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Dear Leapfrog,

The [Alliance for Nursing Informatics](#) (ANI) advances nursing informatics leadership, practice, education, policy and research through a unified voice of nursing informatics organizations. ANI has reviewed the [Proposed Changes to the 2018 Leapfrog Hospital Survey](#). In that spirit, we offer our comments as nursing stakeholders to inform changes to the Leapfrog survey. As nurses practicing in diverse roles including hospitals, we are often the last line of defense between the patient and potential errors. We thank you for the opportunity to respond to these revisions.

Overall, ANI commends Leapfrog's efforts to harmonize these measures with other organizations and agencies, such as The Joint Commission, Center for Disease Control, and Centers for Medicare and Medicaid Services, and encourage further work to promote continued coordination. As we collaborate with others to improve the value and decrease the burden of reporting, we support Leapfrog's efforts in 2018 to remove the questions from Section 7D from the online survey and instead obtain the responses to these questions about Antibiotic Stewardship Practices directly from CDC's National Healthcare Safety Network (NHSN), with an automatic data pull. We also would like to emphasize the importance of engaging patients as consumers to gather direct feedback on the way measures have been defined and are displayed, to confirm they meet consumer needs.

Please find below our comments that pertain to specific sections of the Proposed Changes to the 2018 Leapfrog Hospital Survey.

SECTION 2: MEDICATION SAFETY - COMPUTERIZED PHYSICIAN ORDER ENTRY (CPOE)

ANI recognizes the safety gains realized through the use of computerized provider order entry (CPOE)^{1,2} and supports the increased implementation status goal of 75% to 85% in 2018 for both adult and pediatric inpatient care, along with increases in the Adult Inpatient Test via the CPOE Evaluation Tool from 50% to 60%. In addition, ANI supports “Full Demonstration of National Safety Standard for Decision Support” through demonstration of at least 60% prescriber alerts for common serious ordering errors.

SECTION 6: NQF SAFE PRACTICES SCORE

ANI supports the removal of Safe Practice element 4.3.c, from Safe Practice 4 Risks and Hazards. ANI proposes that senior leaders in informatics in particular, along with senior managers have received training in the integration of risk and hazard information across the organization, and that this training is documented and updated on a regular basis.

Although the effectiveness of electronic or video monitoring systems for hand washing compliance have not been established^{3,4,5,6}, ANI supports the collection of information to enable hospitals to clarify and support the value of electronic hand hygiene and/or video monitoring systems in improving hand hygiene compliance to reduce hospital-acquired infections.

SECTION 7: MANAGING SERIOUS ERRORS

We concur with the proposed process on managing serious errors. As clinical data and information systems continue to grow and become more complex, we recommend that individuals with formal training in

¹ Yu F, Menachemi N, Berner E, Allison J, Weissman N, Houston T. Full implementation of computerized physician order entry and medication-related quality outcomes: A study of 3364 hospitals. *Am J Med Qual.* 2009;24(4):278-286.

² Bates D, Leape L, Cullen D, et al. Effect of computerized physician order entry and a team intervention on prevention of serious medication errors. *JAMA.* 1998;280:1311-1316

³ Ghonim E, Nolan R, Benghuzzi H. Increasing hand hygiene compliance by use of a novel hand held device at a university hospital - biomed 2013. *Biomedical Sciences Instrumentation* [serial online]. 2013;49:32-39. Available from: MEDLINE Complete, Ipswich, MA. Accessed December 20, 2017.

⁴ Guanche Garcell H, Villanueva Arias A, Ramírez Miranda F, Rubiera Jimenez R, Alfonso Serrano R. Direct observation of hand hygiene can show differences in staff compliance: Do we need to evaluate the accuracy for patient safety?. *Qatar Medical Journal* [serial online]. July 18, 2017;2017(2):1. Available from: MEDLINE Complete, Ipswich, MA. Accessed December 20, 2017.

⁵ Helder O, van Goudoever J, Hop W, Brug J, Kornelisse R. Hand disinfection in a neonatal intensive care unit: continuous electronic monitoring over a one-year period. *BMC Infectious Diseases* [serial online]. October 8, 2012;12:248. Available from: MEDLINE Complete, Ipswich, MA. Accessed December 20, 2017.

⁶ Marra A, Edmond M. New technologies to monitor healthcare worker hand hygiene. *Clinical Microbiology And Infection: The Official Publication Of The European Society Of Clinical Microbiology And Infectious Diseases* [serial online]. January 2014;20(1):29-33. Available from: MEDLINE Complete, Ipswich, MA. Accessed December 20, 2017.

informatics, including nursing informatics, are involved in activities such as root cause analyses and post-event debriefs.

