Kentucky Hospital Association Quality Award

Pharmacist-Driven Admission Medication Reconciliation

Organization Leadership Focuses on Quality

Continuing Care Hospital, Inc. (CCH) is a 57-bed long-term acute care hospital located in Lexington, Kentucky on the campuses of Saint Joseph East and Saint Joseph Hospital. Our patient population includes medical-surgical, telemetry, and ICU patients with an average length of stay of ≥25 days. A culture of quality and safety is a core organizational strategy and is embedded in the mission, vision, and especially the core values of CCH, which promote reverence, integrity, compassion, and excellence throughout the organization. Quality is defined as doing the right thing, at the right time, in the right way, to achieve the best possible results. Improvement in patient safety and error reduction is dependent upon commitment from every member of the CCH team, including the Board of Directors, administration, medical staff, allied providers, nursing, case management, infection control, pharmacy, and support staff. Principles for a strong safety culture include cultivation of a questioning attitude, permeation of trust throughout the organization, and the belief that everyone is personally responsible for safety.

CCH is focused on becoming a high reliability organization by implementing a quality improvement process called SafetyFirst, which is an organized, coordinated program intended to prioritize and advance patient and employee safety throughout the hospital. Administrators perform monthly one-on-one interviews with front-line staff called "Rounding to Influence" to review best practice safety techniques, initiate discussion around error-prone processes, and to receive suggestions for promoting safety into daily workflow practices. A daily safety huddle is conducted to highlight progress on specific quality measures that have been prioritized for CCH, including serious safety events, fall events, and pressure ulcers. Charge nurses from each unit convene with the administrative team each morning to review the number of days since these high-alert events occurred as well as to discuss any new safety issues identified or anticipated in the next 24 hours. These issues are then communicated to the front-line staff at the start of the next shift to ensure complete information sharing.

A multidisciplinary committee is convened quarterly to discuss all aspects of quality improvement, patient safety, and infection control issues. Members of this committee include

representatives from risk management, infection control, environmental services, employee health, laboratory, facilities, nutrition, respiratory, pharmacy, case management, nursing, administration, and medical staff. Quality outcomes data, including hospital-acquired infections, crude mortality rate, patient satisfaction scores, adverse drug events, medication error trends, ventilator-associated outcomes, and antimicrobial utilization and stewardship, are reviewed. Alignment of clinical outcomes with the organizational goals for improvement of quality, safety, and patient experience is ensured in order to evaluate progress and implement changes for the achievement of CCH's mission to bring wellness, healing, and hope to all.

Organizational Support of Quality Improvement Efforts

All hospital employees and staff complete annual training on error prevention techniques, clear and complete communication, the importance of teamwork, and of personal accountability. Staff are empowered to speak up for safety when high-risk behaviors occur. To evaluate this training and to maintain competency for staff members, safety coaches have been identified in each department of the hospital. It is the safety coaches' responsibility to conduct and document observations of safety behaviors, encouraging staff when correct safety techniques are applied and providing peer coaching when areas for improvement are noted. Monthly meetings are held among safety coaches to discuss observed opportunities for better safety practices, share lessons learned from others' serious safety events, and to provide continued education on best practices for quality care in a high reliability organization.

Personal accountability for job performance is balanced with the understanding of causes of harm and errors by utilizing a performance decision management guide. It is recognized that human error is not the cause of failure but rather a symptom of failure. The performance management decision guide helps to differentiate between unintended errors and intended decisions to act against the rules; it helps managers determine the root cause of the error. In a fair and just culture, no punishment is given for unintended errors or mistakes driven by system problems. Determining the causative factors helps the leaders define effective corrective action and promote an environment where employees are treated fairly and consistently.

Since 2010, CCH has participated in a biennial hospital-wide survey on patient safety. Patients are asked to rate their agreement with statements such as "procedures and systems are

good for preventing errors" and "we are informed of errors"; the proportion of positive responses has increased dramatically in recent years. An employee climate assessment survey is also conducted annually, in which employees report their satisfaction with topics such as "our effectiveness in providing a safe and secure environment for patients" and "the extent to which patients are treated as valued customers".

