Assessing information integration among discharge summaries and case report forms in an Electronic Health Record

Martín Waldhorn[a], Diego Giunta[b], Carlos Otero[a], Damián Borbolla[a], Daniel Luna[a], Fernan Gonzalez Bernaldo de Quiros[a-b]

[a] *Department of Health Informatics, Hospital Italiano de Buenos Aires, Argentina*
[b] *Area of research in internal medicine, Hospital Italiano de Buenos Aires, Argentina*

Abstract and Objective

Formerly in health systems, the case report forms (CRF) were held in parallel with the medical record without integration and with fragmentation of information. This increased the risk of losing important data. With the integration of these CRF with the medical record using the model of structured registry forms this problem seemed to be solved. Structured registry forms allows incorporating information quickly, systematic and with appropriate terminology controls. In the current health information system at Hospital Italiano de Buenos Aires, the information of the CRF are added to the electronic health record integrating the information. It was performed a retrospective, descriptive, cross-sectional study with review of secondary databases. We took two integrated processes (discharge summary registry and CRF registry), The objective of this study was to assess the contribution of these two different sources of data to the completeness of patient morbid history, using as indicators two highly prevalent comorbidities (arterial hypertension and diabetes) and acute clinical diagnosis (hyponatremia). We conclude that, information integration helps to maintain and/or complete the morbid burden of the patients.

Keywords:

Electronic health record, Case report forms, Hospital information system.

Materials and Methods

We performed a retrospective, descriptive, cross-sectional study with review of secondary databases. Hospital Italiano de Buenos Aires (HIBA) has an integrated Health Information System (HIS) with an Electronic Health Record (EHR) and has several institutional diseases-oriented registries such as the hyponatremia registry. The CRF are integrated with the EHR and generates medical problems in the Clinical Data Repository (CDR). We reviewed the sources of the following diagnoses: Hypertension, Diabetes and Hyponatremia; in patients older than 18 years, included in the hyponatremia registry by presenting an hospitalization with hyponatremia diagnosis between January 2007 and December 2008. We assessed whether the source of the data came from the discharge summary of the EHR, from the CRF of hyponatremia, both (agreement of the sources) or neither. Numeric data is presented in total amounts and proportions. Kappa was calculated according to their statistical significance. Statistical analysis was performed with SPSS version 17.

Results

During the period under study there were approximately 74,000 hospitalizations in HIBA, of which 1264 episodes were evaluated, corresponding to 1264 patients.

Table 1-Diseases evaluated and their contribution to the total

Pathology	Discharge summary	CRF	Total
Hypertension	802 (89.7%)	839 (93.8%)	894
Diabetes	223 (89.9%)	233 (94%)	248
Hyponatremia	123 (10%)	1264 (100%)	1264

Table 2-Agreement of the sources

Data Source	Hypertension (894)	Diabetes (248)	Hyponatremia (1264)
Diagnosis from both sources	720/894 (80.5%)	192/248 (77.4%)	123/1264 (9.7%)
Diagnosis from CFR only	119/894 (13.3%)	41/248 (16.5%)	1141/1264 (90.3%)
Diagnosis from discharge summary only	55/894 (6.2%)	15/248 (6.1%)	0

Conclusion

The integration of structured registry forms protocols associated with the EHR helps to maintain and/or complete the morbid burden of the patients, these CRF are one more source of information, which can be complementary as in this case to the information recorded in the discharge summary.