Improving Pediatric Nursing Practice Utilizing Electronic K-Cards

Renae McIntosh DNP, RN - Coordinator of Nursing Research and EBP

Introduction

Kamishibai cards (K-cards) are forms created to find abnormalities and errors in the manufacturing business. Efficient and correct processes results green. Abnormalities or errors in a process produces a red result. Hospitals began utilizing K-cards as an educational and quality metric to reinforce compliance with evidence-based policies and nursing processes (Kamity et al., 2021; Lehane et al., 2022; McVey et al., 2022; Salinas et al., 2021; Shea et al., 2019; Stewart, 2021; Wu et al., 2022). Nurses complete K-cards by watching other nurses complete a process, observing a patient's environment or assessing a nurse's knowledge. Traditionally, K-cards are completed on paper. Studies show that electronic K-cards are also successful (Corrigan & Mack, 2019; Frith et al., 2019).

Inquiry, Purpose

Problem: Paper K-cards allow for audit results but lack a record of knowledge gaps and barriers. Unit leadership struggle in addressing unit barriers and knowledge deficiencies without adequate evidence.

Inquiry: Does implementing electronic K-cards in the pediatric service line compared to paper K-cards increase educational value, decrease completion time and improve quality of care over one year?

Purpose: Transition K-cards to an electronic format to evaluate process efficiency and reliability, completion rates and nursing knowledge

Synthesis of Evidence

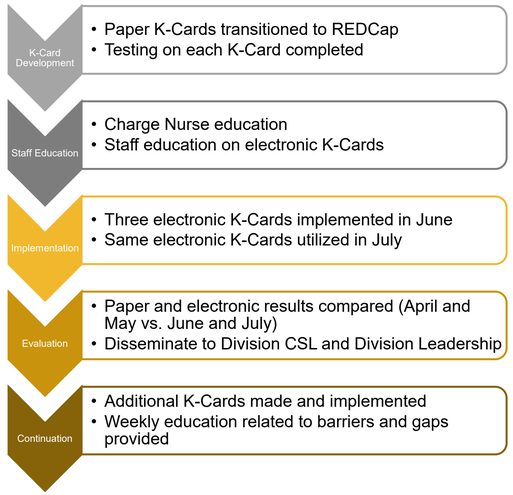
Twelve articles were included in the synthesis of evidence. All articles included implementation of paper or electronic K-cards in an acute care environment.
Databases searched: CINHAL, PubMed, Ovid, Science Direct and articles referenced in articles

Keywords: k-card or k-cards or Kamishabai or Kamishibai AND electronic; k-card or k-cards or k cards or kamishabai or kamishibai

LOE I	LOE II	LOE III	LOE IV	LOE V	LOE VI	LOE VII
			2		10	

Themes: NDNQI Results, Sustainability and Electronic Transition

Methods



IRB

Approved as a quality improvement project by the University of Missouri IRB department.

Setting, Participants and Time

- A large, 500+ bed Midwest academic medical center
- A Pediatric and Pediatric Intensive Care Unit (53 beds) using paper K-cards since 2019 as a part of Children's Hospital Solutions for Patient Safety
- Evaluation time of one year

Intervention

Paper K-Cards were transitioned to an electronic format. Charge nurses and staff nurses completed electronic K-Card education one month prior to implementation. Leadership compared two months of pre- and post-intervention data.

Instruments and Outcomes

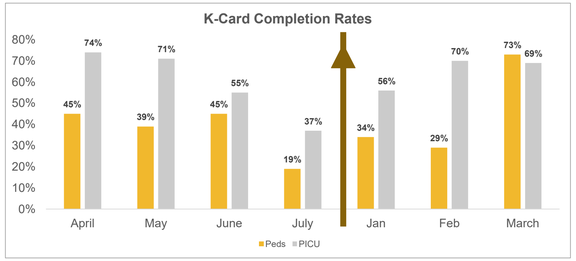
- Electronic K-Cards created in REDCap
  - Original K-Cards: CLABSI, Discharge Readiness, VAP and Intake and Output
  - Additional K-Cards: High Flow Nasal Cannula, Regulatory, Medications and Pressure Injury
- Measured Outcomes
  - Completion rate
  - Green and red results
  - Most common barriers and education gaps
  - Demographics included unit and shift
  - The nurse completing the K-Card is recorded. The nurse being evaluated is not recorded to avoid a punitive approach.

Results

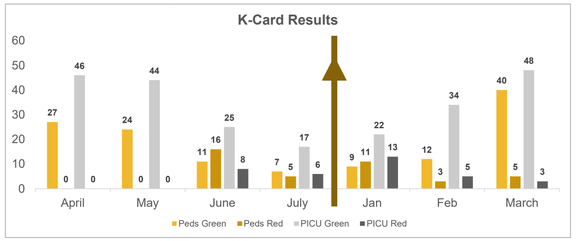
Analysis

- Unit and shift percentage completion rates
- Error incidence by barrier per month
- Education impact by barrier per month
- Most common barrier(s) per month
- Completion rates by nurse

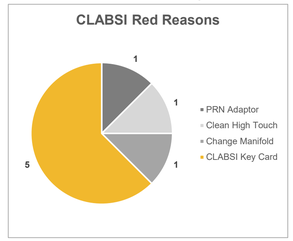
Results

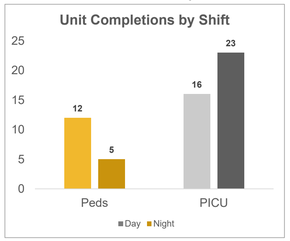


▲ August – December 2021 saw an increase in patient acuity, higher census and unit relocation. K-Cards were cancelled during this time.



