Pa Patient Saf Advis 2017 Sep;14(3).

Workarounds: Trash or Treasure?

Author
Ellen S Deutsch, MD, MS, FACS, FAAP, CPPS
Editor, Pennsylvania Patient Safety Advisory
Medical Director, *Pennsylvania Patient Safety Authority*

Workarounds

Workarounds are actions performed by an individual to circumvent or temporarily fix real or perceived workflow hindrances or system design flaws or to cope with exceptional patient care circumstances.[1-10] The intent of a workaround is to achieve a healthcare delivery goal or achieve it more readily or efficiently.[2,6,10]

Workarounds are ubiquitous in healthcare delivery, and numerous events reported through the Pennsylvania Patient Safety Reporting System (PA-PSRS) include descriptions of workarounds. Examples of workarounds in PA-PSRS reports include medication dosages based on estimated rather than actual patient weights; consents for treatment obtained from surrogates under circumstances that make it difficult to obtain consent directly from the patient; and substitutions of equipment, medication, or other resources because of shortages. Some event report narratives describe only the immediate problem, but others address underlying causes. In some instances, the patient was well served by the workaround, and in others, the workaround created a hazard for the patient.

Examples of Workarounds

The following PA-PSRS narratives describe workarounds that involve similar actions with varying consequences*:

A nurse was unable to scan the barcode before administering a medication because the barcode was incomplete. Pharmacy was called, and the nurse was instructed to type in the patient's name and medical record number and to document the confirmation of the medication manually.

This "first order" workaround[11] benefited the patient, but did not address the underlying problem.

The barcode reading indicated the barcode was invalid. The nurse spoke with Pharmacy who determined that the medication was non-formulary. Pharmacy approved overriding the error message and administering the medication.

Pharmacy also requested that the event be reported to the facility's incident and serious event reporting system.

This patient benefited, and documentation was requested to support investigation to prevent similar problems in the future.

After signing out a high-risk medication, the RN brought the medication to a patient in respiratory isolation.

Once in the patient's room, the patient's bracelet was scanned, and upon trying to scan the medication, an error message was received. The RN discovered that a portion of the barcode was missing and therefore the label would not scan. The medication was given and then the RN returned to where the high-risk medications are held to scan an undamaged one for documentation purposes.

The scanner indicated that this was not the correct medication for this patient.

This workaround bypassed a safety mechanism, creating a patient hazard.

_____

* Details of event narratives received by PA-PSRS have been modified to preserve confidentiality.

Why do Providers Use Workarounds?

Healthcare has a workaround culture, which values expertise in overcoming obstacles to get the job done for the current patient.[11] Dedicated patient care providers feel a professional and ethical responsibility to provide the best, safest care possible to each patient, and they will try to overcome any impediments they encounter. The resultant workarounds may be identified by explicit evidence, such as posted notes or visual reminders, or implicit evidence, such as clinicians ignoring guidelines in favor of alternative procedures.[12]

Because of factors such as incompletely understood or underspecified work conditions, resource constraints, and changing environmental conditions (e.g., patient care emergencies, surges in patient volume, malfunctioning technology), healthcare providers continually adjust how they work,[8,12,13] which may include implementing workarounds. Healthcare delivery is not a static process; it is a complex, adaptive system.[13-16] Constantly evolving conditions make it impossible to anticipate all of the consequences of process or resource decisions.[13,16]

Workarounds as Trash

Workarounds can create short-term hazards, such as when a workaround is used to overcome an intentional barrier,[17] which may result in bypassing a purposeful and appropriate safety intervention, creating a hazardous situation for a patient. For instance, providers may hoard or hide scarce equipment or supplies (e.g., infusion pumps, suture removal kits), which can ensure availability for the provider's next patient, but, in the long run, exacerbates the shortage.

Long-term hazards may develop when providers use workarounds to manage an immediate problem without addressing its source.[5] Lack of communication about failures decreases the opportunity to recognize system vulnerabilities, investigate problems, and address underlying causes.[11] Similarly, if a workaround is superior to the current standard practice, a lack of discussion about the need for change limits its diffusion.[11]

Workarounds as Treasure

Workarounds are frequently undertaken to ensure patient safety and provide efficient care.[1] Some workarounds become embedded and accepted as the norm in patient care processes,[18] which can make them hard to detect.[6,19]

In other circumstances, workarounds may be more obvious. For example, during an unusual surge in patient volume, triaging and caring for the most critical patients takes precedence, and some documentation tasks may be temporarily deferred.[20] Workarounds have value as elastic adaptivity; providers implement workaround processes to overcome inadequate or defective systems, or, more abstractly, providers sacrifice lower-order goals in order to accomplish higher-order goals.[20]