ANI strongly encourages Leapfrog not to remove pressure ulcers and injuries reporting from section (7C).

Pressure ulcers and injuries are on the National Quality Forum (NQF) list of serious reportable events and should not be removed due to challenges in structured data capture and reporting. We offer the expertise of ANI as a resource to Leapfrog to bring clinical workflow and structured data capture expertise in managing and reporting serious errors.

SECTION 8: MEDICATION SAFETY

SECTION 8A BCMA

We support the processes and structures to prevent workarounds that are currently included (a-e). However, based on an integrative review of nurses' workarounds to electronic health record systems including BCMA (Fraczkowski, Matson and Dunn Lopez, Under Review), we recommend 2 additional items and 1 clarification.

- As usability was identified as a problem in 7 out of 9 studies that included BCMA systems,^{7, 8, 9, 10, 11, 12, 13} we recommend the addition of a process and structure for identification of usability problems using known metrics.¹⁴
- We recommend adding an item that BCMA be in use in all care units where feasible. Some hospitals do not use BCMA in emergency departments, ambulatory or procedural areas where

⁷ Early, C., Riha, C., Martin, J., Lowdon, K.W., & Harvey, E.M. (2011). Scanning for safety: an integrated approach to improved bar-code administration. *CIN: Computers, Informatics, Nursing*, 29(3), 157-164.

⁸ Holden, R., Rivera-Rodriguez, Faye, H., Scanlon, M., & Karsh, B. (2013). Automation and adaptation: Nurses' problem-solving behavior following the implementation of bar-coded medication administration technology *Cognitive Technical Work*, 15, 283. doi:10.1007/s10111-012-0229-4

⁹ Huang, Y. H., & Gramopadhye, A. K. (2016). Recommendations for health information technology implementation in rural hospitals. *International Journal of Health Care Quality Assurance*, 29(4), 454-474.

¹⁰ Koppel, R., Wetterneck, T., Telles, J. L., & Karsh, B. (2008). Workarounds to barcode medication administration systems: Their occurrences, causes, and threats to patient safety. *Journal of the American Medical Informatics Association*, 15(4), 408-423

¹¹ Patterson, E. S., Rogers, M. L., Chapman, R. J., & Render, M. L. (2006). Compliance with intended use of bar code medication administration in acute and long-term care: An observational study. *Human Factors*, 48(1), 15-22. doi:10.1518/001872006776412234

¹² Rack, L. L., Dudjak, L. A., & Wolf, G. A. (2012). Study of nurse workarounds in a hospital using bar code medication administration system. *Journal of Nursing Care Quality*, 27(3), 232-239

¹³ Van Onzenoort, H. A., Van De Plas, A., Kessels, A. G., Veldhorst-Janssen, N. M., Van Der Kuy, P. H. M., & Neef, C. (2008). Factors influencing bar-code verification by nurses during medication administration in a Dutch hospital. *American Journal of Health-System Pharmacy*, 65(7), 644-648.

¹⁴ Sousa, V. E., & Lopez, K. D. (2017). Towards Usable E-Health. *Applied clinical informatics*, 8(2), 470-490.

Pham, J.C., Story, J.L., Hicks, R.W., Shore, A.D., Morlock, L.L., Cheung, D.S., Kelen, G.D. and Pronovost, P.J., 2011. National study on the frequency, types, causes, and consequences of voluntarily reported emergency department medication errors. *The Journal of emergency medicine*, 40(5), pp.485-492.

there may be a greater risk for medication errors, even though it is feasible to implement in these areas.

- We also recommend that item d. *Conducts real-time observations of users using the BCMA system*, be clarified further to include the following to improve the quality of observation data: using a standardized data collection process¹⁵ with trained observers that are not direct work supervisors of the employees being observed.

We also concur with items g-h, and applaud the inclusion of a quality improvement process. We recommend the following clarification: add the word “nurses” in parenthesis to clarify that nurses are the intended “users” in item h.

