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Data quality assurance – key element in hospitals financing process and patient level analysis

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Romanian hospitals case mix financing history and evolution (I)

Year 2002

- Collecting the medical records from 23 hospitals - over 750.000 records

Year 2003

- Collecting the medical records from almost 400 hospitals (23 of them already included in case mix financing process) – over 3,5 million records

Romanian hospitals case mix financing history and evolution (II)

Year 2004

- Extending number of hospitals included in case mix financing process at 185 – almost 5 million records estimated at central level

Results

- Increasing of data volume collected in the centralized database
- Need for using the most up to date database management systems with more complex business rules

Collecting medical data records (I)

- computer-assisted process that is performed at patient level in each hospital
- NIRDH developed and deployed a software application that collects the MBDS from the hospitals
- NIRDH released technical specifications for data collection for hospitals that use other software application
- Therefore, hospitals can use any management database system for data collect (Microsoft Access, SQL Server)

Collecting medical data records (II)

- The minimum basic data set for medical record consists of personal and clinical data (diagnosis and procedures).
- The unique identification for each medical record at national level contains the hospital code, the department code, the number of medical record and the admission date. This identification number remains unchanged despite any further editing of medical record.

Collecting medical data records (III)

Business rules for the medical record

- Are integrated in the validation set of rules:
  - Age of patient at discharge date
  - The length of stay

- Hospitals can detect a number of operating or coding errors before sending the data to centralized database.

Data transmission

- The data files are transmitted monthly at NIRDH, by email
  - The confidential information about patients and doctors are encrypted before transmittal
  - The data files are protected using a professional data encrypting application
- Currently, we are experimenting the data transmission using electronic signature

Importing data files in a centralized database at NIRDH (I)

- Decrypting and analyzing data files
- Data files importing in a SQL Server centralized database:
  - We import all records that are sent by the hospital
  - There are some distinct situation for the records:
    - New record: import in the database
    - Corrected version of existing records: archiving old version and importing the new

Importing data files in a centralized database at NIRDH (II)

- Analyzing of medical records that are not compliant with technical specification:
  - Detecting the errors committed by the operators when they have electronically filled up the medical records (invalid data types, wrong values for some fields);
  - These records are invalidated from the beginning;
  - Generating data reports for the hospitals with an explanation for each of these records, in order to improve data collecting process;

Grouping and validation process (I)

- HCFA DRG Classification, v.18
- Only medical records that are compliant with the technical specifications are submitted to the process of grouping
- Supplementary, validation rules were imposed by the NHIH
- Examples of clinical validation rule:
  - Duplicate diagnosis

Grouping and validation process (II)

- Age incorrect
- Sex – age conflict
- Sex – diagnosis conflict
- Patients transferred from one department to another inside the hospital and reported distinctly

- Examples of financial rules:
  - Patients WHITHOUT valid social insurance that are NOT medical emergencies
  - Patients admitted at their request
  - Patients reported from hospital department not reimbursed on DRG (chronic care department)

Analysis of medical records after grouping and validation process

- The medical records sent by hospitals are classified in 3 categories:
  - Medical records without national standard; these medical records are not submitted for grouping and validation process and are invalid
  - Valid medical records with DRG assignment
  - Invalid medical records after grouping and validation process
  - All invalid medical records must be corrected by hospital.
- All validated medical records influence the hospitals' case mix index for analyzed month

Medical records modifications

- The invalidated medical records can be corrected ONLY by hospitals quarterly and sent back to NIRDH in order to be submitted again to the grouping and validation process.
- A small number of medical records reported as "invalid" can be admitted by NIRDH as valid, only if they are analyzed by a local clinical medical committee (hospital and LHIH) and cleared. Example: breast cancer at males.

Conclusions

- The quality of hospital input is crucial for case mix financing
- Romanian data collection application and the validation rules help the hospitals in collection and sending of accurate data
- As direct consequences after 9 months the invalidated records count for less than 1% of all cases