ADDRESSABILITY AT THE "PROF. DR. I. CHIRICUTA" INSTITUTE OF ONCOLOGY, CLUJ-NAPOCA. INFORMATION AND DATA ANALYSIS AND MANAGEMENT

Marilena Cheptea, Irina David, Georgia Cirebea

"Medical records and data processing and information" Department,
"Prof. dr. I. Chiricuta" Institute of Oncology, Cluj-Napoca, Romania

ABSTRACT:
Background. *Following the development of a field, namely a relatively new, medical informatics, medical staff concerns also come to include new activities. Institute "Prof. Dr. I. Chiricuta " in Cluj-Napoca is one of the first hospitals in the country 25-30 years ago applied DOS operating system first in the medical information.*
Material and Methods. *It is a descriptive analysis of the evolution of operations and data processing by nurses at a department whose profile is exclusively data management by computer.*
Results. *Analysis and issues, problems and solutions encountered while, that solved the databases of the Institute, which operates nurses and actively working with physicians and computer scientists.*
Conclusion*. One can also note the increasingly diverse activity of medical assistants that are currently being co-opted in other new medical specialties like medical informatics, besides the clinical and paraclinical ones.*
KEYWORDS: *medical assistant, data bases, medical informatics.*

1. INTRODUCTION

Medical assistants have performed and continuously perform perfecting or specializing stages, reaching from time to time new professional levels, and adapting permanently. At the "Prof. dr. I. Chiricuta" Institute of Oncology in Cluj-Napoca (IOCN), medical assistants act according to a plan in cancer prophylactics, diagnosis, therapy, and monitoring.
Gradually, medical assistants had to access databases, using data on patients and the activity of each department. Thus, they try to understand basic principles of using software in the field of medical informatics. In the future, they will probably have to understand even the logical schemas of an electronic informational circuit.
The preparation of medical assistants for the minimum understanding of medical informatics has become imperative. With the help of medical informatics, they might be able not only to "operate", but also to present analyses and interpretations of their activity and results.
The hospital's department of "Medical records and data and information processing" was established in 2006 in this context, and also due to the significant patient flow derived from the addressability at the "Prof. dr. I. Chiricuta" Institute of Oncology.
This department was established as a consequence of the dynamics and complexity of activities involved in data collecting, processing, and electronic storage, or the (sometimes just electronic) transmission of data according to national requirements established by the Ministry of Health and the National House of Health Insurance.
Medical assistants (nurse) in this department mainly employ their knowledge in the encoding of medical information.
Since medical information "intersects" the "absolute value", a large part of working with clinical data is mandatory, medical assistants must cooperate with doctors. The situation became unofficially accepted, in order to allow for the best possible quantification of the medical activity of the entire medical staff. Otherwise, repercussion would be of economical nature and would affect the high quality and standards of medical services.
The present paper aims at analyzing a new direction in the profession of medical assistant and the context in which medical assistants are increasingly involved, in medical informatics, a relatively new (in both shape and essence) hospital branch.

2. GENERAL INFORMATION

2.1 Material and method

We have employed information from the database of the "Prof. dr. I. Chiricuta" Institute of Oncology in Cluj-Napoca and values obtained from activity reports emitted by the National School of Public Health Management and Perfecting in the Sanitary Field (SNSPMPDSB) in Romania and by the National House of Health Insurance (CNAS) in Romania (between: January 1st 2005 – December 31st 2011).

General: the present paper is a descriptive, longitudinal study, a synthesis work of activities involving data management
Focused: it is a leading article for the activity of a new department.
Since 2006, the proportion of medical assistants in the structure of the "Medical records and data and information processing" department has increased. Until 10 years ago, most employees of this department were professional registrars and/or medical statisticians.
Patient data, in electronic format, is stored on 8 servers (250 PCs, work stations) and is saved periodically. Clinical observation sheets (the classical format) on paper are preserved for 30 years in case the diagnosis was malign and 15 years in case the diagnosis was benign; consultation records are either given new identification numbers or are kept for 5 years (according to the frequency of a patient's returning to the institute). Files of deceased patients are preserved for 30 years. One must note, as a peculiarity here, the fact that in case of a malign diagnosis, the patient receives a medical file containing all hospitalization episodes under a single identification number and a malign sheet number.

