	2	5
	DIED	0	1	1
710-739	CASES	5	4	9
	DIED	0	0	0

AHMADU BELLO UNIVERSITY TEACHING HOSPITAL ZARIA
PATIENTS' STATISTICAL REPORT BY SEX
FOR THE MONTH OF JANUARY 1982

GROUP		MALE	FEMALE	TOTAL
740-759	CASES	5	3	8
	DIED	1	0	1
760-779	CASES	54	42	96
	DIED	16	13	29
780-799	CASES	15	13	28
	DIED	3	0	3
800-829	CASES	1	0	1
	DIED	0	0	0
830-848	CASES	0	0	0
	DIED	0	0	0
850-869 & 950-957	CASES	1	1	2
	DIED	1	1	2
870-904	CASES	1	0	1
	DIED	0	0	0
930-939	CASES	0	0	0
	DIED	0	0	0
940-949	CASES	0	0	0
	DIED	0	0	0
960-989	CASES	1	0	1
	DIED	0	0	0
996-999	CASES	0	0	0
	DIED	0	0	0
910-929|958-959|990-995	CASES	0	1	1
	DIED	0	0	0

AHMADU BELLO UNIVERSITY TEACHING HOSPITAL ZARIA
PATIENTS' STATISTICAL REPORT BY SEX
FOR THE MONTH OF JANUARY 1982

GROUP		MALE	FEMALE	TOTAL
905-909	CASES	0	0	0
	DIED	0	0	0
E800-E848	CASES	38	12	50
	DIED	8	1	9
E850-E869	CASES	13	13	26
	DIED	0	0	0
E870-E879	CASES	4	0	4
	DIED	0	0	0
E880-E888	CASES	1	3	4
	DIED	0	0	0
E890-E899	CASES	2	1	3
	DIED	0	0	0
E900-E929	CASES	10	4	14
	DIED	1	1	2
E930-E949	CASES	2	0	2
	DIED	0	0	0
E950-E959	CASES	0	0	0
	DIED	0	0	0
E960-E969	CASES	2	0	2
	DIED	0	0	0
E970-E999	CASES	0	2	2
	DIED	0	0	0
V00-V82	CASES	2	19	21
	DIED	0	0	0

APPENDIX 4

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AO 0011          PROGRAM AGEP                COBOL    V4.5  L42A 83/0

IDENTIFICATION DIVISION.
PROGRAM-ID.  HEALTH.
DATE-WRITTEN.  10/10/82.
AUTHOR. E.O.OKORO M.SC. PROJECT.
REMARKS.
      THIS PROGRAM READS MEDFILE AND PRODUCES A
      STATISTICAL REPORT BY AGE-GROUP AND DISEASE-GROUPS.
ENVIRONMENT DIVISION.
CONFIGURATION SECTION.
SOURCE-COMPUTER.  CYBER72.
OBJECT-COMPUTER.  CYBER72.
SPECIAL-NAMES.
    "1" IS PAGE-TOP.
    TERMINAL IS TTY.
INPUT-OUTPUT SECTION.
FILE-CONTROL.
    SELECT MEDFL ASSIGN MEDFL-FZ
        ORGANIZATION IS SEQUENTIAL.
    SELECT OAGE ASSIGN OAGE-FZ
        ORGANIZATION IS SEQUENTIAL.
DATA DIVISION.
FILE SECTION.
FD  MEDFL
        LABEL RECORDS ARE OMITTED
        DATA RECORD IS MED-REC.
01  MED-REC.
    02  HOSPITAL-CODE          PIC 9.
    02  SEX-CODE               PIC 9.
        88  MALE               VALUE 1.
        88  FEMALE             VALUE 2.
    02  MAR-STATUS             PIC 9.
    02  OCCUPATION             PIC 99.
    02  AGE                    PIC 999.
    02  AGE-IN-MONTH           PIC 99.
    02  PATIENT-STATE          PIC 99.
    02  DATE-OF-ADMISSION      PIC 9(6).
    02  WARD                   PIC 99.
    02  ADMISSION              PIC 9.
    02  DIAGN-METHOD           PIC 9.
    02  CURRENT-THERAPY        PIC 9.
    02  DURATION               PIC 999.
    02  DIAGNOSTICS            PIC 9(4)V99 OCCURS 3 TIMES.
    02  DISCHARGE-STATUS       PIC 9.
FD  OAGE
        LABEL RECORDS ARE OMITTED
        DATA RECORD IS O-AGE.
01  O-AGE.
    02  FILLER                 PIC X.
    02  OUT-PUT-LINE           PIC X(136).
WORKING-STORAGE SECTION.
77  DEAD-MALE-CNT      PIC S9(5) COMP SYNC VALUE 1.
77  DEAD-TOTAL-CNT     PIC S9(5) COMP SYNC VALUE 1.
77  DEAD-FEMALE-CNT    PIC S9(5) COMP SYNC VALUE 1.
77  MALE-CNT           PIC S9(5) COMP SYNC VALUE 1.
77  FEMALE-CNT         PIC S9(5) COMP SYNC VALUE 1.
77  TOTAL-CNT          PIC S9(5) COMP SYNC VALUE 1.
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77  PAGE-CNT          PIC S9(5) COMP SYNC VALUE ZERO.
77  LINE-CNT          PIC S9(5) COMP SYNC VALUE 1.
77  DIAGN-CNT         PIC S9(5) COMP SYNC VALUE 1.
77  KOUNTER           PIC S9(5) COMP SYNC VALUE 1.
77  IGROUP          PIC S9(3) COMP SYNC VALUE 0.
77  W-RECORD-CNT      PIC S9(5) COMP SYNC VALUE 1.
01  DISEASE-TABLE.
    02  TOTAL-CASE  PIC S9(5) COMP SYNC OCCURS 67 TIMES.
    02  AGE-GRP1-CASE PIC S9(5) COMP SYNC OCCURS 67 TIMES.
    02  DEAD-AGE-GRP1  PIC S9(5) COMP SYNC OCCURS 67 TIMES.
    02  AGE-GRP2-CASE  PIC S9(5) COMP SYNC OCCURS 67 TIMES.
    02  DEAD-AGE-GRP2 PIC S9(5) COMP SYNC OCCURS 67 TIMES.
    02  AGE-GRP3-CASE PIC S9(5) COMP SYNC OCCURS 67 TIMES.
    02  DEAD-AGE-GRP3 PIC S9(5) COMP SYNC OCCURS 67 TIMES.
    02  AGE-GRP4-CASE PIC S9(5) COMP SYNC OCCURS 67 TIMES.
    02  DEAD-AGE-GRP4 PIC S9(5) COMP SYNC OCCURS 67 TIMES.
    02  AGE-GRP5-CASE PIC S9(5) COMP SYNC OCCURS 67 TIMES.
    02  DEAD-AGE-GRP5 PIC S9(5) COMP SYNC OCCURS 67 TIMES.
    02  DEAD-TOTAL  PIC S9(7) COMP SYNC OCCURS 67 TIMES.
01  HEAD-1.
    02  FILLER  PIC X(25) VALUE SPACES.
    02  FILLER PIC X(49) VALUE "AHMADU BELLO UNIVERSITY TEACHING
-   " HOSPITAL ZARIA ".
    02  FILLER  PIC X(50) VALUE SPACES.
    02  WK-PAGE-CNT     PIC ZZ9.
    02  FILLER          PIC X(5) VALUE SPACES.
01  HEAD2.
    02  FILLER          PIC X(28) VALUE SPACES.
    02  FILLER PIC X(37) VALUE "PATIENTS' STATISTICAL REPORT BY
-   " AGE".
    02  FILLER         PIC X(72) VALUE SPACES.
01  HEAD3.
    02  FILLER          PIC X(32) VALUE SPACES.
    02  FILLER PIC X(29) VALUE "FOR THE MONTH OF JANUARY 1982".
    02  FILLER          PIC X(76) VALUE SPACES.
01  HEAD4.
    02  FILLER          PIC XX VALUE SPACES.
    02  FILLER PIC X(88) VALUE "GROUP                          UNDER 1
-   "YR.  1-4 YR.  5-14 YR.  15-44 YR.  ABOVE 44 YR.  TOTAL".
01  LINE1.
    02  FILLER                  PIC X(20) VALUE SPACES.
    02  FILLER                  PIC X(5) VALUE "CASES".
    02  FILLER                  PIC XXX VALUE SPACES.
    02  AGE1                    PIC ZZ9 VALUE ZERO.
    02  FILLER                  PIC X(10) VALUE SPACES.
    02  AGE2                    PIC ZZ9 VALUE ZERO.
    02  FILLER                  PIC X(7) VALUE SPACES.
    02  AGE3                    PIC ZZ9 VALUE ZERO.
    02  FILLER                  PIC X(7) VALUE SPACES.
    02  AGE4                    PIC ZZ9 VALUE ZERO.
    02  FILLER                  PIC X(7) VALUE SPACES.
    02  AGE5                    PIC ZZ9 VALUE ZERO.
    02  FILLER                  PIC X(9) VALUE SPACES.
    02  ROW-TOTAL               PIC ZZZZ9 VALUE ZERO.
    02  FILLER                  PIC X(48) VALUE SPACES.
01  LINE2.
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    02  FILLER      PIC X VALUE SPACE.
    02  GROUP-NO PIC X(30)   .
    02  FILLER      PIC X(105) VALUE SPACES.
01  LINE3.
    02  FILLER                  PIC X(20) VALUE SPACES.
    02  FILLER                  PIC X(5) VALUE "DIED".
    02  FILLER                  PIC XXX VALUE SPACES.
    02  D-AGE1                  PIC ZZ9 VALUE ZERO.
    02  FILLER                  PIC X(10) VALUE SPACES.
    02  D-AGE2                  PIC ZZ9 VALUE ZERO.
    02  FILLER                  PIC X(7) VALUE SPACES.
    02  D-AGE3                  PIC ZZ9 VALUE ZERO.
    02  FILLER                  PIC X(7) VALUE SPACES.
    02  D-AGE4                  PIC ZZ9 VALUE ZERO.
    02  FILLER                  PIC X(7) VALUE SPACES.
    02  D-AGE5                  PIC ZZ9 VALUE ZERO.
    02  FILLER                  PIC X(9) VALUE SPACES.
    02  D-ROW-TOTAL             PIC ZZZZ9 VALUE ZERO.
    02  FILLER                  PIC X(48) VALUE SPACE.
01  FLAG.
    02  OUT-OF-DATA-FLAG PIC X VALUE "N".
        88 OUT-OF-DATA  VALUE "Y".
01  AGES.
    02  AGE-GROUP-OF-PATIENT   PIC 999.
    88  GROUP1     VALUE  000.
    88  GROUP2     VALUE  001 THRU 004.
    88  GROUP3     VALUE  005 THRU 014.
    88  GROUP4     VALUE  015 THRU 044.
    88  GROUP5     VALUE  045 THRU 099.
01  ICD-3DIGIT-VALUES.
    02  FILLER  PIC X(30) VALUE "001-009                    ".
    02  FILLER  PIC X(30) VALUE "010-018                    ".
    02  FILLER  PIC X(30) VALUE "020-041                    ".
    02  FILLER  PIC X(30) VALUE "045-079                    ".
    02  FILLER  PIC X(30) VALUE "080-088                    ".
    02  FILLER  PIC X(30) VALUE "090-099                    ".
    02  FILLER  PIC X(30) VALUE "100-139                    ".
    02  FILLER  PIC X(30) VALUE "140-149                    ".
    02  FILLER  PIC X(30) VALUE "150-159                    ".
    02  FILLER  PIC X(30) VALUE "160-165                    ".
    02  FILLER  PIC X(30) VALUE "170-175                    ".
    02  FILLER  PIC X(30) VALUE "179-189                    ".
    02  FILLER  PIC X(30) VALUE "190-199                    ".
    02  FILLER  PIC X(30) VALUE "200-208                    ".
    02  FILLER  PIC X(30) VALUE "210-229                    ".
    02  FILLER  PIC X(30) VALUE "230-234                    ".
    02  FILLER  PIC X(30) VALUE "235-239                    ".
    02  FILLER  PIC X(30) VALUE "240-259 & 270-279          ".
    02  FILLER  PIC X(30) VALUE "260-269                    ".
    02  FILLER  PIC X(30) VALUE "280-289                    ".
    02  FILLER  PIC X(30) VALUE "290-319                    ".
    02  FILLER  PIC X(30) VALUE "320-359                    ".
    02  FILLER  PIC X(30) VALUE "360-379                    ".
    02  FILLER  PIC X(30) VALUE "380-389                    ".
    02  FILLER  PIC X(30) VALUE "390-398                    ".
    02  FILLER  PIC X(30) VALUE "401-405                    ".
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    02  FILLER  PIC X(30) VALUE "410-414                              ".
    02  FILLER  PIC X(30) VALUE "415-429                              ".
    02  FILLER  PIC X(30) VALUE "430-438                              ".
    02  FILLER  PIC X(30) VALUE "440-459                              ".
    02  FILLER  PIC X(30) VALUE "460-465 & 470-478                    ".
    02  FILLER  PIC X(30) VALUE "466 & 480-519                        ".
    02  FILLER  PIC X(30) VALUE "520-529                              ".
    02  FILLER  PIC X(30) VALUE "530-579                              ".
    02  FILLER  PIC X(30) VALUE "580-599                              ".
    02  FILLER  PIC X(30) VALUE "600-608                              ".
    02  FILLER  PIC X(30) VALUE "610-629                              ".
    02  FILLER  PIC X(30) VALUE "630-639                              ".
    02  FILLER  PIC X(30) VALUE "640-646 & 651-676                    ".
    02  FILLER  PIC X(30) VALUE "647 & 648                            ".
    02  FILLER  PIC X(30) VALUE "650                                  ".
    02  FILLER  PIC X(30) VALUE "680-709                              ".
    02  FILLER  PIC X(30) VALUE "710-739                              ".
    02  FILLER  PIC X(30) VALUE "740-759                              ".
    02  FILLER  PIC X(30) VALUE "760-779                              ".
    02  FILLER  PIC X(30) VALUE "780-799                              ".
    02  FILLER  PIC X(30) VALUE "800-829                              ".
    02  FILLER  PIC X(30) VALUE "830-848                              ".
    02  FILLER  PIC X(30) VALUE "850-869 & 950-957                    ".
    02  FILLER  PIC X(30) VALUE "870-904                              ".
    02  FILLER  PIC X(30) VALUE "930-939                              ".
    02  FILLER  PIC X(30) VALUE "940-949                              ".
    02  FILLER  PIC X(30) VALUE "960-989                              ".
    02  FILLER  PIC X(30) VALUE "996-999                              ".
    02  FILLER  PIC X(30) VALUE "910-929:958-959:990-995              ".
    02  FILLER  PIC X(30) VALUE "905-909                              ".
    02  FILLER  PIC X(30) VALUE "E800-E848                            ".
    02  FILLER  PIC X(30) VALUE "E850-E869                            ".
    02  FILLER  PIC X(30) VALUE "E870-E879                            ".
    02  FILLER  PIC X(30) VALUE "E880-E888                            ".
    02  FILLER  PIC X(30) VALUE "E890-E899                            ".
    02  FILLER  PIC X(30) VALUE "E900-E929                            ".
    02  FILLER  PIC X(30) VALUE "E930-E949                            ".
    02  FILLER  PIC X(30) VALUE "E950-E959                            ".
    02  FILLER  PIC X(30) VALUE "E960-E969                            ".
    02  FILLER  PIC X(30) VALUE "E970-E999                            ".
    02  FILLER  PIC X(30) VALUE "V00-V82                              ".
01  DISEASE-GROUPS REDEFINES ICD-3DIGIT-VALUES.
    02  THE-GROUPS        PIC X(30) OCCURS 67 TIMES.
01  DISEASES.
    02  DISEASE-CATEGORIES  PIC 9(4)V99.
    88  CAT1  VALUE 0001.00 THRU 0009.99.
    88  CAT2  VALUE 0010.00  THRU 0018.99.
    88  CAT3  VALUE 0020.00 THRU 0041.99.
    88  CAT4  VALUE 0045.00 THRU 0079.99.
    88  CAT5  VALUE 0080.00 THRU 0088.99.
    88  CAT6  VALUE 0090.00 THRU 0099.99.
    88  CAT7  VALUE 0100.00 THRU 0139.99.
    88  CAT8  VALUE 0140.00 THRU 0149.99.
    88  CAT9  VALUE 0150.00 THRU 0159.99.
    88  CAT10 VALUE 0160.00 THRU 0165.99.
    88  CAT11 VALUE 0170.00 THRU 0175.99.
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88  CAT12  VALUE 0179.00 THRU 0189.99.
88  CAT13  VALUE 0190.00 THRU 0199.99.
88  CAT14  VALUE 0200.00 THRU 0208.99.
88  CAT15  VALUE 0210.00 THRU 0229.99.
88  CAT16  VALUE 0230.00 THRU 0234.99.
88  CAT17  VALUE 0235.00 THRU 0239.99.
88  CAT18  VALUE 0240.00 THRU 0259.99 0270.00 THRU 0279.99.
88  CAT19  VALUE 0260.00 THRU 0269.99.
88  CAT20  VALUE 0280.00 THRU 0289.99.
88  CAT21  VALUE 0290.00 THRU 0319.99.
88  CAT22  VALUE 0320.00 THRU 0359.99.
88  CAT23  VALUE 0360.00 THRU 0379.99.
88  CAT24  VALUE 0380.00 THRU 0389.99.
88  CAT25  VALUE 0390.00 THRU 0398.99.
88  CAT26  VALUE 0401.00 THRU 0405.99.
88  CAT27  VALUE 0410.00 THRU 0414.99.
88  CAT28  VALUE 0415.00 THRU 0429.99.
88  CAT29  VALUE 0430.00 THRU 0438.99.
88  CAT30  VALUE 0440.00 THRU 0459.99.
88  CAT31  VALUE 0460.00 THRU 0465.99 0470.00 THRU 0478.99.
88  CAT32  VALUE 0466.00 0480.00 THRU 0519.99.
88  CAT33  VALUE 0520.00 THRU 0529.99.
88  CAT34  VALUE 0530.00 THRU 0579.99.
88  CAT35  VALUE 0580.00 THRU 0599.99.
88  CAT36  VALUE 0600.00 THRU 0608.99.
88  CAT37  VALUE 0610.00 THRU 0629.99.
88  CAT38  VALUE 0630.00 THRU 0639.99.
88  CAT39  VALUE 0640.00 THRU 0646.99 0651.00 THRU 0676.99.
88  CAT40  VALUE 0647.00 THRU 0648.99.
88  CAT41  VALUE 0650.00.
88  CAT42  VALUE 0680.00 THRU 0709.99.
88  CAT43  VALUE 0710.00 THRU 0739.99.
88  CAT44  VALUE 0740.00 THRU 0759.99.
88  CAT45  VALUE 0760.00 THRU 0779.99.
88  CAT46  VALUE 0780.00 THRU 0799.99.
88  CAT47  VALUE 0800.00 THRU 0829.99.
88  CAT48  VALUE 0830.00 THRU 0848.99.
88  CAT49  VALUE 0850.00 THRU 0869.99 0950.00 THRU 0957.99.
88  CAT50  VALUE 0870.00 THRU 0904.99.
88  CAT51  VALUE 0930.00 THRU 0939.99.
88  CAT52  VALUE 0940.00 THRU 0949.99.
88  CAT53  VALUE 0960.00 THRU 0989.99.
88  CAT54  VALUE 0996.00 THRU 0999.99.
88  CAT55  VALUE 0910.00 THRU 0929.99 0958.00 THRU 0959.99
                  0990.00 THRU 0995.99.
88  CAT56  VALUE 0905.00 THRU 0909.99.
88  CAT57  VALUE 2800.00 THRU 2848.99.
88  CAT58  VALUE 2850.00 THRU 2869.99.
88  CAT59  VALUE 2870.00 THRU 2879.99.
88  CAT60  VALUE 2880.00 THRU 2888.99.
88  CAT61  VALUE 2890.00 THRU 2899.99.
88  CAT62  VALUE 2900.00 THRU 2929.99.
88  CAT63  VALUE 2930.00 THRU 2949.99.
88  CAT64  VALUE 2950.00 THRU 2959.99.
88  CAT65  VALUE 2960.00 THRU 2969.99.
88  CAT66  VALUE 2970.00 THRU 2999.99.
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88  CAT67  VALUE 9900.00 THRU 9982.99.
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PROCEDURE DIVISION.
HOUSE-KEEPING.
    OPEN INPUT MEDFL OUTPUT OAGE.
    PERFORM HEAD-PRINT.
    ADD 4 TO LINE-CNT.
    MOVE ZERO TO DISEASE-TABLE.
    PERFORM READ-RECORD UNTIL OUT-OF-DATA-FLAG = "Y".
    PERFORM LINE-OUT VARYING KOUNTER FROM 1 BY 1 UNTIL
        KOUNTER > 67.
    CLOSE MEDFL OAGE.
    STOP RUN.
READ-RECORD.
    READ MEDFL AT END MOVE "Y" TO OUT-OF-DATA-FLAG.
        ADD 1 TO W-RECORD-CNT.
    MOVE DIAGNOSTICS ( 1 ) TO DISEASES.
    MOVE AGE TO AGES.
    PERFORM SEARCH-AND-COUNT .
SEARCH-AND-COUNT.
    IF  CAT1 THEN MOVE 1 TO IGROUP PERFORM CAT-CNT.
    IF CAT2 MOVE 2 TO IGROUP PERFORM CAT-CNT.
     IF CAT3 MOVE 3 TO IGROUP PERFORM CAT-CNT.
     IF CAT4 MOVE 4 TO IGROUP PERFORM CAT-CNT.
    IF CAT5 MOVE 5 TO IGROUP PERFORM CAT-CNT.
    IF CAT6 MOVE 6 TO IGROUP PERFORM CAT-CNT.
    IF CAT7 MOVE 7 TO IGROUP PERFORM CAT-CNT.
    IF CAT8 MOVE 8 TO IGROUP PERFORM CAT-CNT.
    IF CAT9 MOVE 9 TO IGROUP PERFORM CAT-CNT.
    IF CAT10 MOVE 10 TO IGROUP PERFORM CAT-CNT.
    IF CAT11 MOVE 11 TO IGROUP PERFORM CAT-CNT.
    IF CAT12 MOVE 12 TO IGROUP PERFORM CAT-CNT.
    IF CAT13 MOVE 13 TO IGROUP PERFORM CAT-CNT.
    IF CAT14 MOVE 14 TO IGROUP PERFORM CAT-CNT.
    IF CAT15 MOVE 15 TO IGROUP PERFORM CAT-CNT.
    IF CAT16 MOVE 16 TO IGROUP PERFORM CAT-CNT.
    IF CAT17 MOVE 17 TO IGROUP PERFORM CAT-CNT.
    IF CAT18 MOVE 18 TO IGROUP PERFORM CAT-CNT.
    IF CAT19 MOVE 19 TO IGROUP PERFORM CAT-CNT.
    IF CAT20 MOVE 20 TO IGROUP PERFORM CAT-CNT.
    IF CAT21 MOVE 21 TO IGROUP PERFORM CAT-CNT.
    IF CAT22 MOVE 22 TO IGROUP PERFORM CAT-CNT.
    IF CAT23 MOVE 23 TO IGROUP PERFORM CAT-CNT.
    IF CAT24 MOVE 24 TO IGROUP PERFORM CAT-CNT.
    IF CAT25 MOVE 25 TO IGROUP PERFORM CAT-CNT.
    IF CAT26 MOVE 26 TO IGROUP PERFORM CAT-CNT.
    IF CAT27 MOVE 27 TO IGROUP PERFORM CAT-CNT.
    IF CAT28 MOVE 28 TO IGROUP PERFORM CAT-CNT.
    IF CAT29 MOVE 29 TO IGROUP PERFORM CAT-CNT.
    IF CAT30 MOVE 30 TO IGROUP PERFORM CAT-CNT.
    IF CAT31 MOVE 31 TO IGROUP PERFORM CAT-CNT.
    IF CAT32 MOVE 32 TO IGROUP PERFORM CAT-CNT.
    IF CAT33 MOVE 33 TO IGROUP PERFORM CAT-CNT.
    IF CAT34 MOVE 34 TO IGROUP PERFORM CAT-CNT.
    IF CAT35 MOVE 35 TO IGROUP PERFORM CAT-CNT.
    IF CAT36 MOVE 36 TO IGROUP PERFORM CAT-CNT.
    IF CAT37 MOVE 37 TO IGROUP PERFORM CAT-CNT.
    IF CAT38 MOVE 38 TO IGROUP PERFORM CAT-CNT.
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      IF CAT39 MOVE 39 TO IGROUP PERFORM CAT-CNT.
      IF CAT40 MOVE 40 TO IGROUP PERFORM CAT-CNT.
      IF CAT41 MOVE 41 TO IGROUP PERFORM CAT-CNT.
      IF CAT42 MOVE 42 TO IGROUP PERFORM CAT-CNT.
      IF CAT43 MOVE 43 TO IGROUP PERFORM CAT-CNT.
      IF CAT44 MOVE 44 TO IGROUP PERFORM CAT-CNT.
      IF CAT45 MOVE 45 TO IGROUP PERFORM CAT-CNT.
      IF CAT46 MOVE 46 TO IGROUP PERFORM CAT-CNT.
      IF CAT47 MOVE 47 TO IGROUP PERFORM CAT-CNT.
      IF CAT48 MOVE 48 TO IGROUP PERFORM CAT-CNT.
      IF CAT49 MOVE 49 TO IGROUP PERFORM CAT-CNT.
      IF CAT50 MOVE 50 TO IGROUP PERFORM CAT-CNT.
      IF CAT51 MOVE 51 TO IGROUP PERFORM CAT-CNT.
      IF CAT52 MOVE 52 TO IGROUP PERFORM CAT-CNT.
      IF CAT53 MOVE 53 TO IGROUP PERFORM CAT-CNT.
      IF CAT54 MOVE 54 TO IGROUP PERFORM CAT-CNT.
      IF CAT55 MOVE 55 TO IGROUP PERFORM CAT-CNT.
      IF CAT56 MOVE 56 TO IGROUP PERFORM CAT-CNT.
      IF CAT57 MOVE 57 TO IGROUP PERFORM CAT-CNT.
      IF CAT58 MOVE 58 TO IGROUP PERFORM CAT-CNT.
      IF CAT59 MOVE 59 TO IGROUP PERFORM CAT-CNT.
      IF CAT60 MOVE 60 TO IGROUP PERFORM CAT-CNT.
      IF CAT61 MOVE 61 TO IGROUP PERFORM CAT-CNT.
      IF CAT62 MOVE 62 TO IGROUP PERFORM CAT-CNT.
      IF CAT63 MOVE 63 TO IGROUP PERFORM CAT-CNT.
      IF CAT64 MOVE 64 TO IGROUP PERFORM CAT-CNT.
      IF CAT65 MOVE 65 TO IGROUP PERFORM CAT-CNT.
      IF CAT66 MOVE 66 TO IGROUP PERFORM CAT-CNT.
      IF CAT67 MOVE 67 TO IGROUP PERFORM CAT-CNT.
LINE-OUT.
     MOVE AGE-GRP1-CASE ( KOUNTER ) TO AGE1.
     MOVE AGE-GRP2-CASE ( KOUNTER ) TO AGE2.
     MOVE AGE-GRP3-CASE ( KOUNTER ) TO AGE3.
     MOVE AGE-GRP4-CASE ( KOUNTER ) TO AGE4.
     MOVE AGE-GRP5-CASE ( KOUNTER ) TO AGE5.
     MOVE TOTAL-CASE ( KOUNTER ) TO ROW-TOTAL.
     MOVE DEAD-AGE-GRP1 ( KOUNTER ) TO D-AGE1.
     MOVE DEAD-AGE-GRP2 ( KOUNTER ) TO D-AGE2.
     MOVE DEAD-AGE-GRP3 ( KOUNTER ) TO D-AGE3.
     MOVE DEAD-AGE-GRP4 ( KOUNTER ) TO D-AGE4.
     MOVE DEAD-AGE-GRP5 ( KOUNTER ) TO D-AGE5.
     MOVE DEAD-TOTAL ( KOUNTER ) TO D-ROW-TOTAL.
     WRITE O-AGE FROM LINE1 AFTER 2 LINES.
     MOVE THE-GROUPS ( KOUNTER ) TO GROUP-NO.
     WRITE O-AGE FROM LINE2.
     WRITE O-AGE FROM LINE3.
     ADD 1 TO LINE-CNT.
     IF LINE-CNT GREATER THAN 11
        MOVE ZERO TO LINE-CNT
          PERFORM HEAD-PRINT  .
HEAD-PRINT.
     MOVE SPACES TO O-AGE.
      ADD 1 TO PAGE-CNT.
     MOVE PAGE-CNT TO WK-PAGE-CNT.
         MOVE HEAD-1 TO OUT-PUT-LINE.
      WRITE O-AGE AFTER ADVANCING PAGE-TOP .
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           MOVE HEAD2 TO OUT-PUT-LINE.
              WRITE O-AGE.
           MOVE HEAD3 TO OUT-PUT-LINE.
             WRITE O-AGE.
           MOVE HEAD4 TO OUT-PUT-LINE.
           WRITE O-AGE .
           MOVE SPACES TO O-AGE.
       CAT-CNT.
           IF GROUP1 ADD 1 TO AGE-GRP1-CASE ( IGROUP ) TOTAL-CASE
                ( IGROUP ).
           IF GROUP1 AND DISCHARGE-STATUS EQUAL 6 ADD 1 TO
            DEAD-AGE-GRP1 ( IGROUP ) DEAD-TOTAL ( IGROUP ).
           IF GROUP2 ADD 1 TO AGE-GRP2-CASE ( IGROUP ) TOTAL-CASE
              ( IGROUP ).
           IF GROUP2 AND DISCHARGE-STATUS EQUAL 6 ADD 1 TO
            DEAD-AGE-GRP2 ( IGROUP ) DEAD-TOTAL ( IGROUP ).
           IF GROUP3 ADD 1 TO AGE-GRP3-CASE ( IGROUP ) TOTAL-CASE
              ( IGROUP ).
           IF GROUP3 AND DISCHARGE-STATUS EQUAL 6 ADD 1 TO
            DEAD-AGE-GRP3 ( IGROUP ) DEAD-TOTAL ( IGROUP ).
           IF GROUP4 ADD 1 TO AGE-GRP4-CASE ( IGROUP ) TOTAL-CASE
              ( IGROUP ).
           IF GROUP4 AND DISCHARGE-STATUS EQUAL 6 ADD 1 TO
            DEAD-AGE-GRP4 ( IGROUP ) DEAD-TOTAL ( IGROUP ).
           IF GROUP5 ADD 1 TO AGE-GRP5-CASE ( IGROUP ) TOTAL-CASE
              ( IGROUP ).
           IF GROUP5 AND DISCHARGE-STATUS EQUAL 6 ADD 1 TO
            DEAD-AGE-GRP5 ( IGROUP ).
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G IS 007421
M USED

