Optimizing a Business Case for Safe Health Care:
An Integrated Approach to Finance and Safety

Business Case Sample

This resource provides a sample of the accompanying Business Case Template filled out with a business case for a sample safety project. This sample project is adapted from a project implemented at the Hospital Corporation of America (HCA). Data and project details, including project name, are illustrative and provided as examples only.

Vital Signs Project (VSP)

Project Abstract: Implementation of an innovative, cost-effective solution to allow near real-time information flow of vital signs from the bedside into the current electronic health record (EHR), for the coordination of care and the improvement of patient safety.

Team Members:

- Safety – Finance Team:
  - John Doe, Chief Nursing Informatics Officer
  - Lucy Smith, Chief Financial Officer
  - Betty Logan, Chief Nursing Officer
  - Joan Peters, Chief Patient Safety Officer

Project Dates:

Projected start date – October 1, 2017

Go Live: January 10, 2018

Estimated 2 year tracking period and ongoing Resuscitation Committee reports.

Executive Summary

Failure to recognize patient deterioration on a timely basis is a significant safety issue. At Sample Memorial Hospital, during the last 12 months:

- XX patients have died as a result of failure to identify deterioration on a timely basis
- XX patients have been admitted (or readmitted) to the ICU
- Timely detection and response has been identified as a common root cause of this problem

Vital signs provide essential data to guide patient care and treatment decisions. Timely documentation of this information supports early recognition of changes in a patient's condition and intervention. Vital signs data are critical to most decision support algorithms. However, the manual process of transcribing vital signs into the EHR is an inefficient process that not only absorbs nursing time but presents opportunities for delays and errors that create patient safety risks. The Vital Signs Project (VSP) automates the flow of vital signs data into the EHR, reducing the delay in vital sign data availability by an average of 40 minutes, eliminating transcription errors, and enabling timely modified early warning system calculations and alerts. Use of this upgraded technology, VSP increases patient safety and supports clinical workflow specific to data management and validation.

Improving detection and response times will reduce the undesirable outcomes noted above and is explicitly aligned with our strategic commitment to improve safety and reduce harm to patients.

Introduction

The primary objective of this project is to reduce preventable mortality and morbidity and improve care coordination by implementing an innovative, cost-effective solution to provide near real-time information flow of vital signs from the bedside into the current electronic health record (HER) for clinical notification. It is the recommendation of the Safety – Finance team that Sample Memorial Hospital install innovative vital signs middleware technology throughout all non-critical care units of the hospital. Further, it is our recommendation that the organization enable Clinical Decision Support (CDS) Utilizing Modified Early Warning Scores (MEWS) and transmit MEWS alerts to Rapid Response Teams.

Implementation of the VSP process would consist of replacing fully depreciated monitoring equipment and providing resources to ensure safety and support implementation of technology, decision support, and improved workflow.

When patients have been admitted into the hospital, time is of the essence. The National Patient Safety Agency (NPSA) has studied clinical deterioration and confirmed that the close monitoring of changes within a patient's physiological status is critical to reduce mortality, avoidable morbidity, length of stay, and other associated health care costs (National Patient Safety Agency, Great Britain, 2007).

The VSP solution has been piloted on one patient care unit to test the assumptions put forth in this business case, to collect baseline data, and to test a new clinical process for patient monitoring and team communication that includes the new technology. During the 30-day pilot, staff noted several patient "saves," including the one below:

An RN and patient care technician (PCT) were preparing a post-partum patient for discharge. Before wheeling her downstairs to her car, the PCT took a final set of vital signs using VSP. The RN received a MEWS alert through the EHR. The RN returned to the room, reassessed the patient and determined that a post-partum hemorrhage was beginning. The patient was returned to bed and a rapid response team was called.

The VSP was developed to ensure prompt identification of early deterioration in a patient's condition. Increased timeliness of Rapid Response Team activations, decreased code team activations, improved failure to rescue metrics, patient data error avoidance and ultimately reduced morbidity and mortality are key benefits identified through the VSP pilot project. In addition, through a reduction of charting steps and a decrease in average time for vitals from less than 1min as compared to previous average of 41 min), PSV will increase workflow efficiency and provides more direct care time supporting improved patient care and satisfaction. Additionally, we predict that clinician satisfaction will increase, costs associated with length of stay (LOS) will decrease, rapid responses will increase, codes will decrease, returns to intensive care will decrease, and sepsis rates will decline.

Measurement Methods

The pilot study demonstrated significant reduction in response time. We plan on closely tracking the outcomes of this project post implementation through a combination of quantitative and qualitative data.

Quantitative:

- Outcome measure data – The 60-day timeframe for an initial 60 day post implementation analysis of data will provide enough time to ascertain current workflow clinical process and clinician/staff satisfaction.
- Time studies performed randomly on each patient care unit before and after implementation by the analysts assigned to the project team.
- Metrics and key performance indicators
    - The 60-day timeframe is not long enough to obtain any significant metrics and/or key performance indicators. Accordingly, the following metrics will be incorporated into the Resuscitation Committee reports for the next two years:
        - Comparison in rate of code team and rapid response team activations on the VSP units before and after implementation
        - Comparison of unplanned returns to critical care on the VSP units before and after implementation

Qualitative:

- Surveys – Clinician satisfaction: A 10-item electronic satisfaction survey will be administered to nursing staff 30 days after implementation. Results will be analyzed by the analysts assigned to the project team.
- Interviews/stories – Nurse leaders will solicit feedback and stories from staff during the first 30 days after implementation through structured questions in the employee rounding tool. The analysts assigned to the project will summarize the notes from the employee rounding tool.
- Journal – A Patient Saves journal will be available on every patient care unit for the first 60 days, and staff will be asked to share any Patient Saves stories in this journal. The analysts assigned to the project will collect the journals at the end of 60 days and summarize the stories.

