

**COMPUTERIZATION OF MEDICAL
RECORD SYSTEM**

(A CASE STUDY OF SPECIALIST HOSPITAL KABBA)

BY

AKANMIDU CHRISTIE FOLUKE

PGD/MCS/2000/2001/1078

**DEPARTMENT OF MATHEMATICAL /
COMPUTER SCIENCE,
FEDERAL UNIVERSITY OF
TECHNOLOGY, MINNA**

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project submitted to the Department of Mathematics/Computer Science, Federal University of Technology, Minna. In partial fulfillment of the requirement for the award of the Postgraduate Diploma in Computer Science.

NOVEMBER 2004.

DEDICATION

I dedicate the piece of work to God Almighty through Jesus Christ my redeemer and my late sweet daddy Mr. Samuel Olorunshola Akanmidu (who is also fondly known as Teacher and Mr. S.O)

CERTIFICATION

This project work has been read and certified by the undersigned as meeting the requirement of the department of Mathematics/Computer Science, Federal University of Technology Minna.

Dr. Y. M. Aiyesimi
Project Supervisor

DATE

Mr. L.N Ezeako
Head of Department

DATE

External Examiner

DATE

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ABSTRACT

Specialist Hospital Kabba like any other organisation in the recent times have been battling with problems of in efficiency in handling their medical records. Having considered the importance of Medical Records Management in a health sector this write-up therefore focuses its attention on having a new system that is very effective and could help in speeding-up, recording, sorting and retrieving information with a minimal effort. This effort will be achieved using an effective and efficient programming language the database management system IV (Dbase IV).

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CHAPTER ONE

INTRODUCTION

MEDICAL RECORDS

MEDICAL RECORD HISTORICAL BACKGROUND: The history of Medical Record is dated back to as far as the history of medicine itself, then records of patients were maintained on graven stones, walls and parchments. Medical Records thus form the pivot on which good medical care rotates because of its nature.

MEDICAL RECORD AS DEFINED: It is a document that contains the complaints of patient, the diagnosis that warrant treatment and the end result. It is a document that contains the privileged information obtained by health care giver while acting on professional capacity; thus it becomes a legal document. Medical record must contain enough information to justify the diagnosis, treatment and the outcome or end result. Medical record as a document contains important information, which does not only aid diagnosis of specific case, but could aid in diagnosis/treatment of other cases.

The importance of Medical Record to the patients, the health care workers, the hospital Administrator, educationist, researchers, students, public can not be overemphasized. Medical records to the patient facilitate the continuity of his/her treatment. It also aid the doctors in diagnosis because of diversified information it contains e.g. Laboratory reports, drug administration reports etc.

It is said "Medical care giver forgets but medical records remembers", number of patients seen by any health care giver (Doctors, Health records managers, Nurses etc) are many and because human memory is limited they do not remember all the care given to a particular patient but medical records which contains all that was done for a patient reminds them.

Medical record serves as a medium of communication among the various health care givers. Medical care is a teamwork so more than an individual medical care giver or professionals attend to a patient at a time. Without medical record there will be no link among these various persons or fields.

Medical records also help both patient and the hospital in litigation matters e.g. patients can claim damages from employer, insurance company, plaintiff and etc using medical records as evidence. Hospital falls back on medical records as evidence when sued to court.

Medical revolutions/discovery pivot on medical research, which depend indispensably on medical records. No development or innovation is by divination, all depend on data. From the statistical data compiled via medical records, planning, development, innovation and etc evolves. The health of the public by and large swing grossly on government policies, infrastructure etc, which depend on the data, gathered via medical records.

It is imperative that a good medical records system will not only enhance hospitalized patient care but the public health via the various statistics computed to aid government in planning.

1.2 OBJECTIVE OF STUDY

To exploit computer usage in health information management thus:

1. Storage of health information, which can not be stored on paper for a very long duration due to wear/tear, cost implication and manpower.
2. To increase timeliness in Medicare delivery.
3. To enhance easy and accurate data compilation, analysis and health information dissemination.
4. For more effective and efficient medical records management system.

1.3 SCOPE OF THE STUDY

This study is limited to functional procedures of health records department of hospital.

1.4 DEFINITION OF TERMS

Medical Records library: This is where patients records are kept for future use.