- Paper K-Cards had zero recorded red results.
- Electronic K-Cards recorded reasons K-Card resulted red.
- Barriers and educational gaps were recognized due to electronic K-Card submissions.
- Shift and unit completion were evaluated monthly.





- Individual nurses completing the most K-Cards were recognized in an educational pamphlet.
- The shift and unit completing the most K-Cards was recognized each month.
- Additional K-Cards created for quality metrics.

Conclusion

Discussion

Red results occurred utilizing electronic K-Cards while paper K-Cards resulted 100% green on both units. Staff education regarding K-Cards non-punitive approach facilitated red resulting K-Cards. K-Card results were not immediately evident until nurses clicked "Submit". Electronic K-Cards also recorded survey information while paper K-Cards recorded only the results. Transitioning K-cards to an electronic format and staff education highlighted barriers and gaps paper K-Cards lacked. Leadership discussed opportunities for improvement at huddle with red results and staff received monthly emails regarding common barriers.

Increased red results concerned nursing staff and providers initially. Following monthly education, K-Card results showed improvement. Staff questions regarding specific K-Card items and staff reports on longer completion time emphasized paper K-Cards were not always completed fully by staff. Nursing staff recognized increased policy knowledge, engagement regarding K-Card results and provided feedback for improving K-Cards. Quality of care increased for patients, resulting in one CLABSI in ten months. Shift and unit response rate transparency increased staff awareness and accountability. Following inclusion of shift and unit numbers in monthly education, K-Card completion rates increased.

Leadership involvement in K-Card completion also increased completion rates. Salinas (2022), Shea et al. (2019) and Stewart (2021) recognize leadership commitment as a pivotal aspect to K-Card sustainability.

Limitations:

- Limited sustainability with high volume and acuity
- Huddle script inadequate regarding K-Card results
- REDCap cumbersome for inexperienced users
- Monthly education inadequate to address barriers

Future Implications:

- Implementation on additional units
- Additional K-Card topics
- Leadership implications and involvement parameters

References

Corrigan, C., & Mack, E.H. (2019). Evolution to an electronic incentivized Kamishibai card system. Pediatric Quality & Safety, 2S(4), 1-3. https://doi.org/10.1097/pq9.0000000000000157
Frith, J., Hampton, D., Pendleton, M., Montgomery, V.L., & Isaacs, P. (2019). Impact of Kamishibai card process on compliance with the central venous line maintenance bundle. Journal of Nursing Care Quality, 35(1), 34-39. https://doi.org/10.1097.NCQ.0000000000000405
Kamity, R., Grella, M., Kim, M.L., Akerman, M., & Quintos-Alagheband, M.L. (2021). From kamishibai card to key card: A family-targeted quality improvement initiative to reduce paediatric central line-associated bloodstream infections. BMJ Quality & Safety, 30,72-21. https://doi.org/10.1136/bmjqs-2019-010666
Lehane, R., Svensson, C., Ormsby, J.A., Yuen, J.C., Priebe, G.P., Sandora, T.J., & Vaughan-Malloy, A.M. (2022). Preventing pediatric catheter-associated urinary tract infections utilizing urinary catheter Kamishibai cards (K-cards). American Journal of Infection Control, 000, 1-7. https://doi.org/10.1016/j.ajic.2022.11.019
McVey, C., von Wenckstern, T., Mills, C., Yager, L., McCauley, C., Rivera, Y., & Reed, E. (2022). Nurse-sensitive indicator quality improvement toolkit: A scalable solution to improve health care-associated infections. Journal of Nursing Care Quality, 37(4), 295-299. https://doi.org/10.1097/NCQ.0000000000000634
Salinas, B., Villamin C., & Gallardo, L.D. (2021). Integration of lean visual management tools into quality improvement practices in the hospital setting. Journal of Nursing Care Quality, 37(1), 61-67
Shea, G., Smith, W., Koffarnus, K., Knobloch, M.J., & Safdar, N. (2019). Kamishibai cards to sustain evidence-based practices to reduce healthcare-associated infections. American Journal of Infection Control, 47, 358-365. https://doi.org/10.1016/j.a.jic.2018.10.004
Stewart, S. (2021). Kamishibai cards: A conversation about patient safety. Journal of Nursing Care Quality, 36(4), 333-338. https://doi.org/10.1097.NCQ.0000000000000541
Wu, A., Lehane, R., Bullock, K., Ormsby, J., Yuen, J., Vaughan, A., Sandora, T. & Priebe, G. (2022). Kamishibai card rounding to prevent infection-related pediatric ventilator-associated events. Critical Care Medicine, 50(1), 635. https://doi.org/10.1097/01.ccm.0000811400.25638.7c

Health Care