

## Patient Safety Tip of the Week

March 15, 2022

### Medication Errors in Home Care

We've done multiple columns (listed below) detailing the complexities and challenges of delivering safe care in the patient's home. Of course, some of the most frequent problems encountered are related to medications. Dionisis et al. ([Dionisis 2021](#)) recently published a comprehensive systematic review and meta-analysis on medication errors and their causes in the home care setting. Their final analysis included 17 studies, which they listed in tabular format with summaries of the main findings and implications for practice.

Of the 17 studies in the Dionisis systematic review, there are a few we feel summarized the most salient problems and barriers related to medication safety in the home care setting.

Meyer-Masseti et al. ([Meyer-Masseti 2018a](#)) did an observational study on medication-related problems during transfer from hospital to home care. Though the study took place in Switzerland, the findings are likely applicable in the US as well. They found 3 major themes: (1) fragmented interprofessional communication (2) unreliable availability of drugs and (3) poor prescription quality.

Among the 100 patients included in the study, a complete set of written discharge information was available for the first home care visit in only 5 patients. The discharge documents most often unavailable were the discharge medication prescription (78 patients) and the prescription for home care services (46 patients). The physician discharge report was available for only 55 patients, the nursing discharge report for 63 patients. For 13 patients, neither a medication list nor a medication discharge prescription was available. The prescription was unclear in many cases, necessitating communication with other professionals (not always successfully). Clarification was achieved in only 65% by the second home visit.

A total of 22 medication errors were associated with unclear prescriptions, most often resulting in a delayed intake. In 20 patients, medications were unavailable at the time of the first home care visit, necessitating 25 phone calls (75% to the primary care provider and 25% to the public pharmacy). Medication errors due to missing medications were reported in 19 cases, most often due to delayed (N = 4) or no intake/administration (N = 6).

After the follow-up visit, communication with a primary care provider took place 15 times to clarify medication-related issues. However, the provider could be reached directly in only 4 of the 15 cases. We'll add that confusion about who is the responsible physician for continuing care is a problem we often see and, as mentioned elsewhere, the primary care physician is often "out-of-the-loop" and has not received a copy of a hospital discharge summary or even made aware his/her patient had been hospitalized.

The medication lists in 67 of the 100 patients required some clarification. 16% of prescribed drugs were considered to be ambiguous. Examples of missing information included: exact drug name, dosage form or strength, and frequency. Allergy information was available in only 20 patients. The corresponding diagnosis was missing for 303 out of 984 drugs (31%). Our March 1, 2022 Patient Safety Tip of the Week "[Including the Indication on Prescriptions](#)" discussed the importance of including the indication for medications in all prescriptions. Absolute or relative contraindications were seen in 23 patients and clinically significant interactions were present for 99 drug combinations. Drug duplications and PIM's (potentially inappropriate medications) were also found in a few patients.

An average of 2.2 drugs per patient taken before hospital admission were not prescribed at discharge, without explanation. Additional unexplained changes included dosage change, drug product/substance switch, switch from regular to as-needed medication, change of administration time, and duplication with an over-the-counter therapy. Hospital discharge information was incongruent with the discharge prescription in 30 patients.

Meyer-Masseti et al. suggest that involving clinical pharmacists in the discharge procedure is an important option to improve medication safety associated with transfer from the acute care to the home care setting.

Meyer-Masseti et al. ([Meyer-Masseti 2018b](#)) also did a systematic review of drug-related problems in the home care setting. PIM's (potentially inappropriate medications) ranged in frequency from 19.8 to 48.4%. Polypharmacy and increasing age were the most common risk factors for drug-related problems. Insufficient interdisciplinary teamwork and inconsistent performance of medication reviews were also risk factors for drug-related problems. Patients and/or caregivers were responsible for 42.3% of drug-related problems.

Sarzynski et al. ([Sarzynski 2019](#)) studied hospital-to-home-health-care transitions for older adults with heart failure in a single Michigan healthcare system using two commercially available electronic health record (EHR) vendors. They found with 4 main themes with hospital-to-home-health-care information exchange: (1) poor medication management, (2) ineffective communication, (3) technology issues, and (4) patient factors.

They also identified specific barriers to safe medication management in home care, including: (a) discordant HER-generated medication lists, (b) issues clarifying medication

regimens, (c) barriers to filling medications, (d) complexity of medication self-management tasks, and (e) side effects affecting quality of life.

There were often discrepancies in the medication lists embedded within the “After Visit Summary” intended for patients and discharge summary intended for receiving clinicians. That is despite the fact that both come off of the same EHR. Reconciling these discordant medication lists is a time-consuming process, since nurses must contact providers (often multiple) to clarify discrepancies, then calling the patient back and telling them what to take.