APPENDIX 5

AHMADU BELLO UNIVERSITY TEACHING HOSPITAL ZARIA
PATIENTS' STATISTICAL REPORT BY AGE
FOR THE MONTH OF JANUARY 1982

GROUP		UNDER 1 YR.	1-4 YR.	5-14 YR.	15-44 YR.	ABOVE 44 YR.	TOTAL
001-009	CASES	30	22	1	6	1	60
	DIED	3	0	0	1	0	4
010-018	CASES	0	2	3	2	0	7
	DIED	0	0	0	0	0	0
020-041	CASES	5	3	1	0	2	11
	DIED	1	0	0	0	1	2
045-079	CASES	35	70	4	4	0	113
	DIED	5	12	0	0	0	17
080-088	CASES	3	8	7	2	0	20
	DIED	1	0	0	0	0	1
090-099	CASES	0	0	0	0	0	0
	DIED	0	0	0	0	0	0
100-139	CASES	1	0	0	1	0	2
	DIED	0	0	0	0	0	0

AHMADU BELLO UNIVERSITY TEACHING HOSPITAL ZARIA
PATIENTS' STATISTICAL REPORT BY AGE
FOR THE MONTH OF JANUARY 1982

GROUP		UNDER 1 YR.	1-4 YR.	5-14 YR.	15-44 YR.	ABOVE 44 YR.	TOTAL
140-149	CASES	0	0	0	0	0	0
	DIED	0	0	0	0	0	0
150-159	CASES	0	0	0	2	3	5
	DIED	0	0	0	1	0	1
160-165	CASES	0	0	0	0	0	0
	DIED	0	0	0	0	0	0
170-175	CASES	0	0	0	0	0	0
	DIED	0	0	0	0	0	0
179-189	CASES	0	0	0	0	0	0
	DIED	0	0	0	0	0	0
190-199	CASES	0	0	0	0	0	0
	DIED	0	0	0	0	0	0
200-218	CASES	0	1	0	0	0	1
	DIED	0	1	0	0	0	1
210-229	CASES	0	1	0	1	0	2
	DIED	0	0	0	0	0	0
230-234	CASES	0	0	0	0	0	0
	DIED	0	0	0	0	0	0
235-239	CASES	0	0	0	0	0	0
	DIED	0	0	0	0	0	0
240-259 & 270-279	CASES	2	0	0	3	2	7
	DIED	0	0	0	0	1	1
260-269	CASES	7	9	1	0	0	17
	DIED	1	3	0	0	0	4

AHMADU BELLO UNIVERSITY TEACHING HOSPITAL ZARIA.
PATIENTS' STATISTICAL REPORT BY AGE
FOR THE MONTH OF JANUARY 1982

GROUP		UNDER 1 YR.	1-4 YR.	5-14 YR.	15-44 YR.	ABOVE 44 YR.	TOTAL
280-289	CASES	6	15	7	1	1	30
	DIED	0	1	1	0	0	2
290-319	CASES	0	0	0	1	0	1
	DIED	0	0	0	0	0	0
320-359	CASES	14	9	4	5	0	32
	DIED	5	3	0	1	0	9
360-379	CASES	2	1	0	0	1	4
	DIED	0	0	0	0	0	0
380-389	CASES	0	0	1	0	0	1
	DIED	0	0	0	0	0	0
390-398	CASES	0	2	0	0	0	2
	DIED	0	0	0	0	0	0
401-405	CASES	0	0	0	3	2	5
	DIED	0	0	0	1	0	1
410-414	CASES	0	0	0	0	0	0
	DIED	0	0	0	0	0	0
415-429	CASES	1	0	1	5	3	10
	DIED	1	0	1	1	1	4
430-438	CASES	1	0	0	2	0	3
	DIED	1	0	0	1	0	2
440-459	CASES	0	0	0	0	1	1
	DIED	0	0	0	0	1	1
460-465 & 470-478	CASES	2	4	0	0	0	6
	DIED	0	0	0	0	0	0

AHMADU BELLO UNIVERSITY TEACHING HOSPITAL ZARIA
'PATIENTS' STATISTICAL REPORT BY AGE
FOR THE MONTH OF JANUARY 1982

GROUP		UNDER 1 YR.	1-4 YR.	5-14 YR.	15-44 YR.	ABOVE 44 YR.	TOTAL
466 & 480-519	CASES	31	30	5	5	1	72
	DIED	6	3	0	1	1	11
520-529	CASES	0	0	0	0	0	0
	DIED	0	0	0	0	0	0
530-579	CASES	1	2	2	12	1	18
	DIED	1	2	1	3	1	8
580-599	CASES	0	2	0	4	2	8
	DIED	0	0	0	1	2	3
600-608	CASES	0	0	0	0	1	1
	DIED	0	0	0	0	0	0
610-629	CASES	0	0	0	8	0	8
	DIED	0	0	0	0	0	0
630-639	CASES	0	0	0	14	0	14
	DIED	0	0	0	1	0	1
640-646 & 651-676	CASES	1	0	0	45	0	46
	DIED	0	0	0	0	0	0
647 & 648	CASES	0	0	0	2	0	2
	DIED	0	0	0	0	0	0
650	CASES	0	0	3	299	0	302
	DIED	0	0	0	0	0	0
680-709	CASES	3	0	0	2	0	5
	DIED	1	0	0	0	0	1
710-739	CASES	3	1	1	2	2	9
	DIED	0	0	0	0	0	0

AHMADU BELLO UNIVERSITY TEACHING HOSPITAL ZARIA
PATIENTS' STATISTICAL REPORT BY AGE
FOR THE MONTH OF JANUARY 1982

GROUP		UNDER 1 YR.	1-4 YR.	5-14 YR.	15-44 YR.	ABOVE 44 YR.	TOTAL
740-759	CASES	5	1	1	1	0	8
	DIED	1	0	0	0	0	1
760-779	CASES	90	6	0	0	0	96
	DIED	28	1	0	0	0	29
780-799	CASES	4	17	4	3	0	28
	DIED	0	3	0	0	0	3
800-829	CASES	0	0	1	0	0	1
	DIED	0	0	0	0	0	0
830-848	CASES	0	0	0	0	0	0
	DIED	0	0	0	0	0	0
850-869 & 950-957	CASES	0	0	1	1	0	2
	DIED	0	0	1	1	0	2
870-904	CASES	0	0	0	1	0	1
	DIED	0	0	0	0	0	0
930-939	CASES	0	0	0	0	0	0
	DIED	0	0	0	0	0	0
940-949	CASES	0	0	0	0	0	0
	DIED	0	0	0	0	0	0
960-989	CASES	0	0	0	1	0	1
	DIED	0	0	0	0	0	0
996-999	CASES	0	0	0	0	0	0
	DIED	0	0	0	0	0	0
910-929;958-959;990-995	CASES	0	0	0	1	0	1
	DIED	0	0	0	0	0	0

AHMADU BELLO UNIVERSITY TEACHING HOSPITAL ZARIA
PATIENTS' STATISTICAL REPORT BY AGE
FOR THE MONTH OF JANUARY 1982

GROUP		UNDER 1 YR.	1-4 YR.	5-14 YR.	15-44 YR.	ABOVE 44 YR.	TOTAL
905-909	CASES	0	0	0	0	0	0
	DIED	0	0	0	0	0	0
E800-E848	CASES	0	2	6	37	5	50
	DIED	0	0	2	6	1	9
E850-E869	CASES	1	24	1	0	0	26
	DIED	0	0	0	0	0	0
E870-E879	CASES	2	0	0	2	0	4
	DIED	0	0	0	0	0	0
E880-E888	CASES	3	0	1	0	0	4
	DIED	0	0	0	0	0	0
E890-E899	CASES	1	2	0	0	0	3
	DIED	0	0	0	0	0	0
E900-E929	CASES	1	5	3	5	0	14
	DIED	1	0	0	1	0	2
E930-E949	CASES	0	0	2	0	0	2
	DIED	0	0	0	0	0	0
E950-E959	CASES	0	0	0	0	0	0
	DIED	0	0	0	0	0	0
E960-E969	CASES	0	0	0	2	0	2
	DIED	0	0	0	0	0	0
E970-E999	CASES	0	1	0	1	0	2
	DIED	0	0	0	0	0	0
V00-V82	CASES	5	1	1	14	0	21
	DIED	0	0	0	0	0	0