Consulting Room: This is where patients consult with the doctors.

Ward: A place where patients are kept on beds in the hospital while receiving medicare till they are discharged.

Theatre: A place where operation procedures are carried out on patients that needs it.

Laboratory: Where all medical investigations are carried out to enable physicians arrive at patients' diagnosis.

Health care giver or Medical care provider: The various professionals in the hospital that attend to patient e.g. Health record manager, Nurses, Doctors, pharmacists, laboratory scientist etc.

Data: Raw facts collected in relation to hospital utilization.

CHAPTER TWO

2.0. COMPUTERIZED MEDICAL RECORDS MANAGEMENT

The medical world is not left out of the scientific invention/growth that characterized other aspect of life. Today, computers are used in diagnosing patient health problems, e.g. Analog and Digital computers are being used in hospitals to read electrocardiogram. Systems have been developed in the purchasing and pharmacy department for inventory control as well as accounting procedures, computer is used in laboratories to run blood, urine and etc tests.

The objective of the high computerized approach to medical record keeping is to plan, develop and maintain a record system aimed at efficient patient care to assist the medical staff and the hospital administration in evaluating the quantity and quality of patient care, to collect, collate, analyze patient care data, to develop policies and procedures for legal uses of medical records and further to provide consultancy services to various type of health facilities and research projects.

2.1 WHY COMPUTERIZED MEDICAL INFORMATION

1. The speed at which computer perform tasks can not be compared with manually performed tasks, timeliness in compiling patients personal data, health information, storage and retrieval of same by the health records officer goes along way in the healing process of patient, this is because health records department occupying the first place of patients' contact with the hospital gives the first impression of what patients should expect in their health care package. Poor or inadequate management of patients' records could make patient to psychologically become indifferent to other healthcare e.g. drug administration, this is

because the longer the waiting time of patient before being attended to could bring about breach of confidence.

2. Considering the volume of patient health information that the health Records department of an hospital is left with to keep, space to accommodate these growing Records becomes a major problem coupled with the fact that these information can not be destroyed at will because of it legal, research and training inclination. With the large volume of data that computer have the capability of storing, introducing or managing patients records with computer solves that challenge.
3. Computer linked medical records would also enhance medical research and evaluation because adequate medical record linkage system permit quick availability of all medical data needed at all times. It also provides important information in the study of environmental hazard in relation to diseases and therefore enhances epidemiological research in investigating the root causes of diseases in the society.
4. Statistical analysis of hospital activities as done periodically by Health Records Department becomes easier and error (human limitations) proof and timely done so that plans for present and future can be made by the hospital management.
5. The cost implication of record management will be low because it is heavy without computer.

2.2 THE PRESENT METHOD OF STORAGE OF HEALTH RECORDS IN HOSPITAL

2.3 INITIATION OF PATIENTS RECORDS

On the first day of patients' visit to the hospital they are documented (all their personal identification data) on hospital register and card, they are

given hospital number, this serve as their personal reference to their records in their subsequent visits. No two person is given the same number. All patients' health information are retained on the record from day one till they are dead or stop coming or get well. If patients are kept on hospital bed a file jacket called folder is opened (by Records Dept) inside which all written information, investigation forms are kept till patient is discharged, then folders are filed.

2.4 METHOD OF STORAGE

These records be it card or folder are filed on shelves using the hospital number. The filing could be done straight numerically – i.e. 1 2 3, chronologically i.e. filed as patient comes, and other complicated ways e.g terminal or middle digit filing. Whichever filing system is going to be used is dependent on the size of the hospital. A big hospital may not readily yield to straight numerical or chronological filing system.

2.5 ALPHABETIC NAME INDEX AND TRACER CARD

Each patient at point of documentation is provided with an Alphabetic Name index card, this card serve as hospital reference should a patient lost his reference card. These Alphabetic Name index are filed alphabetically. To monitor the movement of patients' records in the hospital, a tracer card is opened for each folder which are filed inside folder on the shelve and removed from folder and filed on shelve should the folder be called for, where ever the folder is going is indicated on the tracer card with date.

2.6 RECORD MANAGEMENT

Today, there are many ways and methods of regulating the volume of records which are usually destroyed because the information are either

duplicated or changed due to changes in law and regulations, business practice and the need of the user.

