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Frequency of Laboratory Test Utilization in the Intensive Care Unit and its Implications for Large Scale Data Collection Efforts.

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Abstract

Mapping of local use names to standardized naming schemas such as LOINC® is a time consuming and difficult task when done retrospectively or during the configuration of new information systems. We found that a relatively small number of tests and profiles (106 to 205) represent 99% of all testing done in 3 ICUs studied. In addition, all of the lab studies needed for the most commonly used ICU scoring systems fell into the top 23 lab studies and profiles performed in each ICU studied. We have identified a subset of the LOINC® database which, because of their frequency of use, should be the focus of efforts to bring naming uniformity to ICU information systems.

Background

The proliferation of hospital information systems which utilize local naming schemas to identify laboratory tests has been a major impediment to large scale data collection efforts. The difficulty that this diversity in naming has created has led to national and international efforts to create standardized naming schemas for coding of electronic data elements in the health care setting. One widely accepted naming schema is LOINC® (Logical Identifier Names and Codes). The LOINC® database is quite extensive and contains nearly 20,000 standardized names for laboratory tests. Unfortunately, mapping local use names to standardized naming schemas such as LOINC® is a time consuming and difficult task when done retrospectively or during the installation and configuration of new information systems.

Methods: We reviewed the ordering practices in a Medical, Surgical and Pediatric ICU within a

Large University Teaching Hospital to identify the subset of laboratory tests which represented the majority of tests performed for patients in these settings. Further we compared the results of our findings to the laboratory tests which are required to complete several of the most frequently used ICU acuity scoring systems.

Results: We Identified the laboratory tests and profiles which represent 90, 95 and 99% of all lab tests performed in 3 ICU's. Between 106 and 205 tests and profiles represented 99% of all testing done in our ICU settings studied. All of the lab studies needed for the most commonly used ICU scoring systems fell into the top 23 lab studies and profiles performed in each ICU studied.

Conclusion: We have identified a small subset of the LOINC® database which should be the focus of efforts to bring naming uniformity to ICU information systems. Mapping this small subset of laboratory tests and profiles to LOINC standardized names will simplify the process of collecting data for large scale databases such as ICU scoring systems and will simplify the configuration necessary during the installation of new ICU information systems.

References:

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2. Loinc Background: Regenstrief Institute 2002, Available from URL: <http://www.loinc.org/background>