Ensuring Accurate, Timely Medication Orders and Reducing Errors: Assessment of a Read-Back Tactic

Medication errors are a leading cause of iatrogenic morbidity and mortality in acute care.[1] Medication error events affect 19%–58% of inpatients and are likely underreported in the literature.[1,2] A major contributor to errors is distractions during transcription,[3] and issues with communication are widespread.[4] The Institute for Safe Medication Practices (US) recently re-emphasized its read-back recommendation,[5] originally dating back to 2003.

Within separate 12- and 10-bed Surgical and Medical Intensive Care Units (ICUs) in the Regina General Hospital, orders from intensivist-led patient care rounds are transcribed into the paper chart by a critical care associate physician not leading the discussion, on behalf of the multidisciplinary team in attendance, which includes a respiratory therapist, clinical pharmacist, dietitian, nurse, and learners. After medication orders are written, they are sent to the dispensary pharmacist for review and are processed in the pharmacy, following which an interim dose of each medication is sent to the appropriate ICU. Simultaneously, the orders are transcribed into patients' medication administration records by the unit clerk in each

ICU and double-checked by nursing staff. Any need for order clarification at any of these steps may translate into a delay in care. Members of the intensivist group started having all transcribed orders "read back at rounds" (termed "RAR") for the team to ensure accuracy and appropriateness. We investigated the effect of confirming, as a formal process, all orders written during patient care rounds, the goal being to decrease the number of prescribing errors and workload.

A nonrandomized, observational trial was conducted over 11 nonconsecutive weeks between January and July 2016 while the observing pharmacist (J.F.M.) was on clinical service. After orders were transcribed by the physician, the bedside or charge nurse read back the written orders to the team (through RAR) to clarify accuracy of information and clarity of handwriting. The outcomes measured were number of orders requiring clarification and the time required for the clinical pharmacist to correct such orders in collaboration with the prescribers, as well as data collected by the clinical pharmacist. Any medication order identified by the dispensary pharmacist, nursing staff, or clinical pharmacist as requiring clarification after rounds was included. RAR was performed at the discretion of the intensivist, and members of the multidisciplinary rounding team were blinded to observations.

Table 1. Results of an Observational Trial Comparing Medication Orders with and without a "Read Back at Rounds" Process

Variable	Orders Read at Rounds	Orders Not Read at Rounds	*p* Value
Total no. of rounds	52	72	0.14
Patients			
Total no.	368	523	0.83
Patients/round (median)	7	8	0.83
Patients/round (range)	4–10	1–10	–
Orders			
Total no.	2202	3156	0.97
Orders/round (median)	42	44	0.86
Orders/round (range)	13–88	3–101	–
Errors			
No. of rounds with ≥ 1 error	11	55	< 0.001
Errors/round (median)	0.3	2.0	0.018
Errors/round (range)	0–2	0–9	–
Time to correct errors (min)			
Time for all errors in one set of rounds (median)	1.1	8.6	0.012
Time for all errors in one set of rounds (range)	0–2	0–47	–
Time for one individual error (median)	3.8	4.3	< 0.001

RAR was performed on 52 sets of rounds, with non-RAR processing on 72 sets of rounds. There was no significant difference in number of patients or number of orders processed by the pharmacy between RAR and non-RAR rounds (Table 1). At least one medication error required correction in 11 (21%) of the RAR rounds and 55 (76%) of the non-RAR rounds ($p < 0.001$). The median number of medication orders written per round was 42 with RAR processing, or 6.0 orders per patient. RAR produced a median of 0.3 errors per round, whereas non-RAR processing produced a median of 2.0 errors per round ($p = 0.018$), with maximums of 2 and 9 errors, respectively.

The median time to clarify all errors after the completion of a round was 1.1 min for RAR orders and 8.6 min for non-RAR orders ($p = 0.012$), with maximums of 2 and 47 min, respectively. The median time to clarify one error was 3.8 min for RAR and 4.3 for non-RAR processing. On average, 34 s was needed for RAR per patient.

Reviewing orders transcribed for each patient during patient care rounds reduced the number of prescribing errors that occurred. Reading back orders not only decreased the rate of transcription errors, it also facilitated the ease and efficiency of clarification. For orders that were read back and reviewed with the team, any errors that did occur were less numerous, though not completely eliminated. The errors that continued to occur may be attributable to the complex nature of direct patient care in the ICU, the ongoing potential for distraction, and human fallibility. Additional steps will need to be explored to further decrease the error rate.

The RAR process required minimal time—34 s/patient—in light of the potential benefits, which include an increase in patient safety, decrease in time to delivery of care, and decrease in redundant workload. In fact, our workload assessment underestimated the time required to clarify any unclear or erroneous orders. Because we tracked only one of the staff members involved in writing and processing orders, we did not assess the time initially wasted on the erroneous order and the additional time spent on the clarified order by pharmacy, nursing, and support staff members.

In this study, we assessed the frequency of errors and workload/time management; however, we did not assess the severity of errors, which could be an area for further exploration. A single investigator observed and collected the data, which may have introduced bias.

Following this audit, RAR has become the standard of care at the authors' facility. By initiating RAR for all patients, we have increased care efficiency, improved patient safety, decreased delay in therapy reaching the patient, and freed up time for multiple team members to complete other support and clinical activities.

References

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Jonathan F Mailman, BSc(Pharm), ACPR, PharmD, CD
Clinical Pharmacist Specialist, Pharmacy Services
Jeffrey Betcher, MD, FRCPC, MA
Physician, Departments of Anesthesiology and Critical Care
Department Head and Medical Director, Critical Care
William Semchuk, MSc, PharmD, FCSHP
Manager, Clinical Pharmacy Services
Director, RQHR Hospital Pharmacy Residency Program
Regina Qu'Appelle Health Region
Regina, Saskatchewan

Jonathan Mailman is a Clinical Lecturer, Jeffrey Betcher is a Clinical Assistant Professor, and William Semchuk is a Clinical Assistant Professor with the College of Medicine, University of Saskatchewan, and William Semchuk is an Assistant Clinical Professor with the College of Pharmacy and Nutrition, University of Saskatchewan, Saskatoon, Saskatchewan.