The system of controlling these records is known as record management. The available system and techniques needed to support information retention and not retrieval and optional level are being used to any large degree. This is supported by current estimate that 55% of all records currently retained are valueless and costly to maintain. Due to this, a highly sophisticated system which could collect, evaluate, store, remove, reproduce and reference information through mechanization and automation was developed. However, it is entirely possible to achieve a dramatic reduction in cost without employing elaborate and expensive equipment and methods. The adoption of some of the most elementary concepts and techniques of record management will result in the number of idle records being processed and stored in order to provide easier and accurate records in the identification of essential records.

2.7 THE BASIC OBJECTIVES OF RECORD MANAGEMENT

The basic objectives of record management program enable the following concepts of relevance, self-improvement and custodianship.

- (1). The program must provide every level of organisational activities with the most accurate and visible information timely and in an understandable manner with expressed needs at a cost level.
- (2) Increase the productivity of the administration functions through the identification and addition of improved and responsive system, techniques and equipment, which enlarge information potential, reduce records and files requirement, expand dissemination capability and effect cost-savings.

- (3) Protect the organisation's assets by preserving essential and valuable information vital to the continuance of profitable activity interposing meaningful control over the flow of records and safeguarding them against physical hazard, sabotage business espionage.

Successful attainment of the stated objectives depend largely upon the competence and communication skills of the of record management professionals. It is their ability to understand and be relevant to the needs of management at every significant level that will determine the extent to which they enjoy the confidence and support vital to their work.

2.8 COMPONENTS OF A RECORD MANAGEMENT PROGRAM

The components of a record management program consists of the following:-

- (a). Control (b). Evaluation (c). Simplification (d). Education
(e) management (f) Review

At the onset, control is established to isolate and enumerate all major elements of information flowing through the information network. Control is exercised to ensure compliance with the practice and procedure of the modified of record management system.

Evaluation involves measuring the validity and effectiveness of information flow before and after modification examining the relevance of the information generated and stored and the flexibility of the of record management system to provide for future needs.

The simplification process consists of restructuring the network design and content, eliminating waste and confusion and establishing clarity and efficiency through the application of valid techniques and principles. The

information network, which finally emerged, must also be subjected to the scrutiny of the simplification function.

Education is a continuing function requiring instruction, demonstration and practice of the new programs before implementation and afterwards as reinforcement technique coordinating the deployment of authorized personnel armed with specific procedure, with which to create, process, store, retrieve and destroy record under the supervision this constitute the implementation function. Hence, implementation requires active participation by of record management professional. Review requires monitoring the program immediately after active professional participation is withdrawn and at predetermined gradually longer interval after which accuracy, reliability, validity and relevance are tested.

2.9 FILING SYSTEM

A filing system can be described as a set of document arranged in a prescribed order for convenience of reference and preservation.

Careful thought is needed in determining a system of filing. In all cases, local condition and problems are examined to decide on the most appropriate system to be used. But in any case a record with similar characteristics will be filed together.

The main method of classifying files are Alphabetic, Numerical, Geometrical, subject, chronological or combination of all these. The filing method commonly used is vertical filing. In this method, documents are filed behind each other. This could be on edge or may be in pockets individually suspended.

The vertical filing method include:

- (a). Open-shelf filing in which the folders are on shelves. This is quicker and more compact.

- (b). Roll-out filing in which drawer roll out side ways exposing all records in half the aisle space required by the vertical drawer files.
- (c). Horizontal filings used for storing papers such as map or drawings in flat position on top of each other.
- (d). Lateral filing consists of suspended files with the end of each file in view which bear the index strip.

These filing methods mentioned above are commonly used in most organisations today. These methods are rather cumbersome compared to the recent technological method of keeping records via the computers. An effective filing system should contain the following characteristics:

- (a). The operation involved should be simple to ensure that the method is understood by those who normally controls or and also by those who may require occasional access.
- (b). It should provide a method of classification.
- (c). It should be compact so as to take account of the value and cost for storage space and also need to reduce effort in working in the system.
- (d). There should be economy in the cost of operation and installation.
- (e). It should provide cross-referencing facilities when required.
- (f). It should be accessible for speedy location and for positive means of identifying the items contained in the system.
- (g). It should provide a form of elasticity or expansion and contract according to future requirements.

