A dashboard to improve data quality and analysis in a biochemical laboratory from the Sherbrooke's University Hospital Centre – CHUS

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Resume

Hospital information systems manage huge amounts of daily clinical data. Biochemical tests are an important part of a hospital's routine. Health care professionals rely on these tests to assess their patient's health status, to confirm/exclude a diagnostic hypothesis, to monitor treatment outcomes and adverse drug reactions, and to analyze biochemical profiles for different conditions. Thus, laboratory data must be reliable and trusted.

Sherbrooke's University Hospital Centre (CHUS – Centre hospitalier Universitaire de Sherbrooke) has each year almost 240,000 outpatient visits, 95,000 emergency visits, 31,000 hospitalizations, and 682 authorized beds.

Ariane is the electronic health record system that manages these patients data on a time-critical basis. Every 24 hours, these data are exported to the hospital's clinical data warehouse CIRESSS (Centre informatisé de recherche évaluative en services et soins de santé). A clinical data warehouse is a health data repository conceived to improve data analysis. On the other hand, an electronic health record system, like Ariane, is designed to support clinical staffs during health care delivery.

Although not conceived to influence clinical practice directly, CIRESSS is a rich source of health information for secondary purposes. These include: health care quality assurance, planning and evaluation, research, education and cost containment.

In the present study, we propose a dashboard application for a biochemical laboratory service department from the CHUS, aimed at improving both data quality and analysis. A dashboard is a database query tool aimed at providing users with a global view of potentially diverse datasets.

For the biochemical service, these data include laboratory tests, their reference and critical range values, as well as patient data related to age, gender, diagnostics and length of stay.
Our development focuses this dataset to conceptually represent laboratory information providing interactive and straightforward manipulation of data. The objective is to interface the hospital clinical data warehouse, so as to explore laboratory data on a population-wide basis.

We believe that this visual interactive interface will positively affect analysis reports and laboratory service performance. As a result, laboratory data will be more reliable, critical pathways more effectively and efficiently understood and implemented, costs reduced, and health care improved.

References

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