Cost Estimations

Estimated Cost of VSP Project

Overall implementation costs:

- Pilot technology and equipment: $4,700 per single unit @ 4 needed for pilot unit = $18,800
- Facility technology and equipment: $4,700 per single unit @ 34 needed for hospital = $159,800
- Total units needed for hospital = 38
- Staff salaries for pilot process training (1 hour training per unit): $27/hour @ 23 employees = $621(1 hour)
- Staff salaries for facility process training (hospital staff): $621(342 employees) = $212,382
- Total number of employees = 365
- Overall pilot cost (technology/equipment + salaries/process) = $19,421
- Overall facility cost (technology/equipment + salaries/process) = $372,182
- Overall implementation cost (pilot + facility) = $391,603
- Provision for contingencies: 8% ($391,603) = $31,328.24

Costs to Sustain and Maintain:

- Maintenance contract: $12,000 annually (updates, annual equipment calibration checks, technical and equipment support, etc.)
- Operational costs: Minimal increases in electricity use as more monitoring units available post implementation per hospital unit than before

Impact

The Impact to the organization associated with VSP is expected to be the following:

1. Reduce mortality & morbidity from failure to rescue by improving timeliness of team response to patient deterioration
2. Faster access to critical patient data with timely alerting to intercept and minimize risk of patient deteriorations
3. Timely, safer, and more effective care
4. Better utilization of nursing time, rapid response teams
5. Decreased care costs with earlier intervention
6. Potential impact on pay for performance if failure to rescue is added to payer contracts; reduced liability and reputational risk
7. Staff satisfaction, more time to spend on other patient care activities

Timeline and Results Projection

- Anticipated start date: October 1, 2017
- Go Live: January 10, 2018
- 60 day check point: March 10, 2018
- Checkpoint Data Analysis: April 10, 2018
- Estimated 2 year tracking period and ongoing Resuscitation Committee reports.
- Regularly scheduled progress reports will be generated and distributed to the steering committee.

Time savings for direct care staff, increased clinician satisfaction, decreased opportunity for data errors (e.g., transposing numbers, entering information on wrong patient) and increase in staff productivity.

Long-term payback potential (past-60 analysis period): Decrease in patient length of stay (LOS), decrease in patient mortality, increase in safety of care provided, decrease in readmissions, increase in patient experience, increase in effectiveness of care, increase in timeliness of care, increased time for effective decision support regarding patient condition, decrease in failure to rescue, decrease in sepsis, decrease in unplanned returns to intensive care unit (ICU), decrease in code blue activations, increase in rapid responses, decrease in sentinel events, decrease in medication errors related to weight measurements, and many more statistically significant measures.

Anticipated Changes: The immediate improvement will be perceptible through clinician, staff, and patient satisfaction and improved patient care.

Cost/Business Analysis

VSP replaces fully depreciated monitoring equipment, adds clinical decision support to vital signs monitoring processes, and optimizes clinical team communication processes with the goal of improving the detection and response to clinical patient deterioration.

VSP Project Assumptions:

- Wireless infrastructure is sufficient to support new technology on all units
- Rapid Response Team beepers will be able to receive alert messages
- Current Rapid Response Team staffing will be sufficient to meet increased demand
- Current biomed processes and resources will be sufficient to maintain new devices
- Performance dashboard available to monitor impact
- Improved failure to rescue scores, decreased resuscitation team activations, and decreased unplanned returns to critical care.

Case Study/Success Story (Staff): A patient care technician (PCT) had a patient load of 10. Out of 10, two were brand new surgical patients. Surgical vital signs had been ordered (Q15min. x 4, Q30min. x 2, Q1 hr. x 2, then Q4 hrs. after that for the first 24 hours. Q=every) by the performing surgeon. The PCT was concerned because both patients underwent complicated surgeries. The surgeon requested immediate notification of both patients' vital signs to ensure no decline in status. The PCT was responsible, not only for the two surgical patients, but for eight others as well. VSP allowed the PCT to properly care for both patients without having to focus solely on obtaining and entering vital signs. While one patient had an uneventful recovery, the other patient experienced a consistent decline in blood pressure and the VSP alerted staff immediately. The rapid response team was called and the patient was provided with the necessary care with no increased length of stay or readmission to the ICU.

References

National Patient Safety Agency (Great Britain). 2007. *Recognising and responding appropriately to early signs of deterioration in hospitalised patients*. National Patient Safety Agency.

Sutton J, Austin Z. 2015. Qualitative research: data collection, analysis, and management. *Canadian Journal of Hospital Pharmacy*, 68(3), 226.

Appendices

No appendices included.