3.3. FEASIBILITY STUDY

This is an important stage in developing a system. The feasibility study looks at the system's present situation, consider the existing problems and brings out alternative ways to doing the job. This is done by gathering and interpreting facts in order to determine the understandability of a system so as to answer the problem presented. The outcome of

CHAPTER THREE

3.0 SYSTEM ANALYSIS AND DESIGN

3.1 INTRODUCTION

The need for system analysis and design can not be overemphasized this is because wherever new design is going to be employed depend solely on the information gathered at this stage. System analysis and design have to do with analysing the existing system and its limitations, which will now assist in designing new system.

3.2 IDENTIFICATION OF PROBLEM

The health Records Department of a Health Centre has the responsibilities of creating, storing and retrieving patients' records as and when needed.

The problems faced in the process of discharging these duties include:

- (1). Lack of facilities that could hold information on these records for research, evaluation and teachings when they have outgrown their legal age and are to be destroyed.
- (2). Time wastage at the pointing of creating the records, storing and retrieving same.
- (3). Space constraints.

3.3 FEASIBILITY STUDY

This is one important stage in developing a system. The feasibility study looks at the system presently in operation, considers the existing problems and brings out the alternative ways to doing the job. This is done by gathering and interpreting facts in order to develop a proper understanding of a system so as to diagnose the problems associated with it. The outcome of

This feasibility study is used to determine what must be done to solve the problems of the existing system. The existing system was manually carried out.

4 TRIAL OF THE FEASIBILITY STUDY.

The feasibility study carried out is tested. This can be done in number of ways:

- 1). Operational feasibility.
- 2). Technical feasibility.
- 3). Economic feasibility.

OPERATIONAL FEASIBILITY

This is done with testing the proposed system to see that it answers the problems arising from mode of operation employed in the previous system. In this case patients health information are manually operated from the point of creating to storage point previously which automation is being considered for timeliness, because of its speed and ease.

TECHNICAL FEASIBILITY

The feasibility study so done is tried to see that the technical problems that were faced in the previous system would be taken care of in the new one. For instance, meeting the equipment needs as required by the operations.

ECONOMIC FEASIBILITY

This is an aspect that deals with the cost implications of the new system proposed.

3.5 CHARACTERISTICS OF MEDICAL RECORDS.

For the medical record to be of any value, it must possess some certain characteristics thus a good medical record must:

1. Be readable and able to be understood by any one likely to use to.
2. Be accurate, concise and reasonable in its organisation.

3. Identify clearly the patient about whom it is written i.e. his full name, hospital number assigned, address and other vital information.
4. Be consistent in the layout and size of the paper used.
5. Be promptly retrievable when required.

3.6 RULES GUIDING MOVEMENT OF RECORD

Records are the “soul” of every organisation. Improper control and adequate guide of records can render or even “kill” an organisation. In medical line, record keeping needs to follow certain guidelines for its efficient, effective and smooth running of the hospital.

The rules guiding movement of files in an area include:

1. No record can be removed from file without being replaced with a tracer card.
2. All records are suppose to be returned at the close of each day
3. Records are also not allowed to be removed from the filing facility except under the supervision of superior officer.
4. Records with the form covers and loose paper are replaced promptly to prevent further damages or loss of valuable information.
5. Filing personnel are fully responsible for keeping the shelves neat and tidy. Disorderly files increase likelihood of misfiling.

3.7 HIGHLIGHTS OF THE PROBLEMS OF EXISTING SYSTEM.

These are the cogent problems faced with present manual system.

1. Duplication of Hospital number due to pressure from workload.
2. Time and energy wastage at the point of retrieval of patients’ records.
3. Space constraints.

