Partners for Health Reform*plus*

Assessment of Medical Records Services at Ministry of Health Hospitals in Jordan

May 2006

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Mission

Partners for Health Reformplus is USAID's flagship project for health policy and health system strengthening in developing and transitional countries. The five-year project (2000-2005) builds on the predecessor Partnerships for Health Reform Project, continuing PHR's focus on health policy, financing, and organization, with new emphasis on community participation, infectious disease surveillance, and information systems that support the management and delivery of appropriate health services. PHRplus will focus on the following results:

- *Implementation of appropriate health system reform.*
- *Generation of new financing for health care, as well as more effective use of existing funds.*
- *Design and implementation of health information systems for disease surveillance.*
- *Delivery of quality services by health workers.*
- *Availability and appropriate use of health commodities.*

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Abstract

This assessment of medical records (MR) services at 11 Ministry of Health (MOH) hospitals in Jordan is part of the Hospital Systems Improvement Project carried out by the USAID-funded Partners for Health Reform*plus* project and the Jordanian MOH. The assessment developed 19 instruments to collect quantitative and qualitative data to assess the structure and functioning of hospital MR departments. Data collection took place in December 2004 and January 2005.

Findings showed lack of essential office equipment, including computer applications, and of trained personnel. MR contents are not reviewed for completeness and filing systems are not standardized. As a result, few MR departments operate efficiently. No discharge analysis is performed, nor do hospitals monitor basic indicators such as infection rates. There is a need to improve hospital administration support of the MR department and its relationships with other hospital departments.

Two hospitals have adopted most elements of modern MR systems and were identified as MOH on-the-job training centers. Further analysis will be done to coordinate and integrate assessment findings to establish overall MR standards, policies, and procedures for MOH hospitals. The formation of a MR Development Committee at the MOH level could greatly assist with the development of a standardized MR system and its implementation in all MOH hospitals.

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Acronyms

MOH	Ministry of Health
MRD	Medical Record Department
MR	Medical Records
PHR*plus*	Partners for Health Reform*plus*
USAID	United State Agency for International Development

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Executive Summary

A medical record (MR) is the chronological documentation of medical treatment and other health care delivered to a patient by professional members of the health care team. It is an accurate, prompt recording of the team's observations about the patient, the patient's medical progress, and the results of treatment. It is a means of communication among health professionals, a legal document, and a tool for medical research and training. It is also the primary means of evaluating the quality and appropriateness of medical care rendered, as well as a source document for statistical use in research, planning, and budgeting. Finally, it is the original-source document for financial activity involving patient care.

Jordanian hospitals have practiced organized MR services only since 1973. Prior to that date, most hospital MRs were readily available only during a patient's hospitalization. They were then retained only temporarily, i.e., for a year or less, and usually in a site that prevented them being available in the case of a later hospitalization of that patient.

As part of the Partners for Health Reform*plus'* (PHR*plus*) long-term technical assistance to the Jordanian Ministry of Health (MOH), called the Hospital Systems Improvement Project, PHR*plus* and the MOH agreed to include the development and upgrade of MR services among its efforts. The MR development plan that was prepared by PHR*plus* and approved by MOH counterparts covers the following topics:

- Assess MR services and practices at the 11 MOH hospitals that participate in the Hospital Systems Improvement Project
- Prepare an action plan for upgrading and developing MR services in each hospital
- Formulate a MR policies and procedures manual for use in all MOH hospitals
- Computerize the major functions of MR departments
- Train MR staff in MOH hospitals
- Implement the MR development and upgrading plan
- Monitor progress

The purpose of this assessment is to review existing MR structure and functions in the 11 MOH hospitals, identify strengths and weaknesses, and provide recommendations for improvements.

Methodology

The assessment developed 19 instruments – primarily checklists and questionnaires – to collect both quantitative and qualitative data in the 11 MOH hospitals. The instruments were collected into an Assessment Tools Manual. Findings were presented with recommendations to resolve identified problems.

Sampling approach

The same sampling approach was used in each hospital, i.e., the study team:

- Selected a sample of MRs to assess their contents
- Visited each MR filing area to assess the filing and record control
- Randomly selected five MR filing shelves to check their content
- Selected a respondent for the hospital administration questionnaire, i.e., the director of the MR department in each hospital

Data collection

The assessment surveys took place in December 2004 and January 2005. Two data collectors worked under the supervision of a senior MR consultant, with technical assistance from PHR*plus*. The data collectors were trained prior to fieldwork. The data collection tools were pre-tested in Al-Basheer hospital and modified according to pre-test findings.

Data sources

Data were obtained from the following sources:

- Documents (MR manual and forms, policies, procedures, organizational chart, job descriptions, payroll, building drawings, etc.)
- Existing MRs and hospital forms and log books (ward census report, hospital census report, and daily admissions and discharges list)
- Structured interview with MR department directors
- Surveyor observations

Assessment components

The following structural and functional components of MR departments were assessed:

- *Structure*
  - Physical structure: location, design, and layout
  - Equipment
  - Personnel
  - Management: organization structure, policies, and administration
  - Forms design, management, and control
- *Functions* (processes and outcomes)
  - Filing and record control
  - MR content and documentation
  - Coding and indexing of diseases and operations
  - Hospital statistics
  - Master patient index
  - Hospital administration support of the MR department

Findings

Physical Structure

In eight hospitals, the location of the MR department was inappropriate, with limited access and quiet. For example, the department in Al-Hussein hospital is at the end of a corridor, and in Zerka hospital is located offsite.

In addition, office space is inadequate to perform all MR functions. In eight hospitals, the space allocated is less than 1 square meter per bed, compared to reported averages of 2–3 square meters.

Equipment

Only one hospital (Al-Basheer) provided adequate office equipment (PCs, printers, photocopiers, mobile filing cabinets, office furniture, filing carts, etc.).

Personnel

MR department personnel in most hospital is insufficient to effectively perform assigned functions. In four hospitals, the ratio of MR staff to hospital beds was 1:12 beds; in two hospitals, it was 1:14. In Zerka hospital and Al-Hussein hospital the ratio was 1:30 and 1:15 respectively. The reported average ratio in the literature is 1:5–1:8.

Five hospitals have no staff qualified in MR and about 25% of MR staff in four hospitals has low educational levels (below elementary school).

There is a lack of training courses. None of hospitals has regular in-service or on-the-job training for MR personnel.

Management: organization structure, policies, administration Only three hospitals (Princess Raya, Princess Rahma, and Princess Basma) have organizational charts and written policies and procedures manuals and job descriptions.

MR forms design

Deficiencies were found in admission and discharge records in all hospitals. Some form titles did not match form contents. The weight of paper used is below standard. In eight hospitals, four-page cards of a heavier stock were used for outpatients as substitute for medical records.

