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HEALTHCARE ASSOCIATED INFECTIONS: AN AUTOMATED SURVEILLANCE SYSTEM

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Statement of the Problem: Developing an automated surveillance system for measuring health care associated infections.

Introduction: Health care associated infections (HAI) are the most frequent adverse event in health care delivery across the world. It is estimated that out of 100 patients admitted, 7 in developed and 10 in developing countries will acquire at least one HAI. In developed countries urinary tract infection (UTI) is the most common HAI, but in developing countries surgical site infection are the most common, it is estimated that 33% of patients are affected by HAI almost 9 times higher than developed countries. A major challenge is how to measure HAI and it requires significant resources in terms of human capital to accurately measure HAI. A big opportunity is to use data and analytics to establish an automated, robust surveillance system to detect prevalence of HAI. It is estimated that a robust surveillance system can significantly reduce HAI by 50%. The aim of the study was to design an automated infection control registry and to integrate it with the existing HER/EMR

Methodology: A fully automated software for detection of HAI was designed. Data was collected from the electronic data base of a tertiary care hospital in India and the data base was integrated with software designed. Detection of HAIs was based on the strict and latest Centre for Disease Control (CDC)/NHSN (National Healthcare Safety Network) Surveillance Criteria 1 for site-specific HAIs.

Findings: The automated surveillance measures burden of HAIs in terms of incidence according to the whole hospital, department, ward, bed, and finally up-to the patient level. The system also provides summary measures of all potentially determinant variables and presents them in a highly intuitive graphical interface to give decision makers actionable evidence.

Conclusion: A robust, reliable and automated surveillance system is the needed to manage HAIs. We present a fully automated infection surveillance system that is based on the scientifically validated CDC-NHSN surveillance criteria. The system provides summary measures on the burden of infections, and relevant determinant variables in an easy and intuitive graphical interface. The system will enable healthcare providers to take decisions to prevent and manage HAIs and enhance patient safety.