3 COST AND BENEFITS ANALYSIS OF THE PROBLEMS SYSTEM

A). DEVELOPMENT COST

N K

System Analysis and design for 2 weeks	30,000 : 00
Software implementation	10,000 : 00
Printers	35,000 : 00
UPS/stabilizer	30,000 : 00
Purchase of computers (2)	120,000 : 00
Installation	15,000 : 00
Training of personnel (2 officers for 3 weeks)	60,000 : 00
Miscellaneous	5,000 : 00
Total	<u>445,000 : 00</u>

B). OPERATING COST

Suppliers for 6 months	40,000 : 00
Maintenance (Equipment/program)	30,600 : 00
Utilities	16,000 : 00
1 A/C (21/2Hp)	85,000 : 00
Labour	10,000 : 00
Miscellaneous expenses	8,000 : 00
Total	<u>189,000 : 00</u>

GRAND TOTAL

N 625,000 : 00

3.9. BENEFITS OF THE PROPOSED SYSTEM.

1. **Timeliness:** Patients' waiting time will be shortened
2. **Spaces:** Problems of space to accommodate both active and inactive health records are solved.
3. No hospital Number duplication.
4. Retrieval of health information is made easy.

CHAPTER FOUR

4.0 SOFTWARE PROGRAM DEVELOPMENT

4.1 INTRODUCTION:

Software are basically programme. Without the software, the hardware can not be put into effective use. To develop an enduring system, certain stages of development are planned, structured and implemented.

4.2 CHOICE OF PROGRAMMING LANGUAGE

The language used in programming is Database Management system V (Dbase IV).

A Database management system (DBMS) is software that constructs, expands and maintains the data contained in database. It provides the interface between the user and the data in such a way that it enable the user to record, organize, select, report or and otherwise manage data contained in the database.

A database can be defined as a mechanized shared and centrally controlling collection of data used in an organisation. It is any collection of useful information organized in a systematic and consistent manner. A database can also be regarded as an organised database were the data are stored.

4.3 FEATURES OF LANGUAGE CHOSEN

Dbase IV was designed by Ashton Tate. It is an advance version of Dbase that provides a full relational Database users. It has a control centre were one can design database, manipulate, edit records and files and generate report. The feature include:

1. **Security:** Data will be protected from unauthorised users.

2. **Data integration:** This enable two or more application to be sharing compatible data thereby allowing the users to gain valuable information by linking data across the organisation.
3. **Data Redundancy:** This is reduced or totally eliminated. Redundancy occurs in a file processing system when data can not be arranged to suit all the applications programs accessing these data.
4. **Data Independence:** This seeks to allow for changes in the content and organisation of physical data without reprogramming of application, and to allow modification to application programs without organising the physical data.

4.4. **HARDWARE/SOFTWARE REQUIREMENTS**

4.5. **HARDWARE REQUIREMENTS**

Two Microcomputers of not less than a Pentium microprocessor with a minimum Ram of 16 MB and a speed of about 166 (Megahertz). One of the computers should posses hardware disk capacity of about 1.7Gb and a floppy disk drive unit providing for 3.5 inches diskette. The other one can posses a less configuration in terms of speed and Ram capacity.

A printer of neat letter quality feature and speed of about 1200 lines per minute with a maximum width of 132 characters per line is recommended. Specifically an Epson printer, LQ2170 is recommended. In addition, a Laser Jet Printer of 5L or 6L is also recommended. Also a Ups/Stabilizer is recommended.

4.6. **SOFTWARE REQUIREMENT**

- ◆ Dbase IV
- ◆ Word perfect 6.5 or above.
- ◆ PageMaker

4.7. CHANGE-OVER PROCEDURE

This entails the shifting from the old system to the new system, it is also known as system conversion. There are three methods of changeover procedures namely:

1. **Parallel method:** In this method, the old system and the new system are run currently. Their outputs are being compared and reasons for difference resolved, until the new system has proved satisfactory.

2. **Direct method:** This is the total replacement of the old system with the new one. The old one is kept aside in the event of failure of the new system. The organisation can easily revert to the old system.

3. **Pilot Changeover:** This is the variation of either of the two methods. For the proposed system, the parallel method is recommended for the hospital. This allowed the result of the old system to be compared with the new system.

4.8. POST-IMPLEMENTATION REVIEW

This is the effort of the user in getting the new system into operation after the system has been installed.

The most fundamental concern during post implementation review is determined whether the system has met its objectives. The system has to be re-examined to make sure that it is working well.

4.9. MAINTAINANCE

Like any other electronics, the computer and its program need to be checked to assess the quality of its work for the purpose of this project, the developer will maintain the software.