2.2 Results and discusion

In 1994, record sheets for new patients were emitted after collecting electronic data, but primary data was used only in the identification of the medical file. Otherwise, all data was re-introduced in separate, independent databases.
In 2000, the emission of new patient record sheets was perfected (along the abandonment of alphabetic indexes on paper), with the automatic generation of the identification number and signaling of operation errors (patient personal identification number, existing cases at the time of inclusion in the system), a useful and significant aspect in order to ensure the quality of data and the exclusion of doubled cases.
The management of such information was based on unique identification numbers (IDN), confronted for uniqueness with the patient's personal identification number.
Another improvement adopted in 2000 consisted in the creation of connections between data in the new record sheets (perfected in 2011) that became repetitive (passportal data, minimum patient data) and the diagnosis and other data specific to each hospitalization episode of that patient.
Fig. 1 illustrates the dynamics of annually emitted new record sheets for specialized services requested by patients and provided at the "Prof. dr. I. Chiricuta" Institute of Oncology Cluj-Napoca.
The "Malign Registry" office is also functional since 2000 (Institutional Cancer Registry, electronic format) (Fig. 2).
A DRG codifying office was established in 2002 (Diagnostic Related Group: a system of classifying externalized patients according to their diagnosis) and it ensures a means of associating the types of patients to connected hospitalization costs [***93].
The "Prof. dr. I. Chiricuta" Institute of Oncology in Cluj-Napoca was one of the 21 pilot hospitals in the country nominated and involved in the implementation of the actual financing system of hospitals (2002-2004) according to solved cases.
The financing of hospitals in Romania (USA, Europe, and Australia) is currently ensured, for the continuous hospitalization parts, through the DRG system (DRG financing is an algorithm resulted from the number of externalized cases, the complexity index of these cases (ICM) and the ponderated case cost (TCP)/solved = externalized) Fig. 3.
A case's complexity (or ICM – Index of Case Mix), expresses the resources a hospital needs according to the patients it treats. The value of the ICM depends on the main diagnosis, the secondary diagnosis (co-morbidity/complications), and the surgical and/or non-surgical procedure [***00]).
In the DRG system there are supreme procedures that can receive the value of major diagnosis, namely the ATI, surgery, dialysis, transplant, and in vitro fertilization.
Centralizing data on a national level is performed through a unique application at country-level, which, at the time it was implemented, did not allow for the import of data from informatics applications typical to each hospital. At present, there are specialized companies that provide their services, support, and technical assistance in the import of data from the hospital into the SNSPMPDSB application; they also provide analysis, and, if needed, suggested corrections.
At the level of the IOCN, this is performed by the "Medical records and data and information processing" department with the aid of a few applications created from the invalidation rules of cases ([***12]). A patient's data cannot be imported from the hospital's application, thus all passportal data and patients' minimum set of data are currently re-introduced in the SNSPMPDSB application.
This data transfer is currently under implementation in the case of continuous hospitalizations directly from the personalized electronic application employed by the hospital. Doctors, IT specialists, and medical assistants work together in the design of this data transfer.
Daily hospitalization is a relatively new concept, developed from the need to reduce hospitalization

costs when a patient's health state allows it. Daily hospitalization is the option of choice when offered medical assistance does not exceeded 12 hours. In such cases, the hospital's costs are covered by the house of health insurance exclusively for the medical services offered, thus excluding expenses on accommodation, food, overhead, and cleaning.

The accurate electronic record of performed daily hospitalizations is saved in electronic format since 2003 in the IOCN.

Starting with October 1st 2009, when the integrated Unique Informatics System was implemented (SIUI), activity related to the DRG codification for continuous hospitalization was extended, in a somewhat similar manner, to daily hospitalization cases. This SIUI reporting system is at the basis of financing procedures in the health system, besides the DRG codification system which is a system of funds allocation (Fig. 4).

In order to compare the various activities of hospital services and in order to quantify the health care providing activities, there is an international standardization created through classifications and codifying systems (personalized at country and hospital level: IOCN is specific in its codifying due to the especially complex pathology through co-morbidity and/or complications: ICD-10 and CIM-10). Correspondences between codes assigned by the malign registry (CIM-10) and the DRG codes (ICD-10) are performed automatically (in electronic format for both daily and continuous hospitalizations) ([***02, ***93]).