APPENDIX 6

PROGRAM STAYPE

AO 0011 COBOL V4.5 L42a 83/0

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IDENTIFICATION DIVISION.
PROGRAM-ID.  HEALTH.
DATE-WRITTEN.  10/10/82.
AUTHOR. E.O.OKORO  M.SC. PROJECT.
REMARKS.
      THIS PROGRAM READS MEDFILE AND PRODUCES A
      STATISTICAL REPORT BY DURATION AND DISEASE-GROUPS.
ENVIRONMENT DIVISION.
CONFIGURATION SECTION.
SOURCE-COMPUTER.  CYBER72.
OBJECT-COMPUTER.  CYBER72.
SPECIAL-NAMES.
    "1" IS PAGE-TOP.
    TERMINAL IS TTY.
INPUT-OUTPUT SECTION.
FILE-CONTROL.
    SELECT MEDFL ASSIGN MEDFL-FZ
        ORGANIZATION IS SEQUENTIAL.
    SELECT STAYFL ASSIGN STAYFL-FZ
        ORGANIZATION IS SEQUENTIAL.
DATA DIVISION.
FILE SECTION.
FD  MEDFL
        LABEL RECORDS ARE OMITTED
        DATA RECORD IS MED-REC.
01  MED-REC.
    02  HOSPITAL-CODE          PIC 9.
    02  SEX                    PIC 9.
    02  MAR-STATUS             PIC 9.
    02  OCCUPATION             PIC 99.
    02  AGE                    PIC 9(5).
    02  PATIENT-STATE          PIC 99.
    02  DATE-OF-ADMISSION      PIC 9(6).
    02  WARD                   PIC 99.
    02  ADMISSION              PIC 9.
    02  DIAGN-METHOD           PIC 9.
    02  CURRENT-THERAPY        PIC 9.
    02  DURATION               PIC 999.
    02  DIAGNOSTICS            PIC 9(4)V99 OCCURS 3 TIMES.
    02  DISCHARGE-STATUS       PIC 9.
FD  STAYFL
        LABEL RECORDS ARE OMITTED
        DATA RECORD IS O-DURATION.
01  O-DURATION.
    02  FILLER                     PIC X.
    02  OUT-PUT-LINE               PIC X(136).
WORKING-STORAGE SECTION.
77  DEAD-MALE-CNT      PIC S9(5) COMP SYNC VALUE 1.
77  DEAD-TOTAL-CNT     PIC S9(5) COMP SYNC VALUE 1.
77  DEAD-FEMALE-CNT    PIC S9(5) COMP SYNC VALUE 1.
77  MALE-CNT           PIC S9(5) COMP SYNC VALUE 1.
77  FEMALE-CNT         PIC S9(5) COMP SYNC VALUE 1.
77  TOTAL-CNT          PIC S9(5) COMP SYNC VALUE 1.
77  PAGE-CNT           PIC S9(5) COMP SYNC VALUE ZERO.
77  LINE-CNT           PIC S9(5) COMP SYNC VALUE 1.
77  DIAGN-CNT          PIC S9(5) COMP SYNC VALUE 1.
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77  KOUNTER              PIC S9(5) COMP SYNC VALUE 1.
77  IGROUP          PIC S9(3) COMP SYNC VALUE 0.
77  W-RECORD-CNT        PIC S9(8) COMP SYNC VALUE 1.
01  DISEASE-TABLE.
    02  TOTAL-CASE  PIC S9(5) COMP SYNC OCCURS 67 TIMES.
    02  DURATION1-CASE PIC S9(5) COMP SYNC OCCURS 67 TIMES.
    02  DEAD-DURATION1  PIC S9(5) COMP SYNC OCCURS 67 TIMES.
    02  DURATION2-CASE  PIC S9(5) COMP SYNC OCCURS 67 TIMES.
    02  DEAD-DURATION2 PIC S9(5) COMP SYNC OCCURS 67 TIMES.
    02  DURATION3-CASE PIC S9(5) COMP SYNC OCCURS 67 TIMES.
    02  DEAD-DURATION3 PIC S9(5) COMP SYNC OCCURS 67 TIMES.
    02  DURATION4-CASE PIC S9(5) COMP SYNC OCCURS 67 TIMES.
    02  DEAD-DURATION4 PIC S9(5) COMP SYNC OCCURS 67 TIMES.
    02  DURATION5-CASE PIC S9(5) COMP SYNC OCCURS 67 TIMES.
    02  DEAD-DURATION5 PIC S9(5) COMP SYNC OCCURS 67 TIMES.
    02  DURATION6-CASE PIC S9(5) COMP SYNC OCCURS 67 TIMES.
    02  DEAD-DURATION6 PIC S9(5) COMP SYNC OCCURS 67 TIMES.
    02  DURATION7-CASE PIC S9(5) COMP SYNC OCCURS 67 TIMES.
    02  DEAD-DURATION7 PIC S9(5) COMP SYNC OCCURS 67 TIMES.
    02  DURATION8-CASE PIC S9(5) COMP SYNC OCCURS 67 TIMES.
    02  DEAD-DURATION8 PIC S9(5) COMP SYNC OCCURS 67 TIMES.
    02  DURATION9-CASE PIC S9(5) COMP SYNC OCCURS 67 TIMES.
    02  DEAD-DURATION9 PIC S9(5) COMP SYNC OCCURS 67 TIMES.
    02  DURATION10-CASE PIC S9(5) COMP SYNC OCCURS 67 TIMES.
    02  DEAD-DURATION10 PIC S9(5) COMP SYNC OCCURS 67 TIMES.
    02  DEAD-TOTAL  PIC S9(5) COMP SYNC OCCURS 67 TIMES.
01  HEAD-1.
    02  FILLER  PIC X(25) VALUE SPACES.
    02  FILLER PIC X(49) VALUE "AHMADU BELLO UNIVERSITY TEACHING
-   " HOSPITAL ZARIA ".
    02  FILLER  PIC X(50) VALUE SPACES.
    02  WK-PAGE-CNT     PIC Z79.
    02  FILLER          PIC X(5) VALUE SPACES.
01  HEAD2.
    02  FILLER          PIC X(28) VALUE SPACES.
    02  FILLER PIC X(42) VALUE "PATIENTS' STATISTICAL REPORT BY
-   " DURATION".
    02  FILLER         PIC X(72) VALUE SPACES.
01  HEAD3.
    02  FILLER          PIC X(32) VALUE SPACES.
    02  FILLER PIC X(29) VALUE "FOR THE MONTH OF JANUARY 1982".
    02  FILLER          PIC X(76) VALUE SPACES.
01  HEAD4.
    02  FILLER          PIC XX VALUE SPACES.
    02  FILLER PIC X(117) VALUE "GROUP                          UNDER T
-   "DAY  1-7  8-14  15-21  22-28  29-35  36-42  43-49; 50-56
-   "ABOVE 56 DAYS  TOTAL".
    02  FILLER       PIC X(17) VALUE SPACES.
01  LINE1.
    02  FILLER              PIC X(20) VALUE SPACES.
    02  FILLER              PIC X(5) VALUE "CASES".
    02  FILLER              PIC XXX VALUE SPACES.
    02  DURATION1               PIC ZZ9 VALUE ZERO.
    02  FILLER              PIC X(9) VALUE SPACES.
    02  DURATION2               PIC ZZ9 VALUE ZERO.
    02  FILLER              PIC X(3) VALUE SPACES.
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    02  DURATION3                   PIC ZZ9 VALUE ZERO.
    02  FILLER                   PIC X(3) VALUE SPACES.
    02  DURATION4                   PIC ZZ9 VALUE ZERO.
    02  FILLER                   PIC X(5) VALUE SPACES.
    02  DURATION5                   PIC ZZ9 VALUE ZERO.
    02  FILLER               PIC X(4) VALUE SPACES.
    02  DURATION6              PIC ZZ9 VALUE ZERO.
    02  FILLER                 PIC X(3) VALUE SPACES.
    02  DURATION7              PIC ZZ9 VALUE ZERO.
    02  FILLER                 PIC X(4) VALUE SPACES.
    02  DURATION8              PIC ZZ9 VALUE ZERO.
    02  FILLER                 PIC X(4) VALUE SPACES.
    02  DURATION9              PIC ZZ9 VALUE ZERO.
    02  FILLER                 PIC X(9) VALUE SPACES.
    02  DURATION10             PIC ZZ9 VALUE ZERO.
    02  FILLER                  PIC X(9) VALUE SPACES.
    02  ROW-TOTAL               PIC ZZZ9 VALUE ZERO.
    02  FILLER                  PIC X(1) VALUE SPACES.
01  LINE2.
    02  FILLER     PIC X VALUE SPACE.
    02  GROUP-NO PIC X(30)  .
    02  FILLER     PIC X(105) VALUE SPACES.
01  LINE3.
    02  FILLER                  PIC X(20) VALUE SPACES.
    02  FILLER                  PIC X(5) VALUE "DIED".
    02  FILLER                  PIC XXX VALUE SPACES.
    02  D-DURATION1                  PIC ZZ9 VALUE ZERO.
    02  FILLER                 PIC X(9) VALUE SPACES.
    02  D-DURATION2                  PIC ZZ9 VALUE ZERO.
    02  FILLER                  PIC X(3) VALUE SPACES.
    02  D-DURATION3                  PIC ZZ9 VALUE ZERO.
    02  FILLER                  PIC X(3) VALUE SPACES.
    02  D-DURATION4                  PIC ZZ9 VALUE ZERO.
    02  FILLER                  PIC X(5) VALUE SPACES.
    02  D-DURATION5                  PIC ZZ9 VALUE ZERO.
    02  FILLER                PIC X(4) VALUE SPACES.
    02  D-DURATION6           PIC ZZ9 VALUE ZERO.
    02  FILLER                PIC X(3) VALUE SPACES.
    02  D-DURATION7           PIC ZZ9 VALUE ZERO.
    02  FILLER                PIC X(4) VALUE SPACES.
    02  D-DURATION8           PIC ZZ9 VALUE ZERO.
    02  FILLER                PIC X(4) VALUE SPACES.
    02  D-DURATION9           PIC Z79 VALUE ZERO.
    02  FILLER                PIC X(9) VALUE SPACES.
    02  D-DURATION10          PIC ZZ9 VALUE ZERO.
    02  FILLER                  PIC X(9) VALUE SPACES.
    02  D-ROW-TOTAL             PIC ZZZ9 VALUE ZERO.
    02  FILLER                  PIC X(1) VALUE SPACE.
01  FLAG.
    02  OUT-OF-DATA-FLAG PIC X VALUE "N".
        88 OUT-OF-DATA  VALUE "Y".
01  DAYS.
    02 LENGHT-OF-STAY-OF-PATIENT   PIC 999.
    88  GROUP1     VALUE  000.
    88  GROUP2     VALUE  001 THRU 007.
    88  GROUP3     VALUE  008 THRU 014.
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      88  GROUP4     VALUE  015 THRU 021.
      88  GROUP5     VALUE  022 THRU 028.
      88  GROUP6     VALUE  029 THRU 036.
      88  GROUP7     VALUE  037 THRU 042.
      88  GROUP8     VALUE  043 THRU 048.
      88  GROUP9     VALUE  049 THRU 056.
      88  GROUP10    VALUE  057 THRU 999.
  01  ICD-3DIGIT-VALUES.
      02  FILLER  PIC X(30) VALUE "001-009                          ".
      02  FILLER  PIC X(30) VALUE "010-018                          ".
      02  FILLER  PIC X(30) VALUE "020-041                          ".
      02  FILLER  PIC X(30) VALUE "045-079                          ".
      02  FILLER  PIC X(30) VALUE "080-088                          ".
      02  FILLER  PIC X(30) VALUE "090-099                          ".
      02  FILLER  PIC X(30) VALUE "100-139                          ".
      02  FILLER  PIC X(30) VALUE "140-149                          ".
      02  FILLER  PIC X(30) VALUE "150-159                          ".
      02  FILLER  PIC X(30) VALUE "160-165                          ".
      02  FILLER  PIC X(30) VALUE "170-175                          ".
      02  FILLER  PIC X(30) VALUE "179-189                          ".
      02  FILLER  PIC X(30) VALUE "190-199                          ".
      02  FILLER  PIC X(30) VALUE "200-208                          ".
      02  FILLER  PIC X(30) VALUE "210-229                          ".
      02  FILLER  PIC X(30) VALUE "230-234                          ".
      02  FILLER  PIC X(30) VALUE "235-239                          ".
      02  FILLER  PIC X(30) VALUE "240-259 & 270-279                ".
      02  FILLER  PIC X(30) VALUE "260-269                          ".
      02  FILLER  PIC X(30) VALUE "280-289                          ".
      02  FILLER  PIC X(30) VALUE "290-319                          ".
      02  FILLER  PIC X(30) VALUE "320-359                          ".
      02  FILLER  PIC X(30) VALUE "360-379                          ".
      02  FILLER  PIC X(30) VALUE "380-389                          ".
      02  FILLER  PIC X(30) VALUE "390-398                          ".
      02  FILLER  PIC X(30) VALUE "401-405                          ".
      02  FILLER  PIC X(30) VALUE "410-414                          ".
      02  FILLER  PIC X(30) VALUE "415-429                          ".
      02  FILLER  PIC X(30) VALUE "430-438                          ".
      02  FILLER  PIC X(30) VALUE "440-459                          ".
      02  FILLER  PIC X(30) VALUE "460-465 & 470-478                ".
      02  FILLER  PIC X(30) VALUE "466 & 480-519                    ".
      02  FILLER  PIC X(30) VALUE "520-529                          ".
      02  FILLER  PIC X(30) VALUE "530-579                          ".
      02  FILLER  PIC X(30) VALUE "580-599                          ".
      02  FILLER  PIC X(30) VALUE "600-608                          ".
      02  FILLER  PIC X(30) VALUE "610-629                          ".
      02  FILLER  PIC X(30) VALUE "630-639                          ".
      02  FILLER  PIC X(30) VALUE "640-646 & 651-676                ".
      02  FILLER  PIC X(30) VALUE "647 & 648                        ".
      02  FILLER  PIC X(30) VALUE "650                              ".
      02  FILLER  PIC X(30) VALUE "680-709                          ".
      02  FILLER  PIC X(30) VALUE "710-739                          ".
      02  FILLER  PIC X(30) VALUE "740-759                          ".
      02  FILLER  PIC X(30) VALUE "760-779                          ".
      02  FILLER  PIC X(30) VALUE "780-799                          ".
      02  FILLER  PIC X(30) VALUE "800-829                          ".
      02  FILLER  PIC X(30) VALUE "830-848                          ".
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    02  FILLER  PIC X(30) VALUE "850-869 & 950-957                    ".
    02  FILLER  PIC X(30) VALUE "870-904                              ".
    02  FILLER  PIC X(30) VALUE "930-939                              ".
    02  FILLER  PIC X(30) VALUE "940-949                              ".
    02  FILLER  PIC X(30) VALUE "960-989                              ".
    02  FILLER  PIC X(30) VALUE "996-999                              ".
    02  FILLER  PIC X(30) VALUE "910-929:958-959:990-995              ".
    02  FILLER  PIC X(30) VALUE "905-909                              ".
    02  FILLER  PIC X(30) VALUE "E800-E848                            ".
    02  FILLER  PIC X(30) VALUE "E850-E869                            ".
    02  FILLER  PIC X(30) VALUE "E870-E879                            ".
    02  FILLER  PIC X(30) VALUE "E880-E888                            ".
    02  FILLER  PIC X(30) VALUE "E890-E899                            ".
    02  FILLER  PIC X(30) VALUE "E900-E929                            ".
    02  FILLER  PIC X(30) VALUE "E930-E949                            ".
    02  FILLER  PIC X(30) VALUE "E950-E959                            ".
    02  FILLER  PIC X(30) VALUE "E960-E969                            ".
    02  FILLER  PIC X(30) VALUE "E970-E999                            ".
    02  FILLER  PIC X(30) VALUE "V00-V82                              ".
01  DISEASE-GROUPS REDEFINES ICD-3DIGIT-VALUES.
    02  THE-GROUPS       PIC X(30) OCCURS 67 TIMES.
01  DISEASES.
    02  DISEASE-CATEGORIES  PIC 9(4)V99.
    88  CAT1  VALUE 0001.00 THRU 0009.99.
    88  CAT2  VALUE 0010.00  THRU 0018.99.
    88  CAT3  VALUE 0020.00 THRU 0041.99.
    88  CAT4  VALUE 0045.00 THRU 0079.99.
    88  CAT5  VALUE 0080.00 THRU 0088.99.
    88  CAT6  VALUE 0090.00 THRU 0099.99.
    88  CAT7  VALUE 0100.00 THRU 0139.99.
    88  CAT8  VALUE 0140.00 THRU 0149.99.
    88  CAT9  VALUE 0150.00 THRU 0159.99.
    88  CAT10 VALUE 0160.00 THRU 0165.99.
    88  CAT11 VALUE 0170.00 THRU 0175.99.
    88  CAT12  VALUE 0179.00 THRU 0189.99.
    88  CAT13  VALUE 0190.00 THRU 0199.99.
    88  CAT14  VALUE 0200.00 THRU 0208.99.
    88  CAT15  VALUE 0210.00 THRU 0229.99.
    88  CAT16  VALUE 0230.00 THRU 0234.99.
    88  CAT17  VALUE 0235.00 THRU 0239.99.
    88  CAT18  VALUE 0240.00 THRU 0259.99 0270.00 THRU 0279.99.
    88  CAT19  VALUE 0260.00 THRU 0269.99.
    88  CAT20  VALUE 0280.00 THRU 0289.99.
    88  CAT21  VALUE 0290.00 THRU 0319.99.
    88  CAT22  VALUE 0320.00 THRU 0359.99.
    88  CAT23  VALUE 0360.00 THRU 0379.99.
    88  CAT24  VALUE 0380.00 THRU 0389.99.
    88  CAT25  VALUE 0390.00 THRU 0398.99.
    88  CAT26  VALUE 0401.00 THRU 0405.99.
    88  CAT27  VALUE 0410.00 THRU 0414.99.
    88  CAT28  VALUE 0415.00 THRU 0429.99.
    88  CAT29  VALUE 0430.00 THRU 0438.99.
    88  CAT30  VALUE 0440.00 THRU 0459.99.
    88  CAT31  VALUE 0460.00 THRU 0465.99 0470.00 THRU 0478.99.
    88  CAT32  VALUE 0466.00 0480.00 THRU 0519.99.
    88  CAT33  VALUE 0520.00 THRU 0529.99.
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88  CAT34  VALUE 0530.00 THRU 0579.99.
88  CAT35  VALUE 0580.00 THRU 0599.99.
88  CAT36  VALUE 0600.00 THRU 0608.99.
88  CAT37  VALUE 0610.00 THRU 0629.99.
88  CAT38  VALUE 0630.00 THRU 0639.99.
88  CAT39  VALUE 0640.00 THRU 0646.99 0651.00 THRU 0676.99.
88  CAT40  VALUE 0647.00 THRU 0648.99.
88  CAT41  VALUE 0650.00.
88  CAT42  VALUE 0680.00 THRU 0709.99.
88  CAT43  VALUE 0710.00 THRU 0739.99.
88  CAT44  VALUE 0740.00 THRU 0759.99.
88  CAT45  VALUE 0760.00 THRU 0779.99.
88  CAT46  VALUE 0780.00 THRU 0799.99.
88  CAT47  VALUE 0800.00 THRU 0829.99.
88  CAT48  VALUE 0830.00 THRU 0848.99.
88  CAT49  VALUE 0850.00 THRU 0869.99 0950.00 THRU 0957.99.
88  CAT50  VALUE 0870.00 THRU 0904.99.
88  CAT51  VALUE 0930.00 THRU 0939.99.
88  CAT52  VALUE 0940.00 THRU 0949.99.
88  CAT53  VALUE 0960.00 THRU 0989.99.
88  CAT54  VALUE 0996.00 THRU 0999.99.
88  CAT55  VALUE 0910.00 THRU 0929.99 0958.00 THRU 0959.99
                  0990.00 THRU 0995.99.
88  CAT56  VALUE 0905.00 THRU 0909.99.
88  CAT57  VALUE 2800.00 THRU 2848.99.
88  CAT58  VALUE 2850.00 THRU 2869.99.
88  CAT59  VALUE 2870.00 THRU 2879.99.
88  CAT60  VALUE 2880.00 THRU 2888.99.
88  CAT61  VALUE 2890.00 THRU 2899.99.
88  CAT62  VALUE 2900.00 THRU 2929.99.
88  CAT63  VALUE 2930.00 THRU 2949.99.
88  CAT64  VALUE 2950.00 THRU 2959.99.
88  CAT65  VALUE 2960.00 THRU 2969.99.
88  CAT66  VALUE 2970.00 THRU 2999.99.
88  CAT67  VALUE 9900.00 THRU 9982.99.
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PROCEDURE DIVISION.
HOUSE-KEEPING.
    OPEN INPUT MEDFL OUTPUT STAYFL.
    PERFORM HEAD-PRINT.
    MOVE ZERO TO DISEASE-TABLE.
    PERFORM READ-RECORD UNTIL OUT-OF-DATA-FLAG = "Y".
    PERFORM LINE-OUT VARYING KOUNTER FROM 1 BY 1 UNTIL
        KOUNTER > 67.
    CLOSE MEDFL STAYFL.
    STOP RUN.
READ-RECORD.
    READ MEDFL AT END MOVE "Y" TO OUT-OF-DATA-FLAG.
        ADD 1 TO W-RECORD-CNT.
    MOVE DIAGNOSTICS ( 1 ) TO DISEASES.
    MOVE DURATION TO DAYS.
    PERFORM SEARCH-AND-COUNT .
SEARCH-AND-COUNT.
    IF  CAT1 THEN MOVE 1 TO IGROUP PERFORM CAT-CNT.
    IF CAT2 MOVE 2 TO IGROUP PERFORM CAT-CNT.
     IF CAT3 MOVE 3 TO IGROUP PERFORM CAT-CNT.
     IF CAT4 MOVE 4 TO IGROUP PERFORM CAT-CNT.
    IF CAT5 MOVE 5 TO IGROUP PERFORM CAT-CNT.
    IF CAT6 MOVE 6 TO IGROUP PERFORM CAT-CNT.
    IF CAT7 MOVE 7 TO IGROUP PERFORM CAT-CNT.
    IF CAT8 MOVE 8 TO IGROUP PERFORM CAT-CNT.
    IF CAT9 MOVE 9 TO IGROUP PERFORM CAT-CNT.
    IF CAT10 MOVE 10 TO IGROUP PERFORM CAT-CNT.
    IF CAT11 MOVE 11 TO IGROUP PERFORM CAT-CNT.
    IF CAT12 MOVE 12 TO IGROUP PERFORM CAT-CNT.
    IF CAT13 MOVE 13 TO IGROUP PERFORM CAT-CNT.
    IF CAT14 MOVE 14 TO IGROUP PERFORM CAT-CNT.
    IF CAT15 MOVE 15 TO IGROUP PERFORM CAT-CNT.
    IF CAT16 MOVE 16 TO IGROUP PERFORM CAT-CNT.
    IF CAT17 MOVE 17 TO IGROUP PERFORM CAT-CNT.
    IF CAT18 MOVE 18 TO IGROUP PERFORM CAT-CNT.
    IF CAT19 MOVE 19 TO IGROUP PERFORM CAT-CNT.
    IF CAT20 MOVE 20 TO IGROUP PERFORM CAT-CNT.
    IF CAT21 MOVE 21 TO IGROUP PERFORM CAT-CNT.
    IF CAT22 MOVE 22 TO IGROUP PERFORM CAT-CNT.
    IF CAT23 MOVE 23 TO IGROUP PERFORM CAT-CNT.
    IF CAT24 MOVE 24 TO IGROUP PERFORM CAT-CNT.
    IF CAT25 MOVE 25 TO IGROUP PERFORM CAT-CNT.
    IF CAT26 MOVE 26 TO IGROUP PERFORM CAT-CNT.
    IF CAT27 MOVE 27 TO IGROUP PERFORM CAT-CNT.
    IF CAT28 MOVE 28 TO IGROUP PERFORM CAT-CNT.
    IF CAT29 MOVE 29 TO IGROUP PERFORM CAT-CNT.
    IF CAT30 MOVE 30 TO IGROUP PERFORM CAT-CNT.
    IF CAT31 MOVE 31 TO IGROUP PERFORM CAT-CNT.
    IF CAT32 MOVE 32 TO IGROUP PERFORM CAT-CNT.
    IF CAT33 MOVE 33 TO IGROUP PERFORM CAT-CNT.
    IF CAT34 MOVE 34 TO IGROUP PERFORM CAT-CNT.
    IF CAT35 MOVE 35 TO IGROUP PERFORM CAT-CNT.
    IF CAT36 MOVE 36 TO IGROUP PERFORM CAT-CNT.
    IF CAT37 MOVE 37 TO IGROUP PERFORM CAT-CNT.
    IF CAT38 MOVE 38 TO IGROUP PERFORM CAT-CNT.
    IF CAT39 MOVE 39 TO IGROUP PERFORM CAT-CNT.
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      IF CAT40 MOVE 40 TO IGROUP PERFORM CAT-CNT.
      IF CAT41 MOVE 41 TO IGROUP PERFORM CAT-CNT.
      IF CAT42 MOVE 42 TO IGROUP PERFORM CAT-CNT.
      IF CAT43 MOVE 43 TO IGROUP PERFORM CAT-CNT.
      IF CAT44 MOVE 44 TO IGROUP PERFORM CAT-CNT.
      IF CAT45 MOVE 45 TO IGROUP PERFORM CAT-CNT.
      IF CAT46 MOVE 46 TO IGROUP PERFORM CAT-CNT.
      IF CAT47 MOVE 47 TO IGROUP PERFORM CAT-CNT.
      IF CAT48 MOVE 48 TO IGROUP PERFORM CAT-CNT.
      IF CAT49 MOVE 49 TO IGROUP PERFORM CAT-CNT.
      IF CAT50 MOVE 50 TO IGROUP PERFORM CAT-CNT.
      IF CAT51 MOVE 51 TO IGROUP PERFORM CAT-CNT.
      IF CAT52 MOVE 52 TO IGROUP PERFORM CAT-CNT.
      IF CAT53 MOVE 53 TO IGROUP PERFORM CAT-CNT.
      IF CAT54 MOVE 54 TO IGROUP PERFORM CAT-CNT.
      IF CAT55 MOVE 55 TO IGROUP PERFORM CAT-CNT.
      IF CAT56 MOVE 56 TO IGROUP PERFORM CAT-CNT.
      IF CAT57 MOVE 57 TO IGROUP PERFORM CAT-CNT.
      IF CAT58 MOVE 58 TO IGROUP PERFORM CAT-CNT.
      IF CAT59 MOVE 59 TO IGROUP PERFORM CAT-CNT.
      IF CAT60 MOVE 60 TO IGROUP PERFORM CAT-CNT.
      IF CAT61 MOVE 61 TO IGROUP PERFORM CAT-CNT.
      IF CAT62 MOVE 62 TO IGROUP PERFORM CAT-CNT.
      IF CAT63 MOVE 63 TO IGROUP PERFORM CAT-CNT.
      IF CAT64 MOVE 64 TO IGROUP PERFORM CAT-CNT.
      IF CAT65 MOVE 65 TO IGROUP PERFORM CAT-CNT.
      IF CAT66 MOVE 66 TO IGROUP PERFORM CAT-CNT.
      IF CAT67 MOVE 67 TO IGROUP PERFORM CAT-CNT.
LINE-OUT.
      MOVE DURATION1-CASE ( KOUNTER ) TO DURATION1.
      MOVE DURATION2-CASE ( KOUNTER ) TO DURATION2.
      MOVE DURATION3-CASE ( KOUNTER ) TO DURATION3.
      MOVE DURATION4-CASE ( KOUNTER ) TO DURATION4.
      MOVE DURATION5-CASE ( KOUNTER ) TO DURATION5.
      MOVE DURATION6-CASE ( KOUNTER ) TO DURATION6.
      MOVE DURATION7-CASE ( KOUNTER ) TO DURATION7.
      MOVE DURATION8-CASE ( KOUNTER ) TO DURATION8.
      MOVE DURATION9-CASE ( KOUNTER ) TO DURATION9.
      MOVE DURATION10-CASE ( KOUNTER ) TO DURATION10.
      MOVE TOTAL-CASE ( KOUNTER ) TO ROW-TOTAL.
      MOVE DEAD-DURATION1 ( KOUNTER ) TO D-DURATION1.
      MOVE DEAD-DURATION2 ( KOUNTER ) TO D-DURATION2.
      MOVE DEAD-DURATION3 ( KOUNTER ) TO D-DURATION3.
      MOVE DEAD-DURATION4 ( KOUNTER ) TO D-DURATION4.
      MOVE DEAD-DURATION5 ( KOUNTER ) TO D-DURATION5.
      MOVE DEAD-DURATION6 ( KOUNTER ) TO D-DURATION6.
      MOVE DEAD-DURATION7 ( KOUNTER ) TO D-DURATION7.
      MOVE DEAD-DURATION8 ( KOUNTER ) TO D-DURATION8.
      MOVE DEAD-DURATION9 ( KOUNTER ) TO D-DURATION9.
      MOVE DEAD-DURATION10 ( KOUNTER ) TO D-DURATION10.
      MOVE DEAD-TOTAL ( KOUNTER ) TO D-ROW-TOTAL.
      WRITE O-DURATION FROM LINE1 AFTER 2 LINES.
      MOVE THE-GROUPS ( KOUNTER ) TO GROUP-NO.
      WRITE O-DURATION FROM LINE2.
      WRITE O-DURATION FROM LINE3.
      ADD 1 TO LINE-CNT.
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     IF LINE-CNT GREATER THAN 11
        MOVE ZERO TO LINE-CNT
           PERFORM HEAD-PRINT  .
HEAD-PRINT.
     MOVE SPACES TO O-DURATION.
      ADD 1 TO PAGE-CNT.
     MOVE PAGE-CNT TO WK-PAGE-CNT.
         MOVE HEAD-1 TO OUT-PUT-LINE.
      WRITE O-DURATION AFTER ADVANCING PAGE-TOP .
     MOVE HEAD2 TO OUT-PUT-LINE.
        WRITE O-DURATION.
     MOVE HEAD3 TO OUT-PUT-LINE.
       WRITE O-DURATION.
     MOVE HEAD4 TO OUT-PUT-LINE.
     WRITE O-DURATION .
     MOVE SPACES TO O-DURATION.
CAT-CNT.
     IF GROUP1 ADD 1 TO DURATION1-CASE ( IGROUP ) TOTAL-CASE
          ( IGROUP ).
     IF GROUP1 AND DISCHARGE-STATUS EQUAL 6 ADD 1 TO
      DEAD-DURATION1 ( IGROUP ) DEAD-TOTAL ( IGROUP ).
     IF GROUP2 ADD 1 TO DURATION2-CASE ( IGROUP ) TOTAL-CASE
        ( IGROUP ).
     IF GROUP2 AND DISCHARGE-STATUS EQUAL 6 ADD 1 TO
      DEAD-DURATION2 ( IGROUP ) DEAD-TOTAL ( IGROUP ).
     IF GROUP3 ADD 1 TO DURATION3-CASE ( IGROUP ) TOTAL-CASE
        ( IGROUP ).
     IF GROUP3 AND DISCHARGE-STATUS EQUAL 6 ADD 1 TO
      DEAD-DURATION3 ( IGROUP ) DEAD-TOTAL ( IGROUP ).
     IF GROUP4 ADD 1 TO DURATION4-CASE ( IGROUP ) TOTAL-CASE
        ( IGROUP ).
     IF GROUP4 AND DISCHARGE-STATUS EQUAL 6 ADD 1 TO
      DEAD-DURATION4 ( IGROUP ) DEAD-TOTAL ( IGROUP ).
     IF GROUP5 ADD 1 TO DURATION5-CASE ( IGROUP ) TOTAL-CASE
        ( IGROUP ).
     IF GROUP5 AND DISCHARGE-STATUS EQUAL 6 ADD 1 TO
      DEAD-DURATION5 ( IGROUP ) DEAD-TOTAL ( IGROUP ).
     IF GROUP6 ADD 1 TO DURATION6-CASE ( IGROUP ) TOTAL-CASE
        ( IGROUP ).
     IF GROUP6 AND DISCHARGE-STATUS EQUAL 6 ADD 1 TO
      DEAD-DURATION6 ( IGROUP ) DEAD-TOTAL ( IGROUP ).
     IF GROUP7 ADD 1 TO DURATION7-CASE ( IGROUP ) TOTAL-CASE
        ( IGROUP ).
     IF GROUP7 AND DISCHARGE-STATUS EQUAL 6 ADD 1 TO
      DEAD-DURATION7 ( IGROUP ) DEAD-TOTAL ( IGROUP ).
     IF GROUP8 ADD 1 TO DURATION8-CASE ( IGROUP ) TOTAL-CASE
        ( IGROUP ).
     IF GROUP8 AND DISCHARGE-STATUS EQUAL 6 ADD 1 TO
      DEAD-DURATION8 ( IGROUP ) DEAD-TOTAL ( IGROUP ).
     IF GROUP9 ADD 1 TO DURATION9-CASE ( IGROUP ) TOTAL-CASE
        ( IGROUP ).
     IF GROUP9 AND DISCHARGE-STATUS EQUAL 6 ADD 1 TO
      DEAD-DURATION9 ( IGROUP ) DEAD-TOTAL ( IGROUP ).
     IF GROUP10 ADD 1 TO DURATION10-CASE ( IGROUP ) TOTAL-CASE
        ( IGROUP ).
     IF GROUP10 AND DISCHARGE-STATUS EQUAL 6 ADD 1 TO
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LTH          AO 0011                                    ,  COBOL     V4.5  L