MR forms control and management

In all hospitals, the supply department controls the forms' stock room. Production of new forms is decided by the central MOH. Shortage of forms was not reported by any hospital.

In most hospitals, records are kept in the active filing area for one year only. MRs of patients discharged in previous years often were found in remote sites, bundled by year of admission.

Functions

Filing and record control

Eight hospitals lack the one-unit numbering and filing system (i.e., the patient has separate MR for outpatient visits, admission, and emergency). Three hospitals (Princess Basma, Princess Raya, and Princess Rahma) use the National Number for MR numbering.

Filing systems are not standardized. Seven hospitals use the terminal digit filing system, while the remained four hospitals use the serial straight filing system.

Two hospitals (Princess Raya hospital and Princess Rahma hospital) only use the out-card system (records tracing). The percentage of compliance of out-card documentation is 80–95% in both hospitals.

Nine hospitals have overcrowded shelves (more than 80% of storage capacity is used).

For all hospitals, the percentage of misfiled records is 3–5%, the percentage of folders with pages (papers) projecting out is 4–20%, the percentage of folders with illegible names and/ or numbers is 0%–5%, and the percentage of duplicate records (more than one record for the same patient) is 2–6%.

MR content and documentation

No hospitals review MR contents for completeness. The MOH allows patients to keep their cards at home, which raises confidentiality issues.

Basic and special forms were available in all MRs of each hospital. However, the contents of these forms have many deficiencies. Completeness of MR contents is 21–95% in all hospitals; completion rate of operating was the highest (70–95%) of history and physical exam reports the lowest (21–58%).

In all hospitals, some forms do not have the patient name or number; patient name and number are inconsistent; most forms are empty; and accounting copies are filed in the MR.

Coding, indexing and discharge analysis

Only five hospitals (Al-Basheer, Princess Basma, Princess Raya, Princess Rahma, and Al-Karak) have computer applications for patient and diseases indexes. They use the ICD-10 for coding and classification of diseases and operations.

Hospital statistics

No hospital performs a discharge analysis. The statistics officer does not report to the MR department in five hospitals. No hospital computes important rates such as infection, caesarean section, or consultations.

Master patient index and physician index

Five hospitals have a master patient index and two (Princess Rahma and Princess Basma) have a physician index.

Hospital administration support

All MR directors reported that the hospital administration frequently does not recognize the importance of MRs, enforce MR department rules, or provide the department with adequate personnel, space, or equipment and supplies. Also, they have experienced problems with medical staff, head nurses, patient accounts, and outpatient clinics.

Recommendations

There is a need to improve the MR department work environment in terms of space, lighting, safety, equipment, etc. The department should be properly located within the hospital whenever possible.

To address the shortage of qualified personnel, 40-50 MR technicians should be recruited annually for three years. To achieve this goal, there is a need to at least double the intake for MR diploma programs in MOH community colleges. Jordanian universities should be visited to set up

BSc-level MR programs. MR training programs for MR personnel, residents, interns, doctors, and head nurses should be developed. Two hospitals (Princess Raya and Princess Rahma) have adopted most of the features of a modern MR system and were identified as on-the-job training centers for the MOH.

An MR policies and procedures manual should be prepared and disseminated in Jordanian hospitals. MR forms design should be reviewed and updated.

A terminal digit filing system should be adopted and national numbering system should be applied in each hospital. The use of out-cards or other record-tracing system should be promoted. One-unit record system should be adopted by all hospitals. Every hospital should provide space for active and inactive patient records.

MR contents for discharged patients should be arranged prior to filing. Quantitative and qualitative analysis of MR contents should be done on a regular basis to monitor completeness of information. Guidelines for proper documentation principles should be prepared and communicated to medical and nursing staff.

Patient accounts should not use the MR for accounting purposes.

With regard to the coding and indexing of diseases and operations, the application of a computerized system for admissions, patient index and disease index, and hospital statistics should be promoted.

Daily discharge analyses should be performed for all records of discharged patients and a daily ward census should be prepared by all hospital wards. Some basic hospital rates (i.e., infection rate, consultation rate, caesarean section rate, normal tissue rate) should be computed.

Hospital administration should enforce MR regulations.

In order to facilitate the implementation of the recommendations listed above, the formation of a MOH MR development committee could greatly assist with the development of a standardized MR system and its implementation in all MOH hospitals. More specifically, the committee could review and authorize the MR Manual developed by PHR*plus*, review and suggest changes on existing MR forms, and participate in developing MR training courses.

1. Introduction

Hospitals in Jordan adopted organized medical record (MR) services relatively recently. Traditionally, most of the hospitals did not store in an accessible way the records of care that they delivered to patients. MRs usually included every document and test result that occurred during the hospitalization, but when the patient was discharged, this MR was given to a clerk in the hospital administrative department. A special report was prepared if the patient was a governmental or military employee. Records were retained, but in a manner that made it difficult or impossible to retrieve when required (Ajluni, 1993), such as during a later hospitalization of the patients.

Though this situation has improved, organized MR services have existed only since 1973,[1] and only in modern hospitals. By the end of 1979, the Arab Medical Board stated that organized MR services is one of the most important criteria for accreditation of hospitals as teaching institutions for residency programs in various specialties of medicine (Ajluni, 1993).

With the exception of university hospitals, King Hussein Medical Centre, King Hussein Cancer Centre, and two modern private hospitals, Jordan hospitals, including Ministry of Health (MOH) hospitals, have serious problems related to MR completeness, accuracy, and accessibility (Ajluni, 1993). These problems are known to hospital administrators, doctors, MR department personnel, and even to patients and their relatives. The author himself experienced these problems as the Director of Planning and Projects for the Royal Medical Services hospitals.

No comprehensive assessment study has been done before to categorize these problems on a scientific basis, define their magnitude, and indicate factors or reasons for them. This assessment report therefore has two objectives: to present the tools and methodology developed by the Partners for Health Reform*plus* Project (PHR*plus*) to assess MR services in Jordan; and to disseminate findings and policy recommendations of the current assessment.

1.1 Background

Since 1997, PHR*plus* has delivered extensive, long-term technical assistance to the Jordanian MOH in a program called Hospital Systems Improvement. PHR*plus* works with 11 MOH hospitals. The overall objective is to enhance the quality of hospital services that are provided to patients by improving the way in which managerial decision-making occurs within MOH hospitals, and developing methods by which hospital resources are adopted and allocated in a more efficient and equitable way. To do so requires giving greater managerial responsibility to MOH hospital directors. It also has required demonstrating to policymakers why and how to use empirical data to shape new policies.

