The impact of healthcare-associated methicillin-resistant Staphylococcus aureus infections on post-discharge healthcare costs and utilization

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Background
More than 440,000 adults contract a healthcare-associated infection (HAI) in the US each year at a cost of nearly $10 billion [1]. HAIs are classified as a "never event" by the Centers for Medicare and Medicaid Services, which stepped reimposing US hospitals for such events beginning on October 1, 2007 as part of the Deficit Reduction Act of 2005 [2].

Although recent estimates have suggested that the rate of infections due to healthcare-associated infections have indeed decreased, the independent variable has not been measured in the VA since the program was implemented. Without the post-discharge component of HAIs, patients with and without positive MRSA cultures.

The VA has a unique dataset of microbiology reports to identify positive MRSA cultures. And third, we used propensity score matching to reduce the imbalance of observed characteristics between exposed and unexposed groups.

Using electronic data from the VA Decision Support System (DSS), which is an activity-based accounting system, we identified patients with and without positive MRSA cultures [3]. We also controlled for potential confounders, including demographic characteristics, VA healthcare costs in the 365 days prior to admission, length of stay at risk for MRSA infection during index hospitalization, and treatments for patients within first 48 hours of index hospitalization, and comorbidities, as measured using a risk score that combines the Charlson and Elixhauser measures [4].

The key independent variable in our models was an indicator for a positive MRSA culture. We used a negative binomial regression model (GLM) with a log link for outpatient and pharmacy cost regressions [5]. We also performed cost regressions to predict the incremental cost attributable to the VA health care system from October 1, 2007 and September 30, 2010.

We used zero-inflated negative binomial and logistic regression for inpatient encounters and logistic regression for outpatient encounters. We reported both total and variable inpatient costs.

We employed a historical cohort study design and used data from the VA Decision Support System (DSS) which is an activity-based accounting system. We used a negative binomial regression model (GLM) with a log link for outpatient and pharmacy cost regressions [5].

Conclusion and implications
These results suggest that the economic burden of MRSA HAIs may be $481 billion per year, and that these infections are responsible for $481 billion in excess inpatient and outpatient costs and $481 billion in excess pharmacy costs.

Costs and utilization
Healthcare cost and utilization data were obtained from the VA Decision Support System (DSS). These results suggest that the economic burden of MRSA HAIs may be $481 billion per year, and that these infections are responsible for $481 billion in excess inpatient and outpatient costs and $481 billion in excess pharmacy costs.

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Summary & Conclusions
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