                 DEAD-DURATION10 ( IGROUP ) DEAD-TOTAL ( IGROUP ).
H IS  012265
USED
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APPENDIX 7

AHMADU BELLO UNIVERSITY TEACHING HOSPITAL ZARIA
PATIENTS' STATISTICAL REPORT BY DURATION
FOR THE MONTH OF JANUARY 1982

GROUP		UNDER 1 DAY	1-7	8-14	15-21	22-28	29-35	36-42	43-49	50-56	ABOVE 56 DAYS	TOTAL
001-009	CASES	2	58	0	0	0	0	0	0	0	0	60
	DIED	2	2	0	0	0	0	0	0	0	0	4
010-018	CASES	0	7	0	0	0	0	0	0	0	0	7
	DIED	0	0	0	0	0	0	0	0	0	0	0
020-041	CASES	0	11	0	0	0	0	0	0	0	0	11
	DIED	0	2	0	0	0	0	0	0	0	0	2
045-079	CASES	1	112	0	0	0	0	0	0	0	0	113
	DIED	1	16	0	0	0	0	0	0	0	0	17
080-088	CASES	0	20	0	0	0	0	0	0	0	0	20
	DIED	0	1	0	0	0	0	0	0	0	0	1
090-099	CASES	0	0	0	0	0	0	0	0	0	0	0
	DIED	0	0	0	0	0	0	0	0	0	0	0
100-139	CASES	0	2	0	0	0	0	0	0	0	0	2
	DIED	0	0	0	0	0	0	0	0	0	0	0
140-149	CASES	0	0	0	0	0	0	0	0	0	0	0
	DIED	0	0	0	0	0	0	0	0	0	0	0
150-159	CASES	1	4	0	0	0	0	0	0	0	0	5
	DIED	0	1	0	0	0	0	0	0	0	0	1
160-165	CASES	0	0	0	0	0	0	0	0	0	0	0
	DIED	0	0	0	0	0	0	0	0	0	0	0
170-175	CASES	0	0	0	0	0	0	0	0	0	0	0
	DIED	0	0	0	0	0	0	0	0	0	0	0

AHMADU BELLO UNIVERSITY TEACHING HOSPITAL ZARIA
PATIENTS' STATISTICAL REPORT BY DURATION
FOR THE MONTH OF JANUARY 1982

GROUP		UNDER 1 DAY	1-7	8-14	15-21	22-28	29-35	36-42	43-49	50-56	ABOVE 56 DAYS	TOTAL
179-189	CASES	0	0	0	0	0	0	0	0	0	0	0
	DIED	0	0	0	0	0	0	0	0	0	0	0
190-199	CASES	0	0	0	0	0	0	0	0	0	0	0
	DIED	0	0	0	0	0	0	0	0	0	0	0
200-208	CASES	1	0	0	0	0	0	0	0	0	0	1
	DIED	1	0	0	0	0	0	0	0	0	0	1
210-229	CASES	0	2	0	0	0	0	0	0	0	0	2
	DIED	0	0	0	0	0	0	0	0	0	0	0
230-234	CASES	0	0	0	0	0	0	0	0	0	0	0
	DIED	0	0	0	0	0	0	0	0	0	0	0
235-239	CASES	0	0	0	0	0	0	0	0	0	0	0
	DIED	0	0	0	0	0	0	0	0	0	0	0
240-259 & 270-279	CASES	0	7	0	0	0	0	0	0	0	0	7
	DIED	0	1	0	0	0	0	0	0	0	0	1
260-269	CASES	0	17	0	0	0	0	0	0	0	0	17
	DIED	0	4	0	0	0	0	0	0	0	0	4
280-289	CASES	1	29	0	0	0	0	0	0	0	0	30
	DIED	1	1	0	0	0	0	0	0	0	0	2
290-319	CASES	0	1	0	0	0	0	0	0	0	0	1
	DIED	0	0	0	0	0	0	0	0	0	0	0
320-359	CASES	1	30	1	0	0	0	0	0	0	0	32
	DIED	0	9	0	0	0	0	0	0	0	0	9
360-379	CASES	0	4	0	0	0	0	0	0	0	0	4
	DIED	0	0	0	0	0	0	0	0	0	0	0

AHMADU BELLO UNIVERSITY TEACHING HOSPITAL ZARIA
PATIENTS' STATISTICAL REPORT BY DURATION
FOR THE MONTH OF JANUARY 1982

GROUP		UNDER 1 DAY	1-7	8-14	15-21	22-28	29-35	36-42	43-49	50-56	ABOVE 56 DAYS	TOTAL
380-389	CASES	0	1	0	0	0	0	0	0	0	0	1
	DIED	0	0	0	0	0	0	0	0	0	0	0
390-398	CASES	0	2	0	0	0	0	0	0	0	0	2
	DIED	0	0	0	0	0	0	0	0	0	0	0
401-405	CASES	0	5	0	0	0	0	0	0	0	0	5
	DIED	0	1	0	0	0	0	0	0	0	0	1
410-414	CASES	0	0	0	0	0	0	0	0	0	0	0
	DIED	0	0	0	0	0	0	0	0	0	0	0
415-429	CASES	0	10	0	0	0	0	0	0	0	0	10
	DIED	0	4	0	0	0	0	0	0	0	0	4
430-438	CASES	0	3	0	0	0	0	0	0	0	0	3
	DIED	0	2	0	0	0	0	0	0	0	0	2
440-459	CASES	0	1	0	0	0	0	0	0	0	0	1
	DIED	0	1	0	0	0	0	0	0	0	0	1
460-465 & 470-478	CASES	0	6	0	0	0	0	0	0	0	0	6
	DIED	0	0	0	0	0	0	0	0	0	0	0
466 & 480-519	CASES	5	66	1	0	0	0	0	0	0	0	72
	DIED	3	7	1	0	0	0	0	0	0	0	11
520-529	CASES	0	0	0	0	0	0	0	0	0	0	0
	DIED	0	0	0	0	0	0	0	0	0	0	0
530-579	CASES	1	17	0	0	0	0	0	0	0	0	18
	DIED	1	7	0	0	0	0	0	0	0	0	8
580-599	CASES	0	8	0	0	0	0	0	0	0	0	8
	DIED	0	3	0	0	0	0	0	0	0	0	3

AHMADU BELLO UNIVERSITY TEACHING HOSPITAL ZARIA
PATIENTS' STATISTICAL REPORT BY DURATION
FOR THE MONTH OF JANUARY 1982

GROUP		UNDER 1 DAY	1-7	8-14	15-21	22-28	29-35	36-42	43-49	50-56	ABOVE 56 DAYS	TOTAL
600-608	CASES	0	1	0	0	0	0	0	0	0	0	1
	DIED	0	0	0	0	0	0	0	0	0	0	0
610-629	CASES	1	7	0	0	0	0	0	0	0	0	8
	DIED	0	0	0	0	0	0	0	0	0	0	0
630-639	CASES	0	14	0	0	0	0	0	0	0	0	14
	DIED	0	1	0	0	0	0	0	0	0	0	1
640-646 & 651-676	CASES	0	46	0	0	0	0	0	0	0	0	46
	DIED	0	0	0	0	0	0	0	0	0	0	0
647 & 648	CASES	0	2	0	0	0	0	0	0	0	0	2
	DIED	0	0	0	0	0	0	0	0	0	0	0
650	CASES	0	301	1	0	0	0	0	0	0	0	302
	DIED	0	0	0	0	0	0	0	0	0	0	0
680-709	CASES	0	5	0	0	0	0	0	0	0	0	5
	DIED	0	1	0	0	0	0	0	0	0	0	1
710-739	CASES	0	9	0	0	0	0	0	0	0	0	9
	DIED	0	0	0	0	0	0	0	0	0	0	0
740-759	CASES	0	7	1	0	0	0	0	0	0	0	8
	DIED	0	1	0	0	0	0	0	0	0	0	1
760-779	CASES	5	90	1	0	0	0	0	0	0	0	96
	DIED	5	24	0	0	0	0	0	0	0	0	29
780-799	CASES	0	28	0	0	0	0	0	0	0	0	28
	DIED	0	3	0	0	0	0	0	0	0	0	3
800-829	CASES	0	1	0	0	0	0	0	0	0	0	1
	DIED	0	0	0	0	0	0	0	0	0	0	0

AHMADU BELLO UNIVERSITY TEACHING HOSPITAL ZARIA
PATIENTS' STATISTICAL REPORT BY DURATION
FOR THE MONTH OF JANUARY 1982

GROUP		UNDER 1 DAY	1-7	8-14	15-21	22-28	29-35	36-42	43-49	50-56	ABOVE 56 DAYS	TOTAL
830-848	CASES	0	0	0	0	0	0	0	0	0	0	0
	DIED	0	0	0	0	0	0	0	0	0	0	0
850-869 & 950-957	CASES	0	2	0	0	0	0	0	0	0	0	2
	DIED	0	2	0	0	0	0	0	0	0	0	2
870-904	CASES	0	1	0	0	0	0	0	0	0	0	1
	DIED	0	0	0	0	0	0	0	0	0	0	0
930-939	CASES	0	0	0	0	0	0	0	0	0	0	0
	DIED	0	0	0	0	0	0	0	0	0	0	0
940-949	CASES	0	0	0	0	0	0	0	0	0	0	0
	DIED	0	0	0	0	0	0	0	0	0	0	0
960-989	CASES	0	1	0	0	0	0	0	0	0	0	1
	DIED	0	0	0	0	0	0	0	0	0	0	0
996-999	CASES	0	0	0	0	0	0	0	0	0	0	0
	DIED	0	0	0	0	0	0	0	0	0	0	0
910-929;958-959;990-995	CASES	0	1	0	0	0	0	0	0	0	0	1
	DIED	0	0	0	0	0	0	0	0	0	0	0
905-909	CASES	0	0	0	0	0	0	0	0	0	0	0
	DIED	0	0	0	0	0	0	0	0	0	0	0
E800-E848	CASES	3	44	3	0	0	0	0	0	0	0	50
	DIED	2	7	0	0	0	0	0	0	0	0	9
E850-E869	CASES	3	23	0	0	0	0	0	0	0	0	26
	DIED	0	0	0	0	0	0	0	0	0	0	0
E870-E879	CASES	0	4	0	0	0	0	0	0	0	0	4
	DIED	0	0	0	0	0	0	0	0	0	0	0

AHMADU BELLO UNIVERSITY TEACHING HOSPITAL ZARIA
PATIENTS' STATISTICAL REPORT BY DURATION
FOR THE MONTH OF JANUARY 1982

GROUP		UNDER 1 DAY	1-7	8-14	15-21	22-28	29-35	36-42	43-49	50-56	ABOVE 56 DAYS	TOTAL
E880-E888	CASES	0	4	0	0	0	0	0	0	0	0	4
	DIED	0	0	0	0	0	0	0	0	0	0	0
E890-E899	CASES	1	2	0	0	0	0	0	0	0	0	3
	DIED	0	0	0	0	0	0	0	0	0	0	0
E900-E929	CASES	1	13	0	0	0	0	0	0	0	0	14
	DIED	1	1	0	0	0	0	0	0	0	0	2
E930-E949	CASES	0	2	0	0	0	0	0	0	0	0	2
	DIED	0	0	0	0	0	0	0	0	0	0	0
E950-E959	CASES	0	0	0	0	0	0	0	0	0	0	0
	DIED	0	0	0	0	0	0	0	0	0	0	0
E960-E969	CASES	0	2	0	0	0	0	0	0	0	0	2
	DIED	0	0	0	0	0	0	0	0	0	0	0
E970-E999	CASES	0	2	0	0	0	0	0	0	0	0	2
	DIED	0	0	0	0	0	0	0	0	0	0	0
V00-V82	CASES	0	21	0	0	0	0	0	0	0	0	21
	DIED	0	0	0	0	0	0	0	0	0	0	0