Workarounds as Learning Opportunities

Workarounds contain useful information. Viewed as problem-solving processes, workarounds can help identify flaws, provide important evidence about system function and vulnerability, and serve as input for user-centered design and alignment between work context and available tools and resources.[4,9,21] While some organizations adapt clinical practice to the system, others adapt the system to clinical practice—the latter may be the most effective, reconciling design, function, and availability with real-life workflows.[7] Seeking, recognizing, appreciating, and spreading improved practices could improve overall performance.[11]

Tucker asserts that “the challenge of workarounds is to capture their positive aspects—frontline resiliency and creativity—while simultaneously avoiding pitfalls from relying too heavily on ad-hoc solutions to long-standing problems. Health care organizations must solve this challenge if they are to deliver care as efficiently and safely as possible.”[11]
PA-PSRS offers the opportunity to collect and evaluate information about workarounds. Harm score A (unsafe conditions) or B2 (event prevented from reaching a patient because of intervention)[22] may be appropriate for reporting events involving workarounds that successfully avert patient harm. Event report narratives that describe the workaround and its impact can provide useful information to improve healthcare delivery.

Summary

Individual workarounds may be seen as problematic “trash” or pragmatic “treasure.”[8,10] Analysis of the context and circumstances that prompted a workaround can provide useful information that may lead to improving the safety, efficiency, and effectiveness of healthcare delivery processes. An enlightened understanding of workarounds can help healthcare facilities appreciate that workarounds are symptoms of a real or perceived workflow obstacle, and value the information that workarounds provide.

Notes

1. Seaman JB, Erlen JA. Workarounds in the workplace: a second look. Orthop Nurs. 2015 Jul-Aug;34(4):235-40; quiz 241-2. Also available: http://dx.doi.org/10.1097/NOR.0000000000000161 (http://dx.doi.org/10.1097/NOR.0000000000000161). PMID: 26213880.
2. Debono DS, Greenfield D, Travaglia JF, Long JC, Black D, Johnson J, Braithwaite J. Nurses' workarounds in acute healthcare settings: a scoping review. BMC Health Serv Res. 2013 May 11;13:175. Also available: http://dx.doi.org/10.1186/1472-6963-13-175 (http://dx.doi.org/10.1186/1472-6963-13-175). PMID: 23663305.
3. Koppel R, Wetterneck T, Telles JL, Karsh BT. Workarounds to barcode medication administration systems: their occurrences, causes, and threats to patient safety. J Am Med Inform Assoc. 2008 Jul-Aug;15(4):408-23.

Also available: http://dx.doi.org/10.1197/jamia.M2616 (http://dx.doi.org/10.1197/jamia.M2616). PMID: 18436903.