SECTION 8B MEDICATION RECONCILIATION

We strongly agree that medication reconciliation is an essential care process that is foundational to patient safety and we are pleased to see the addition of the NQF endorsed measure. We hope that work will be done in the future to include pediatric settings. Furthermore, we recognize that most of the errors in medication reconciliation take place during care transitions within the hospital, and beyond the hospital stay. Therefore, we encourage Leapfrog to evaluate expansion of the medication reconciliation measure to include care transitions within the hospital setting and transitions in and out of hospital care.^{16,17}

In addition, we have the following specific concerns:

- The sampling of 20-30 patients may not be adequate.¹⁸
- The population is limited and should be expanded, such as including pediatric populations.
- As written, sampling may not occur with patients who have multiple chronic conditions and polypharmacy who are most at risk for medication reconciliation errors and resulting harm.¹⁹

¹⁵ Koppel, R., Wetterneck, T., Telles, J. L., & Karsh, B. (2008). Workarounds to barcode medication administration systems: Their occurrences, causes, and threats to patient safety. *Journal of the American Medical Informatics Association*, 15(4), 408-423

¹⁶ Climente-Martí, M., García-Mañón, E.R., Artero-Mora, A. and Jiménez-Torres, N.V., 2010. Potential risk of medication discrepancies and reconciliation errors at admission and discharge from an inpatient medical service. *Annals of Pharmacotherapy*, 44(11), pp.1747-1754.

¹⁷ Belda-Rustarazo, S., Cantero-Hinojosa, J., Salmeron-García, A., González-García, L., Cabeza-Barrera, J. and Galvez, J., 2015. Medication reconciliation at admission and discharge: an analysis of prevalence and associated risk factors. *International journal of clinical practice*, 69(11), pp.1268-1274.

¹⁸ Climente-Martí, M., García-Mañón, E.R., Artero-Mora, A. and Jiménez-Torres, N.V., 2010. Potential risk of medication discrepancies and reconciliation errors at admission and discharge from an inpatient medical service. *Annals of Pharmacotherapy*, 44(11), pp.1747-1754.

¹⁹ Belda-Rustarazo, S., Cantero-Hinojosa, J., Salmeron-García, A., González-García, L., Cabeza-Barrera, J. and Galvez, J., 2015. Medication reconciliation at admission and discharge: an analysis of prevalence and associated risk factors. *International journal of clinical practice*, 69(11), pp.1268-1274.

- The sampling is limited to one type of unit and may not uncover errors that may be more common on specialty units.
- Patients will be informed that pharmacists are not part of the patient care team, when in many hospitals, pharmacist participate in team rounds and offer patient specific advice to the team about all matters concerned with medication.
- Methods to obtain a “gold standard medication history” need more precise definition to assure consistency across the industry.
- There is a lack of clarity about which members of the care team are responsible for medication reconciliation process. This can result in lack of clarity on the care team and the task not being performed consistently.
- There is a lack of clarity related to how patients as consumers are engaged in the process, and the information sources that should be consulted and reconciled, such as the patient’s medication list within their patient portal or mobile health application.

We recommend the addition of:

- Quality improvement methods (similar to those noted for BCMA, f-h) that focus on improving medication reconciliation performance.
- Engaging the patient as consumer perspective to this process, to gather direct feedback on the way this measure has been defined and is displayed, to confirm that it meets consumer needs. For example, other measures may be more meaningful to the consumer, including: (a) are the medication lists provided at discharge in patient friendly, usable and useful patient formats? (b) the patient understands when medication reconciliation has occurred.

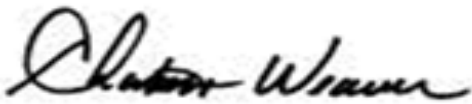
SECTION 9: PEDIATRIC CARE

9A. We support the proposed modifications to the CAPHS Child Hospital Survey admission count thresholds and the public reporting of the Top Box scores for all 18 domains.

9B. We support the addition of the NQF endorsed Pediatric CT Radiation Dose measure, and understand the complexity of differentiating a hospital’s median dose for each anatomic region and age strata to the two benchmarks. We encourage engaging the patient as consumer perspective for this measure also, to confirm that it meets consumer needs for understanding, as well as other education for patients and parents to monitor cumulative radiation exposure.

ANI offers our collaboration and service as nursing informatics experts to Leapfrog, particularly in the domain of clinical nursing practice in the hospital setting. We appreciate the opportunity to contribute to the conversation on this important topic.

Sincerely,



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The [Alliance for Nursing Informatics](http://www.allianceni.org) (ANI), cosponsored by AMIA & HIMSS, advances nursing informatics leadership, practice, education, policy and research through a unified voice of nursing informatics organizations. We transform health and healthcare through nursing informatics and innovation. ANI is a collaboration of organizations that represents more than 5,000 nurse informaticists and brings together 25 distinct nursing informatics groups globally. ANI crosses academia, practice, industry, and nursing specialty boundaries and works in collaboration with the more than 3 million nurses in practice today.