PHR*plus* and the MOH agreed to include the development and upgrade of MR services in its work. A local senior advisor in hospital administration with MR expertise was recruited in September 2004 by the PHR*plus* project for this purpose. The advisor prepared a draft plan for the development of MR services at MOH hospitals.

[1] In 1973, consultants from outside Jordan worked with Jordan University Hospital and King Hussein Medical Centre to establish state-of-the-art MR systems.

In order to provide an overview of the MR development plan and strategies to MOH counterparts, PHR*plus* team conducted two meetings. The first meeting was held on 29 September 2004 in Amman, attended by MOH Steering Committee members and directors of the 11 hospitals. As a result of this meeting, MOH counterparts approved the MR development plan activities, namely:

- Assessment of the MR services and practices at the 11 MOH hospitals
- Preparation of an action plan for upgrading and developing MR services in each hospital
- Formulation of an MR policies and procedures manual to be applied to all MOH hospitals
- Computerization of the major functions in the MR departments
- Training of MR staff in MOH hospitals
- Implementation of the MR development and upgrading plan
- Monitoring progress

A second meeting was organized by PHR*plus* on 6 October 2004 for the heads of MR departments in the 11 hospitals to explain the methodology and tools to be used in the assessment and to introduce the surveyors.

1.2 Definition and Use of Medical Records

Total health care involves the preventive, curative, and rehabilitative aspects of elevating the health status of the patient as well as improvement of his/her environment. A MR contributes to this care in a variety of ways; it is:

- The chronological documentation of health care and medical treatment given to a patient by professional members of the health care team. It is an accurate, prompt recording of their observations including relevant information about the patient, the patient's medical progress, and the results of the medical treatment.
- A means of communication among physicians, nurses, and allied health professionals who plan and conduct the care and treatment of the individual patient.
- A legal document that benefits the patient, the physician, and the health care program.
- A tool for training members of the medical and paramedical professions, and for conducting medical research.
- The primary means of evaluating the quality and appropriateness of medical care rendered.
- The source document for statistical use in research, planning, and budgeting.
- The original source document for financial activity involving patient care. Primary examples are the use of MR in audits of third-party collections by outside payers; and in internal audits to verify allocation processes and to develop and maintain cost management programs and cost management systems.

1.3 Objectives of Assessment

The purpose of this assessment was to review existing MR systems and practices in 11 MOH hospitals, assess MR department structure and core elements, identify strengths and weaknesses, and provide recommendations for improvements. This report presents assessment findings and recommendations on the following:

- Assessment of the structure of MR departments (physical structure, equipment, personnel, department management, form design, and form management and control)
- Assessment of MR department functions in terms of process (filing and record control, MR content and documentation, coding and indexing of diseases and operations, hospital statistics, master patient index, and support of hospital administration to the MR department) and outputs (final results of providing MR services)

The assessment does not evaluate staff performance, pinpoint areas of negligence, or make “right and wrong” judgments.

2. Methodology

To achieve the assessment's objectives, PHR*plus* team:

- Documented the existing MR practices
- Developed a set of 19 data collection instruments to assess the main components of MR department services
- Prepared a comprehensive Assessment Tools Manual that contained the 19 tools
- Used both quantitative and qualitative approach to data collection
- Collected data in the study sites (the 11 MOH hospitals)
- Presented results
- Provided recommendation on major problems facing MR practices

Criteria used for the assessment tool were selected after a thorough and systematic review of the relevant literature (Ajluni 1993; Green and Bowie 2005; Huffman 1994; Imbiorski et al., 1979; Skurka 1994) focusing mainly on MR management, MR development in developing countries, health information management, and accreditation standards and quality control of MR. Existing MOH regulations and MR practices in some Jordanian teaching hospitals were also considered. Donabedian's comprehensive approach for quality review that covers structure, process and outcomes of MR services was followed to develop the PHR*plus* assessment tool (Donabedian 1989).

A quantitative approach was used in most of the 19 questionnaires and checklists developed as data collection tools. A qualitative approach was used for form content analysis, direct observation by data collectors, and in-depth interviews.

The assessment of MR documentation and content involves four core elements:

1. Arrangement of the forms
2. Presence of all basic and special forms required to ensure effective and safe patient care (quantitative assessment)
3. Evaluation of the content of key basic forms (qualitative assessment)
4. Presence of general documentation principles and legal aspects

The system used in each hospital for arranging the forms inside the MR folder was considered as the criterion to be checked when assessing the arrangement (order) of MR forms. Arrangement of forms was assessed using a data collection sheet (Form 8 in Annex A).

The following 10 basic forms were checked for every MR reviewed by the study, to assess the presence of basic and special forms (see Annex A):

- Admission and Discharge Record
- Discharge Summary
- Medical History

- Physical Examination
- Progress Notes (clinical notes)
- Physician's Orders
- Nursing Notes
- Graphic Sheet (i.e., temperature, pulse, pressure)
- Routine Diagnostic Reports (i.e., laboratory, x-ray)
- Consent Form

The MR was considered quantitatively complete if it included all basic and special forms.

The admission and discharge record, discharge summary, and physician's orders sheets were reviewed to indicate the special forms to be checked for a MR. For example, the operation report and anesthesia report should have been checked if the patient had a surgical procedure(s); the consultation report should have been checked if the attending physician had requested a consultation for the patient; and the blood transfusion report should have been checked if the patient had a transfusion. In-depth review of admission and discharge record, history and physical exam records, discharge summary, and operation report (for surgical cases) was done to evaluate the quality of MRs.

These records and reports were chosen for the following reasons: 1) they are considered the backbone of a MR; 2) they significantly represent the quality of medical recording; and 3) there is a remarkable consensus among medical professionals concerning their contents.

The contents of these reports were reviewed against a criteria checklist for each report. Recorded items were checked as positive findings, while missing or illegible ones were considered as negative.

To assess the support of hospital administration to the MR department and its relationships with other hospital departments, a close-ended questionnaire was used. The questionnaire was administered to the director of the MR department in each hospital. Every question has three possible answers (Rarely, Sometimes, Frequently), from which the respondent choses one. To facilitate analysis of data, scores were allocated for each answer as follows: Rarely = 0; Sometimes = 1; Frequently = 2.

2.1 Selection of Sites

The 11 MOH hospitals were selected as survey sites because they are part of the Hospital Systems Improvement Project. Moreover, they meet several criteria for health service infrastructures in Jordan, including level of care, bed capacity, and bed occupancy rate.

Most of the facilities (nine) are general hospitals. Two are specialized hospitals (Princess Rahma hospital for pediatrics and Princess Badea' hospital for obstetrics and gynecology). Three are teaching hospitals (Al-Basheer, Alzarka, and Princess Basma hospitals). Al-Basheer and Princess Basma hospitals are referral hospitals for the Middle and North Regions respectively.

