Background

The correct timing of insulin administration in diabetic patients admitted to the hospital is important for the prevention of transient and serious glycemic deviations that could lead to negative patient outcomes.

In November 2021, Baptist Hospital identified an area of opportunity for quality improvement related to the process of subcutaneous insulin administration.

In addition to barcode scanning, manual verification of the insulin dose by the primary nurse and another nurse was required prior to administration. Patients were experiencing delays in the timing of their insulin dose and nurses were reporting frustration with the process.

Nurses working in clinical units with five or six patients on insulin struggled with the process. Another problem was the difficulty some nurses had in locating the multi-dose insulin vials from the automated dispensing cabinet system. Members who retrieved the vial for dose preparation would fail to timely return these for the next user.

Methods of Implementation

In November 2021, a revised workflow was piloted in four nursing units after education was delivered to the staff.

In February 2022, the interdisciplinary team regrouped to follow up on the feedback from the four nursing units that had gone through the implementation of the revised workflow. There were no reported adverse events or medication errors related to the revised process.

In July 2022, the hospital went live with the removal of the second nurse requiring manual verification of the subcutaneous insulin.

The project followed the Plan-Do-Study-Act (PDSA) model for performance improvement.

In September 2021, an interdisciplinary group of clinical nurses, pharmacists, nurse leaders, clinical nurse educators, and clinical informatics personnel began the cycle by reviewing the literature on the process of insulin administration.

Project Goals/Objectives

The goal of this performance improvement initiative is to improve the timing of medication administration, ensure multi-dose insulin vial is in the automated dispensing cabinet system each time, and improve the workflow of the nurse (Figure 1).

The goal was also to include interdisciplinary collaboration, engaging all stakeholders, to improve timely care and glycemic control for patients requiring this regimen.

Outcomes

The results of this quality improvement project demonstrated the importance of streamlining the workflow for insulin administration using the PDSA model. The nurses were able to transition to the new process, maintaining the barcode scanning process, but removing the independent physical verification by the second staff nurse. Nurses were surveyed post implementation (Figure 2).

Discussion

Prior to the implementation of the revised workflow, about one-third of the scheduled insulin administrations between January 2022 to July 2022 were administered over the 30-minute scheduled time.

Noticeable improvement was achieved in August 2022, immediately after implementation of the revised workflow hospital wide. The compliance rate with the revised insulin process increased from 76% to 100% over a period of three weeks (Table 1) with no reported medication errors associated with the change in workflow.

References

