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EXSUM HMIS Automated Healthcare Business and Decision Support Systems

Question:

There are great gains to be made from automated forecasting. The MEDCOM is very good at developing sophisticated decision support models; however, these models are stand-alone and require manual manipulation. As a result, these models do not automatically adjust related models when common variables are changed.

Domain/Competencies:

Health Resources Allocation

Performance Measurement and Improvement

Military Medical

Method of research/Model: Literature Review- Modified National Response Framework (Engaged Partnership, Scalable & Flexible, Unity of Effort, Readiness to Act), and Donabedian Model (Structure, Process, Outcome)

I detail a single example of the MEDCOM's decision support and forecasting process using the Military Health System performance plan to display the hazard in manual data manipulation. Using evidence from civilian studies and projects, I highlight benefits of using automated forecasting tools in business and clinical operations.

Assumptions:

Integration and automation would dramatically improve forecasting, clinical operations, and resource efficiency within the MEDCOM. During the initial review of sources, research shows great benefits, and therefore the requirements, for integrating decision support systems in civilian systems.

Overview:

The Unites States Army Medical Command (MEDCOM) has an annual budget of roughly $7 billion and cares for over 1.8 million people globally. Yet, with such a large operation and the complex problems associated with managing a business of that size, the MEDCOM struggles with manually manipulated business forecasting and decision support systems. Most of these systems do not communicate with one another, and many are maintained by individuals who represent single points of failure in the analytical process. There are great gains to be made from automated forecasting. The MEDCOM is very good at developing sophisticated decision support models; however, these models are stand-alone and require manual manipulation. As a result, these models do not automatically adjust related models when common variables are changed. This paper details a single example of the MEDCOM's decision support and

forecasting process using the Military Health System performance plan to display the hazard in manual data manipulation. Using evidence from civilian studies and projects, this paper highlights benefits of using automated forecasting tools in business and clinical operations. Successful businesses, whether involved in healthcare or not, find great success using these types of systems in daily operations. In this time of resourcing uncertainty, accurate business decisions and quality patient care are critically important to the success of the MEDCOM.

Findings:

Using data and automation to improve business operations and patient care is not a new concept. The first computers were introduced to hospitals in the early 1960s. Now that computer technology has become much more sophisticated than the simple punch cards and keypads of the 1960's, algorithms can be programmed to accurately forecast patient demand. One study found it is possible to predict emergency room visits one year in advance with an average error rate of 2.6% to 4.8%. If it is possible for a civilian institution to predict something as chaotic as emergency room visits within single-digit accuracy, imagine the benefit the MEDCOM could derive from similar methods.

Being able to forecast demand accurately would dramatically improve efficiencies and resource management. Improvements include allocating human resources to clinics with high demand from sections with less demand, thereby increasing efficiencies in both areas. Operating hours could be reduced or extended, saving capital. Finally, maintenance activities could be rescheduled to take place during times of decreased volume to avoid patient disruption. This list is not all-inclusive as the possibilities are almost limitless. The key to achieving accurate forecasting is the ability to accurately capture and integrate available data. Using automated data entry and quality checks, the MEDCOM would be able to develop accurate forecasting models. Developing these models and automating systems will be difficult, but it is not impossible.

In Florida, over 1,000 separate users across 67 county health departments enter data into the state's reportable disease database. After automating error prevention measures, the state experienced a 92% decrease in erroneous data by 2013. There are few logical arguments against the benefit of reducing data errors by 92%.

Lessons Learned:

The MEDCOM has developed many sophisticated models, but lags behind the civilian sector in automating and integrating these decision support systems. This makes the MEDCOM less efficient, and it much more difficult to compete with the civilian market.