The bed capacity for eight of the hospitals ranges from 100 to 200 beds. The largest hospital is Al-Basheer hospital in Amman (811 beds), followed by Princess Basma hospital in Irbid (300 beds). The hospital with the lowest bed capacity is Princess Raya hospital in Kora, North Region (60 beds).

The bed occupancy rate for most hospitals (seven) is high, ranging from 74.7% to 87.4%. The bed occupancy rate for the remaining four hospitals ranges from 55.7% to 66.9%.

The average length of stay varies from 2.2 days at Jarash hospital to 3.7 days at Al-Basheer hospital.

Table 1: Main Characteristics of Assessment Sites for Year 2004

No.	Item / Hospital Name	No. of Beds	Location	Services Provided*	Discharges	Occupancy Rate %	Average Length of Stay	Bed Turnover
1	Al-Basheer	811	Amman	G,T,R	60440	74.7	3.7	74.5
2	Al-Zarqa	300	Zarka	G,T	26637	78.5	3.2	89.1
3	Princess Basma	204	Irbed	G,T,R	15092	64.1	3.2	73.7
4	Al-Hussein / Salt	152	Salt	G,T	15699	78.1	2.8	103.4
5	Jarash	135	Jarash	G	12655	55.7	2.2	93.8
6	Al-Karak	134	Karak	G,T	11400	63.0	2.7	85.1
7	Prince Faisal Bin AL-Hussein	130	Yajooz	G	15340	86.9	2.7	117.9
8	Dr. Jameel Al-Totanji	129	Amman	G	10628	66.9	3.0	82.2
9	Princess Rahma	109	Irbid	Ped.	7538	87.4	4.6	69.0
10	Princess Badea'	95	Irbid	OBG	12118	78.8	2.3	127.4
11	Princess Raya	60	Kora	G	6528	84.5	2.8	108.9

* G: general hospital, T: teaching hospital, R: referral hospital, OBG: Obstetrics and gynecology, Ped: pediatrics

2.2 Sampling Approach

The PHR*plus* data collectors approached each hospital surveyed in the following way:

- Selected a sample of MRs to assess their contents using a systematic sampling approach
- Visited each MR filing area to assess the filing and record control
- Randomly selected five filing facilities (such as shelves) of the MR area to check their content
- Selected the director of the MR department as respondent to the hospital administration questionnaire

Sampling procedures used to assess MR contents

A 50-record sample for each hospital was drawn from the discharge log of August 2004 using the systematic sampling method. This sample represents not less than 1% of the discharges in each hospital for this month. Records of normal hospital newborns and patients discharged against medical advice were excluded. If an assigned record was missing or excluded, it was substituted by taking the case next to it in the discharge log. For each case, the patient name and the hospital number were recorded and the sample list given to the head of MRD to facilitate retrieval.

Sampling procedures used to assess filing records and control function

To assess the filing and record control function, the MR filing area of each hospitals was visited. The filing facilities (i.e. shelves) used for filing of MRs were identified and counted. Five shelves were then randomly selected and the contents of their MRs reviewed using the Filing Assessment Checklist (Form 7, Annex A). If the hospital used an out-card locating system, the out-cards found in

each of the five shelves were counted and each card reviewed, also using the Filing Assessment Sheet.

The numbers of records missing (not found) during the retrieval of 50 randomly selected records were also used to assess the filing function.

Respondents' selection to hospital administration questionnaire

To assess the support of hospital administration to the MR and its relationships with other hospital departments, a closed-ended questionnaire was administered to the director of the MR department in each hospital.

2.3 Data Collection

The assessment surveys were carried out in December 2004 and January 2005. Two data collectors captured the data in the study sites under the supervision of a senior MR consultant, with technical assistance from the PHR*plus* project. The data collectors were trained prior to fieldwork to ensure their conceptual understanding of the project and their familiarity with the data collection instruments. PHR*plus* prepared a comprehensive Assessment Tools Manual for this purpose. The tools were pre-tested in Al-Basheer hospital in Amman prior to commencing the survey.

2.4 Data Sources

Data were obtained from the following sources:

- Review of the available written documents related to the topics assessed (MR department manual, policies, procedures, organizational chart, job description, MR forms, payroll, building drawings of MR department, etc.)
- Medical records, log books, ward census report, hospital census report, and daily admissions and discharges list
- Direct observations made by data collectors
- Structured interview with the director of the MR department

2.5 Assessment Instruments

A comprehensive assessment framework that covers the main structural and functional components of MR department services was developed. The following core elements were assessed:

2.5.1 Structure of MR Department

The assessment of MR department structure evaluated the inputs needed by MR department to operate, namely:

- Physical structure: location, design and layout.
- Equipment
- Personnel
- MR department management: organization structure, policies, and administration
- Forms design

- Form management and control

Data were collected using a set of six data collection instruments (see 1-6 in Annex A), namely:

- General criteria checklist
- Equipment checklist
- Personnel checklist
- Policies and procedure manual sheet
- Forms design assessment sheet
- Forms management and control assessment sheet

General Criteria Checklist

A general criteria checklist was used to assess the following components of the MR department's structure: location, space design, equipment, human resources, organizational structure, and policies and procedures. Each component includes a group of dichotomy criteria questions ("yes" and "no"). Positive answer denotes compliance with criterion.

Equipment Checklist

MR department equipment was checked using equipment checklist. The presence of typewriters, photocopiers, stencil duplicators, shelf filing, index card drawers, files carts, dictating machines, and computers were recorded in each of the 11 MR departments.

Personnel Checklist

MR department employees' names, job titles, education, years of experience, and MR training were checked using the MR department personnel checklist.

Policies and Procedure Manual Sheet

An assessment sheet, including all criteria policies and procedures for every MR department activity was prepared. For each identified activity, the following was be checked:

- The presence of a written policy
- The availability of written procedures

Forms Design Assessment Sheet

The most commonly used MR forms at each hospital were collected by the surveyor and listed on the forms design assessment sheet. The presence of the following criteria was checked:

- Form title
- Form code
- Hospital name (printed or space for)
- Entry for hospital number
- Entry for patient's name
- Entry for ward/room
- Uniformity of margins and binding edges
- Uniform size
- Uniform weight

Forms Management and Control Assessment Sheet

This forms control sheet was developed to assess the general aspects of the management and control of MR forms in each hospital. The following items were checked:

- Who approves new forms?
- Who controls the stockroom?
- Are samples of approved forms kept on file?
- Does a brief statement of its purpose accompany each form?
- Does a shortage of forms happen frequently?

