The importance of data audit control when creating an Enterprise Master Patient Index

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Abstract and objective

Unambiguous identification of patients is the Achilles heel of Health Information Systems, especially electronic medical records. The Enterprise Master Patient Index (EMPI) solves the problem of maintaining a single list of patients and clinical records across multiple hospitals or health systems. This paper aims to describe how Megasalud, the largest integrated ambulatory healthcare network in Chile created a person identification validation service (PIVS) integrating their legacy patient database, and implemented an audit trail system.

Keywords:

Master Patient Index, Computerized medical records systems

Materials and Methods

Megasalud is Chile's largest medical and dental ambulatory facility, with 1900 practitioners and 850 dentists. In 2000 it acquired an Electronic Health Record and different servers were installed locally to supply the technology supporting electronic access to clinical records distributed throughout the 15 geographical regions. In this context, a patient was required to register each time he or she visited a practitioner in a different region.

This system generated multiple instances of patient information on different local servers on the network and allowed the generation of duplicate records. In 2007, Megasalud decided to build their own Health Information System. The first step included the development of the new Patient Identity Validation Service. Initially an automatic process merged all records where the basic information was identical. However, there was a need of a process for identification of patients to work as a standard at each institution with higher-level validation to check and verify data consistency. Megasalud used the approach proposed by CORBAmed PIDS (Person Identification Service). In the registry system, patient status can only by in either of two modes: active or inactive. **Active patient:** is a patient who is able to be treated in the healthcare institution and may be in one of the following states: *Permanent*: had the "minimum data set" completed and tested. *Validated*: had their record verified by an auditor who ensures consistency of data. *Temporary*: where the minimum data set is neither completed nor confirmed. *Historic*: used to incorporate the historical database of Megasalud. This state was created only once at startup and will gradually disappear through the audit process. *Call*: status of people registered by the call center when booking an appointment. Since it is not possible to assess the accuracy of information provided over the telephone, data verification is required in order to change the patient's state from "Call" to "Permanent". **Inactive Patient (rejected):** These patients cannot be treated in the health institution, as they are not visible to the query systems.

Results

Audit processes are working continuously to clean and debug (merging and inactivating) duplicate records. Table 1 shows the evolution of the Megasalud domain database over a 12 month period.

Table 1 - Evolution of the domain database over 12 months

Status	2008	2009	Difference
Permanent	1.550.198	961.506	-588.692
Validated	0	996.683	996.683
Temporary	9.114	103	-9.011
Historic	1.293.034	97.880	-1.195.154
Call	20.580	11.882	-8.698
Inactive	191.970	1.131.586	939.616
Total Domain	3.064.521	3.199.640	135.119

Conclusion

Creating an EMPI in an environment where new registries are created across decentralized platforms with an increasing number of administrative staff requires the presence of a permanent and on-going audit process on data entered into the database.