4.10. TRAINING

The staffs need to be trained on how to use the system. This is essential for the records department. The training required for the personnel is in terms of using application packages. Specially, the personnel are expected to be trained on the following:

- ◆ Dbase IV
- ◆ Word perfect.

The training in the Dbase is to enable the personnel carry out little maintenance on the software developed. The word perfect is expected to be used for preparation of official document. In addition, the personnel in the department and where chances permit from other departments in the hospital should be properly trained on how to use the propose system. This is important so as to avoid unexpected problems while using the system.

4.11 SPECIFICATION

This shall be viewed visa-vis the input specification and out put specification.

4.12 INPUT SPECIFICATION

The data to be input into the computer are clearly stated. These data includes:

- a. Date
- b. Hospital Number
- c. Surname
- d. Other names
- e. Sex
- f. Age
- g. Marital status

- . Date of birth
- Occupation
- Address
- . Tribe
- . Name of Next of Kin
- n. Relationship

4.13 OUTPUT SPECIFICATION

This has to do with what is expected to come out as result from the new system.

- Individual Patients Records
- List of Registered Patients within specified period
- List of Registered Patient by sex.

CHAPTER FIVE

5.0 SUMMARY AND RECOMMENDATION

During the course of this study it was discovered that Health Records Management is faced with diverse challenges such as space constraint, large volume of work and cumbersome manual method of handling the patients' Health Records. However, with the introduction of computer application in Records keeping all these challenges are removed.

RECOMMENDATION

- ❖ The need to ensure that patient are not kept longer than necessary must be aimed at as such the new system will ensure timeliness
- ❖ Staff members of Health Records Dept. should be given adequate training and re-training opportunity in the use of computer.
- ❖ In the future more terminals could be bought and installed at other key sections in Records Dept.

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MAINSTE. PRG

```
Set Status off
Set talk off
n = 0
Set color to
Set color to b / g , w / n
do while n <= 50
@8 , 5 to 20 , 70 double
@10 , 8 say "THIS SOFTWARE WOULD ALLOW YOU TO ENTER DATA FOR PARIENTS"
@12 , 10 SAY "THAT ARE ADMITTED INTO THE VARIOUS WARDS AT"
@14 , 17 SAY "THE HOSPITAL"
@16 , 20 SAY " YOU are welcome for your working session pls"
@18 , 30 SAY " Wait ..... "
n = n+1
end do
clea
do while .t.
store space (5) to pass
@8 , 6 to 12 , 70 double
@10 , 10 say "please, type in your password and press enter key"
@23 , 10 say " "
set colo to n
accept " " to pass
clea
set colo to B / G , W / N
if upper (pass) = "Folu"
do stma
else
store space (5) to pass
@8 , 6 to 12 , 70 double
@10 , 10 say "wrong password, try again and press enter key"
@23 , 10 say " "
set colo to n
accept " " to pass
clea
set colo to B / G , W / N
if upper (pass) = "Folu"
Do Stma
ELSE
SET COLO TO B / G , W / N
@8 , 6 To 16 , 70 DOUBLE
@10 , 12 SAY "You don't have the right permission to use this"
@12 , 28 say "Software please."
@14 , 10 say "Press any key and don't illegally use this software again."
Read
Clea
Endif
Exit
Enddo
Return
```

STMA. PRG

```
Set talk off
Set status off
Set color to
Do while .T.
Set colo to b / g , gw / n
Store 0 to ans
@2 , 2 to 24 , 79 double
@4 , 4 say "pls, choose a no corresponding to one of the operations stated bellow" get ans pict "9"
@8 , 4 say "1 Female Medical Ward operations"
@10 , 4 say "2 Male Medical Ward"
@12 , 4 say "3 A / E Ward operation"
@14 , 4 say "4 Male Surgical Ward"
@16 , 4 say "5 Female Surgical Ward Operation"
@18 , 4 say "6 Peadiatric Ward Operation"
@20 , 4 say "7 Gyneacology Ward Operation"
@22 , 4 say "8 Return to dot prompt"
Read
Clea
Do case
Case Ans = 1
Use FMW
Set colo to b / gw , w / g
@1 , 7 to 7 , 75 double
@3 , 14 say " THIS FORMAT WOULD ALLOW YOU TO ENTER DATA FOR PATIENTS"
@5 , 29 SAY " AT FEMALE MEDICAL WARD"
@23 , 38 say "press any key to continue please ....."
read
@23 , 28 say space (38)
Do Ste
Case ans = 2
Use MMW
Set colo to b / gw , w / g
@1 , 7 to 7 , 75 double
@3 , 14 say " THIS FORMAT WOULD ALLOW YOU TO ENTER DATA FOR PATIENTS"
@5 , 29 SAY " AT MALE MEDICAL WARD"
@23 , 38 say "press any key to continue please ....."
read
@23 , 28 say space (38)
Do Ste
Case ans = 3
Use AEW
Set colo to b / gw , w / g
@1 , 7 to 7 , 75 double
@3 , 14 say " THIS FORMAT WOULD ALLOW YOU TO ENTER DATA FOR PATIENTS"
@5 , 29 SAY " AT AE WARD"
@23 , 38 say "press any key to continue please ....."
read
@23 , 28 say space (38)
Do Ste
Case ans = 4
```