2.5.2 Functions of MRD

The assessment of MR department functions evaluated the real functions and work performed by MR department (process) to transfer inputs into desired objectives (outcomes). The following core elements of the MR department were assessed:

- Filing and record control
- MR content and documentation
- Coding and indexing of diseases and operations
- Hospital statistics
- Master patient index
- Support of hospital administration to the MR department

A set of 13 data collection instruments (7-19 in Annex A) was developed to assess MRD functions, namely:

- Filing and record control function sheet
- MR content's assessment sheet
- Admission and discharge record checklist
- Medical history and physical examination checklist
- Discharge summary checklist
- Operation report checklist
- Discharge analysis assessment sheet
- Legal aspects of medical record assessment checklist
- Coding and indexing of diseases and operations sheet
- Master patient index assessment sheet
- Ward and daily hospital census report assessment sheet
- Questionnaire for director of MR department
- General information checklist

Filing and Record Control Function Sheet

The filing and record control function sheet was used to determine:

- Number of misfiled records (records filed in wrong places)
- Number of duplicate records (more than one record for the same patient)
- Number of overcrowded shelves (the shelf was be considered overcrowded; when more than 80% of its file storage capacity is used)
- Number of folders with pages (papers) projecting out
- Number of folders with illegible names and/ or numbers

For hospitals using an out-card locating system, the filing assessment sheet was also be used as a data collection instrument to determine the following:

1. Compliance of out-card documentation, regarding:
    - Hospital identification number
    - Date of retrieval of record
    - Name of borrower
2. Number of out-cards that were not removed when borrowed MRs were returned

MR Content Assessment Sheet

The system, used in each hospital for arranging the forms inside the medical record folder, was considered as a main criterion to be checked when assessing the arrangement (order) of medical record forms. Arrangement of forms was assessed using the data collection sheet (instrument 8) as well as the presence of all basic and special forms required to ensure effective and safe patient care.

Admission and Discharge Record Checklist

An Admission and Discharge Record criteria checklist was used to assess the presence of the following criteria in each of the admission and discharge records, namely:

- Patient identification and administrative data: name; hospital number; sex; age; marital status; occupation; health insurance; address; ward and room; attending physician; date of admission; and date of discharge
- Medical data: provisional diagnosis, final diagnosis, operations (surgical cases), and code number
- Signature of physician
- Legibility of recording

Medical History and Physical Examination Checklist

Content of the medical history and physical examination was reviewed using the medical history and physical examination checklist. The presence of the following criteria was checked:

- Medical history: chief complaint; present illness; past history; family and social
- Physical examination: pulse, temperature, blood pressure, heart, chest; local exam, and provisional diagnosis
- Signature of physician
- Date
- Legibility

Discharge Summary Checklist

The content of discharge summary forms was reviewed using the discharge summary checklist. The presence of the following criteria was checked:

- Patient number
- Provisional diagnosis
- Final diagnosis
- Significant findings (i.e., history, physical exam, investigations)
- Course in hospital (i.e., treatment, complications, progress)
- Procedures performed (i.e., surgical procedures)
- Condition of patient on discharge
- Specific instructions to patient (i.e., diet, medications, follow up)
- Signature of physician
- Date
- Legibility

Operation Report Checklist

The content of operation report forms was reviewed using the operation report checklist:

- Patient number
- Name of procedure
- Date of surgery
- Time of operation
- Preoperative diagnosis
- Postoperative diagnosis
- Findings
- Used technique and procedure
- Names of surgeons
- Surgeon signature
- Date
- Legibility

Legal Aspects of MR Assessment Checklist

Using a special criteria checklist, the following documentation principles, which have direct legal implications, was to be checked for every form included in the MR:

- All pages contain patient's name and number
- Patient's name and number are consistent on all forms
- Presence of consent forms
- All documents are original

- No erasures (words or lines that have been erased)
- No obliterations (i.e., spots of ink, spots of blood, ugly marks, etc.)
- No entries in pencil
- No recording on non-designated forms (i.e., blank sheets of paper)
- No recording on inappropriate forms (i.e., recording discharge summary on operation report form)
- No empty forms
- No loose forms

Coding and Indexing of Diseases and Operations Sheet

A coding and indexing of diseases and operations sheet was be used to assess the following:

- Presence of diseases/ operations codes
- Indexing of entered codes
- Proper filing of diseases/operations index cards (if manual)
- Completeness of the disease/operation index card, in terms of hospital number, age and sex of patient, days of stay, and attending physician.

Master Patient Index Assessment Sheet

A master patient index assessment sheet was used to assess:

- Presence of patient index card
- Filing of index card (if manual)
- Completeness of card information, regarding patient's name, hospital number, sex, age, address, attending physician, date of admission and discharge
- Accuracy of recording by comparing card data with data recorded in the medical record.

Daily Discharge Analysis Assessment Sheet

The 50-record sample selected in each hospital was drawn from the discharge log of August 2004. Each record was checked against the discharge analysis logbook to assess:

- Degree of analysis (i.e., being analyzed or not)
- Identification of analyzed record under the designated clinical specialty (i.e., medicine, surgery pediatrics, obstetrics and gynecology)
- Result (discharge or death)
- Patient's days

Ward and Daily Hospital Census Report Assessment Sheet

Figures of the daily admissions, discharges, and deaths reported in the above statistics for the preceding four days were tabulated by hospital wards. The following hospital indicators were reviewed for accuracy:

- Bed occupancy rate
- Average length of stay
- Bed turnover rate

- Death rate

Questionnaire for Director of MR Department

The director of each MR department was asked pre-structured questions to collect information and data on the director's perceptions of hospital administration and other hospital departments, namely:

- How frequently does the hospital administration recognize the importance of the MR department, enforces department rules, and provides it with adequate staff, equipment, supplies, and space?
- How frequently does the department deal with problems with medical staff, nursing staff, outpatient department, patient accounts, and supply department?

General Information Checklist

Surveyors were asked to collect general information about each hospital surveyed, using the general information checklist. Information collected was date of opening, number of beds, scope of services, work volumes, bed occupancy rate, average length of stay; etc. Such information is necessary for proper analysis of the findings, and it is useful for comparing results of all the hospitals.

2.6 Data Analysis

Once all data had been collected, the dataset had to be prepared in a manner that is suitable for analysis. Data analysis means organizing the data and presenting them in a way that answers specific question and meets the needs of the target audience. Given that the intent of this assessment survey is descriptive in nature, analysis primarily took the form of percentages and means of compliance with different criteria.

3. Findings

Several important findings emerge from the MR assessment.

3.1 Structure of MR Department

Physical Structure

The survey team found that MR departments in eight hospitals were inappropriately located to allow users accessibility and quiet. For example, in Al-Hussein hospital, the department is located at the end of a corridor. In Zerka hospital, the department is located in a rented apartment outside the hospital.

