Hospital Standardized Mortality Ratios, Edmonton, Canada:
A Tale of Two Sites – Lessons Learned from the UK

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In 2007-08 Capital Health was one of Alberta’s 9 Regional Health Authorities; considered one of the largest integrated academic health regions in Canada, serving 1.7 million people in Edmonton and area. It is now part of Alberta Health Services (AHS).

Covenant Health is Alberta's largest faith-based provider of health care; two of its large acute care sites (previously under Caritas Health Group) are located in Edmonton. Capital Health and Caritas sites worked together, in meeting the healthcare needs of the community.
Hospital Standardized Mortality Ratio (HSMR) – Introduction

• The ratio was developed in the UK, through Sir Brian Jarman at London Imperial College of Medicine, Dr. Foster Intelligence and is used extensively throughout the world, including UK (England, Wales and Scotland), US, Canada, Netherlands, Sweden, Japan, Australia (NSW), Singapore and Denmark.

• The HSMR is a ratio of observed to expected deaths multiplied by 100. A ratio equal to 100 suggests there is no difference between the hospital’s mortality rate & the national average rate; greater than 100 suggests that the hospital’s mortality rate is higher than the national average rate, & less than 100 suggests the hospital’s mortality rate is lower.

• The HSMR is based on diagnosis groups that account for 80% of all deaths in acute care hospitals and is adjusted for other factors affecting mortality (e.g., age, sex, and mix of diagnoses).
Objective / Methodology / Analysis

- The objective was to conduct an in-depth exploration of HSMR in the Edmonton context through related research and use of simulated real time monitoring found in the UK, to mirror the utility of their processes for HSMR and related measurement. In 2005, Capital Health & Caritas Health began its work as one of the selected 8 health regions in Canada who worked with the Canadian Institute of Health Information (CIHI) to pioneer the testing of the methodology for the Canadian adaptation of the HSMR.
Establishing a Process

Using the raw mortality data and analysis, in conjunction with chart reviews, a process was established to ascertain why HSMRs were high and in what hospital area and whether deaths were the result of Adverse Events.

Legend:
- ADE: Adverse Event
- GTT: Global Trigger Tool
- ICU: Intensive Care Unit
- IHI: Institute for Healthcare Improvement
- netSAFE: Capital Health Adverse Event Database
- QI: Quality Improvement
- SHN: Safer Healthcare Now! (www.saferhealthcarenow.ca)
Limitations

- There was a lack of initial consistency at the national level, in the coding of palliative care patients as the Most Recognized Diagnosis vs secondary or tertiary diagnoses. Overall, there were also challenges with interpretation of outlier data. There was and still is a lack of understanding of the measure in its best practice context found in the UK. In Canada, there is currently no real time monitoring though monthly reporting is available for some regions or provinces upon request through CIHI.
“In contrast to morbidity, death is a definite event that has to be registered, by law, and measuring adjusted death rates is relevant to quality of care: indeed, we would argue that reducing avoidable hospital mortality is an important, measurable, health outcome - particularly for patients”.
Recommendations

- Sir Brian Jarman and his team at the Imperial College, Dr. Foster in UK suggest that several measures be used together, initially looking at the HSMRs to see if the adjusted overall hospital mortality is high and then drilling down as necessary using Cumulative Summation (CUSUM), Statistical Process Control (SPC) charts, Standard Mortality Ratios (SMRs), Adverse Event Reports (if available) and outcome measures.

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Recommendations, cont.

- Additional recommendations include: understanding the measure in various contexts, sites, regional, provincial, national and international levels that have implications for patient care; continuing to stay current with possible changes to national coding standards; and exploring the growing body of HSMR research, while at the site level, making use of all relevant discharge abstract and raw mortality data available to understand and interpret the ratio. Lastly, for countries beginning to work with the HSMR there are complexities of interpretation when using this global indicator and leaders should look to the UK and other HSMR experts to assist in correct understanding of how best to translate it in meaningful, peer-relevant ways in conjunction with other outcome and process indicators.
A spokeswoman for the Department of Health (UK) said, “A high HSMR is a trigger to ask hard questions. Good hospitals monitor their HSMRs actively and seek to understand where performance may be falling short and action should not stop until the clinical leaders and the Board at the hospital are satisfied that the issues have been effectively dealt with.”
Questions?

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