Since the Sarzynski study was on older adults with heart failure, one glaring omission noted by the home care nurses was lack of a patient's ideal weight. We've always stressed that each patient's own list of their medications should also list their current or usual weight. But in a heart failure patient it is important for the patient and the home care nurses to know what their target or ideal weight is and that is often absent in all the documents generated at hospital discharge.

Weekends posed special problems. Communication with providers is more difficult when offices are closed, and “on-call” physicians are largely unaware of patients' complex post-acute care plans. In addition, there was often difficulty troubleshooting issues with technology outside of normal business hours.

Technology issues included information sometimes including conflicting or incomplete information from the two different EHR systems used. There were also issues with home care nurses' hardware and software, and sometimes internet connections were lost when providing care in patients' homes.

They also identified patient-related factors that contributed to potential problems. They often encountered patients with limited health literacy and found that EHR-generated discharge documents rarely incorporate health literacy best practices. For example, those documents often fail to take into account whether the patient recognizes a medication by its trade name or generic name. Another problem is that patients are often overwhelmed during their hospital stays, which may limit the effectiveness of hospital-based educational strategies. (That is also why we always recommend a phone call to patients 24 to 48 hours following discharge to clarify any issue and questions a patient may have.)

Finally, nurses often had concerns about the reliability of patients' informal caregivers. One example given was a family member “fills the pillbox, then takes the pills [bottles] home or something, and then you don't know what's in there. . . You don't know if they're getting the right dose of Lasix.”

Nurses in the Sarzynski study were “frustrated by ambiguity in clinicians' roles and accountability during the immediate post-discharge period”. A major problem we continue to see is lack of communication between hospital-based personnel and primary care clinicians (or other clinician who will be primarily responsible for the patient's continued care as an outpatient). We still hear PCP's telling their patient “I had no idea

you were even in the hospital.” Most EHR’s have a field for inputting the patient’s PCP (primary care physician) but they are often not accurate, fail to be updated, or are used for other purpose. The hospital discharge summary is often not conveyed promptly, if at all, to the PCP. So, it should come as no surprise that the PCP is unaware of any new medications prescribed or any old medications discontinued.

Notably absent in these studies on medication safety in home care is any mention of infusion errors. Our multiple columns on safety of infusions have included incidents related to infusion errors in the home. The most serious of such errors occurs when an infusion intended to be given over several days ends up being infused over several hours. Particularly with some chemotherapeutic agents, that may be a fatal error. Our number one recommendation regarding infusions, whether at home or in the hospital or other facility, is that you should never include a dose of a medication that could be fatal if the infusion were to accidentally be completed much faster than intended.

Home care is an important part of our healthcare system. Patient safety in home care should receive no less attention than it receives in other healthcare venues. Your organization likely would benefit from the sort of analysis done in the studies discussed in today’s column. You don’t have to analyze every home care visit. Rather, you can do a sampling of cases transitioned from the hospital to home care. We’ll bet you will identify many of the same problems noted in these studies. By the way, many of the same problems likely are seen in those patients transitioned from the acute care hospital to long term care facilities or other post-acute care facilities.

**Some of our prior columns on patient safety issues in the home:**

- April 12, 2011 “[Medication Issues in the Ambulatory Setting](#)”
- May 7, 2013 “[Drug Errors in the Home](#)”
- August 13, 2013 “[Adverse Events in Home Care](#)”
- September 16, 2014 “[Focus on Home Care](#)”
- August 2016 “[Home Infusion Therapy Pitfalls](#)”
- August 2018 “[IHI on Safety of Care in the Home](#)”
- June 16, 2020 “[Tracking Technologies](#)”

**Our prior columns related to infusion pump issues:**

- May 2010 “[FDA's Infusion Pump Safety Initiative](#)”
- April 27, 2010 “[Infusion Pump Safety](#)”
- August 2016 “[Home Infusion Therapy Pitfalls](#)”
- March 5, 2019 “[Infusion Pump Problems](#)”
- March 2020 “[ISMP Smart Infusion Pump Guidelines](#)”
- August 4, 2020 “[Intravenous Issues](#)”
- November 10, 2020 “[More on Infusion Pump Errors](#)”
- April 27, 2021 “[Errors Common During Thrombolysis for Acute Ischemic Stroke](#)”

- November 2021 “[Yet Another Risk During MRI](#)”

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<https://link.springer.com/article/10.1007/s11096-018-0728-3>

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