Also in eight hospitals, the space allocated for the MR department was inadequate, less than 1 square meter per bed, whereas the reported average ranges from 2 to 3 square meters (Wheeler 1994; Sa'ati 1998).

Equipment

With exception of Al-Basheer hospital, all MR departments have a shortage of essential office equipment (PCs, printers, photocopying machines, mobile filing cabinets, office furniture, filing carts, etc.).

Personnel

The number of MR department personnel in most hospitals is insufficient to perform effectively the functions assigned to the department. In four hospitals, the ratio of MR staff to hospital beds was 1:12 beds, while in two hospitals, it was 1:14. In Zerka hospital and Al-Hussein hospital the ratio was 1:30 and 1:15 respectively. The reported average ratio in the literature ranges from 1: 5 to 1:8 (Wheeler, 1994; Sa'ati, 1998). Five hospitals do have no qualified MR staff and about 25% of MR staff in four hospitals has a low educational level (they do not have an elementary school diploma).

The survey team found a lack of training courses. None of the hospitals has regular in-service or on-the-job training programs for MR personnel.

Management: Organizational Structure, Policies, Administration

Only three hospitals (Princess Raya hospital, Princess Rahma hospital and Princess Basma hospital) have organizational charts and written policies and procedures manuals and job descriptions.

MR Forms Design

All the hospital surveyed lack an admission and discharge record. Some titles used did not reflect the contents of the forms – if headlines are in Arabic, recording was in English. Paper weight is below standard. In eight hospitals, four-page cardboard cards were used for outpatients as a substitute for MRs.

Medical Records Forms Control and Management

In all hospitals, the supply department controls the stock of forms. Production of forms is decided on the central MOH level. Shortage of forms was not reported by any hospital.

In most hospitals, records are kept in the active filing area for one year only. It is not uncommon to find records of patients discharged in previous years in bundles and stored in remote areas by year of admission.

3.2 Functions of MR Department

Filing and Record Control

The survey team found that eight hospitals lack the one-unit numbering and filing system (i.e., the patient has a separate MR for outpatient visits, admission, and emergency). Three hospitals (Princess Basma, Princess Raya, and Princess Rahma) use the National Number (equivalent to social security number in the United States) for MR numbering.

Filing systems are not standardized. Seven hospitals use the terminal digit filing system, while the remained four hospitals use the serial straight filing system. Two hospitals (Princess Raya hospital and Princess Rahma) only use the out-card system (records tracking). Percentage of compliance of out-card documentation ranges from 80% to 95% in both hospitals.

Additionally:

- Nine hospitals have overcrowded shelves (more than 80% of its file storage capacity is used).
- The percentage of misfiled records ranges from 3 % to 5 % in all hospitals.
- The percentage of folders with pages (papers) projecting out ranges from 4% to 20% for all hospitals.
- The percentage of folders with illegible names and/ or numbers ranges from 0% to 5% for all hospitals.
- The percentage of duplicate records (more than one record for the same patient) for all hospitals ranges from 2% to 6%.

Medical Records Content and Documentation

In all hospitals surveyed, the contents of records are not arranged or reviewed for completeness. The MOH allows patients to keep these cards at home, which raises confidentiality issues.

The basic and special forms were available in all MRs reviewed for each hospital. However, the contents of these forms have many deficiencies. The completeness percentage of MR contents ranges from 21% to 95% in all hospitals; operating notes had the highest completion rate (70% to 95%); history and physical exam reports had the lowest completion rate (21% to 58%).

In all hospitals, some forms do not have patient name or number; patient name and number are inconsistent in some records; most records have empty forms; and accounting copies are filed in the MR.

Coding, Indexing, and Discharge Analysis

Only five hospitals (Al-Basheer, Princess Basma, Princess Raya and Princess Rahma and Al-Karak) have computer applications for patient and diseases indexes. They have been using the ICD-10 for coding and classification of diseases and operations.

Hospital Statistical Statistics

No discharge analysis is performed in any hospital. The statistics officer does not report to the MR department in five hospitals. None of the hospitals compute important rates, such as infection, caesarean section, and consultation rates.

Master Patient Index and Physician Index

Five hospitals have a master patient index, and two hospitals (Princess Rahma and Princess Basma) have a physician index.

Support of Hospital Administration to the MR Department and Its Relationships with Other Hospital Departments

All directors of MR departments reported that the hospital administration does not frequently appreciate the importance of the MR department, enforce department rules, or provide the department with adequate personnel and supplies. The administration rarely provides the department with adequate space and equipments. All directors reported that they have experienced problems with medical staff, head nurses, patient accounts, and outpatient clinics.

4. Recommendations

Based on the assessment's findings, the following key recommendations for MR department structure and functions are made:

There is a need to improve work environment for MR departments (space, lighting, safety, etc.). The department should be properly located in the hospital whenever possible. Provision of appropriate equipment should be ensured.

To address the shortage of qualified personnel, 40-50 MR technicians should be recruited annually for three years. To achieve this goal, there is a need to at least double the intake for MR diploma programs in MOH community colleges. Jordanian universities should be visited to set up B.Sc. programs in MR. MR training programs for MR personnel, residents, interns, doctors, and head nurses should be developed.

A MR policies and procedures manual should be prepared and disseminated in Jordanian hospitals. MR forms design should be reviewed and updated.

A terminal digit filing system should be adopted and national numbering system should be applied in each hospital. The use of out-cards or a record-tracing system should be promoted. A one-unit record system should be adopted for all hospitals. Every hospital should provide space for active and inactive patient records.

Contents of MR records for discharged patients should be arranged prior to filing. Quantitative and qualitative analysis of MR contents should be done on a regular basis to monitor completeness of information. Guidelines for proper documentation principles should be prepared and communicated to medical and nursing staff.

Patient accounts should not use MR for accounting purposes: accounting documents and receipts should not be filed in MRs.

With regards to the coding and indexing of diseases and operations, the application of computerized system for admissions, patient index and disease index, and hospital statistics should be promoted.

Daily discharge analysis should be performed for all records of discharged patients and a daily ward census should be prepared for all hospital wards. Some basic hospital rates (i.e., infection rate, consultation rate, caesarean section rate, normal tissue rate) should be computed in each hospital.

Hospital administration should enforce MR regulations and provide the MR department with adequate, space, staff, and equipment.

Two hospitals (Princess Raya and Princess Rahma) are applying most of the features of modern MR systems and are identified as on-the-job training centers for the MOH. Further analysis will be done to coordinate and integrate assessment findings to establish overall MR standards, policies, and procedures for MOH hospitals. The formation of a MR development committee at the MOH level could greatly assist with the development of a standardized MR system and its implementation in all MOH hospitals. More specifically, the committee could review and authorize the MR manual developed by PHR*plus*, review and suggest changes on existing MR forms, and participate in developing MR training courses.