Process Improvement Project Description

Medication reconciliation (MedRec) is the process of comparing a patient's medication orders to medications the patient was taking prior to admission, or home medications.[1] Inaccurate medication reconciliation results in up to 27% of hospital errors and occurs in up to 60% of patients admitted to inpatient hospital units.[2-3] Multiple studies have assessed the impact of pharmacist involvement in MedRec, which is historically a nursing/physician driven process. One interventional study found statistically significant differences in the amount of medications identified, dosing and schedule discrepancies, and omissions recognized by pharmacists as compared to physicians.[4]

Pharmacist intervention is beneficial in a variety of settings and this reduction in medication errors has been linked to improved outcomes, as pharmacists obtain more accurate medication-related information from patients in a shorter or similar amount of time, leading to cost-savings of an average of $7 million per hospital per year and reduced hospital-mortality rates by 128 deaths per hospital per year.[6-7] Limited data exists assessing the utility of pharmacist-driven MedRec within long-term acute care facilities, which treat patients who are critically-ill, medically-complex, have multiple co-morbidities, and multiple medications. In patients such as these, it is estimated that disagreement between their medication list and what they are actually taking occurs about 95% of the time.[8] To the authors' knowledge, no studies evaluating this specific transition of care have been performed, but available results assessing general hospital admissions provide further evidence that quality of care and patient safety can be improved with pharmacist-performed medication reconciliation.[9]

This performance improvement project was conducted at Saint Joseph East campus of Continuing Care Hospital. The time frame for initial process development was a few weeks, including a one-week trial period, with official implementation on August 24, 2015 and

completion on October 23, 2015. Medication histories were obtained by nursing and documented in the medical record as part of the normal standard of care. A comprehensive MedRec was subsequently performed by a pharmacist, which included detailed patient and/or caregiver interview and in-depth chart and transfer record review. During interviews, home medication information was gathered, including drug name, strength, dose, dosing schedule, and indication. In all cases, home medications were documented based on how the patient was taking the medication prior to initial hospital admission. A standard medication reconciliation form, referenced in Appendix 1, was utilized to collect home medication information and log discrepancies. When warranted based on pharmacists' clinical judgment, medication recommendations were made to the primary physician to resolve discrepancies and to provide optimal medication therapy. Pharmacist-performed MedRec services were provided Monday through Friday 8 to 4pm, with patients seen on the next business day after admission.

Endpoints included incidence of medication reconciliation-associated discrepancies, time spent performing medication reconciliation by a pharmacist, cost impact of pharmacist-identified discrepancies, and clinical relevance of discrepancies. A discrepancy was defined as omission of a pre-admission medication, incorrect addition of a medication not part of the patient's pre-admission regimen (commission), incorrect drug, incorrect dose, incorrect route, incorrect frequency, incorrect form, or different medication (within the same drug class).[9]

Discrepancies were categorized as adverse drug events (ADEs) prevented if they warranted intervention with the attending physician. Prevented ADEs were tiered on a 1 to 5 scale based on clinical relevance, which was assessed by clinical pharmacists independent of this project using a validated scoring scale based on the following definitions.

- 1-No relevance to patient care
- 2-Relevant, but does not lead to improved patient care
- 3-Relevant and improves patient care
- 4-Very relevant and prevents major organ failure or adverse reaction of similar importance
- 5-Potentially lifesaving

For the purposes of assigning standardized cost and time estimates, only tier 5 ADEs were classified as "major"; all other ADEs were classified as "minor." All pharmacist activities were assigned a standardized value and time estimate, based on results from previous studies, as described below.[10-12]

Table 1: Standardized Cost/Time Intervention Estimates		
Intervention	**Value**	**Time**
Medication History	$642.00	30 minutes
Medication Reconciliation (General)	$75.00	20 minutes
MedRec: ADE Minor	$220.00	15 minutes
MedRec: ADE Major	$2200.00	30 minutes

Thirty-one patients were included in this initiative, with a total of 238 discrepancies identified, resulting in an average of 7.68 discrepancies per patient. Of these discrepancies, 94% were classified as minor and 6% were major. The most commonly identified discrepancy was omission (29% of all discrepancies), followed by commission (22%). Figure 1 describes the frequency of identified discrepancies. The average standardized time of MedRec per patient was 54 minutes and the total cost impact was $29,557, translating to $953.45 per patient. Seventeen ADEs were prevented through intervention with the primary provider (nearly 1 ADE per 2 admissions). Figure 2 describes the ADEs based on their clinical relevance tier. Most commonly, prevented ADEs were classified as tier 3 (improving patient care). Two ADEs were considered tier 5 (potentially lifesaving).

Patient care challenges included compiling medication histories for patients who were poor historians, nonadherent to prescribed medication directions, were unable to provide correct information for their medications or outpatient pharmacies, or did not have caregivers or family members to provide additional information.

This project showed that the process of complete medication reconciliation is time-intensive, often involves contacting outside parties, such as outpatient pharmacies, and requires the attention of a medication expert. To continue this program, it is estimated that an additional 0.4 pharmacist FTE would cover all admissions to Continuing Care Hospital. The estimated

annual cost of this position is roughly $50-55,000/year, including salary and benefits. This is offset, however, by estimated cost savings of prevented ADEs of $100,000 per year (approximately 0.06 major ADEs and 0.48 minor ADEs per admission), given average census data of approximately 450 admissions/year. The estimated overall value of pharmacist-driven MedRec to the hospital is roughly $430,000 per year (approximately $950/admission).

