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Information requirements in a teaching hospital: the definition process of the patient core record

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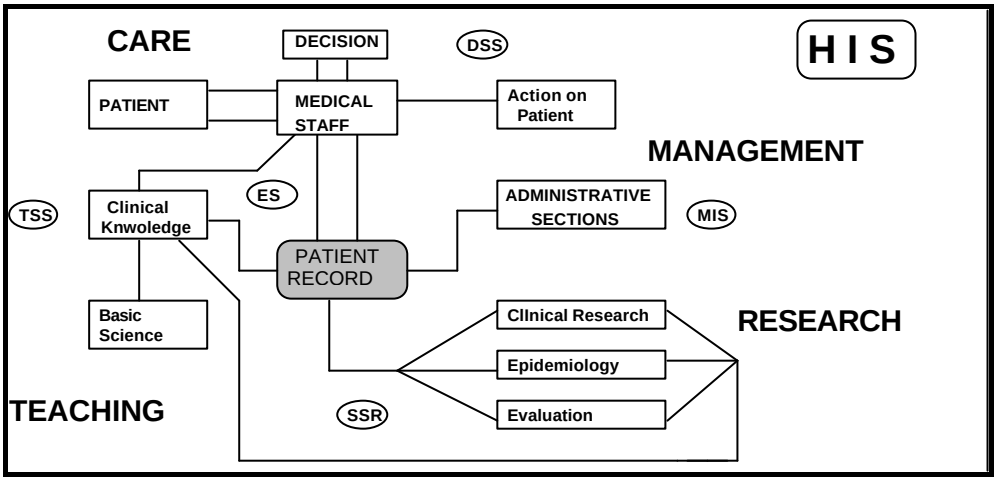

Patient Record: Center of the Hospital Information System (Adapted from Leão, Martinez and Stumpf, 1982)

Abstract
A exploratory research project was undertaken in the Hospital de Clínicas de Porto Alegre (HCPA), a teaching hospital of the Federal University of Rio Grande do Sul (UFRGS, Porto Alegre, Brazil). Our goal was to define the patient core record, with the participation of all users, physicians, nurses, managers, professors, researchers and legal advisors, all concerned with the process of registration, storage and retrieval of information. Data were collected using qualitative methods of Case Study and Focus Group. Content analysis enabled the definition of the information requirements of the Patient Core Record, toward the Hospital Electronic Record.

1. Introduction

In 1994, the Patient Record Committee (PRC) of the Hospital de Clínicas (HCPA) found that the Medical File and Health Information Service (SAMIS) faced a problem: about 3,000 new medical records were created every month after average 46,000 consultations and 1,900 cases of hospitalization. The Medical File had then around 680,000 medical records that take up an area of 665 square meters (almost a whole floor of the hospital building!). Records are often of poor quality or not important to the activities of the institution. In order to bring quality to the information used in health care, research, and teaching, we needed define a way to restructure the organization, content, and means of storing medical records, solving problems like space occupancy, number of medical records, illegibility, unnecessary information, information retrieval difficulties, etc., which hinder access and use of information.

What information should be stored in the Core Record to fully meet the needs of all health care professionals? Following, we have: justification (Section 2), theory (Section 3), method (Section 4), context (Section 5), results (Section 6) and conclusions (Section 7).

2. Justification

The Patient Record is the basic document of a hospital, permeating all activities related to care, research, teaching and management; linking the various hospitals

departments and the different actors involved, containing a large and rich set of data capable of generating knowledge. The Patient Record can be understood as the hospital's main database (DB), from which all Hospital Information Systems (HIS) are derived: Management Information Systems (MIS), Decision Support Systems (DSS), Expert Systems (ES), Teaching or Learning Support Systems (TSS), Statistical Systems for Research (SSR) or others (see Figure). The Patient Record should provide the various users with necessary information ***WHEN, WHERE, and HOW*** the user needs it. Such necessities include support to the medical staff for diagnostic and therapeutic decision-making; researchers in search of data for studies; professors in their teaching activities (in which the technique of case study is often used); managers, in the tasks of billing and managerial reports; and legal staff when support is necessary.