Annex A: Data Collection Instruments

1. General Criteria Checklist

Topic: Criteria checklist to assess the structure of the medical records department (MRD)

Hospital:

I - Physical Facilities of the MRD		
	Yes/No	**Notes**
LOCATION 1. Is the location of the MRD accessible for all users of its service? 2. Is the MRD located in a quiet place (i.e. away from main traffic areas, away from healing boilers)? 3. Does the existing location allow future expansion of the MRD? **SPACE** 4. Does the MRD have enough space to handle all its functions properly? **DESIGN** 5. Does the design facilitate the traffic of people, records and equipment inside the MRD? 6. Does the design allow for efficient supervision (i.e. open area design vs. closed room design)? 7. Does the design facilitate smooth flow of work among various units of the MRD (i.e. assembly line design)? 8. Is the design flexible (i.e. does it allow for redistribution of available space if needed in the future? 9. Does the design consider basic environmental conditions (i.e. ventilation, light, heat, moisture)? 10. Does the MRD have an adequate security system (i.e. fire control system, fireproof cabinets)? 11. Is there a touch of decoration in the MRD (i.e. does the furniture match with wall colors)?		General Data: - Location: - Space: - Components: - Ventilation: - Light: - Air-conditioning: - Furniture: - Fire control system:

12. Is there an adequate working area for analysis of the records, coding, indexing, etc.?		
13. Are active and inactive filing areas provided?		
14. Are filing areas accessible to the MRD staff?		
15. Is there a storeroom for the MRD?		
16. Is there space in which doctors may examine and complete records?		
17. Is it attractively furnished?		
18. Does the director of the department have a private office?		
EQUIPMENT		
19. Is there equipment in sufficient numbers and in good working condition to handle the department functions?		
20. Does the type of filing cabinets or shelves used facilitate the efficient storage and retrieval of records?		
21. Is the number of filing cabinets or shelves enough?		
22. Could the filing cabinets or shelves be increased if the need arises?		
23. If filing shelves are too high to be reached from the floor, is a method provided to reach the files on the top shelves?		
24. Does this method ensure the safety of the MRD personnel?		
II. Human Resources		
1. Is the number of MRD personnel enough to effectively perform the functions assigned to the department?		
2. Does the director of the MRD have formal training in MR or hospital administration?		
3. Do the MR technicians (if available) have formal training in MR for at least one year?		
4. Is there an orientation program for new personnel?		
5. Is there a training program for MR personnel (on-the-job training and regular in-service education)?		
6. Does the director of the MRD participate effectively in recruiting new personnel for the MRD?		
7. Is the turnover rate of the MRD personnel within the range		

of the overall hospital rate?		
III. Organizational Structure of MRD		
1. Is there an up-to-date organizational chart showing lines of reporting and authority? 2. Are there up-to-date written job descriptions for all department positions? 3. Has any specific type of job analysis been done in this department? 4. Are job assignments made on the basis of this analysis? 5. Do job assignments result in each employee reporting to only one supervisor?		
IV. Policies and Procedures		
1. Does the MRD have written policies that are necessary to fulfill departmental functions? (if "Yes", the MRD Policy and Procedure Checklist should be reviewed.) ▲ Work assignments? ▲ Performance appraisal? ▲ Deciding on employee leaves? 2. Does the head of the department participate in: ▲ Decisions on hiring and firing of MRD personnel? ▲ Promoting MRD staff? ▲ Buying major equipment for the MRD? ▲ Plans affecting the MRD? 3. Does the head of the MRD evaluate employee performance periodically? 4. Is there a spirit of cooperation in the department? 5. Are there regular department meetings? 6. Are confusion and conflicts regarding responsibilities infrequent? 7. Is there a systematic review for the work of the MRD?		

2. MRD Equipment Checklist

Hospital:

Type of Equipment	Number	Notes (General condition)
Typewriters		
Photocopiers		
Stencil duplicator		
Shelf filing		
Filing cabinets:		
- Fixed cabinets		
- Mobile cabinets		
Index card drawers		
- Manual		
- Mechanical		
Files carts		
Dictating Machines		
Computer:		
- Mainframe		
- Personal		
- Printers		
Others (specify):		

3. MRD Personnel Checklist

Topic: Assessment of MRD personnel
Hospital:

Name of Employee or his Number	Job Title	Education	Years of Experience in MRD	Training in Medical Records	MRD Section/ Unit	Comments

4. MRD Policy and Procedure Manual List

Inventory of a typical MRD Policy and Procedure Manual
Hospital:

Function		Yes/No	Policies	Yes/No	Procedures
1.	Filing & record control		- Numbering system (unit, serial-unit). - Access to file area - Length of time record can be signed out - Record retention and storage - Retention and storage of other health information sources (logs, registers, indices, statistics, admission and discharge lists, computer printouts, etc.)		- Fifing System (terminal digit, middle digit, serial, serial-unit, alphabetical, etc.) - Color coding - Record control system (sign-out, tracking, returns) - Transfer of records. - Filing loose sheets - Auditing files. - Filing system for incomplete records. - Filing system for ambulatory care records
2	Release of health information		- Confidentiality - Authorization for release of information - Removal of records from facility - Telephone requests for information - No release of confidential information - Possible malpractice cases		- Transmittal of information for business office for billing services - Information request control system - Information retreival - Information transmittal - Subpoenas - Preparation of interrogations

			- Answering subpoenas - Ownership of record		- Patient request for own records
3	Processing discharged patients records (assembling and analysis)		- Obtaining discharge patients records from care units - Record content - Abbreviations - Use of initials - Use of signature stamps - Required consultations - Required consents for treatments - Length of time allowed for record completion		- Assembling - Quantitative and qualitative analysis - Reanalysis of complete records - Assigning physicians to complete records - Preparation of delinquent record list - Notification of warnings and suspensions - Records in process for patient care
4	Coding, indexing & abstracting data for health information systems		- Definition of principal diagnosis and principal procedure - Coding system - Confidentiality - Authorized users of indices - Timeliness		- Coding diagnosis, operations, and treatments - Indexing - Abstracting for Information systems - Quality control for abstracting - Transmitting abstracts Validating computer prints
5	Health statistics		- Statistics to be reported to external agendas - Statistics to be reported to administration		- Daily census - Inpatient statistics

			- Frequency of reporting - Confidentiality - Authorized users		- Discharge statistics - Ambulatory care statistics - Monthly service reports - Reports to healh planning department
6	Master patient index		- Numbering system - Access to index (who, when) - Confidentiality - Timeliness		- Assigning numbers - Correcting duplicate numbers - Preparing master patient index cards - Updating index cards - Filing index cards

5. Forms Design Assessment Sheet

Topic: Assessment of forms design
Sample Size: All forms currently used in each hospital
Hospital:

Form	Printed Form Title	Printed Form Code No.	Printed Hospital Name	Place for Pt. Name	Place for Hosp. Number	Place for Ward/ Room	Uniform Margin	Uniform Binding Edge	Uniform Size	Uniform Weight	Notes

6. Forms Management and Control Assessment Sheet

Topic: Assessment of forms management and control
Sample Size: All forms found in stockroom
Hospital:

Forms Not Used for a Long Time and Still Maintained in Stockroom	Duplicated Forms	Forms Needed and Out-of-Stock	General Questions
			1. Who approves new forms? 2. Who controls stockroom? 3. Are sample of approved forms kept on file? 4. Is each form accompanied by a brief statement of its purpose? 5. Does shortage of some forms happen frequently, sometimes, or rarely?