References:

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Appendix 1: Pharmacist's MedRec Form

Interview Start Time:			**MedRec Start Time:**	
Bed:	Name:	DOB:	Date/Admit Time:	Admit Physician/Nurse:
Do you handle your medications yourself? **Yes / No**		Do you have any drug allergies? **Yes/No**		If yes: Type/Severity
Interview Source:			Outpatient Pharmacy/Phone #:	
Previous Facility:			Residence prior to Admit:	

Part 1: Medication Reconciliation

Date Started	Medication (Name, Dosage form, Strength)	Dosing	Medication Type (Home/Hospital/etc.)	Comments/Problems with Medication

Part 1: Pointed Questions

1. Are you using any other medications?

OTC	**Herbals/Supplements**	**Painkillers**	**Eyedrops**	**Inhalers**
Antidiabetics	**Heart Medications**	**Stomach Medications**	**Sleeping Pills**	**Drugs as needed (If yes, how often?)**

Part 2: Practical handling problem?

Swallowing, Crushing/Splitting	**Opening bottles or blisters**	**Inhaling**

Any Adverse drug reactions?

If yes: Assess Type/Severity/Time of occurrence

Event	Severity	Time of Occurrence
Interview Stop Time:		

Part 3: Active (Inpatient Meds)

Date Started	Medication (Name, Dosage form, Strength)	Dosing	Medication Type (Home/Hospital/etc.)	Comments/Problems with Medication

Part 3: Discharge/Transfer Meds

Date Started	Medication (Name, Dosage form, Strength)	Dosing	Medication Type (Home/Hospital/etc.)	Comments/Problems with Medication
Med Rec End Time:				

Errors/Discrepancies:

1	
2	
3	
4	
5	
6	
7	
8	
9	
10	

Figure 1: Discrepancies

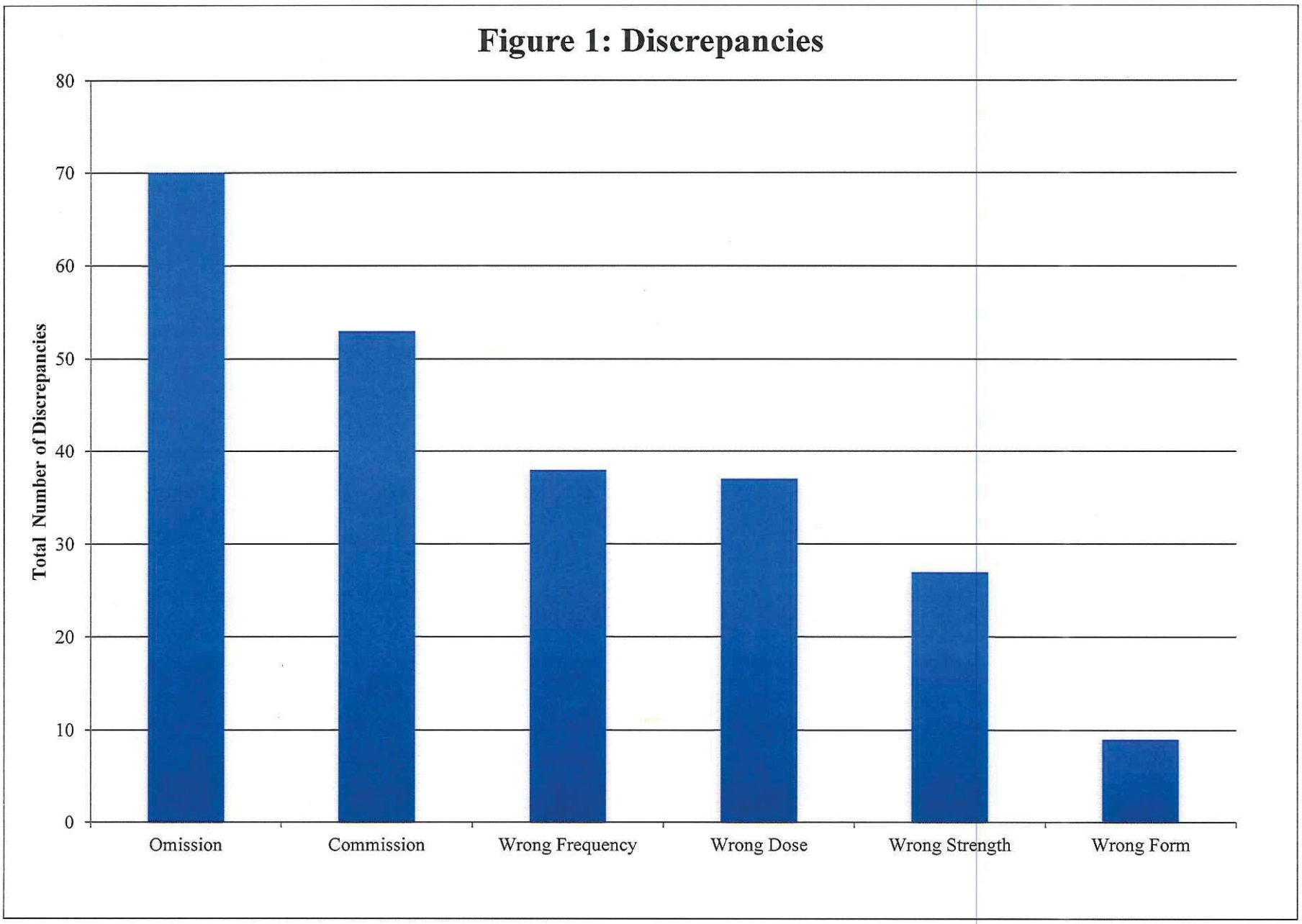
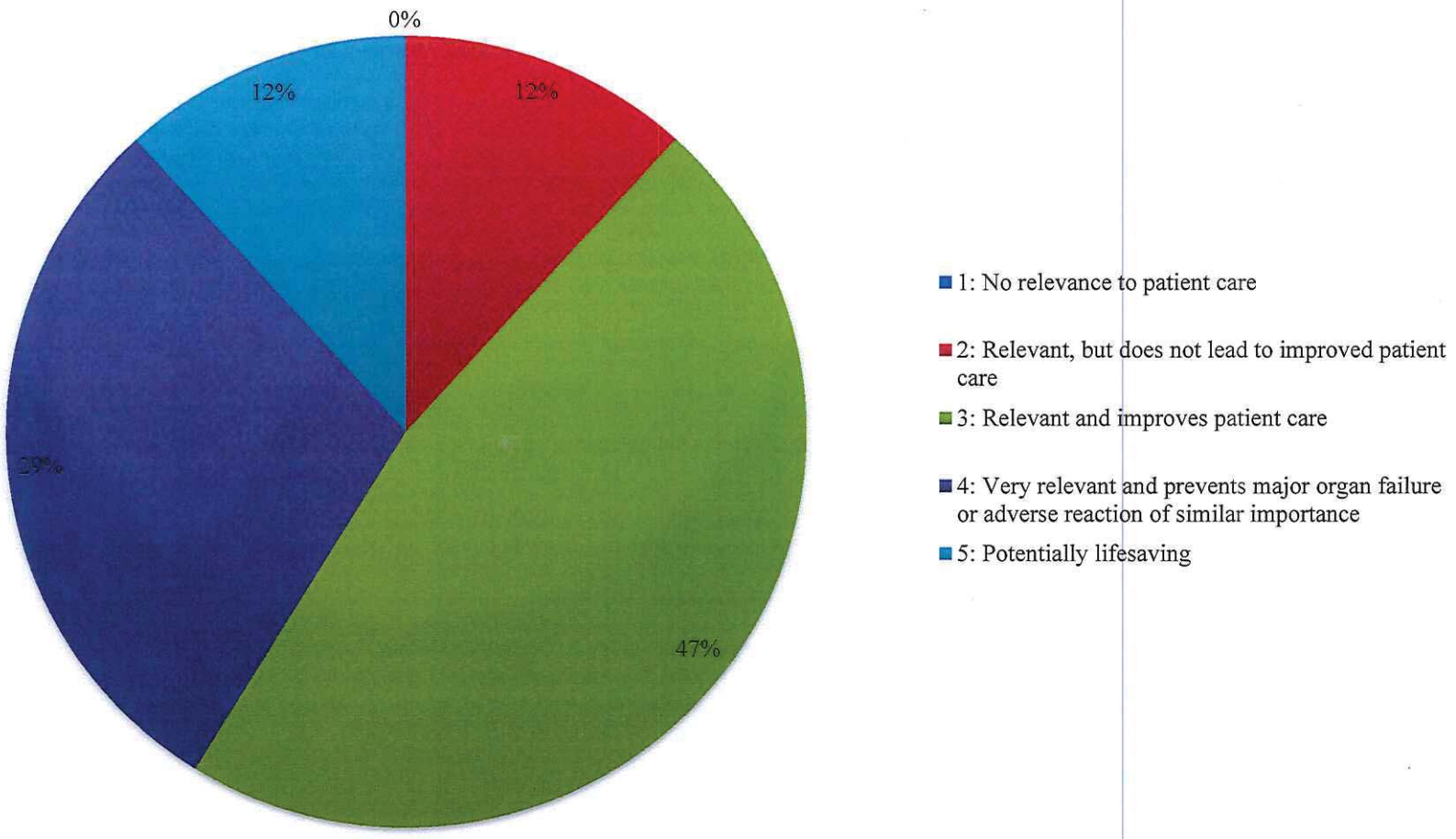
Figure 2: Clinical Relevance