One-year progress of a large-scale collaborative project for improving the care of mechanically ventilated patients

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One-Year Progress of a Large-Scale Collaborative Project for Improving the Care of Mechanically Ventilated Patients

Introduction

The National Approach to Standardize and Improve Mechanical Ventilation (NASAM) project is a national collaborative quality improvement project in Saudi Arabia, which aims to improve the care of mechanically ventilated patients by implementing evidence-based practices with the goal of reducing the rate of ventilator-associated events (VAEs) and therefore reducing mortality, mechanical ventilation duration, and intensive care unit (ICU) length of stay.[1] The project has been launched on January 1, 2019. The objective of this article is to review the progress of the project in the last year and reflect on the milestones, achievements, as well as opportunities for improvement.

The project has been built around implementing bundles of evidence-based practice, including the use of subglottic suctioning, head of bed elevation, spontaneous awakening trials, and spontaneous breathing trials, which have been incorporated in the Assessing pain, Choice of analgesia, Delirium management, Early mobility, and Family engagement (ABCDEF) bundle and minimization of sedation and avoidance of neuromuscular blockers, unless there is a clear indication.[2-4] Details of the project description have been described previously.[1]

Comprehensive Unit-Based Safety Program Teams

NASAM utilizes the concepts of the Comprehensive Unit-Based Safety Program (CUSP), which is designed to help clinical teams make care safer by combining improved teamwork, clinical best practices, and the science of safety.[5] Participating ICUs in the NASAM project have formed CUSP teams. The teams consist of physicians, nurses, respiratory therapists, occupational/physical therapists, and, in some units, infection control practitioners, although there are some variations among different units. These teams hold internal meetings to review their unit’s updates, progress, challenges, and ways to improve and drive change. They review reports of NASAM bundle compliance and take action plans. They escalate issues that require further actions to hospital administration. CUSP teams from different hospitals present their experiences in the bi-monthly webinars and share videos of early mobility as well as any established protocols. Most CUSP teams communicate through WhatsApp groups.

Leadership Support

Recruiting executives as active team members is one of the components of the CUSP framework. For this project to reach its target, we first aimed to seek the support from the leadership of stakeholders, which involved multiple meetings and discussions. Engaging senior executives to partner with the staff at unit levels bridges the gap between senior management and frontline providers and facilitates system-level perspective on quality and safety challenges that exist at the unit level.[6] The support continuously provided by the executives of each participating health sector has been tremendous and fundamental in carrying out the project forward. High-level engagement meetings are done on a regular basis.

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basis to provide updates, present reports, discuss issues and solutions, as well as plan for the next steps forward. The project is conducted as a collaborative work across six healthcare sectors in Saudi Arabia and in collaboration with the Armstrong Institute for Patient Safety and Quality. The leadership support in all participating sites was and remains instrumental in facilitating site enrollment and ICU staff engagement.

Site Recruitment

Since its launch in January 2019, 78 ICUs from 48 hospitals in 27 cities have registered for the project. Site recruitment has been achieved through communications with the leadership of different health sectors. Communication through the Saudi Critical Care Society and the Saudi Critical Care Trials Group has been also instrumental. Direct communications with multidisciplinary teams across has helped in getting the buy-in from the frontline staff to serve as catalysts in bringing about change. Ongoing communication, via various platforms, including e-mails, telephone calls, web, and teleconferences as well as WhatsApp groups, has provided a continuous loop of communication.

Workshop

A 2-day workshop was conducted on November 19–20, 2018. This was attended by multidisciplinary healthcare teams from different regions of the country. One of the workshop’s aims was to launch of the project. Keynote speakers were invited to share their expertise in the different aspects of mechanical ventilation as well as patient safety.

Website

A NASAM web portal (https://ngha.med.sa/English/ eServices/nasam/Pages/default.aspx) was created to provide an educational platform for frontline staff; various resources are also available, including protocols, in addition to the NASAM YouTube channel where bi-monthly webinars are uploaded.

Database Management

A NASAM electronic portal was created for data entry. Minimal data collection and entry are done twice per week. The database then shows real-time benchmarking graphs. All units have access to their performance graphs, and teams can track progress over time and compare data to benchmark against another unit from the same hospital, from the same health system, and with the whole cohort [Figure 1].

The graphs include process of care measures including use of subglottic suctioning, spontaneous awakening trial, spontaneous breathing trial, less frequent use of neuromuscular blockers, and early mobility. It also includes outcome measures including VAEs and mortality.

Webinars and Training

The NASAM webinars are being held every other week. Through the webinars, the project is being reviewed with all units. In addition, teams were asked to share their experiences as well as their success stories. Recognizing and highlighting success stories provide boost to the frontline staff. Some outstanding achievements such as having highly functional CUSP teams and making progress on early mobility are presented from several participating teams. Further, the webinars serve as an educational venue to share best practices and protocols. For example, protocols for spontaneous awakening trials, spontaneous breathing trials, and use of subglottic suctioning are presented and discussed in the webinars.

Accurate data collection is an integral part of this project. Therefore, training sessions for the use of the database, VAE form data collection, and understanding the definition of each data component are all presented. Various topics have been discussed, including in-depth
definitions of VAEs, early mobility, delirium, and the ABCDEF bundle.

For 2019, a total of 33 webinars (which includes bi-monthly scheduled and ad hoc webinars) have been conducted for the year.

**Measurements of Processes of Care and Outcomes**

**Audit and feedback**

In addition to the real-time performance feedback and benchmarking through the NASAM platform, the management team generates monthly reports that are sent to each unit. Using this information, participating ICUs track their performance over time and compare their performance with others. The CUSP teams are asked to share reports with the team members, frontline staff, and hospital leaders to sustain engagement and to drive change. Additional feedback is also done through direct communication, phone, ad hoc webinars, and site visits to address issues and challenges.

**Patient safety culture survey**

The Hospital Survey on Patient Safety Culture is being used by the NASAM project to assess patient safety culture in participating sites. It was used once at the...
beginning of the project and is planned to be repeated to track change. [7]

**Future Plans**

We plan to extend its implementation until December 31, 2020. We will continue to introduce the use of VAE measurements in hospitals not adopting to VAE. A key to success is to sustain the engagement of NASAM teams across all hospitals.

**Conclusion**

Launching a national collaborative quality improvement project is progressing well in Saudi Arabia. Such project requires high level of collaboration and leadership support.

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**Conflicts of interest**

There are no conflicts of interest.

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