7. Filing and Record Control Function Sheet

Topic: Assessment of filing and record control function
Sample Size: Five filing shelves
Source of Sample: All active filing shelves **Hospital:**

Shelve No.	No. of Patients' Records	No. of Out-Cards	Misfiled Records	Duplicate Records	Folder with Pages Projecting Out	Illegible Names & Numbers on Folders	Out-Cards Remaining When Records Are Returned	Incomplete Out-Cards	Missed Entries on Out-Card

8. Medical Record Contents' Assessment Sheet

Topic: Assessment of contents of MR (order and presence of appropriate forms in the record)
Sample Size: 50 records
Hospital:

Serial Number	Patient Number	Forms Assembled in Order	Forms Not Assembled in Order	All Appropriate Forms Present	Missed Forms	Comments

9. Assessment of Admission and Discharge Record Sheet

Topic: Assessment of admission and discharge record (content)
Size of Sample: 50 records
Hospital:

Serial No.	Patent's No.	Patient's Identification and Administrative Data												Medical Data					Signature of Physician	Legible	Comments
		Name	Number	Sex	Age	Occupation	Marital Status	Health Insurance	Address	Ward room	Attending doctor	Date of admission	Date of Discharge	Provisional Diagnosis	Final Diagnosis	Operation	Code No./ Diag.	Code No./ Operation			

10. History and Physical Exam Assessment Sheet

Topic: Assessment of history and physical exam form (content)
Size of Sample: 50 records
Hospital:

Ser. No.	Patient Number	Chief Complaint	History			Physical Exam.							Signed	Dated	Legible	Illegible	Comments
			Present Illness	Past History	Family & Social	Blood Pulse	Temp.	Pressure	Heart.	Chest Exam.	Local Exam.	Provisional Diagnosis					

11. Assessment of Discharge Summary Sheet

Topic: Assessment of discharge summary
Sample Size: 50 records
Hospital:

Serial No.	Patient's Number	Provisional Diagnosis	Final Diagnosis	Significant Findings	Course in Hospital	Procedures Performed	Condition of Patient on Discharge	Specific Instructions To Patient	Signed	Dated	Legible	Illegible	Comments

12. Operation Report Assessment Sheet

Topic: Assessment of operation report
Sample Size: 50 records (surgical cases only)
Hospital:

Serial No.	Patient's No.	Name of procedure	Date of Surgery	Time of operation	Pre-Operative Diagnosis	Post-Op Diagnosis	Specify the Finding	Specify the Technical Proced. Used	Specify the Names of Surgeons	Signed	Dated	Legible	Illegible	Comments

13. Legal Aspects of Medical Record Assessment Checklist

Topic: Assessment of legal aspects of medical record (general documentation principles)
Sample Size: 50
Hospital:

Ser. No.	Patient's No.	Not All Pages Contain Pt. Name & No.	Pt. Name and No. Not Consistent on All Forms	Consent Missing or Not Sgned By the Patient or Relatives	Some Documents Are Not Original	Erasures	Obliterations	Entries in Pencil	Recording on Non-designated Forms	Recording on Inappropriate Forms	Loose Forms (Not Fastened	Blank Forms (Empty Pages)	Comments

14. Coding and Indexing of Diseases and Operations Sheet

Topic: Assessment of coding and indexing of diseases and operations
Sample Size: 50
Hospital:

Serial Number	Patient's Number	Coded	Not Coded	Indexed	Not Indexed	Complete Index	Incomplete Index	Comments

15. Master Patient Index Assessment Sheet

Topic: Assessment of master patient index
Sample Size: 50 records
Hospital:

Serial No.	Patient's Number	Indexed	Not Indexed	Proper Placement	Improper Placement	Complete Data	Incomplete Data	Missing Data	Same Data As in MR	
									Yes	No

16. Daily Discharge Analysis Assessment Sheet

Topic: Assessment of daily discharge analysis
Sample Size: 50 records (check each record against discharge analysis log)
Hospital:

Serial Number	Record Number	Analyzed	Not Analyzed	Appropriate Clinical Specialty	Discharge or Death	Patient's Days	Notes

17. Ward and Daily Hospital Census Reports Assessment Sheet

Study Topic: **Assessment of accuracy of ward census report and daily hospital census report**
Study Sample: Reports for the last week of Sept. 2004
Hospital:

	Ward:									Ward:									
Results	Admissions			Discharges			Deaths			Admissions			Discharges			Deaths			Comments
Day	Ward cen.	Daily cen.	Adm. list	Ward cen.	Daily cen.	Adm. list	Ward cen.	Daily cen.	Adm. list	Ward cen.	Daily cen.	Adm. list	Ward cen.	Daily cen.	Adm. list	Ward cen.	Daily cen.	Adm. list	
1.																			
2.																			
3.																			
4.																			
5.																			
6.																			
7.																			
Day	Ward:									Ward:									
1.																			
2.																			
3.																			
4.																			
5.																			
6.																			
7.																			

18. Chief of MRD Questionnaire

(These questions are to be answered by the MRD director)

Hospital:

Does the Hospital Administration — Frequently Sometimes Rarely

1. Realize the importance of the MRD?
2. Enforce MRD rules?
3. Provide the MRD with adequate personnel?
4. Provide the MRD with adequate space?
5. Provide the MRD with adequate equipment?
6. Provide the MRD with adequate supply?

How frequently do you encounter problems with the following departments?

7. Medical Staff
   Problems:

8. Nursing Department
   Problems:

9. Outpatient Department
   Problems:

10. Patient Accounts
    Problems:

11. Supply Department
    Problems:

19. General Information Checklist

General information to be collected for each hospital for the year 2003

Hospital:

- Opening date
- Scope of service
- Engagement in teaching and research
- Bed capacity
- Employee / Bed ratio
- Admissions
- Outpatient visits
- Emergency dept. visits
- Average daily census
- Bed occupancy
- Average length of stay

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