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Leveraging Existing Vital Signs Monitors for Early Warning Score Implementation

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ABSTRACT

In 2024, University Health Network (UHN) made the decision to implement National Early Warning Score 2 (NEWS2) in all inpatient units, emergency departments, and some outpatient areas. NEWS2 leverages vital signs measurements to identify risk of patient deterioration (Royal College of Physicians, 2017). This Quality Improvement initiative was aimed at achieving zero serious safety events related to failure to recognize patient deterioration, and to standardize escalation of care. As a high-impact project, implementing NEWS2 predictably presented considerable logistical challenges, especially for an extensive hospital network such as UHN. However, it also presented a number of novel challenges for Medical Engineering, in maintaining interoperability of medical devices and providing support post-implementation.

For NEWS2 rollout, Medical Engineering's role was initially limited to determining the feasibility of score calculation using the existing patient monitoring fleet. However, as logistical and workflow challenges arose, the team's role grew to support evolving project requirements. Crucially, the Medical Engineering team investigated compatibility of changes with the existing workflows and advocated for greater change management in clinical areas most impacted by the project. Beyond this, the team leveraged existing vendor relationships to negotiate changes to software at no cost, demonstrating the critical value of Medical Engineering in large-scale projects.

Post-implementation support of the vital signs monitors (VSMs) fleet that enables NEWS2 has presented more novel challenges. Notably, for UHN's VSM fleet, deploying a configuration change requires Medical Engineering staff to manually locate and upload a file to each VSM. With over 900 VSMs, any small update becomes a huge work effort requiring risk-benefit analyses and subsequent rollout planning. This was the case with some clinical requests for features post-go-live, and unexpected updates to the hospital's IT systems in late 2024, all of which required configuration changes. Additionally, there is a constant need for more EMR-connected VSMs as programs expand and awareness of NEWS2 value grows. This has raised the need for Medical Engineering to standardize the process for units to request and pay for new VSMs.

The rollout of NEWS2 at UHN has demonstrated the importance of engaging Medical Engineering teams early, and has reinforced an important ongoing role that Medical Engineering departments have for interoperability in healthcare technology. A key takeaway from this project has been the importance of Medical Engineering acting as a leader for clinically-initiated projects that include device-related implementations, and pushing to have stronger voices at the project leadership level when planning hospital wide projects. Further, this case study hopes to emphasize the changing need for post-implementation support from Medical Engineering.

Keywords: Inventory Management, Early Warning Score, Vital Signs Monitors

Conflict of Interest: The authors declare that they have no conflict of interest.

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