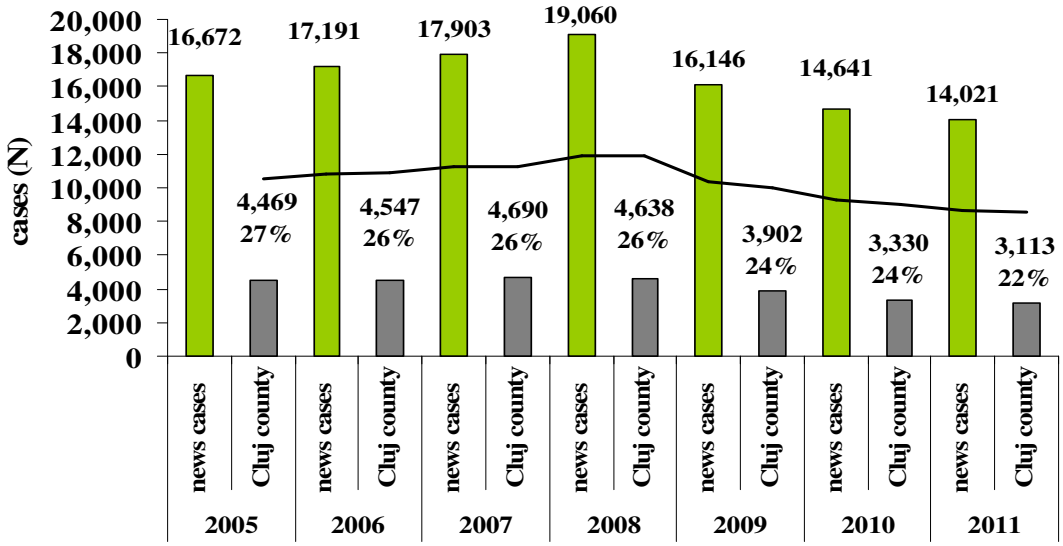

Fig. 1. Addressability dynamics at the "Prof. dr. I. Chiricuta" Institute of Oncology Cluj-Napoca between 2005 and 2011

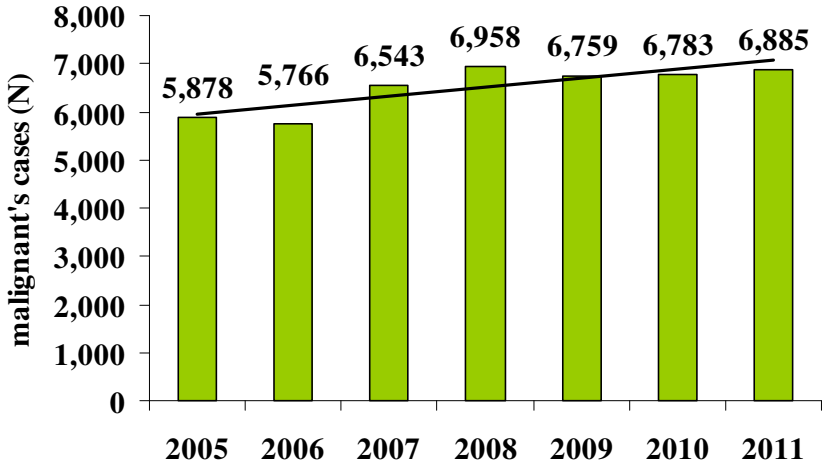

Fig. 2. Dynamics of new malign cases monitored through the inclusion in the institutional malign registry at the "Prof. dr. I. Chiricuta" Institute of Oncology between 2005 and 2011