APPENDIX 8

PROGRAM OCCUP

AO 0011 COBOL V4.5 L42a 83/0

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IDENTIFICATION DIVISION.
PROGRAM-ID.  HEALTH.
DATE-WRITTEN.  10/10/82.
AUTHOR. E.O.OKORO  M.SC. PROJECT.
REMARKS.
      THIS PROGRAM READS MEDFILE AND PRODUCES A
      STATISTICAL REPORT BY OCCUPATION AND DISEASE-GROUPS.
ENVIRONMENT DIVISION.
CONFIGURATION SECTION.
SOURCE-COMPUTER.  CYBER72.
OBJECT-COMPUTER.  CYBER72.
SPECIAL-NAMES.
    "1" IS PAGE-TOP.
    TERMINAL IS TTY.
INPUT-OUTPUT SECTION.
FILE-CONTROL.
    SELECT MEDFL ASSIGN MEDFL-FZ
        ORGANIZATION IS SEQUENTIAL.
    SELECT OCCUPFL ASSIGN OCCUPFL-FZ
        ORGANIZATION IS SEQUENTIAL.
DATA DIVISION.
FILE SECTION.
FD  MEDFL
        LABEL RECORDS ARE OMITTED
        DATA RECORD IS MED-REC.
01  MED-REC.
    02  HOSPITAL-CODE          PIC 9.
    02  SEX-CODE               PIC 9.
    02  MAR-STATUS             PIC 9.
    02  OCCUPATION             PIC 99.
    02  AGE                    PIC 9(5).
    02  PATIENT-STATE          PIC 99.
    02  DATE-OF-ADMISSION      PIC 9(6).
    02  WARD                   PIC 99.
    02  ADMISSION              PIC 9.
    02  DIAGN-METHOD           PIC 9.
    02  CURRENT-THERAPY        PIC 9.
    02  DURATION               PIC 999.
    02  DIAGNOSTICS            PIC 9(4)V99 OCCURS 3 TIMES.
    02  DISCHARGE-STATUS       PIC 9.
FD  OCCUPFL
        LABEL RECORDS ARE OMITTED
        DATA RECORD IS O-OCCUPATION.
01  O-OCCUPATION.
    02  FILLER                     PIC X.
    02  OUT-PUT-LINE               PIC X(136).
WORKING-STORAGE SECTION.
77  DEAD-MALE-CNT      PIC S9(5) COMP SYNC VALUE 1.
77  DEAD-TOTAL-CNT     PIC S9(5) COMP SYNC VALUE 1.
77  DEAD-FEMALE-CNT    PIC S9(5) COMP SYNC VALUE 1.
77  MALE-CNT           PIC S9(5) COMP SYNC VALUE 1.
77  FEMALE-CNT         PIC S9(5) COMP SYNC VALUE 1.
77  TOTAL-CNT          PIC S9(5) COMP SYNC VALUE 1.
77  PAGE-CNT           PIC S9(5) COMP SYNC VALUE ZERO.
77  LINE-CNT           PIC S9(5) COMP SYNC VALUE 1.
77  DIAGN-CNT          PIC S9(5) COMP SYNC VALUE 1.
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77  KOUNTER              PIC S9(5) COMP SYNC VALUE 1.
77  IGROUP          PIC S9(3) COMP SYNC VALUE 0.
77  W-RECORD-CNT        PIC S9(8) COMP SYNC VALUE 1.
01  DISEASE-TABLE.
    02  TOTAL-CASE  PIC S9(5) COMP SYNC OCCURS 67 TIMES.
    02  OCCUP1-CASE PIC S9(5) COMP SYNC OCCURS 67 TIMES.
    02  DEAD-OCCUP1  PIC S9(5) COMP SYNC OCCURS 67 TIMES.
    02  OCCUP2-CASE  PIC S9(5) COMP SYNC OCCURS 67 TIMES.
    02  DEAD-OCCUP2 PIC S9(5) COMP SYNC OCCURS 67 TIMES.
    02  OCCUP3-CASE PIC S9(5) COMP SYNC OCCURS 67 TIMES.
    02  DEAD-OCCUP3 PIC S9(5) COMP SYNC OCCURS 67 TIMES.
    02  OCCUP4-CASE PIC S9(5) COMP SYNC OCCURS 67 TIMES.
    02  DEAD-OCCUP4 PIC S9(5) COMP SYNC OCCURS 67 TIMES.
    02  OCCUP5-CASE PIC S9(5) COMP SYNC OCCURS 67 TIMES.
    02  DEAD-OCCUP5 PIC S9(5) COMP SYNC OCCURS 67 TIMES.
    02  OCCUP6-CASE PIC S9(5) COMP SYNC OCCURS 67 TIMES.
    02  DEAD-OCCUP6 PIC S9(5) COMP SYNC OCCURS 67 TIMES.
    02  OCCUP7-CASE PIC S9(5) COMP SYNC OCCURS 67 TIMES.
    02  DEAD-OCCUP7 PIC S9(5) COMP SYNC OCCURS 67 TIMES.
    02  OCCUP8-CASE PIC S9(5) COMP SYNC OCCURS 67 TIMES.
    02  DEAD-OCCUP8 PIC S9(5) COMP SYNC OCCURS 67 TIMES.
    02  OCCUP9-CASE PIC S9(5) COMP SYNC OCCURS 67 TIMES.
    02  DEAD-OCCUP9 PIC S9(5) COMP SYNC OCCURS 67 TIMES.
    02  OCCUP10-CASE PIC S9(5) COMP SYNC OCCURS 67 TIMES.
    02  DEAD-OCCUP10 PIC S9(5) COMP SYNC OCCURS 67 TIMES.
    02  OCCUP11-CASE PIC S9(5) COMP SYNC OCCURS 67 TIMES.
    02  DEAD-OCCUP11 PIC S9(5) COMP SYNC OCCURS 67 TIMES.
    02  OCCUP12-CASE PIC S9(5) COMP SYNC OCCURS 67 TIMES.
    02  DEAD-OCCUP12 PIC S9(5) COMP SYNC OCCURS 67 TIMES.
    02  OCCUP13-CASE PIC S9(5) COMP SYNC OCCURS 67 TIMES.
    02  DEAD-OCCUP13 PIC S9(5) COMP SYNC OCCURS 67 TIMES.
    02  OCCUP14-CASE PIC S9(5) COMP SYNC OCCURS 67 TIMES.
    02  DEAD-OCCUP14 PIC S9(5) COMP SYNC OCCURS 67 TIMES.
    02  OCCUP15-CASE PIC S9(5) COMP SYNC OCCURS 67 TIMES.
    02  DEAD-OCCUP15 PIC S9(5) COMP SYNC OCCURS 67 TIMES.
    02  OCCUP16-CASE PIC S9(5) COMP SYNC OCCURS 67 TIMES.
    02  DEAD-OCCUP16 PIC S9(5) COMP SYNC OCCURS 67 TIMES.
    02  OCCUP17-CASE PIC S9(5) COMP SYNC OCCURS 67 TIMES.
    02  DEAD-OCCUP17 PIC S9(5) COMP SYNC OCCURS 67 TIMES.
    02  OCCUP18-CASE PIC S9(5) COMP SYNC OCCURS 67 TIMES.
    02  DEAD-OCCUP18 PIC S9(5) COMP SYNC OCCURS 67 TIMES.
    02  OCCUP19-CASE PIC S9(5) COMP SYNC OCCURS 67 TIMES.
    02  DEAD-OCCUP19 PIC S9(5) COMP SYNC OCCURS 67 TIMES.
    02  OCCUP20-CASE PIC S9(5) COMP SYNC OCCURS 67 TIMES.
    02  DEAD-OCCUP20 PIC S9(5) COMP SYNC OCCURS 67 TIMES.
    02  OCCUP21-CASE PIC S9(5) COMP SYNC OCCURS 67 TIMES.
    02  DEAD-OCCUP21 PIC S9(5) COMP SYNC OCCURS 67 TIMES.
    02  OCCUP22-CASE PIC S9(5) COMP SYNC OCCURS 67 TIMES.
    02  DEAD-OCCUP22 PIC S9(5) COMP SYNC OCCURS 67 TIMES.
    02  OCCUP23-CASE PIC S9(5) COMP SYNC OCCURS 67 TIMES.
    02  DEAD-OCCUP23 PIC S9(5) COMP SYNC OCCURS 67 TIMES.
    02  OCCUP24-CASE PIC S9(5) COMP SYNC OCCURS 67 TIMES.
    02  DEAD-OCCUP24 PIC S9(5) COMP SYNC OCCURS 67 TIMES.
    02  OCCUP25-CASE PIC S9(5) COMP SYNC OCCURS 67 TIMES.
    02  DEAD-OCCUP25 PIC S9(5) COMP SYNC OCCURS 67 TIMES.
    02  OCCUP26-CASE PIC S9(5) COMP SYNC OCCURS 67 TIMES.
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     02  DEAD-OCCUP26 PIC S9(5) COMP SYNC OCCURS 67 TIMES.
     02  OCCUP27-CASE PIC S9(5) COMP SYNC OCCURS 67 TIMES.
     02  DEAD-OCCUP27 PIC S9(5) COMP SYNC OCCURS 67 TIMES.
     02  OCCUP28-CASE PIC S9(5) COMP SYNC OCCURS 67 TIMES.
     02  DEAD-OCCUP28 PIC S9(5) COMP SYNC OCCURS 67 TIMES.
     02  OCCUP29-CASE PIC S9(5) COMP SYNC OCCURS 67 TIMES.
     02  DEAD-OCCUP29 PIC S9(5) COMP SYNC OCCURS 67 TIMES.
     02  OCCUP30-CASE PIC S9(5) COMP SYNC OCCURS 67 TIMES.
     02  DEAD-OCCUP30 PIC S9(5) COMP SYNC OCCURS 67 TIMES.
     02  OCCUP31-CASE PIC S9(5) COMP SYNC OCCURS 67 TIMES.
     02  DEAD-OCCUP31 PIC S9(5) COMP SYNC OCCURS 67 TIMES.
     02  OCCUP32-CASE PIC S9(5) COMP SYNC OCCURS 67 TIMES.
     02  DEAD-OCCUP32 PIC S9(5) COMP SYNC OCCURS 67 TIMES.
     02  OCCUP33-CASE PIC S9(5) COMP SYNC OCCURS 67 TIMES.
     02  DEAD-OCCUP33 PIC S9(5) COMP SYNC OCCURS 67 TIMES.
     02  DEAD-TOTAL  PIC S9(5) COMP SYNC OCCURS 67 TIMES.
 01  HEAD-1.
     02  FILLER  PIC X(25) VALUE SPACES.
     02  FILLER PIC X(49) VALUE "AHMADU BELLO UNIVERSITY TEACHING
-    " HOSPITAL ZARIA ".
     02  FILLER  PIC X(50) VALUE SPACES.
     02  WK-PAGE-CNT     PIC ZZ9.
     02  FILLER          PIC X(5) VALUE SPACES.
 01  HEAD2.
     02  FILLER          PIC X(28) VALUE SPACES.
     02  FILLER PIC X(44) VALUE "PATIENTS' STATISTICAL REPORT BY
-    " OCCUPATION".
     02  FILLER         PIC X(72) VALUE SPACES.
 01  HEAD3.
     02  FILLER        PIC X(32) VALUE SPACES.
     02  FILLER PIC X(29) VALUE "FOR THE MONTH OF JANUARY 1982".
     02  FILLER         PIC X(76) VALUE SPACES.
 01  HEAD4.
     02  FILLER     PIC X(30) VALUE SPACES.
     02 ROW1 PIC X(94) VALUE "A                A
-    "H     J        N     M     P  P  P        T                 I".
     02  FILLER      PIC X(10) VALUE SPACES.
 01  HEAD42.
     02  FILLER      PIC X(30) VALUE SPACE.
     02 ROW2 PIC X(94) VALUE "R     A  A     T           C
-    "O     O     M  A     E     R  U  E  M     R  W              N".
     02  FILLER      PIC X(10) VALUE SPACE.
 01  HEAD43.
     02  FILLER      PIC X(27) VALUE SPACE.
     02 ROW3 PIC X(97) VALUE "M  C     T  C  A  T     B     O  F
-    "   M  J  U  A  E  V     D     O  B  N  I  T  A  A     S
-    "S".
     02  FILLER   PIC X(10) VALUE SPACES.
 01  HEAD44.
     02  FILLER      PIC X(27) VALUE SPACES.
     02 ROW4 PIC X(97) VALUE "A  H  A  H  C  R  E  A  O  C  N  A
-    "F  E  A  R  B  N  A        P  F  O  S  L  R  N  T     T
-    "P".
     02  FILLER      PIC X(10) VALUE SPACES.
 01  HEAD45.
     02  FILLER      PIC X(27) VALUE SPACES.
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      02 ROW5 PIC X(97) VALUE "N     R  E  O  T  N  I  T  L  T  C
-     "A  M  N  N  O  S  L  N  P  O  E  F  I  I  A  S  C  C  U  C
-     "E".
      02  FILLER        PIC X(10) VALUE SPACES.
  01  HEAD46.
      02  FILLER        PIC X(27) VALUE SPACES.
      02 ROW6 PIC X(97) VALUE "A  E  T  L  U  I  D  R  C  E  R  T
-     "R  A  I  A  U  A  S  U  R  L  T  F  O  T  D  P  H  L  D  H
-     "C".
      02  FILLER        PIC X(10) VALUE SPACES.
  01  HEAD47.
      02  FILLER        PIC X(27) VALUE SPACES.
      02 ROW7 PIC X(97) VALUE "G  N  I  E  N  S  A  M  H  R  A  O
-     "M  K  T  L  R  G  T  R  A  I  I  I  N  A  I  O  M  E  E  T
-     "I".
      02  FILLER        PIC X(10) VALUE SPACES.
  01  HEAD48.
      02  FILLER        PIC X(27) VALUE SPACES.
      02 ROW8 PIC X(97) VALUE "E  G  S  T  T  A  N  A  E  G  C  R
-     "E  E  O  I  E  E  A  S  C  C  O  C  E  R  N  R  A  R  N  I
-     "F".
      02  FILLER        PIC X(10) VALUE SPACES.
  01  HEAD49.
      02  FILLER        PIC X(27) VALUE SPACES.
      02 ROW9 PIC X(97) VALUE "R  R  T  E  S  N  T  N  R  Y  T  Y
-     "R  R  R  S  R  R  F  E  T  E  N  E  R  Y  G  T  N  K  T  D
-     "Y".
      02  FILLER        PIC X(10) VALUE SPACES.
  01  HEAD10.
      02  FILLER        PIC XX VALUE SPACES.
      02  FILLER        PIC X(5) VALUE "GROUP".
      02  FILLER        PIC X(121) VALUE SPACES.
      02  FILLER      PIC X(5) VALUE "TOTAL".
  01  LINE1.
      02  FILLER              PIC X(20) VALUE SPACES.
      02  FILLER              PIC X(5) VALUE "CASES".
      02  FILLER              PIC XX VALUE SPACES.
      02  OCCUP1                PIC Z9 VALUE ZERO.
      02  FILLER              PIC X VALUE SPACES.
      02  OCCUP2                PIC Z9 VALUE ZERO.
      02  FILLER              PIC X VALUE SPACES.
      02  OCCUP3                PIC Z9 VALUE ZERO.
      02  FILLER              PIC X VALUE SPACES.
      02  OCCUP4                PIC Z9 VALUE ZERO.
      02  FILLER              PIC X VALUE SPACES.
      02  OCCUP5                PIC Z9 VALUE ZERO.
      02  FILLER          PIC X VALUE SPACES.
      02  OCCUP6          PIC Z9 VALUE ZERO.
      02  FILLER             PIC X VALUE SPACES.
      02  OCCUP7          PIC Z9 VALUE ZERO.
      02  FILLER             PIC X VALUE SPACES.
      02  OCCUP8          PIC Z9 VALUE ZERO.
      02  FILLER             PIC X VALUE SPACES.
      02  OCCUP9          PIC Z9 VALUE ZERO.
      02  FILLER             PIC X VALUE SPACES.
      02  OCCUP10         PIC Z9 VALUE ZERO.
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    02  FILLER                  PIC X VALUE SPACES.
    02  OCCUP11     PIC Z9 VALUE ZERO.
    02  FILLER      PIC X VALUE SPACE.
    02  OCCUP12     PIC Z9 VALUE ZERO.
    02  FILLER      PIC X VALUE SPACE.
    02  OCCUP13     PIC Z9 VALUE SPACE.
    02  FILLER      PIC X VALUE SPACE.
    02  OCCUP14     PIC ZZ9 VALUE ZERO.
    02  FILLER      PIC X VALUE SPACE.
    02  OCCUP15     PIC 9 VALUE ZERO.
    02  FILLER      PIC X VALUE SPACE.
    02  OCCUP16     PIC Z9 VALUE ZERO.
    02  FILLER      PIC X VALUE SPACE.
    02  OCCUP17     PIC Z9 VALUE ZERO.
    02  FILLER      PIC X VALUE SPACE.
    02  OCCUP18     PIC Z9 VALUE ZERO.
    02  FILLER      PIC X VALUE SPACE.
    02  OCCUP19     PIC Z9 VALUE ZERO.
    02  FILLER      PIC X VALUE SPACE.
    02  OCCUP20     PIC Z9 VALUE ZERO.
    02  FILLER      PIC X VALUE SPACE.
    02  OCCUP21     PIC Z9 VALUE ZERO.
    02  FILLER      PIC X VALUE SPACE.
    02  OCCUP22     PIC Z9 VALUE ZERO.
    02  FILLER      PIC X VALUE SPACE.
    02  OCCUP23     PIC Z9 VALUE ZERO.
    02  FILLER      PIC X VALUE SPACE.
    02  OCCUP24     PIC Z9 VALUE ZERO.
    02  FILLER      PIC X VALUE SPACE.
    02  OCCUP25     PIC Z9 VALUE ZERO.
    02  FILLER      PIC X VALUE SPACE.
    02  OCCUP26     PIC Z9 VALUE ZERO.
    02  FILLER      PIC X VALUE SPACE.
    02  OCCUP27    PIC Z9 VALUE ZERO.
    02  FILLER      PIC X VALUE SPACE.
    02  OCCUP28     PIC Z9 VALUE ZERO.
    02  FILLER      PIC X VALUE SPACE.
    02  OCCUP29     PIC Z9 VALUE ZERO.
    02  FILLER      PIC X VALUE SPACE.
    02  OCCUP30     PIC Z9 VALUE ZERO.
    02  FILLER      PIC X VALUE SPACE.
    02  OCCUP31     PIC Z9 VALUE ZERO.
    02  FILLER      PIC X VALUE SPACE.
    02  OCCUP32     PIC ZZ9 VALUE ZERO.
    02  FILLER      PIC X VALUE SPACE.
    02  OCCUP33     PIC Z9 VALUE ZERO.
    02  FILLER      PIC XX VALUE SPACES.
    02  ROW-TOTAL              PIC ZZZ9 VALUE ZERO.
    02  FILLER                 PIC X(1) VALUE SPACES.
01  LINE2.
    02  FILLER      PIC X VALUE SPACE.
    02  GROUP-NO PIC X(30)  .
    02  FILLER    PIC X(105) VALUE SPACES.
01  LINE3.
    02  FILLER                 PIC X(20) VALUE SPACES.
    02  FILLER                 PIC X(5) VALUE "DIED".
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02  FILLER                PIC XX VALUE SPACES.
02  D-OCCUP1               PIC Z9 VALUE ZERO.
02  FILLER                PIC X VALUE SPACES.
02  D-OCCUP2               PIC Z9 VALUE ZERO.
02  FILLER                PIC X VALUE SPACES.
02  D-OCCUP3               PIC Z9 VALUE ZERO.
02  FILLER                PIC X VALUE SPACES.
02  D-OCCUP4               PIC Z9 VALUE ZERO.
02  FILLER                PIC X VALUE SPACES.
02  D-OCCUP5               PIC Z9 VALUE ZERO.
02  FILLER               PIC X VALUE SPACES.
02  D-OCCUP6             PIC Z9 VALUE ZERO.
02  FILLER                PIC X VALUE SPACES.
02  D-OCCUP7             PIC Z9 VALUE ZERO.
02  FILLER                PIC X VALUE SPACES.
02  D-OCCUP8             PIC Z9 VALUE ZERO.
02  FILLER                PIC X VALUE SPACES.
02  D-OCCUP9             PIC Z9 VALUE ZERO.
02  FILLER                PIC X VALUE SPACES.
02  D-OCCUP10            PIC Z9 VALUE ZERO.
02  FILLER           PIC X VALUE SPACE.
02  D-OCCUP11          PIC Z9 VALUE ZERO.
02  FILLER           PIC X VALUE SPACE.
02  D-OCCUP12          PIC Z9 VALUE ZERO.
02  FILLER             PIC X VALUE SPACE.
02  D-OCCUP13          PIC Z9 VALUE ZERO.
02  FILLER             PIC X VALUE SPACE.
02  D-OCCUP14          PIC ZZ9 VALUE ZERO.
02  FILLER             PIC X VALUE SPACE.
02  D-OCCUP15         PIC 9 VALUE ZERO.
02  FILLER             PIC X VALUE SPACE.
02  D-OCCUP16          PIC Z9 VALUE ZERO.
02  FILLER             PIC X VALUE SPACE.
02  D-OCCUP17          PIC Z9 VALUE ZERO.
02  FILLER             PIC X VALUE SPACE.
02  D-OCCUP18          PIC Z9 VALUE ZERO.
02  FILLER             PIC X VALUE SPACE.
02  D-OCCUP19          PIC Z9 VALUE ZERO.
02  FILLER             PIC X VALUE SPACE.
02  D-OCCUP20          PIC Z9 VALUE ZERO.
02  FILLER             PIC X VALUE SPACE.
02  D-OCCUP21          PIC Z9 VALUE ZERO.
02  FILLER             PIC X VALUE SPACE.
02  D-OCCUP22          PIC Z9 VALUE ZERO.
02  FILLER             PIC X VALUE SPACE.
02  D-OCCUP23          PIC Z9 VALUE ZERO.
02  FILLER             PIC X VALUE SPACE.
02  D-OCCUP24          PIC Z9 VALUE ZERO.
02  FILLER             PIC X VALUE SPACE.
02  D-OCCUP25          PIC Z9 VALUE ZERO.
02  FILLER             PIC X VALUE SPACE.
02  D-OCCUP26          PIC Z9 VALUE ZERO.
02  FILLER             PIC X VALUE SPACE.
02  D-OCCUP27          PIC Z9 VALUE ZERO.
02  FILLER             PIC X VALUE SPACE.
02  D-OCCUP28          PIC Z9 VALUE ZERO.
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    02  FILLER              PIC X VALUE SPACE.
    02  D-OCCUP29          PIC 79 VALUE ZERO.
    02  FILLER              PIC X VALUE SPACE.
    02  D-OCCUP30          PIC 79 VALUE ZERO.
    02  FILLER              PIC X VALUE SPACE.
    02  D-OCCUP31          PIC 79 VALUE ZERO.
    02  FILLER              PIC X VALUE SPACE.
    02  D-OCCUP32          PIC 779 VALUE ZERO.
    02  FILLER              PIC X VALUE SPACE.
    02  D-OCCUP33          PIC 79 VALUE ZERO.
    02  FILLER              PIC XX VALUE SPACES.
    02  D-ROW-TOTAL              PIC ZZZ9 VALUE ZERO.
    02  FILLER                   PIC X(1) VALUE SPACE.
01  FLAG.
    02  OUT-OF-DATA-FLAG PIC X VALUE "N".
        88 OUT-OF-DATA  VALUE "Y".
01  ICD-3DIGIT-VALUES.
    02  FILLER  PIC X(30) VALUE "001-009                      ".
    02  FILLER  PIC X(30) VALUE "010-018                      ".
    02  FILLER  PIC X(30) VALUE "020-041                      ".
    02  FILLER  PIC X(30) VALUE "045-079                      ".
    02  FILLER  PIC X(30) VALUE "080-088                      ".
    02  FILLER  PIC X(30) VALUE "090-099                      ".
    02  FILLER  PIC X(30) VALUE "100-139                      ".
    02  FILLER  PIC X(30) VALUE "140-149                      ".
    02  FILLER  PIC X(30) VALUE "150-159                      ".
    02  FILLER  PIC X(30) VALUE "160-165                      ".
    02  FILLER  PIC X(30) VALUE "170-175                      ".
    02  FILLER  PIC X(30) VALUE "179-189                      ".
    02  FILLER  PIC X(30) VALUE "190-199                      ".
    02  FILLER  PIC X(30) VALUE "200-208                      ".
    02  FILLER  PIC X(30) VALUE "210-229                      ".
    02  FILLER  PIC X(30) VALUE "230-234                      ".
    02  FILLER  PIC X(30) VALUE "235-239                      ".
    02  FILLER  PIC X(30) VALUE "240-259 & 270-279            ".
    02  FILLER  PIC X(30) VALUE "260-269                      ".
    02  FILLER  PIC X(30) VALUE "280-289                      ".
    02  FILLER  PIC X(30) VALUE "290-319                      ".
    02  FILLER  PIC X(30) VALUE "320-359                      ".
    02  FILLER  PIC X(30) VALUE "360-379                      ".
    02  FILLER  PIC X(30) VALUE "380-389                      ".
    02  FILLER  PIC X(30) VALUE "390-398                      ".
    02  FILLER  PIC X(30) VALUE "401-405                      ".
    02  FILLER  PIC X(30) VALUE "410-414                      ".
    02  FILLER  PIC X(30) VALUE "415-429                      ".
    02  FILLER  PIC X(30) VALUE "430-438                      ".
    02  FILLER  PIC X(30) VALUE "440-459                      ".
    02  FILLER  PIC X(30) VALUE "460-465 & 470-478            ".
    02  FILLER  PIC X(30) VALUE "466 & 480-519                ".
    02  FILLER  PIC X(30) VALUE "520-529                      ".
    02  FILLER  PIC X(30) VALUE "530-579                      ".
    02  FILLER  PIC X(30) VALUE "580-599                      ".
    02  FILLER  PIC X(30) VALUE "600-608                      ".
    02  FILLER  PIC X(30) VALUE "610-629                      ".
    02  FILLER  PIC X(30) VALUE "630-639                      ".
    02  FILLER  PIC X(30) VALUE "640-646 & 651-676            ".
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    02  FILLER  PIC X(30) VALUE "647 & 648                          ".
    02  FILLER  PIC X(30) VALUE "650                                ".
    02  FILLER  PIC X(30) VALUE "680-709                            ".
    02  FILLER  PIC X(30) VALUE "710-739                            ".
    02  FILLER  PIC X(30) VALUE "740-759                            ".
    02  FILLER  PIC X(30) VALUE "760-779                            ".
    02  FILLER  PIC X(30) VALUE "780-799                            ".
    02  FILLER  PIC X(30) VALUE "800-829                            ".
    02  FILLER  PIC X(30) VALUE "830-848                            ".
    02  FILLER  PIC X(30) VALUE "850-869 & 950-957                  ".
    02  FILLER  PIC X(30) VALUE "870-904                            ".
    02  FILLER  PIC X(30) VALUE "930-939                            ".
    02  FILLER  PIC X(30) VALUE "940-949                            ".
    02  FILLER  PIC X(30) VALUE "960-989                            ".
    02  FILLER  PIC X(30) VALUE "996-999                            ".
    02  FILLER  PIC X(30) VALUE "910-929:958-959:990-995            ".
    02  FILLER  PIC X(30) VALUE "905-909                            ".
    02  FILLER  PIC X(30) VALUE "E800-E848                          ".
    02  FILLER  PIC X(30) VALUE "E850-E869                          ".
    02  FILLER  PIC X(30) VALUE "E870-E879                          ".
    02  FILLER  PIC X(30) VALUE "E880-E888                          ".
    02  FILLER  PIC X(30) VALUE "E890-E899                          ".
    02  FILLER  PIC X(30) VALUE "E900-E929                          ".
    02  FILLER  PIC X(30) VALUE "E930-E949                          ".
    02  FILLER  PIC X(30) VALUE "E950-E959                          ".
    02  FILLER  PIC X(30) VALUE "E960-E969                          ".
    02  FILLER  PIC X(30) VALUE "E970-E999                          ".
    02  FILLER  PIC X(30) VALUE "V00-V82                            ".
01  DISEASE-GROUPS REDEFINES ICD-3DIGIT-VALUES.
    02  THE-GROUPS        PIC X(30) OCCURS 67 TIMES.
01  DISEASES.
    02  DISEASE-CATEGORIES  PIC 9(4)V99.
    88  CAT1  VALUE 0001.00 THRU 0009.99.
    88  CAT2  VALUE 0010.00  THRU 0018.99.
    88  CAT3  VALUE 0020.00 THRU 0041.99.
    88  CAT4  VALUE 0045.00 THRU 0079.99.
    88  CAT5  VALUE 0080.00 THRU 0088.99.
    88  CAT6  VALUE 0090.00 THRU 0099.99.
    88  CAT7  VALUE 0100.00 THRU 0139.99.
    88  CAT8  VALUE 0140.00 THRU 0149.99.
    88  CAT9  VALUE 0150.00 THRU 0159.99.
    88  CAT10 VALUE 0160.00 THRU 0165.99.
    88  CAT11 VALUE 0170.00 THRU ,0175.99.
    88  CAT12  VALUE 0179.00 THRU 0189.99.
    88  CAT13  VALUE 0190.00 THRU 0199.99.
    88  CAT14  VALUE 0200.00 THRU 0208.99.
    88  CAT15  VALUE 0210.00 THRU 0229.99.
    88  CAT16  VALUE 0230.00 THRU 0234.99.
    88  CAT17  VALUE 0235.00 THRU 0239.99.
    88  CAT18  VALUE 0240.00 THRU 0259.99 0270.00 THRU 0279.99.
    88  CAT19  VALUE 0260.00 THRU 0269.99.
    88  CAT20  VALUE 0280.00 THRU 0289.99.
    88  CAT21  VALUE 0290.00 THRU 0319.99.
    88  CAT22  VALUE 0320.00 THRU 0359.99.
    88  CAT23  VALUE 0360.00 THRU 0379.99.
    88  CAT24  VALUE 0380.00 THRU 0389.99.
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88  CAT25  VALUE 0390.00 THRU 0398.99.
88  CAT26  VALUE 0401.00 THRU 0405.99.
88  CAT27  VALUE 0410.00 THRU 0414.99.
88  CAT28  VALUE 0415.00 THRU 0429.99.
88  CAT29  VALUE 0430.00 THRU 0438.99.
88  CAT30  VALUE 0440.00 THRU 0459.99.
88  CAT31  VALUE 0460.00 THRU 0465.99 0470.00 THRU 0478.99.
88  CAT32  VALUE 0466.00 0480.00 THRU 0519.99.
88  CAT33  VALUE 0520.00 THRU 0529.99.
88  CAT34  VALUE 0530.00 THRU 0579.99.
88  CAT35  VALUE 0580.00 THRU 0599.99.
88  CAT36  VALUE 0600.00 THRU 0608.99.
88  CAT37  VALUE 0610.00 THRU 0629.99.
88  CAT38  VALUE 0630.00 THRU 0639.99.
88  CAT39  VALUE 0640.00 THRU 0646.99 0651.00 THRU 0676.99.
88  CAT40  VALUE 0647.00 THRU 0648.99.
88  CAT41  VALUE 0650.00.
88  CAT42  VALUE 0680.00 THRU 0709.99.
88  CAT43  VALUE 0710.00 THRU 0739.99.
88  CAT44  VALUE 0740.00 THRU 0759.99.
88  CAT45  VALUE 0760.00 THRU 0779.99.
88  CAT46  VALUE 0780.00 THRU 0799.99.
88  CAT47  VALUE 0800.00 THRU 0829.99.
88  CAT48  VALUE 0830.00 THRU 0848.99.
88  CAT49  VALUE 0850.00 THRU 0869.99 0950.00 THRU 0957.99.
88  CAT50  VALUE 0870.00 THRU 0904.99.
88  CAT51  VALUE 0930.00 THRU 0939.99.
88  CAT52  VALUE 0940.00 THRU 0949.99.
88  CAT53  VALUE 0960.00 THRU 0989.99.
88  CAT54  VALUE 0996.00 THRU 0999.99.
88  CAT55  VALUE 0910.00 THRU 0929.99 0958.00 THRU 0959.99
                  0990.00 THRU 0995.99.
88  CAT56  VALUE 0905.00 THRU 0909.99.
88  CAT57  VALUE 2800.00 THRU 2848.99.
88  CAT58  VALUE 2850.00 THRU 2869.99.
88  CAT59  VALUE 2870.00 THRU 2879.99.
88  CAT60  VALUE 2880.00 THRU 2888.99.
88  CAT61  VALUE 2890.00 THRU 2899.99.
88  CAT62  VALUE 2900.00 THRU 2929.99.
88  CAT63  VALUE 2930.00 THRU 2949.99.
88  CAT64  VALUE 2950.00 THRU 2959.99.
88  CAT65  VALUE 2960.00 THRU 2969.99.
88  CAT66  VALUE 2970.00 THRU 2999.99.
88  CAT67  VALUE 9900.00 THRU 9982.99.
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.TH        AO 0011                                    COBOL    V4.5  L42A 83/0