3. Theoretical Basis: PR, IT, HIS, ER

The Patient Record: The Medical Record or Patient Record (PR) is the set of documents generated by all hospital professionals involved with the care delivered to a patient, whether a hospitalized patient or an out-patient. The purposes are: patient care, legal and financial support, and clinical research. Some of the weaknesses pointed by Shortliffe and Barnett (1990): (1) Pragmatic aspects, information contained in the PR should be available WHERE, WHEN, and HOW it is needed; but this is not always possible, the PR may not be found, may not contain what we need, or the information may be unreadable or incomplete; (2) Information redundancy is common, written by different professionals at different times, with different procedures; (3) Influence on clinical research, the retrospective clinical and epidemiological research based on the PR is essential for Medicine, the search is tiresome and difficult, and thus the medical knowledge present in these records is irreversibly lost; (4) The passive nature of the PR.

Information Technology (IT): we must identify **WHO** needs **WHAT** information. The users needs should guide the efforts. IT provides the basis and tools for the development of an IS toward the real needs of a hospital.

Hospital Information Systems (HIS): Since the purpose of a hospital is to provide good care to the patient, this must also be the aim of a hospital information system (Kaihara, 1988).

The Electronic Records (ERs): the Electronic Record (or Computer Medical Record) is the essential unit of the HIS database; it will be computer-based, but not computerized. Many of the patient documents are important for health care during the hospitalization, but after the patient is discharged, they become unnecessary.

4. Research Method

This is an exploratory study and was performed using the qualitative methods of Case Study (Yin, 1994) and Focus Group (Morgan, 1988).

Research Question: What are the relevant and necessary data that must be stored in the Patient Record so as to fully attain the goals of patient care, of teaching, of research and of management support, as well as meeting legal requirements?

Research Assumptions: A more concise, objective Patient Record can contribute to improve performance in the tasks of information retrieval and decision-making by users. It is possible to eliminate PR documents and replace other by consolidated reports, without affecting the fulfillment of legal requirements in force and without causing any damage to care, research, teaching or managerial activities. Such changes will facilitate access to information, improve its quality, and attenuate the problem of physical space faced at present by SAMIS (the Medical File and Health Information Service).

Project Steps: A case study was conducted to evaluate the present situation of Patients Records in HCPA, and a literature review was performed to determine the state-of-the-art of patient records in Brazil and in the world. The Focus Group (FG) technique helped to find modifications that could be introduced. Six groups were established for discussions (Medical Care, Medical Teaching, Nursing Care, Nursing Teaching, Research, and Management), composed of five to ten active, representative users in their categories. Discussions were recorded, transcribed, and synthesized into a document that guided the objective proposal for restructuring the PR.

5. The Organizational Context of the Hospital

The HCPA, was founded in 1941, as part of the Federal University: a public institution with private law under the Supervision of the Ministry of Education; but with administrative autonomy. The Hospital (HCPA, 1995), has a physical area of about 85,000 square meters, with 740 beds, about 670 of which are operational. The out-patient department is comprised of 96 consulting rooms, and the emergency ward has 10 consulting rooms and 24 beds. With respect to human resources, there are 3,170 employees, 290 resident physicians, and 257 professors. The HCPA, a general hospital, houses about 130 different professional categories of staff, including general practice, surgery, psychiatry, gynecology, obstetrics and pediatrics. They perform about 50,000 ambulatory consultations, 2,000 hospitalizations and 150,000 clinical tests every month, which generates about 3,000 new records and the addition of about 200,000 new pages of records. The **main problems** concerning the Patient Records were: physical space for storage; information quality; excess of paper stored; legislation is old, outdated, neglectful, and incomplete; information retrieval for future care delivery, and especially for research, is time-consuming, tedious, and inadequate; frequency of access (about 74,000 records are consulted monthly); research activities are made difficult.

