Dot-Com Bundle: Leveraging Electronic Auditing to Improve Outcomes

Jennifer Rao, BSN, RN, CPN, CSSGB

The implementation of electronic auditing resulted in improved unplanned extubation bundle compliance, and stabilized patient outcomes.

Background

Hospital-acquired conditions (HACs) significantly impact patient outcomes and healthcare costs. Evidence-based care bundles effectively prevent HACs by standardizing best practices and maintaining compliance through required consistent monitoring. As Hut-Mossel et al. (2021) found, effective auditing improves care quality through performance awareness and targeted education.

Traditional paper-based auditing processes often create workflow disruptions and delayed feedback. Electronic clinical auditing tools enable more efficient data collection and timely reporting (Kidd et al., 2020), increasing audit completion rates and improving feedback timeliness.

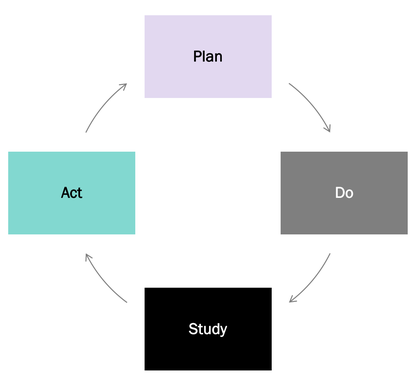
At Children's Memorial Hermann Hospital (CMHH), the unplanned extubation (UE) bundle initially implemented decreased UE rates significantly. However, a couple of years post implementation, rates showed multiple months outside control limits. This deterioration highlighted the need for systematic compliance monitoring. Henrique et al. (2020) emphasized that sustainable improvement requires ongoing measurement and feedback loops – elements lacking in our initial implementation, which likely contributed to gradual practice drift affecting patient outcomes.

Purpose

- Develop user-friendly electronic auditing system for unplanned extubation (UE) bundle
- Integrate QR code technology to increase audit completion rates
- Enable real-time education and feedback at bedside
- Create sustainable framework for timely compliance data reporting
- Improve UE bundle adherence and stabilize UE rates
- Design scalable process applicable to other hospital-acquired conditions

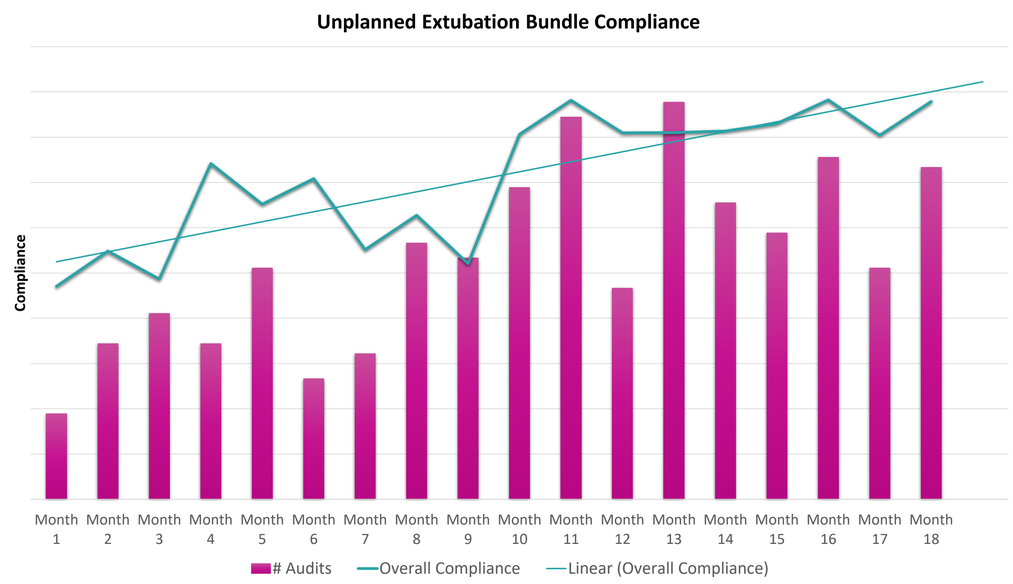
Method

- Conducted three PDSA cycles with interdisciplinary team to develop UE bundle audit tool
- Transitioned from paper to QR code-accessible electronic format
- Trained HAC champions to perform audits and provide real-time education
- Implemented monthly data review process to guide focused educational initiatives
- Standardized data collection and reporting protocols



Outcomes

- UE average bundle compliance increased 34% within 1 year of implementation
- UE rates have remained within control limits following implementation
- Increased number of completed audits by HAC champions
- Improved turnaround time for data reporting to clinical units
- Successfully expanded electronic auditing process to other HACs: Pressure injuries, CLABSI, CAUTI



Unplanned Extubation Bundle Compliance

Conclusion

Electronic auditing via QR code technology offers an efficient, sustainable approach to improving bundle compliance for hospital-acquired conditions, providing timely data for targeted education while supporting frontline staff in real-time quality improvement efforts.

References

Henrique, D. B.; Filho, M.G.; Marodin, G.; Jabbour, A.B.L. de S. & Chiappetta Jabbour, C. J. (2020). A framework to assess sustaining continuous improvement in lean healthcare. International Journal of Production Research, 59(10), 2885–2904. doi.org/10.1080/00207543.2020.1743892

Hut-Mossel, L.; Ahaus, K.; Welker, G. & Gans, R. (2021). Understanding how and why audits work in improving the quality of hospital care: A systematic realist review. PloS one, 16(3), e0248677. doi.org/10.1371/journal.pone.0248677

Kidd, H.; Rankin, S. & Gillman, L. (2020). Developing the Next Generation in Electronic Clinical Auditing: CoBRA Tool. Journal of nursing care quality, 35(4), 317–322. doi.org/10.1097/NCQ.0000000000000461

Reinhart, R.M.; Fink, A.; Bhattarai, S.; Cheng, J.; Saha, A.; Worten, K.; Cronin, J. & Shah, R (2022). Engagement and Bundle Compliance during COVID-19: A Virtual Strategy. Pediatric Quality and Safety 7(2), e540. Pediatric Quality & Safety (lww.com)

Jennifer Rao, BSN, RN, CPN, CSSGB
Senior Project Manager, Quality & Safety

Jennifer.Rizzi@memorialhermann.org