Use MSW

Set colo to b / gw , w / g

@1 , 7 to 7 , 75 double

@3 , 14 say " THIS FORMAT WOULD ALLOW YOU TO ENTER DATA FOR PATIENTS"

@5 , 29 SAY " AT MALE SURGICAL WARD"

@23 , 38 say "press any key to continue please"

read

@23 , 28 say space (38)

Do Ste

Case ans = 5

Use FSW

Set colo to b / gw , w / g

@3 , 14 say " THIS FORMAT WOULD ALLOW YOU TO ENTER DATA FOR PATIENTS"

@5 , 29 SAY " AT FEMALE SURGICAL WARD"

@23 , 38 say "press any key to continue please"

read

@23 , 28 say space (38)

Do Ste

Case ans = 6

Use PW

Set colo to b / gw , w / g

@3 , 14 say " THIS FORMAT WOULD ALLOW YOU TO ENTER DATA FOR PATIENTS"

@5 , 29 SAY " AT PAEDIATRIC WARD"

@23 , 38 say "press any key to continue please"

read

@23 , 28 say space (38)

Do Ste

Case ans = 7

Use GW

Set colo to b / gw , w / g

@3 , 14 say " THIS FORMAT WOULD ALLOW YOU TO ENTER DATA FOR PATIENTS"

@5 , 29 SAY " AT GYNEACOLOGY WARD"

@23 , 38 say "press any key to continue please"

read

@23 , 28 say space (38)