6. Discussion of Results

The study have led us to conclude that (1) the issue of medical records is a central topic of discussions all over the world; (2) the problems facing HCPA are common to all large hospital organizations; and (3) Information Technology (IT) can help to solve these problems. A content analysis (Freitas, Cunha and Moscarola, 1997) pointed out 25 recommendations; providing the basis for "Core Record" definition.

Results of Qualitative Analysis (Stumpf, 1996):

- The Patient Record as used is too long, its information is poor in quality, and it is urgent to improve it.
- The quality of information is damaged by resident physicians' lack of training and absence of a control mechanism. Hospital should: (1) Create a records evaluation committee; (2) Implement mandatory training; (3) Offer a seminar to increase the commitment of professionals to the quality of information in the PR; (4) Use the e-mail system to inform about PR problems.
- Divide the PR into two parts; an active part, readily accessible, with relevant information for patient's care; and an inactive part, retrievable, for storing data that might be useful for legal or judicial purposes or infrequent research.
- Replace the forms stored by consolidated reports.
- Make PR data available on terminals in the network.
- Create standard guidelines specific to each medical specialty for history-taking and physical examination to replace the current free-form records.
- Revisit Weed's (1968) concepts and give priority to the List of Problems as the primary PR synthesis-document.
- Require use of the electronic signature, through the use of passwords by people in the Hospital and institutions.
- Create an Accreditation Committee which would legislate and judge cases involving operational, legal, and ethical issues, as well as control the use of passwords.
- Charge a committee with the responsibility of revising PRs, with the responsibility of identifying those important or which may be used for research purposes.

Content Analysis: the comments across categories are: Nursing teaching (87 comments), Medical care (153), Nursing care (103), Management (199), Research (148), Medical teaching (62). Comments by research project team (14%) were not considered. Most Cited Words/ideas: Paper volume (216), Cutback (152), Storage (142), Computerization (93), Discharge (68), Legislation (62), Summary (47), List (41), Vital (37), Standardization (31), Signature (29), Quality (29), Training (24), Protocols (23), Control (18), Auditorship (16). Analyses are presented and discussed in detail by Stumpf (1996).

The most discussed issues were paper volume, cutbacks, and storage. The different categories of users placed different emphasis on the problems and solutions: Nursing Teaching and Nursing Care category are similar (training, paper volums, summary); as well as participants in the Medical Care and Management groups (cutback, legislation, auditorship, quality, storage), and participants in the Research and Medical Teaching groups (control, computerization).

Core Record Definition: the consensus obtained is...

A. Items that remain

List of problems; History-taking and Physical Examination; Daily progress; Various reports; Anesthesia form; Surgical procedures description; Consultancy; Specialty-specific documents.

B. Items that were replaced

Clinical tests results, replaced by a consolidated report after patient discharge; Daily prescriptions, by a consolidated report on hospitalization.

C. Stored in an inactive PR

Vital signs control sheets; Daily prescriptions; Specific forms of certain procedures like hemodialysis and physiotherapy.

D. Eliminated

All research protocols; All documents not authorized by t Records Committee; Outside tests (delivery to patien Results of individual clinical tests

7. Discussion of Results

The qualitative summary and suggested changes to the Patient Record were presented to HCPA. They then determined: (1) the replacement of the present methods for storing results and the immediate adoption of tests summary; (2) the development of a routine for the elaboration of a computerized summary on patient discharge; (3) the introduction of specific training for the next group of resident physicians (1997); and (4) the undertaking of studies about the technical and administrative viability of dividing the PR into two distinct folders. The composition of a Patient Core Record available "on-line" to all professionals that might need it is being discussed (Stumpf and Freitas, 1997).

Keywords: patient core record - health information systems - hospital - information requirements

References are available upon request from author (hf@ea.ufrgs.br).

This is a document prepared in a task force coordinated by Professor Henrique Freitas based on Stumpf (1996), in cooperation between the ISRC (University of Baltimore, USA), and the GESID (Grupo de Estudos em Sistemas de Informação e Apoio à Decisão), a research group from the School of Management (PPGA/UFRGS, Brazil).

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