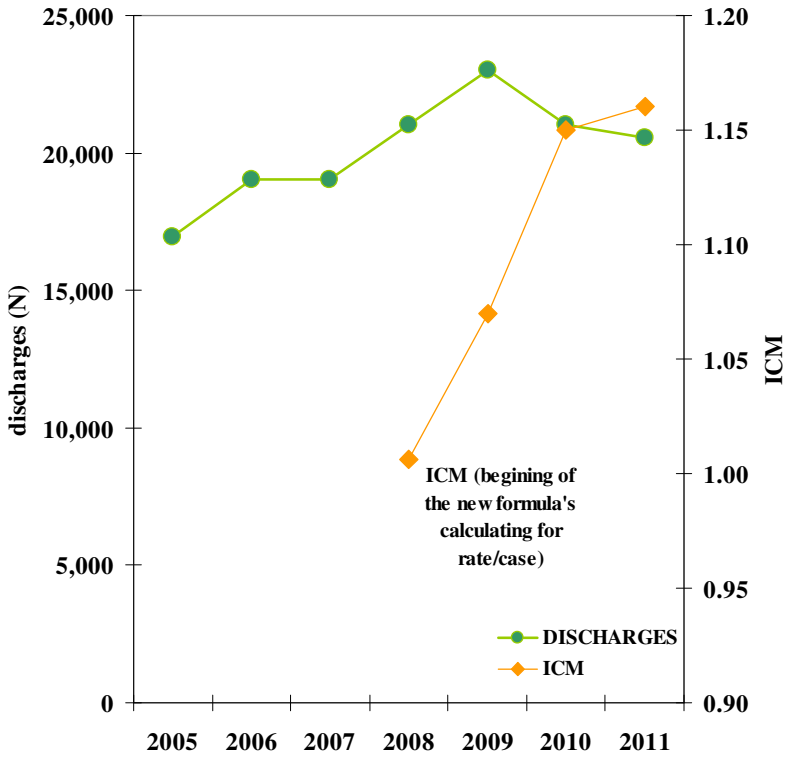

Fig. 3. Dynamics of discharges versus ICM at the "Prof. dr. I. Chiricuta" Institute of Oncology between 2005 and 2011

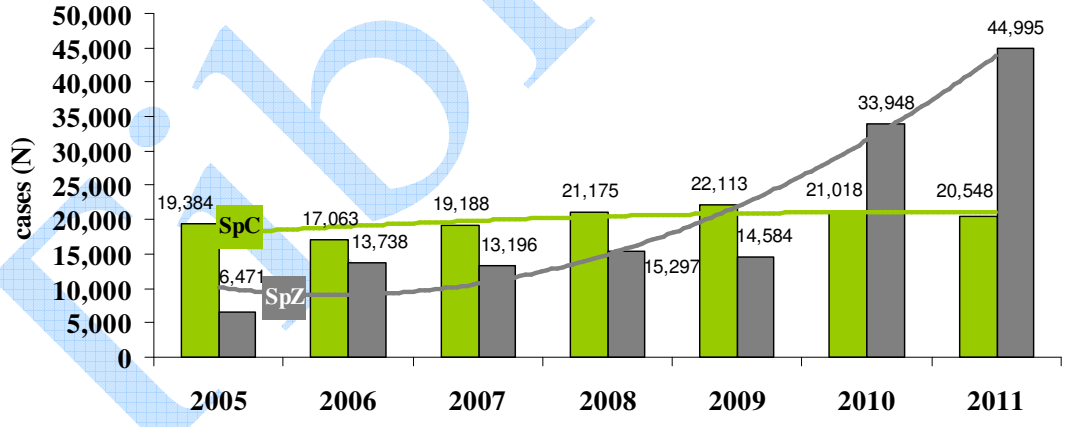

Fig. 4. Daily hospitalizations versus continous hospitalizations at the "Prof. dr. I. Chiricuta" Institute of Oncology Cluj-Napoca between 2005 and 2011

The ICM created in the end of a month, a trimester, or a year by each department and by the hospital at large, is sent to the institute and to all hospitals in the country, as files and reports. Following a joint work performed by the DRG office and IT specialists, there is currently an application, at hospital level, that generates ICM/ doctor. This will probably prove extremely useful in the future, in the light of new trends affecting the national managerial present system in the field of Health Care. Suggestions for a new means of remunerating medical personnel and hospitals take into consideration professional achievement as criteria.

3. CONCLUSIONS

As a first and most significant conclusion, though apparently unconnected to the paper's topic, but

taking into account the hospital's over-specialization, a descriptive analysis indicates that the incidence of new cases diagnosed as malign, in connection to the population turning to the "Prof. dr. I. Chiricuta" Institute of Oncology in Cluj Napoca and somewhat regionally, has been increasing over the last 5 years.
The high addressability towards the "Prof. dr.I.Chiricuta" Institute of Oncology in Cluj-Napoca has generated an ever increasing volume and complexity of work. One can also note the increasingly diverse activity of medical assistants that are currently being co-opted in other new medical specialties, like medical informatics, besides the clinical and paraclinical ones.

REFERENCES

[***00] *** - **DRG's – Diagnosis Related Groups** – *Definitions Manual*, version 18.0, Health Care Financing Administration Contract 500-99-0003 by 3M, 2000.

[***02] *** - **Australian Standards coding ICD-10-AM (Volume 5)** - *International statistical classification of diseases and related health issues, review of the fifth, the changes Australian (ICD-10-AM)*, 2002, the Ministry of Health public, Bucharest, 2002.

[***12] *** - *Approval Rules for validation of the cases under the arrangements for hospitalization continues and the methodology for the assessment of cases invalidated for which the application for revalidation*, order by the National House of Health Insurance in Romania, No 25 of 2012.

[***93] *** - *International Classification of Diseases (CIM)*, revision 10 O. M.S., V1, Medical Publishing House, Bucharest, 1993.