Accuracy of an Electronic Problem List by Primary Care Providers and Specialists

Daniel Luna\textsuperscript{a,b}, Mariano Franco\textsuperscript{c}, Claudio Plaza\textsuperscript{c}, Carlos Otero\textsuperscript{a}, Santiago Wassermann\textsuperscript{a}, Maria Laura Gambarte\textsuperscript{a}, Diego Giunta\textsuperscript{d}, Fernán González Bernaldo de Quirós\textsuperscript{a,d}

\textsuperscript{a} Health Informatics Department, Hospital Italiano de Buenos Aires, Argentina
\textsuperscript{b} Instituto Tecnológico de Buenos Aires (ITBA), Buenos Aires, Argentina
\textsuperscript{c} Intensive Care Unit, Sanatorio Julio Mendez, Obra Social de la Ciudad de Buenos Aires, Argentina
\textsuperscript{d} Internal Medicine Research Section, Hospital Italiano de Buenos Aires, Argentina
Introduction

Accurate patient problem lists in Electronic Health Records are valuable tools for:

- Improving the quality of care
- Communication among professionals
- Facilitating research
- Quality measurement
- Implementation of clinical decision support systems

Difficulties

- Problems lists are often inaccurate, incomplete, and out of date
- Provider attitudes about the problem list vary widely
- Primary care providers are responsible for the majority of the problems list maintenance
Objectives

Primary Objective:
- Evaluate the differences in the accuracy (level of detail or granularity) of problems entered in an EHR depending by type of physician (primary care vs. specialist)

Secondary Objective:
- Analyze if the level of care (inpatient, outpatient, emergency care) has an impact
Setting

Hospital Italiano of Buenos Aires (HIBA)

- Health network, with 2 hospital (750 beds) non-profit University Hospital, 25 outpatient clinics, located in Buenos Aires, Argentina
- 2,800,000 outpatient visits and 50,000 hospitalizations every year
- The hospital has a Health Maintenance Organization with 150,000 members
- Uses a problem-oriented EHR that registers the care process of patients in all levels of care and uses centralized terminology services
- All clinical documentation actions are registered by a clinician are stored in one session. This information is stored using Clinical Document Architecture (CDA) standard
Levels of care

CDA viewer
Methods (I)

- Cross-sectional survey using a random sample of 1,800 of the problems registered between September 1st, 2012 and November 30th, 2012
  - Clustering by:
    - The level of care (Outpatient, inpatient and emergency care unit)
    - Physicians speciality (PCP and SP)
  - Two blinded physicians assessed the CDA documents when a new problem had been created
    - In the case of non-agreement a third physician assessed the CDA
  - Statistic:
    - Chi-square test and statistical significant p value <0,05 were considered
Methods (II)

The Problems were grouped according to the information contained in the CDA:

1) Unsupported problems (No info in the CDA)
2) Supported problems, were divided into:
   2.1) Low accuracy
   2.2) Good accuracy

The physician’s speciality were divided into:

- PCP
  - internal medicine
  - family medicine
  - pediatricians
  - adolescent medicine
  - gerontologist

- SP
  - the remaining clinical and surgical specialities
Results (I)

September 1st, 2012 - November 30th, 2012
764,590 Problems

Randomization

1,800 Problems

6 Terminology revision

97 Non-physicians

3 Incomplete assessment

71 Lack information identification

1,623 Problems

880 PCPs

521 Emergency

743 SPs

539 Inpatient

563 Outpatient
Results (II)

- Problems registered by primary care providers have a higher level of accuracy than those registered by specialists in all levels of care (emergency unit, inpatient and outpatient).

Level of accuracy (detail or granularity) by provider:

- PCP: 739 supported problems, 646 with good accuracy, 93 with low accuracy.
- SP: 619 supported problems, 619 with good accuracy, 147 with low accuracy.

Statistical significance: p<0.0001.
Results (III)

- The work environment also significantly affects the accuracy level of problems registered.
Limitations

- Use of session record
Conclusion

- Problems registered in a Problem List by PCP´s are more accurate (level of detail or granularity) than those registered by Specialists in all of the areas.