       PROCEDURE DIVISION.
       HOUSE-KEEPING.
           OPEN INPUT MEDFL OUTPUT OCCUPFL.
           PERFORM HEAD-PRINT.
           MOVE ZERO TO DISEASE-TABLE.
           PERFORM READ-RECORD UNTIL OUT-OF-DATA-FLAG = "Y".
           PERFORM LINE-OUT VARYING KOUNTER FROM 1 BY 1 UNTIL
               KOUNTER > 67.
           CLOSE MEDFL OCCUPFL.
           STOP RUN.
       READ-RECORD.
           READ MEDFL AT END MOVE "Y" TO OUT-OF-DATA-FLAG.
               ADD 1 TO W-RECORD-CNT.
           MOVE DIAGNOSTICS ( 1 ) TO DISEASES.
           PERFORM SEARCH-AND-COUNT .
       SEARCH-AND-COUNT.
           IF  CAT1 THEN MOVE 1 TO IGROUP PERFORM CAT-CNT.
           IF CAT2 MOVE 2 TO IGROUP PERFORM CAT-CNT.
            IF CAT3 MOVE 3 TO IGROUP PERFORM CAT-CNT.
            IF CAT4 MOVE 4 TO IGROUP PERFORM CAT-CNT.
           IF CAT5 MOVE 5 TO IGROUP PERFORM CAT-CNT.
           IF CAT6 MOVE 6 TO IGROUP PERFORM CAT-CNT.
           IF CAT7 MOVE 7 TO IGROUP PERFORM CAT-CNT.
           IF CAT8 MOVE 8 TO IGROUP PERFORM CAT-CNT.
           IF CAT9 MOVE 9 TO IGROUP PERFORM CAT-CNT.
           IF CAT10 MOVE 10 TO IGROUP PERFORM CAT-CNT.
           IF CAT11 MOVE 11 TO IGROUP PERFORM CAT-CNT.
           IF CAT12 MOVE 12 TO IGROUP PERFORM CAT-CNT.
           IF CAT13 MOVE 13 TO IGROUP PERFORM CAT-CNT.
           IF CAT14 MOVE 14 TO IGROUP PERFORM CAT-CNT.
           IF CAT15 MOVE 15 TO IGROUP PERFORM CAT-CNT.
           IF CAT16 MOVE 16 TO IGROUP PERFORM CAT-CNT.
           IF CAT17 MOVE 17 TO IGROUP PERFORM CAT-CNT.
           IF CAT18 MOVE 18 TO IGROUP PERFORM CAT-CNT.
           IF CAT19 MOVE 19 TO IGROUP PERFORM CAT-CNT.
           IF CAT20 MOVE 20 TO IGROUP PERFORM CAT-CNT.
           IF CAT21 MOVE 21 TO IGROUP PERFORM CAT-CNT.
           IF CAT22 MOVE 22 TO IGROUP PERFORM CAT-CNT.
           IF CAT23 MOVE 23 TO IGROUP PERFORM CAT-CNT.
           IF CAT24 MOVE 24 TO IGROUP PERFORM CAT-CNT.
           IF CAT25 MOVE 25 TO IGROUP PERFORM CAT-CNT.
           IF CAT26 MOVE 26 TO IGROUP PERFORM CAT-CNT.
           IF CAT27 MOVE 27 TO IGROUP PERFORM CAT-CNT.
           IF CAT28 MOVE 28 TO IGROUP PERFORM CAT-CNT.
           IF CAT29 MOVE 29 TO IGROUP PERFORM CAT-CNT.
           IF CAT30 MOVE 30 TO IGROUP PERFORM CAT-CNT.
           IF CAT31 MOVE 31 TO IGROUP PERFORM CAT-CNT.
           IF CAT32 MOVE 32 TO IGROUP PERFORM CAT-CNT.
           IF CAT33 MOVE 33 TO IGROUP PERFORM CAT-CNT.
           IF CAT34 MOVE 34 TO IGROUP PERFORM CAT-CNT.
           IF CAT35 MOVE 35 TO IGROUP PERFORM CAT-CNT.
           IF CAT36 MOVE 36 TO IGROUP PERFORM CAT-CNT.
           IF CAT37 MOVE 37 TO IGROUP PERFORM CAT-CNT.
           IF CAT38 MOVE 38 TO IGROUP PERFORM CAT-CNT.
           IF CAT39 MOVE 39 TO IGROUP PERFORM CAT-CNT.
           IF CAT40 MOVE 40 TO IGROUP PERFORM CAT-CNT.
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      IF CAT41 MOVE 41 TO IGROUP PERFORM CAT-CNT.
      IF CAT42 MOVE 42 TO IGROUP PERFORM CAT-CNT.
      IF CAT43 MOVE 43 TO IGROUP PERFORM CAT-CNT.
      IF CAT44 MOVE 44 TO IGROUP PERFORM CAT-CNT.
      IF CAT45 MOVE 45 TO IGROUP PERFORM CAT-CNT.
      IF CAT46 MOVE 46 TO IGROUP PERFORM CAT-CNT.
      IF CAT47 MOVE 47 TO IGROUP PERFORM CAT-CNT.
      IF CAT48 MOVE 48 TO IGROUP PERFORM CAT-CNT.
      IF CAT49 MOVE 49 TO IGROUP PERFORM CAT-CNT.
      IF CAT50 MOVE 50 TO IGROUP PERFORM CAT-CNT.
      IF CAT51 MOVE 51 TO IGROUP PERFORM CAT-CNT.
      IF CAT52 MOVE 52 TO IGROUP PERFORM CAT-CNT.
      IF CAT53 MOVE 53 TO IGROUP PERFORM CAT-CNT.
      IF CAT54 MOVE 54 TO IGROUP PERFORM CAT-CNT.
      IF CAT55 MOVE 55 TO IGROUP PERFORM CAT-CNT.
      IF CAT56 MOVE 56 TO IGROUP PERFORM CAT-CNT.
      IF CAT57 MOVE 57 TO IGROUP PERFORM CAT-CNT.
      IF CAT58 MOVE 58 TO IGROUP PERFORM CAT-CNT.
      IF CAT59 MOVE 59 TO IGROUP PERFORM CAT-CNT.
      IF CAT60 MOVE 60 TO IGROUP PERFORM CAT-CNT.
      IF CAT61 MOVE 61 TO IGROUP PERFORM CAT-CNT.
      IF CAT62 MOVE 62 TO IGROUP PERFORM CAT-CNT.
      IF CAT63 MOVE 63 TO IGROUP PERFORM CAT-CNT.
      IF CAT64 MOVE 64 TO IGROUP PERFORM CAT-CNT.
      IF CAT65 MOVE 65 TO IGROUP PERFORM CAT-CNT.
      IF CAT66 MOVE 66 TO IGROUP PERFORM CAT-CNT.
      IF CAT67 MOVE 67 TO IGROUP PERFORM CAT-CNT.
LINE-OUT.
      MOVE OCCUP1-CASE ( KOUNTER ) TO OCCUP1.
      MOVE OCCUP2-CASE ( KOUNTER ) TO OCCUP2.
      MOVE OCCUP3-CASE ( KOUNTER ) TO OCCUP3.
      MOVE OCCUP4-CASE ( KOUNTER ) TO OCCUP4.
      MOVE OCCUP5-CASE ( KOUNTER ) TO OCCUP5.
      MOVE OCCUP6-CASE ( KOUNTER ) TO OCCUP6.
      MOVE OCCUP7-CASE ( KOUNTER ) TO OCCUP7.
      MOVE OCCUP8-CASE ( KOUNTER ) TO OCCUP8.
      MOVE OCCUP9-CASE ( KOUNTER ) TO OCCUP9.
      MOVE OCCUP10-CASE ( KOUNTER ) TO OCCUP10.
      MOVE OCCUP11-CASE ( KOUNTER ) TO OCCUP11.
      MOVE OCCUP12-CASE ( KOUNTER ) TO OCCUP12.
      MOVE OCCUP13-CASE ( KOUNTER ) TO OCCUP13.
      MOVE OCCUP14-CASE ( KOUNTER ) TO OCCUP14.
      MOVE OCCUP15-CASE ( KOUNTER ) TO OCCUP15.
      MOVE OCCUP16-CASE ( KOUNTER ) TO OCCUP16.
      MOVE OCCUP17-CASE ( KOUNTER ) TO OCCUP17.
      MOVE OCCUP18-CASE ( KOUNTER ) TO OCCUP18.
      MOVE OCCUP19-CASE ( KOUNTER ) TO OCCUP19.
      MOVE OCCUP20-CASE ( KOUNTER ) TO OCCUP20.
      MOVE OCCUP21-CASE ( KOUNTER ) TO OCCUP21.
      MOVE OCCUP22-CASE ( KOUNTER ) TO OCCUP22.
      MOVE OCCUP23-CASE ( KOUNTER ) TO OCCUP23.
      MOVE OCCUP24-CASE ( KOUNTER ) TO OCCUP24.
      MOVE OCCUP25-CASE ( KOUNTER ) TO OCCUP25.
      MOVE OCCUP26-CASE ( KOUNTER ) TO OCCUP26.
      MOVE OCCUP27-CASE ( KOUNTER ) TO OCCUP27.
      MOVE OCCUP28-CASE ( KOUNTER ) TO OCCUP28.
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      MOVE OCCUP29-CASE ( KOUNTER ) TO OCCUP29.
      MOVE OCCUP30-CASE ( KOUNTER ) TO OCCUP30.
      MOVE OCCUP31-CASE ( KOUNTER ) TO OCCUP31.
      MOVE OCCUP32-CASE ( KOUNTER ) TO OCCUP32.
      MOVE OCCUP33-CASE ( KOUNTER ) TO OCCUP33.
      MOVE TOTAL-CASE ( KOUNTER ) TO ROW-TOTAL.
      MOVE DEAD-OCCUP1 ( KOUNTER ) TO D-OCCUP1.
      MOVE DEAD-OCCUP2 ( KOUNTER ) TO D-OCCUP2.
      MOVE DEAD-OCCUP3 ( KOUNTER ) TO D-OCCUP3.
      MOVE DEAD-OCCUP4 ( KOUNTER ) TO D-OCCUP4.
      MOVE DEAD-OCCUP5 ( KOUNTER ) TO D-OCCUP5.
      MOVE DEAD-OCCUP6 ( KOUNTER ) TO D-OCCUP6.
      MOVE DEAD-OCCUP7 ( KOUNTER ) TO D-OCCUP7.
      MOVE DEAD-OCCUP8 ( KOUNTER ) TO D-OCCUP8.
      MOVE DEAD-OCCUP9 ( KOUNTER ) TO D-OCCUP9.
      MOVE DEAD-OCCUP10 ( KOUNTER ) TO D-OCCUP10.
      MOVE DEAD-OCCUP11 ( KOUNTER ) TO D-OCCUP11.
      MOVE DEAD-OCCUP12 ( KOUNTER ) TO D-OCCUP12.
      MOVE DEAD-OCCUP13 ( KOUNTER ) TO D-OCCUP13.
      MOVE DEAD-OCCUP14 ( KOUNTER ) TO D-OCCUP14.
      MOVE DEAD-OCCUP15 ( KOUNTER ) TO D-OCCUP15.
      MOVE DEAD-OCCUP16 ( KOUNTER ) TO D-OCCUP16.
      MOVE DEAD-OCCUP17 ( KOUNTER ) TO D-OCCUP17.
      MOVE DEAD-OCCUP18 ( KOUNTER ) TO D-OCCUP18.
      MOVE DEAD-OCCUP19 ( KOUNTER ) TO D-OCCUP19.
      MOVE DEAD-OCCUP20 ( KOUNTER ) TO D-OCCUP20.
      MOVE DEAD-OCCUP21 ( KOUNTER ) TO D-OCCUP21.
      MOVE DEAD-OCCUP22 ( KOUNTER ) TO D-OCCUP22.
      MOVE DEAD-OCCUP23 ( KOUNTER ) TO D-OCCUP23.
      MOVE DEAD-OCCUP24 ( KOUNTER ) TO D-OCCUP24.
      MOVE DEAD-OCCUP25 ( KOUNTER ) TO D-OCCUP25.
      MOVE DEAD-OCCUP26 ( KOUNTER ) TO D-OCCUP26.
      MOVE DEAD-OCCUP27 ( KOUNTER ) TO D-OCCUP27.
      MOVE DEAD-OCCUP28 ( KOUNTER ) TO D-OCCUP28.
      MOVE DEAD-OCCUP29 ( KOUNTER ) TO D-OCCUP29.
      MOVE DEAD-OCCUP30 ( KOUNTER ) TO D-OCCUP30.
      MOVE DEAD-OCCUP31 ( KOUNTER ) TO D-OCCUP31.
      MOVE DEAD-OCCUP32 ( KOUNTER ) TO D-OCCUP32.
      MOVE DEAD-OCCUP33 ( KOUNTER ) TO D-OCCUP33.
      MOVE DEAD-TOTAL ( KOUNTER ) TO D-ROW-TOTAL.
      WRITE O-OCCUPATION FROM LINE1 AFTER 2 LINES.
      MOVE THE-GROUPS ( KOUNTER ) TO GROUP-NO.
      WRITE O-OCCUPATION FROM LINE2.
      WRITE O-OCCUPATION FROM LINE3.
      ADD 1 TO LINE-CNT.
      IF LINE-CNT GREATER THAN 11
         MOVE ZERO TO LINE-CNT
            PERFORM HEAD-PRINT  .
HEAD-PRINT.
      MOVE SPACES TO O-OCCUPATION.
       ADD 1 TO PAGE-CNT.
      MOVE PAGE-CNT TO WK-PAGE-CNT.
          MOVE HEAD-1 TO OUT-PUT-LINE.
       WRITE O-OCCUPATION AFTER ADVANCING PAGE-TOP .
      MOVE HEAD2 TO OUT-PUT-LINE.
         WRITE O-OCCUPATION.
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           MOVE HEAD3 TO OUT-PUT-LINE.
             WRITE O-OCCUPATION.
           MOVE HEAD4 TO OUT-PUT-LINE.
           WRITE O-OCCUPATION .
           MOVE HEAD42 TO OUT-PUT-LINE.
           WRITE O-OCCUPATION.
           MOVE HEAD43 TO OUT-PUT-LINE.
           WRITE O-OCCUPATION.
           MOVE HEAD44 TO OUT-PUT-LINE.
           WRITE O-OCCUPATION.
           MOVE HEAD45 TO OUT-PUT-LINE.
           WRITE O-OCCUPATION.
           MOVE HEAD46 TO OUT-PUT-LINE.
           WRITE O-OCCUPATION.
           MOVE HEAD47 TO OUT-PUT-LINE.
           WRITE O-OCCUPATION.
           MOVE HEAD48 TO OUT-PUT-LINE.
           WRITE O-OCCUPATION.
           MOVE HEAD49 TO OUT-PUT-LINE.
           WRITE O-OCCUPATION.
           MOVE HEAD10 TO OUT-PUT-LINE.
           WRITE O-OCCUPATION.
           MOVE SPACES TO O-OCCUPATION.
       CAT-CNT.
           IF OCCUPATION EQUAL 1 ADD 1 TO OCCUP1-CASE ( IGROUP )
             TOTAL-CASE ( IGROUP ).
           IF OCCUPATION EQUAL 1 AND DISCHARGE-STATUS EQUAL 6 ADD 1 To
            DEAD-OCCUP1 ( IGROUP ) DEAD-TOTAL ( IGROUP ).
           IF OCCUPATION EQUAL 2 ADD 1 TO OCCUP2-CASE ( IGROUP )
           TOTAL-CASE ( IGROUP ).
           IF OCCUPATION EQUAL 2 AND DISCHARGE-STATUS EQUAL 6 ADD 1 To
            DEAD-OCCUP2 ( IGROUP ) DEAD-TOTAL ( IGROUP ).
           IF OCCUPATION EQUAL 3 ADD 1 TO OCCUP3-CASE ( IGROUP )
           TOTAL-CASE ( IGROUP ).
           IF OCCUPATION EQUAL 3 AND DISCHARGE-STATUS EQUAL 6 ADD 1 To
            DEAD-OCCUP3 ( IGROUP ) DEAD-TOTAL ( IGROUP ).
           IF OCCUPATION EQUAL 4 ADD 1 TO OCCUP4-CASE ( IGROUP )
           TOTAL-CASE ( IGROUP ).
           IF OCCUPATION EQUAL 4 AND DISCHARGE-STATUS EQUAL 6 ADD 1 To
            DEAD-OCCUP4 ( IGROUP ) DEAD-TOTAL ( IGROUP ).
           IF OCCUPATION EQUAL 5 ADD 1 TO OCCUP5-CASE ( IGROUP )
           TOTAL-CASE ( IGROUP ).
           IF OCCUPATION EQUAL 5 AND DISCHARGE-STATUS EQUAL 6 ADD 1 To
            DEAD-OCCUP5 ( IGROUP ) DEAD-TOTAL ( IGROUP ).
           IF OCCUPATION EQUAL 6 ADD 1 TO OCCUP6-CASE ( IGROUP )
           TOTAL-CASE ( IGROUP ).
           IF OCCUPATION EQUAL 6 AND DISCHARGE-STATUS EQUAL 6 ADD 1 To
            DEAD-OCCUP6 ( IGROUP ) DEAD-TOTAL ( IGROUP ).
           IF OCCUPATION EQUAL 7 ADD 1 TO OCCUP7-CASE ( IGROUP )
           TOTAL-CASE ( IGROUP ).
           IF OCCUPATION EQUAL 7 AND DISCHARGE-STATUS EQUAL 6 ADD 1 To
            DEAD-OCCUP7 ( IGROUP ) DEAD-TOTAL ( IGROUP ).
           IF OCCUPATION EQUAL 8 ADD 1 TO OCCUP8-CASE ( IGROUP )
           TOTAL-CASE ( IGROUP ).
           IF OCCUPATION EQUAL 8 AND DISCHARGE-STATUS EQUAL 6 ADD 1 To
            DEAD-OCCUP8 ( IGROUP ) DEAD-TOTAL ( IGROUP ).
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 IF OCCUPATION EQUAL 9 ADD 1 TO OCCUP9-CASE ( IGROUP )
 TOTAL-CASE ( IGROUP ).
 IF OCCUPATION EQUAL 9 AND DISCHARGE-STATUS EQUAL 6 ADD 1 TO
  DEAD-OCCUP9 ( IGROUP ) DEAD-TOTAL ( IGROUP ).
 IF OCCUPATION EQUAL 10 ADD 1 TO OCCUP10-CASE ( IGROUP )
 TOTAL-CASE ( IGROUP ).
 IF OCCUPATION EQUAL 10 AND DISCHARGE-STATUS EQUAL 6 ADD 1 TO
  DEAD-OCCUP10 ( IGROUP ) DEAD-TOTAL ( IGROUP ).
 IF OCCUPATION EQUAL 11 ADD 1 TO OCCUP11-CASE ( IGROUP )
    TOTAL-CASE ( IGROUP ).
IF OCCUPATION EQUAL 11 AND DISCHARGE-STATUS EQUAL 6 ADD 1
 TO DEAD-OCCUP11 ( IGROUP ) DEAD-TOTAL ( IGROUP ).
 IF OCCUPATION EQUAL 12 ADD 1 TO OCCUP12-CASE ( IGROUP )
   TOTAL-CASE ( IGROUP ) .
 IF OCCUPATION EQUAL 12 AND DISCHARGE-STATUS EQUAL 6 ADD 1
  TO DEAD-OCCUP12 ( IGROUP ) DEAD-TOTAL ( IGROUP ).
 IF OCCUPATION EQUAL 13 ADD 1 TO OCCUP13-CASE ( IGROUP )
   TOTAL-CASE ( IGROUP ).
 IF OCCUPATION EQUAL 6 AND DISCHARGE-STATUS EQUAL 6 ADD 1
  TO DEAD-OCCUP13 ( IGROUP ) DEAD-TOTAL ( IGROUP ).
 IF OCCUPATION EQUAL 14 ADD 1 TO OCCUP14-CASE ( IGROUP )
   TOTAL-CASE ( IGROUP ).
 IF OCCUPATION EQUAL 14 AND DISCHARGE-STATUS EQUAL 6 ADD 1
   TO DEAD-OCCUP14 ( IGROUP ) DEAD-TOTAL ( IGROUP ).
 IF OCCUPATION EQUAL 15 ADD 1 TO OCCUP15-CASE ( IGROUP )
   TOTAL-CASE ( IGROUP ).
 IF OCCUPATION EQUAL 15 AND DISCHARGE-STATUS EQUAL 6 ADD 1
  TO DEAD-OCCUP15 ( IGROUP ) DEAD-TOTAL ( IGROUP ).
 IF OCCUPATION EQUAL 16 ADD 1 TO OCCUP16-CASE ( IGROUP )
   TOTAL-CASE ( IGROUP ).
 IF OCCUPATION EQUAL 16 AND DISCHARGE-STATUS EQUAL 6 ADD 1
  TO DEAD-OCCUP16 ( IGROUP ) DEAD-TOTAL ( IGROUP ).
 IF OCCUPATION EQUAL 17 ADD 1 TO OCCUP17-CASE ( IGROUP )
   TOTAL-CASE ( IGROUP ).
 IF OCCUPATION EQUAL 17 AND DISCHARGE-STATUS EQUAL 6 ADD 1
  TO DEAD-OCCUP17 ( IGROUP ) DEAD-TOTAL ( IGROUP ).
 IF OCCUPATION EQUAL 18 ADD 1 TO OCCUP18-CASE ( IGROUP )
   TOTAL-CASE ( IGROUP ).
 IF OCCUPATION EQUAL 18 AND DISCHARGE-STATUS EQUAL 6 ADD 1
   TO DEAD-OCCUP18 ( IGROUP ) DEAD-TOTAL ( IGROUP ).
 IF OCCUPATION EQUAL 19 ADD 1 TO OCCUP19-CASE ( IGROUP )
   TOTAL-CASE ( IGROUP ).
 IF OCCUPATION EQUAL 19 AND DISCHARGE-STATUS EQUAL 6 ADD 1
   TO DEAD-OCCUP19 ( IGROUP ) DEAD-TOTAL ( IGROUP ).
 IF OCCUPATION EQUAL 20 ADD 1 TO OCCUP20-CASE ( IGROUP )
   TOTAL-CASE ( IGROUP ).
 IF OCCUPATION EQUAL 20 AND DISCHARGE-STATUS EQUAL 6 ADD 1
  TO DEAD-OCCUP20 ( IGROUP ) DEAD-TOTAL (IGROUP ).
 IF OCCUPATION EQUAL 21 ADD 1 TO OCCUP21-CASE ( IGROUP )
   TOTAL-CASE ( IGROUP ).
 IF OCCUPATION EQUAL 21 AND DISCHARGE-STATUS EQUAL 6 ADD 1
  TO DEAD-OCCUP21 ( IGROUP ) DEAD-TOTAL ( IGROUP ).
 IF OCCUPATION EQUAL 22 ADD 1 TO OCCUP22-CASE ( IGROUP )
   TOTAL-CASE ( IGROUP ).
 IF OCCUPATION EQUAL 22 AND DISCHARGE-STATUS EQUAL 6 ADD 1
  TO DEAD-OCCUP22 ( IGROUP ) DEAD-TOTAL ( IGROUP ).
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IF OCCUPATION EQUAL 23 ADD 1 TO OCCUP23-CASE ( IGROUP )
  TOTAL-CASE ( IGROUP ).
IF OCCUPATION EQUAL 23 AND DISCHARGE-STATUS EQUAL 6 ADD 1
 TO DEAD-OCCUP23 ( IGROUP ) DEAD-TOTAL (IGROUP ).
IF OCCUPATION EQUAL 24 ADD 1 TO OCCUP24-CASE ( IGROUP )
  TOTAL-CASE ( IGROUP ).
IF OCCUPATION EQUAL 24 AND DISCHARGE-STATUS EQUAL 6 ADD 1
 TO DEAD-OCCUP24 ( IGROUP ) DEAD-TOTAL ( IGROUP ).
IF OCCUPATION EQUAL 25 ADD 1 TO OCCUP25-CASE ( IGROUP )
  TOTAL-CASE ( IGROUP ).
IF OCCUPATION EQUAL 25 AND DISCHARGE-STATUS EQUAL 6 ADD 1
 TO DEAD-OCCUP25 ( IGROUP ) DEAD-TOTAL ( IGROUP ).
IF OCCUPATION EQUAL 26 ADD 1 TO OCCUP26-CASE ( IGROUP )
  TOTAL-CASE ( IGROUP ).
IF OCCUPATION EQUAL 26 AND DISCHARGE-STATUS EQUAL 6 ADD 1
 TO DEAD-OCCUP26 ( IGROUP ) DEAD-TOTAL ( IGROUP ).
IF OCCUPATION EQUAL 27 ADD 1 TO OCCUP27-CASE ( IGROUP )
  TOTAL-CASE ( IGROUP ).
IF OCCUPATION EQUAL 27 AND DISCHARGE-STATUS EQUAL 6 ADD 1
 TO DEAD-OCCUP27 ( IGROUP ) DEAD-TOTAL ( IGROUP ).
IF OCCUPATION EQUAL 28 ADD 1 TO OCCUP28-CASE ( IGROUP )
  TOTAL-CASE ( IGROUP ).
IF OCCUPATION EQUAL 28 AND DISCHARGE-STATUS EQUAL 6 ADD 1
 TO DEAD-OCCUP28 ( IGROUP ) DEAD-TOTAL ( IGROUP ).
IF OCCUPATION EQUAL 29 ADD 1 TO OCCUP29-CASE ( IGROUP )
  TOTAL-CASE ( IGROUP ).
IF OCCUPATION EQUAL 29 AND DISCHARGE-STATUS EQUAL 6 ADD 1
 TO DEAD-OCCUP29 ( IGROUP ) DEAD-TOTAL ( IGROUP ).
IF OCCUPATION EQUAL 30 ADD 1 TO OCCUP30-CASE ( IGROUP )
  TOTAL-CASE ( IGROUP ).
IF OCCUPATION EQUAL 30 AND DISCHARGE-STATUS EQUAL 6 ADD 1
 TO DEAD-OCCUP30 ( IGROUP ) DEAD-TOTAL ( IGROUP ).
IF OCCUPATION EQUAL 31 ADD 1 TO OCCUP31-CASE ( IGROUP )
  TOTAL-CASE ( IGROUP ).
IF OCCUPATION EQUAL 31 AND DISCHARGE-STATUS EQUAL 6 ADD 1
 TO DEAD-OCCUP31 ( IGROUP ) DEAD-TOTAL ( IGROUP ).
IF OCCUPATION EQUAL 32 ADD 1 TO OCCUP32-CASE ( IGROUP )
  TOTAL-CASE ( IGROUP ).
IF OCCUPATION EQUAL 32 AND DISCHARGE-STATUS EQUAL 6 ADD 1
 TO DEAD-OCCUP32 ( IGROUP ) DEAD-TOTAL ( IGROUP ).
IF OCCUPATION EQUAL 33 ADD 1 TO OCCUP33-CASE ( IGROUP )
 TOTAL-CASE ( IGROUP ).
IF OCCUPATION EQUAL 33 AND DISCHARGE-STATUS EQUAL 6 ADD 1
 TO DEAD-OCCUP33 ( IGROUP ) DEAD-TOTAL ( IGROUP ).
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APPENDIX 9