Do Ste

Case ans = 8

Exit

Otherwise

Loop

Endcase

Enddo

Clea

Close database

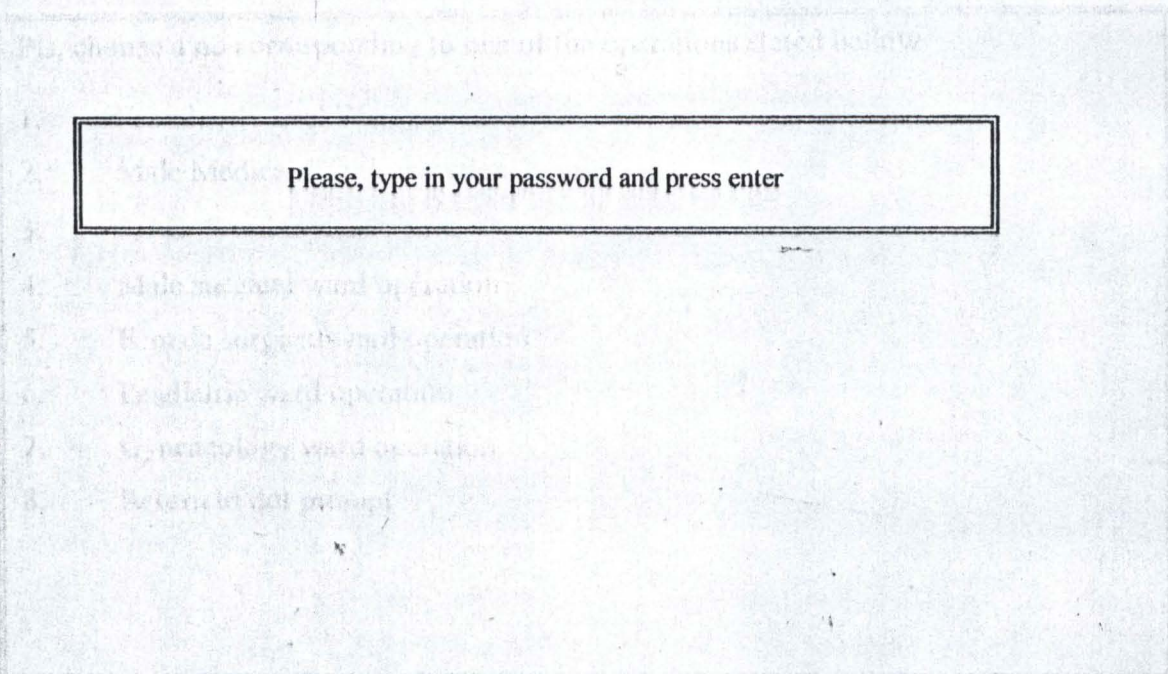
Return

STE. PRG

```
do while .t.
store space (1) to ans
store space (12) to Mname
store space (20) to Moname
store space (40) to Maddr
store space (15) to MNation
store ctod (" / / ") to MDOA, MDOD
store 0 to MAGE, mno
store space (6) to Msex
store space (58) to Mdiag
Store space (20) to Moccupa
mno = mno + 1
Do While .T.
Set colo to b / g , w / n
Store space (1) to ans
@9 , 2 to 24 , 79 double
@11 , 60 say "Serial no" get mno pict "9999"
@13 , 4 say "Enter Surname" Get Mname
@13 , 40 say "Enter Other names" Get Moname
@15 , 4 say "Enter Address" Get Maddr
@17 , 4 say "Enter date of Admission" get MDOA
@17 , 43 say "Enter nationality" Get MNation
@19 , 4 say "Enter Sex" Get Msex
@19 , 43 say "Enter Age" Get Msex
@21 , 4 say "Enter Occupation" get Moccupa
@23 , 43 say "Enter Date of Discharge" Get MDOD
@23 , 4 say "Enter diagnosis" get Mdiag
Read
@9 ; 2 clea to 24 , 79
@16 , 4 to 22 , 70
@18 , 6 say "Press @ to review your entries or (A) to abort saving"
@20 , 12 say "or any other key to save the record" get ans
Read
Do Case
Case upper (ans) = "R"
@9 , 2 clea to 24 , 79
set colo to b / g , w / n
loop
case upper (ans) = "A"
@9 , 2 clea to 24 , 79
Exit
Otherwise
Append blank
Repl no with Mno, Sname with Mname, Oname with Moname, Addr with Maddr, DOA with
MDOA
Repl Nation with Mname, Sex with Msex, Age with Mage, Occupa with Moccupa
Repl Diag with Mdiag, Dod with Mdod
Exit
endcase
enddo
@9 , 2 clea to 24 , 79
```

```
store space (1) to ans
@18 , 2 to 22 , 70
@20 , 6 say "do you want to enter data for more patient (y) or (n)" get ans
Read
f upper (ans) = "Y"
@20 , 6 say "do you want to enter data for more patients (y) or (n)" get ans
Read
If upper (ans) = "Y"
@9 , 2 clea to 24 , 79
set colo to b / g , w / n
loop
endif
clea
exit
enddo
close database
return
```

NumCaps



NumCaps .

Pls, choose a no corresponding to one of the operations stated bellow

1. Female Medical Ward operation
2. Male Medical Ward operation
3. A / E Ward Operation
4. Male surgical ward operation
5. Female surgical ward operation
6. Peadiatric ward operation
7. Gyneacology ward operation
8. Return to dot prompt

Numcaps

THIS FORMAT WOULD ALLOW YOU TO ENTER DATA FOR PATIENTS AT
FEMALE MEDICAL WARD

Enter Surname AMOS

Enter Other names DORCAS

Enter Address Specialist Hospital Kabba

Enter date of Admission 12 / 06 / 99

Enter nationality NIGERIAN

Enter Sex FEMALE

Enter Age 38

Enter Occupation CIVIL SERVANT

Enter Date of Discharge 01 / 07 / 99

Enter diagnosis MALARIA FEVER