4. Flanagan ME, Saleem JJ, Millitello LG, Russ AL, Doebbeling BN. Paper- and computer-based workarounds to electronic health record use at three benchmark institutions. J Am Med Inform Assoc. 2013 Jun;20(e1):e59-66. Also available: http://dx.doi.org/10.1136/amiajnl-2012-000982 (http://dx.doi.org/10.1136/amiajnl-2012-000982). PMID: 23492593.
5. Kobayashi M, Fussell SR, Xiao Y, Seagull FJ. Work coordination, workflow, and workarounds in a medical context. CHI 2005. 2005 Apr 2-7; Portland (OR).
6. Friedman A, Crosson JC, Howard J, Clark EC, Pellerano M, Karsh BT, Crabtree B, Jaen CR, Cohen DJ. A typology of electronic health record workarounds in small-to-medium size primary care practices. J Am Med Inform Assoc. 2014;21:e78-e83. Also available: http://dx.doi.org/10.1136/amiajnl-2013-001686 (http://dx.doi.org/10.1136/amiajnl-2013-001686). PMID: 23904322.
7. Ser G, Robertson A, Sheikh A. A qualitative exploration of workarounds related to the implementation of national electronic health records in early adopter mental health hospitals. PLoS ONE. 2014;9(1):e77669. Also available: http://dx.doi.org/10.1371/journal.pone.0077669 (http://dx.doi.org/10.1371/journal.pone.0077669). PMID: 24454678.
8. Novak LL, Holden RJ, Anders SH, Hong JY, Karsh BT. Using a sociotechnical framework to understand adaptations in health IT implementation. Int J Med Inform. 2013 Dec;82(12):e331-44. Also available: http://dx.doi.org/10.1016/j.ijmedinf.2013.01.009 (http://dx.doi.org/10.1016/j.ijmedinf.2013.01.009). PMID: 23562140.
9. Lalley C. Workarounds and obstacles: unexpected source of innovation. Nurs Adm Q. 2014 Jan-Mar;38(1):69-77. Also available: http://dx.doi.org/10.1097/NAQ.0000000000000015 (http://dx.doi.org/10.1097/NAQ.0000000000000015). PMID: 24317033.
10. Saleem JJ, Russ AL, Justice CF, Hagg H, Ebright PR, Woodbridge PA, Doebbeling BN. Exploring the persistence of paper with the electronic health record. Int J Med Inform. 2009 Sep;78(9):618-28. Also available: http://dx.doi.org/10.1016/j.ijmedinf.2009.04.001 (http://dx.doi.org/10.1016/j.ijmedinf.2009.04.001). PMID: 19464231.
11. Tucker AL. Workarounds and resiliency on the front lines of health care. Rockville (MD): Agency for Healthcare Research and Quality; 2009 Aug. 6 p.
12. Clay-Williams R, Hounsgaard J, Hollnagel E. Where the rubber meets the road: using FRAM to align work-as-imagined with work-as-done when implementing clinical guidelines. Implement Sci. 2015 Aug 29;10:125. Also available: http://dx.doi.org/10.1186/s13012-015-0317-y (http://dx.doi.org/10.1186/s13012-015-0317-y). PMID: 26319404.
13. Braithwaite J, Wears RL, Hollnagel E. Resilient health care: turning patient safety on its head. Int J Qual Health Care. 2015 Oct;27(5):418-20. Also available: http://dx.doi.org/10.1093/intqhc/mzv063 (http://dx.doi.org/10.1093/intqhc/mzv063). PMID: 26294709.
14. Vincent C. Patient safety. 2nd ed. London (UK): BMJ Books; 2010. 432 p.
15. Deutsch ES. More than complicated, healthcare delivery is complex, adaptive, and evolving. Pa Patient Saf Advis. 2016 Mar;13(1):39-40. Also available: http://patientsafety.pa.gov/ADVISORIES/Pages/201603_39.aspx (/ADVISORIES/Pages/201603_39.aspx).

16. Plsek PE, Greenhalgh T. Complexity science: The challenge of complexity in health care. BMJ. 2001 Sep 15;323(7313):625-8. PMID: 11557716.

17. Halbesleben JR, Savage GT, Wakefield DS, Wakefield BJ. Rework and workarounds in nurse medication administration process: implications for work processes and patient safety. Health Care Manage Rev. 2010 Apr-Jun;35(2):124-33. Also available: http://dx.doi.org/10.1097/HMR.0b013e3181d116c2 (http://dx.doi.org/10.1097/HMR.0b013e3181d116c2). PMID: 20234219.

18. Gurses AP, Xiao Y, Hu P. User-designed information tools to support communication and care coordination in a trauma hospital. J Biomed Inform. 2009 Aug;42(4):667-77. Also available: http://dx.doi.org/10.1016/j.jbi.2009.03.007 (http://dx.doi.org/10.1016/j.jbi.2009.03.007). PMID: 19298868.

19. Stutzer K, Rushton CH. Ethical implications of workarounds in critical care. AACN Adv Crit Care. 2015 Oct-Dec;26(4):372-5. Also available: http://dx.doi.org/10.1097/NCI.0000000000000107 (http://dx.doi.org/10.1097/NCI.0000000000000107). PMID: 26484999.

20. Braithwaite J, Clay-Williams R, Hunte GS, Wears RL. Chapter 8: understanding resilient clinical practices in emergency department ecosystems. In: Braithwaite J, Wears RL, Hollnagel E, editors. Resilient health care, volume 3: reconciling work-as-imagined and work-as-done. Boca Raton (FL): CRC Press; 2016 Aug. p. 89-102.

21. Holden RJ, Rivera-Rodriguez AJ, Faye H, Scanlon MC, Karsh BT. Automation and adaptation: nurses' problem-solving behavior following the implementation of bar coded medication administration technology. Cogn Technol Work. 2013 Aug 01;15(3):283-96. Also available: http://dx.doi.org/10.1007/s10111-012-0229-4 (http://dx.doi.org/10.1007/s10111-012-0229-4). PMID: 24443642.

22. Pennsylvania Patient Safety Authority harm score taxonomy. Harrisburg (PA): Pennsylvania Patient Safety Authority; 2015. 1 p. Also available: http://patientsafety.pa.gov/ADVISORIES/Documents/Tool%20PDFs/201503_taxonomy.pdf (/ADVISORIES/Documents/Tool%20PDFs/201503_taxonomy.pdf).

Supplemental Material

This video, adapted from a webinar recorded August 8, 2017, explores both sides of workarounds, and provides strategies to improve the safety of patient care delivery by leveraging information gleaned from workarounds..