AHMADU BELLO UNIVERSITY TEACHING HOSPITAL ZARIA
PATIENTS' STATISTICAL REPORT BY OCCUPATION
FOR THE MONTH OF JANUARY 1982

GROUP		MANAGER	ARCH ENGR	APTIST	ATHLETE	ACCOUNTANT	ARTISAN	ATTENDANT	AIRMAN	BUTCHER	CLERGY	CONTRACT	FACTORY	FARMER	HOMEMAKER	JANITOR	JOURNALIST	LABOURER	MENSAGER	NAVALSTAF	NURSE	MEDPRACT	POLICE	PROFETION	PUBOFFICE	PENSIONER	MILITARY	TRAINING	TRANSPORT	WATCHMAN	CLERK	STUDENT	CHILD	UNSPECIFY	TOTAL
001-009	CASES	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	1	0	0	0	0	52	3	60
	DIED	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	1	4
010-018	CASES	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	4	0	7
	DIED	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
020-041	CASES	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	8	0	11
	DIED	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	2
045-079	CASES	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	2	107	1	113
	DIED	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	17	0	17
080-088	CASES	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	3	15	1	20
	DIED	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
090-099	CASES	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	DIED	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
100-139	CASES	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	2
	DIED	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
140-149	CASES	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	DIED	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
150-159	CASES	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	5
	DIED	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
160-165	CASES	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	DIED	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
170-175	CASES	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	DIED	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

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GROUP		MANAGER	ARCH ENGR	APTIST	ATHELETE	ACCOUNTANT	ARTISAN	ATTENDANT	AIRMAN	AUTOMECHANIC	CLERGY	CONTRACTOR	FACTORY	FARMER	HOMEMAKER	JANITOR	JOURNALIST	LABOURER	MESSENGER	NAVAL STAFF	NURSE	MED PRACT	POLICE	PROFESSION	PUBLIC OFFICER	PENSIONER	MILITARY	TRADING	TRANSPORT	WATCHMAN	CLERK	STUDENT	CHILD	UNSPECIFY	TOTAL
179-189	CASES	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	DIED	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
190-199	CASES	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	DIED	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
200-208	CASES	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
	DIED	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
210-229	CASES	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	2
	DIED	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
230-234	CASES	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	DIED	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
235-239	CASES	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	DIED	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
240-259 & 270-279	CASES	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	2	1	7
	DIED	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
260-269	CASES	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	17	0	17
	DIED	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	4
280-289	CASES	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	24	0	30
	DIED	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2
290-319	CASES	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
	DIED	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
320-359	CASES	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	4	24	1	32
	DIED	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	1	9
360-379	CASES	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	3	0	4
	DIED	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

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GROUP		MANAGER	ARCH ENGR	ARTIST	ATHLETE	ACCOUNTANT	ARTISAN	ATTENDANT	AIRMAN	BUTCHER	CLERGY	CONTRACTOR	FACTORY	FARMER	HOMEMAKER	JANITOR	JOURNALIST	LABOURER	MENSAGER	NAVALSTAF	NURSE	MEDPRACT	POLICE	PROFETION	PUBOFFICE	PENSIONER	MILITARY	TRADING	TRANSPORT	WATCHMAN	CLERK	STUDENT	CHILD	UNSPECIFY	TOTAL
380-389	CASES	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
	DIED	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
390-398	CASES	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2
	DIED	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
401-405	CASES	0	0	0	0	0	0	0	0	0	0	0	0	3	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	5
	DIED	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
410-414	CASES	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	DIED	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
415-429	CASES	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	2	0	1	0	2	1	0	10
	DIED	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1	0	4
430-438	CASES	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	0	3
	DIED	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0	2
440-459	CASES	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
	DIED	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
460-465 & 470-479	CASES	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	0	6
	DIED	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
466 & 480-519	CASES	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	5	63	1	72
	DIED	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	9	1	11
520-529	CASES	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	DIED	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
530-579	CASES	0	0	0	0	0	1	0	0	0	0	0	0	2	6	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	5	2	18
	DIED	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	4	1	7
580-599	CASES	0	0	0	0	0	0	0	0	0	0	0	0	1	3	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	2	0	8
	DIED	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	3

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GROUP		MANAGER	ARCH ENGP	ARTIST	ATHELETE	ACOUNTS	ARTISAN	ATTENDANT	AIRMAN	BUTCHER	CLERGY	CONTRACT	FACTORY	FARMER	HOMEMAKER	JANITOR	JOURNALIS	AROUER	MENSAGER	NAVALSTAF	NURSE	MED PRACT	POLICE	PROFETION	PUBOFFICE	PENSIONER	MILITARY	TRADING	TRANSPORT	WATCHMAN	CLERK	STUDENT	CHILD	UNSPECIFY	TOTAL
600-608	CASES	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
	DIED	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
610-629	CASES	0	0	0	0	0	0	0	0	0	0	0	0	0	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	8
	DIED	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
630-639	CASES	0	0	0	0	0	0	0	0	0	0	0	0	0	13	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	14
	DIED	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
640-646 & 651-676	CASES	0	0	0	0	0	2	3	0	0	0	0	0	0	23	0	0	0	0	0	0	0	0	3	0	0	0	10	0	0	0	1	1	3	46
	DIED	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
647 & 648	CASES	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2
	DIED	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
650	CASES	0	0	0	0	0	23	8	0	0	0	0	0	0	180	0	0	0	0	0	4	1	0	30	0	0	0	45	0	0	4	2	0	5	302
	DIED	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
680-709	CASES	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	3	0	5
	DIED	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
710-739	CASES	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	5	1	9
	DIED	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
740-759	CASES	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	7	0	8
	DIED	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
760-779	CASES	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	94	0	96
	DIED	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	29	0	29
780-799	CASES	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	1	24	0	28
	DIED	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	3
800-829	CASES	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
	DIED	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

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GROUP		MANAGER	ARCH ENGR	ARTIST	ATHLETE	ACCOUNTS	ARTISAN	ATTENDANT	AIRMAN	AUTHER	CLERGY	CONTRACT	FACTORY	FARMER	HOMEMAKER	JANITOR	JOURNALIS	LABOURER	MENSAGER	NAVALSTAF	NURSE	MEDPRACT	POLICE	PROFESION	PUBOFFICE	PENSIONER	MILITARY	TRADING	TRANSPORT	WATCHMAN	CLERK	STUDENT	CHILD	UNSPECIFY	TOTAL
830-848	CASES	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	DIED	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
850-869 & 950-957	CASES	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	2
	DIED	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	2
870-904	CASES	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
	DIED	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
930-939	CASES	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	DIED	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
940-949	CASES	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	DIED	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
960-989	CASES	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
	DIED	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
996-999	CASES	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	DIED	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
910-929;958-959;990-995	CASES	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
	DIED	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
905-909	CASES	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	DIED	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
E800-E848	CASES	1	0	0	0	0	3	0	0	0	0	2	0	5	8	0	1	2	0	0	1	0	0	1	0	0	0	6	5	0	0	4	5	6	50
	DIED	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	2	0	0	2	0	2	7
E850-E869	CASES	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20	0	26
	DIED	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
E870-E879	CASES	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0	4
	DIED	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

AHMADU BELLO UNIVERSITY TEACHING HOSPITAL ZARIA
PATIENTS' STATISTICAL REPORT BY OCCUPATION
FOR THE MONTH OF JANUARY 1982

GROUP		MANAGER	ARCH ENGR	ARTIST	ATHLETE	ACCOUNTS	ARTISAN	ATTENDANT	AIRMAN	BUTCHER	CLERGY	CONTRACT	FACTORY	FARMER	HOMEMAKER	JANITOR	JOURNALIS	LABOURER	MENSAGER	NAVALSTAF	NURSE	MED PRACT	POLICE	PROFETION	PUBOFFICE	PENSIONER	MILITARY	TRADING	TRANSPORT	WATCHMAN	CLERK	STUDENT	CHILD	UNSPECIFY	TOTAL
E880-E888	CASES	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	4
	DIED	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
E890-E899	CASES	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	3
	DIED	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
E900-E929	CASES	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	1	0	0	0	2	0	0	0	2	7	0	14
	DIED	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	2
E930-E949	CASES	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2
	DIED	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
E950-E959	CASES	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	DIED	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
E960-E969	CASES	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	2
	DIED	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
E970-E999	CASES	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	2
	DIED	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
V00-V82	CASES	0	0	0	0	0	0	0	0	0	0	0	0	0	13	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	6	0	21
	DIED	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

APPENDIX 10

PROGRAM QUERY


```
IDENTIFICATION DIVISION.
PROGRAM-ID.  HEALTH.
DATE-WRITTEN.  10/10/82.
AUTHOR. E.O.OKORO  M.SC. PROJECT.
REMARKS.
    THIS PROGRAM ACCESSES MEDFL AND PRODUCES
    INTERACTIVE RESPONSE TO REQUESTS ON OCCURENCE
    OF DISEASES FOR A GIVEN MONTH OF A GIVEN YEAR.
ENVIRONMENT DIVISION.
CONFIGURATION SECTION.
SOURCE-COMPUTER.  CYBER72.
OBJECT-COMPUTER.  CYBER72.
SPECIAL-NAMES.
     TERMINAL IS TTY.
INPUT-OUTPUT SECTION.
FILE-CONTROL.
    SELECT MEDFL ASSIGN MEDFL-FZ
       ORGANIZATION IS SEQUENTIAL.
    SELECT INQUIRY ASSIGN INPUT
        ORGANIZATION IS SEQUENTIAL.
    SELECT OUTFL ASSIGN OUTFL-FZ
        ORGANIZATION IS SEQUENTIAL.
DATA DIVISION.
FILE SECTION.
FD  MEDFL
        LABEL RECORDS ARE OMITTED
    RECORD CONTAINS 45 CHARACTERS
        DATA RECORD IS ACTIVE-RECORD.
01  ACTIVE-RECORD.
    02  HOSPITAL-CODE              PIC 9.
    02  SEX                        PIC 9.
    02  FILLER                PIC X(10).
    02  DAY-OF-MONTH               PIC 99.
    02  IMONTH-OF-YEAR              PIC 99.
    02  IYEAR                       PIC 99.
    02  FILLER           PIC X(8).
    02  IDIAGNOSIS-1.
        05 IDIAGN1-PART1            PIC 9(4).
        05 IDIAGN1-LAST             PIC 99.
    02  IDIAGNOSIS-2.
        05 IDIAGN2-PART1            PIC 9(4).
        05 IDIAGN2-LAST             PIC 99.
    02  IDIAGNOSIS-3.
        05 IDIAGN3-PART1            PIC 9(4).
        05 IDIAGN3-LAST             PIC 99.
    02  IDISCHARGE-STATUS           PIC 9.
FD  INQUIRY
    LABEL RECORDS ARE OMITTED
    RECORD CONTAINS 11 CHARACTERS
    DATA RECORD IS QUERY-RECORD.
01  QUERY-RECORD.
    02  HOSPITAL-CODE-NO           PIC 9.
    02  MONTH-OF-INTEREST          PIC 99.
    02  YEAR-OF-INTEREST           PIC 99.
    02  DIAGNOSIS.
        05 ICD-3-DIGIT             PIC 9(4).
```

```
        05 LAST-2-DIGIT          PIC 99.
FD  OUTFL
    LABEL RECORDS ARE OMITTED
    DATA RECORD IS OUT-LINE.
01  OUT-LINE                    PIC X(135).
WORKING-STORAGE SECTION.
77  CASE-TOTAL                  PIC S9(5) COMP VALUE ZERO.
77  DEAD-TOTAL                  PIC S9(5) COMP VALUE ZERO.
77  TEST1           PIC 9 COMP VALUE ZERO.
77  TEST2           PIC 9 COMP VALUE ZERO.
77  TEST3           PIC 9 COMP VALUE ZERO.
01  TEST-FLAG                   PIC XXX.
    88 NO-CODE                  VALUE "NO".
    88 YES-CODE                 VALUE "YES".
    88 SIGN-OFF                 VALUE "BYE".
01  FLAG.
    02  OUT-OF-DATA-FLAG        PIC X VALUE "N".
    88 OUT-OF-DATA              VALUE "Y".
01  CASE-FLAG.
    88  CASE-OK                 VALUE  SPACE.
    02  CASE-NOT-OK             PIC X.
01  LINE-OUT.
    02  TOTAL-CASE          PIC ZZZZ9 VALUE ZERO.
    02  TOTAL-DEAD          PIC ZZZZ9 VALUE ZERO.
    02  FILLER              PIC X(125) VALUE SPACES.
01  W-DATA.
    02  MONTH-OF-YEAR       PIC 99.
    02  YEAR                PIC 99.
    02  DIAGNOSIS-1.
        05 DIAGN1-PART1     PIC 9(4).
        05 DIAGN1-LAST      PIC 99.
    02  DIAGNOSIS-2.
        05 DIAGN2-PART1     PIC 9(4).
        05 DIAGN2-LAST      PIC 99.
    02  DIAGNOSIS-3.
        05 DIAGN3-PART1     PIC 9(4).
        05 DIAGN3-LAST      PIC 99.
    02  DISCHARGE-STATUS    PIC 9.
```

```
PROCEDURE DIVISION.
BEGIN.
    OPEN I-O MEDFL INPUT OUTFL.
HOUSE-KEEPING.
    DISPLAY "COMPUTER-USED MEDICAL RECORD SYSTEM".
    DISPLAY "OF A.B.U. TEACHING HOSPITAL".
    DISPLAY " ".
    DISPLAY "TYPE IN YOUR RESPONSE ONLY AFTER YOUR".
    DISPLAY "HAVE SEEN THE QUESTION MARK".
    DISPLAY " TYPE IN (BYE) WHEN YOU HAVE NO MORE".
    DISPLAY "INQUIRIES TO MAKE".
    PERFORM INQUIRY-BEGIN.
    PERFORM THE-DIGIT-CHECK.
    PERFORM RESULT-OUT.
    STOP RUN.
INQUIRY-BEGIN.
    DISPLAY "ENTER YOUR MONTH OF INTEREST".
    DISPLAY "E.G. 01 FOR JANUARY 11 FOR NOVEMBER".
    ACCEPT MONTH-OF-INTEREST FROM TTY.
    DISPLAY "ENTER YOUR YEAR OF INTEREST E.G. 81 FOR 1981".
    ACCEPT YEAR-OF-INTEREST FROM TTY.
    MOVE ZERO TO DIAGNOSIS.
THE-DIGIT-CHECK.
    DISPLAY "DO YOU WANT INFORMATION BASED ON THE".
    DISPLAY "ICO 3-DIGIT CLASSIFICATION?".
    DISPLAY "ENTER (YES) OR (NO)".
    ACCEPT TEST-FLAG FROM TTY.
    IF YES-CODE
    DISPLAY "ENTER THE CODE"
    DISPLAY "E.G. 650 AS 0650 E420 AS 2420"
    ACCEPT ICO-3-DIGIT FROM TTY
    PERFORM THREE-DIGIT-ROUTINE
    UNTIL OUT-OF-DATA-FLAG = "Y"
       ELSE
     PERFORM NO-ROUTINE.
NO-ROUTINE.
    IF NO-CODE
    DISPLAY "DO YOU NEED FOR 5-DIGIT CLASSIFICATION".
    ACCEPT TEST-FLAG FROM TTY.
    IF YES-CODE
    DISPLAY " ENTER THE CODE"
    DISPLAY "OMIT THE DECIMAL POINT"
    DISPLAY " E.G. 440.11 AS 0440110 E443.20 AS 2443200"
    ACCEPT DIAGNOSIS FROM TTY
     PERFORM FIVE-DIGIT-ROUTINE
    UNTIL OUT-OF-DATA-FLAG = "Y"
       ELSE
    DISPLAY "INSUFFICIENT OR MISLEADING INFORMATION"
    DISPLAY "RUN TERMINATED"
    CLOSE MEDFL INQUIRY OUTFL.
THREE-DIGIT-ROUTINE.
    READ MEDFL AT END MOVE "Y" TO OUT-OF-DATA-FLAG.
     MOVE SPACE TO CASE-FLAG.
    MOVE ZERO TO TEST1 TEST2 TEST3.
    MOVE MONTH-OF-YEAR TO MONTH-OF-YEAR.
```

```
           MOVE IDIAGNOSIS-1 TO DIAGNOSIS-1.
           MOVE IDIAGNOSIS-2 TO DIAGNOSIS-2.
           MOVE IDIAGNOSIS-3 TO DIAGNOSIS-3.
           MOVE IDISCHARGE-STATUS TO DISCHARGE-STATUS.
           IF  MONTH-OF-INTEREST  EQUAL MONTH-OF-YEAR AND
           YEAR-OF-INTEREST  EQUAL YEAR  MOVE 1 TO TEST1.
          IF  ICD-3-DIGIT EQUAL DIAGN1-PART1 DIAGN2-PART1 OR
           DIAGN3-PART1  MOVE 1 TO TEST2.
           IF DISCHARGE-STATUS EQUAL 6 MOVE 1 TO TEST3.
           IF TEST1 EQUAL 1 AND TEST2 EQUAL 1 AND TEST3 EQUAL 1
              ADD 1 TO CASE-TOTAL DEAD-TOTAL.
           IF TEST1 EQUAL 1 AND TEST2 EQUAL 1 AND TEST3 NOT EQUAL 1
               ADD 1 TO CASE-TOTAL.
            MOVE ZERO TO TEST1 TEST2 TEST3.
       FIVE-DIGIT-ROUTINE.
           READ MEDFL AT END MOVE "Y" TO OUT-OF-DATA-FLAG.
           MOVE SPACES TO CASE-FLAG.
           MOVE ZERO TO TEST1 TEST2 TEST3.
           MOVE IMONTH-OF-YEAR TO MONTH-OF-YEAR.
           MOVE IYEAR TO YEAR.
           MOVE IDIAGNOSIS-1 TO DIAGNOSIS-1.
           MOVE IDIAGNOSIS-2 TO DIAGNOSIS-2.
           MOVE IDIAGNOSIS-3 TO DIAGNOSIS-3.
           MOVE IDISCHARGE-STATUS TO DISCHARGE-STATUS.
           IF DIAGNOSIS EQUAL DIAGNOSIS-1 DIAGNOSIS-2
           OR DIAGNOSIS-3 MOVE 1 TO TEST2.
           IF MONTH-OF-INTEREST EQUAL MONTH-OF-YEAR AND
           YEAR-OF-INTEREST EQUAL YEAR MOVE 1 TO TEST1.
           IF DISCHARGE-STATUS EQUAL 6 MOVE 1 TO TEST3.
           IF TEST1 EQUAL 1 AND TEST2 EQUAL 1 AND TEST3 EQUAL 1
              ADD 1 TO CASE-TOTAL DEAD-TOTAL.
           IF TEST1 EQUAL 1 AND TEST2 EQUAL 1 AND TEST3 NOT EQUAL 1
              ADD 1 TO CASE-TOTAL.
           MOVE ZERO TO TEST1 TEST2 TEST3.
       RESULT-OUT.
          MOVE CASE-TOTAL TO TOTAL-CASE.
           MOVE DEAD-TOTAL TO TOTAL-DEAD.
           DISPLAY "TOTAL NUMBER OF THE CASE OF YOUR INTEREST IS"
           DISPLAY TOTAL-CASE.
           DISPLAY "TOTAL NUMBER OF DEATHS IS".
           DISPLAY TOTAL-DEAD.
           MOVE ZERO TO CASE-TOTAL DEAD-TOTAL.
           MOVE ZERO TO TOTAL-CASE TOTAL-DEAD.
           CLOSE MEDFL INQUIRY OUTFL.
           DISPLAY "ANY MORE INQUIRY?".
           DISPLAY "ENTER (YES) OR (NO)".
           ACCEPT TEST-FLAG FROM TTY.
           IF NO-CODE PERFORM COURTESY
              ELSE
           MOVE "N" TO OUT-OF-DATA-FLAG
           OPEN INPUT MEDFL INQUIRY OUTPUT OUTFL
           PERFORM INQUIRY-BEGIN THRU THE-DIGIT-CHECK
           PERFORM RESULT-OUT.
       COURTESY.
           DISPLAY "THANKS FOR TODAY".
H IS  001101
USED
```

APPENDIX 11

AHMADU BELLO UNIVERSITY TEACHING HOSPITAL, ZARIA

IN-PATIENTS' MEDICAL RECORD
ADDITIONAL CODING INSTRUCTIONS

COLUMN	VARIABLE NAME	VALUE
1	Hospital Code (HC)	1 Kaduna 2 Malunfashi 3 Zaria
30 - 35	Date of Birth	DDMMYY
51 - 55	Age	YYYMM
179- 184	Date Admitted	DDMMYY
185- 186	Ward/Specialty	01 Medical 02 Surgical 03 Ophthalmology 04 Obs. & Gynae 05 Paediatrics 06 Orthopaedic
230 - 243	Previous Diagn. Codes	2 (9999.99)
267 - 286	Operation Codes	4 (999.9)
287 - 296	Surgeons' Code	2 (999.9)
297 - 302	Date Discharged	DDMMYY
303 - 305	Length of Stay	[illegible]
306 - 326	Diagnostic Codes	3 (9999.99)
328 - 333	Date of Death	DDMMYY
334	Autopsy	1 Yes 2 No

AGE

Age should be coded as follows:

3 Month old child	00003
11 Month old child	00011
65 Year old adult	06500
105 Year old adult	10500

Coding of Diagnosis

N should be coded as 1. Disease 982.20 with N should be coded as 1982.20

E should be coded as 2. Disease 982.20 with E should be coded as 2982.20

V or Y should be coded as 99. Disease 80.00 with Y or V should be coded as 9980.00

A disease column must be completely filled e.g. | 0 | 7 | 8 | 0 | . | 2 | 0 | for a disease 780.20 without E,N,Y, or V preffixes.

State Codes

01	Anambra	02	Bauchi
03	Bendel	04	Benue
05	Borno	06	Cross River
07	Gongola	08	Imo
09	Kaduna	10	Kano
11	Kwara	12	Lagos
13	Niger	14	Ogun
15	Ondo	16	Oyo
17	Plateau	18	Rivers
19	Sokoto	20	Federal Capital Territory
21	Non - Nigeria		

Occupation Codes

01	Administrator/Manager	16	Journalist
02	Architect/Engineer	17	Labourer
03	Artist	18	Messenger
04	Athelete - Professional	19	Naval Personnal
05	Accountants/Auditors	20	Nurse
06	Artisan	21	Melical Practitioner
07	Attendants/Interpreters	22	Police
08	Airman/Air force Personnel Butchers	23	Professionals
09	Butchers	24	Public Office Elective
10	Clergy	25	Pensioneers
11	Contractors	26	Minitary Personnel
12	Factory Worker	27	Trading
13	Farmer	28	Transport Worker
14	Home maker/House wife	29	Watchman
		30	Clerks
		31	Students
		32	Child
		33	Unspecified

Admission Code

1 Out-Patient Admission

2 Admission from Consultative out-patient clinices

3 Emergency admission

4 Admission from other hospital

Discharged Status

1 Cured
2 Improved
3 Not Improved
4 Transferred to other Hospital or Unit
5 Abscounded
6 Died