Geriatric Nursing 37 (2016) 307–310

Contents lists available at ScienceDirect

Geriatric Nursing

journal homepage: www.gnjournal.com

Assisted Living Column

Richard G. Stefanacci, DO, MGH, MBA, AGSF, CMD

Albert Riddle, MD, CMD

Preventing medication errors

Richard G. Stefanacci, DO, MGH, MBA, AGSF, CMD [a,b,c,*], Albert Riddle, MD, CMD [d]

[a] Thomas Jefferson University, College of Population Health, Philadelphia, PA, USA
[b] The Access Group, USA
[c] Mercy LIFE, Philadelphia, PA, USA
[d] Riddle Medical LLC, Tarrytown, NY, USA

Mrs. Taylor is a 70-year-old female living at home, cooking a meal one day when she has sudden onset of chest pain and shortness of breath. She is hospitalized and diagnosed with having a pulmonary embolism. During her stay in the hospital she is started on enoxaparin and warfarin and remains on both medications as she is transferred to your facility, on a Monday afternoon, for subacute care. Her admission orders include subcutaneous enoxaparin every 12 h and warfarin 3 mg once daily. The hospital sends instructions that she is to continue receiving enoxaparin until her INR, on warfarin, is between 2 and 3.

Her first INR result is available on Tuesday night and is sub therapeutic at 1.8. The result is called to the attending physician by the nursing supervisor and instructions are given to increase the dose of warfarin to 4 mg once daily. In addition, it is requested that the INR be checked in four days. 4 days later, on a Saturday, the INR result is 2.2.

It is not unusual for a Per Diem nurse to cover the facility on the weekend, nor is it unusual for a covering physician for the attending physician to manage patients over the weekend by telephone. The per diem nurse, who has not met Mrs. Taylor and is not familiar with her case receives the INR result of 2.2 and calls a covering physician who has also not met Mrs. Taylor and likewise is not familiar with her history. The nurse has to report the condition of several residents to the doctor, among them the INR result of Mrs. Taylor. The nurses have been told during communication in-services, because of prior complaints from the medical staff that they do not get good information over the phone and that some of the staff has a tendency to ramble, that they are to be prepared and give concise reports when calling the medical staff to report changes in condition.

The nurse calls the doctor and gives her report on the residents that she has concerns for, then, just before she hangs up she says, “One more thing Doctor, we have Mrs. Taylor INR result of 2.2 and she is currently taking 4 mg of Warfarin per day. She has been on this dose since Tuesday. What would you like us to do?” The doctor replies, “Continue her on 4 mg of warfarin per day and re-check her INR in one week.” 2 days later, Mrs. Taylor is found unresponsive in her bed. She is transferred to the hospital where she is found to have an intracranial hemorrhage. The cause was likely a medical error. When the per diem nurse called the covering physician on Saturday, there was no discussion that Mrs. Taylor was a new start on Warfarin nor what to do with enoxaparin, therefore there was not a soon repeat INR ordered nor was the enoxaparin discontinued as per the medical plan of care.

Preventing errors

Mistakes happen, but identification of the failures that produce these errors and correcting them is the best way to prevent future errors from occurring. In long term care (LTC) this is especially critical given the frail population and the increasingly complex care delivery environment. It has been recently reported that preventable medical errors persist as the third cause of death in the United States, behind heart disease and cancer. These errors are responsible for more than 400,000 deaths each year. In addition to deaths, medical errors are estimated to be responsible for approximately 10,000 complications or injuries every day resulting in costs to the country of more than $1 trillion each year.[1] Keep in mind that all of

* Corresponding author.
E-mail addresses: richard.stefanacci@jefferson.edu, albert.riddle@hotmail.com (R.G. Stefanacci).

0197-4572/$ – see front matter
http://dx.doi.org/10.1016/j.gerinurse.2016.06.005

the errors referred to here are not medication errors. For example, these errors would include laboratory mix-ups where a patient underwent mastectomy only to find out after surgery that the biopsy reports had been mixed up, but still, medication errors account for a large percentage of all medical errors.

Many studies have examined medication-related adverse events that have occurred in the long term care setting. Studies have generally found that adverse medication events are common and in many cases, preventable. In 2014, the Office of the Inspector General issued a report entitled, "Adverse Events in Skilled Nursing Facilities: National Incidence Among Medicare Beneficiaries."[2] This report, as other reports prior to it, found that medication adverse events have a profound impact. 37% of all adverse events identified among SNF residents were thought to be due to a medication-related events.

It is very important for facilities to engage in activities designed to reduce error rates. Keep in mind that errors will occur regardless of what is done, however, the sobering fact is that any one mistake can be very costly. The first step in preventing errors is having buy in at every level from administration, attendings, nurses, and all members of the care team; there is an expectation that all will participate in activities designed to reduce errors and that it will be encouraged to identify and promptly report any errors that have occurred. The expectation is that policies and procedures that have been put in place to reduce error rates have been followed according to systems that have been put in place and that all are encourage to be critical of flaws in the system so that those flaws can be promptly recognized and corrected. Significant gains cannot be accomplished if organizational policies and procedures to prevent medication errors have not been established.

The five essential elements of preventing medication errors include the following principles:

1. Communicating values and expectations
2. Design safe systems
3. Manage behavior choices
4. Create learning systems
5. Create a just and accountable environment[3]

When evaluating medication errors it is important that rather than blame being placed on an individual that the system that produced that result is evaluated and corrected. These system policies should clearly identify the types of errors that typically occur in LTC, including prescribing error, omission errors, wrong time error, unauthorized drug error, improper dose error, wrong dosage form error, wrong drug preparation error, expired drug error, monitoring error, and compliance error. Once identified the issues producing these errors can be eliminated, in most situations through system adjustments.

Medication ordering opportunities

Medication ordering errors can occur when an incorrect drug is ordered based on indication, contraindication, known allergy, existing drug therapy or other factors. A common example in LTC can occur when an antibiotic is ordered for an infection and the first dose is taken from an in-house emergency kit or box and given to the resident before the order is transmitted to the pharmacy. If the prescriber and staff are not careful in reviewing available records it may be missed that the resident is allergic to the antibiotic. By the time the order is transmitted to the pharmacy, where the allergy issue can be detected, the medication has already been administered. Opportunities exist to prevent this error by assuring the prescriber is well aware of any allergies, nursing staff confirming that the medication is not one that the patient is allergic as well as not dispensing any medication without pharmacist confirmation. Many LTC providers already have these systems in place but they may not always be followed in an effort to speed the administration of a medication to a patient. Of course speed can never be an excuse for not following processes, instead these processes need to be efficient and effective in design and delivery.

In the case presented this error could have been avoided potentially with a facility formulary that fostered the use of a noval oral anticoagulant (NOAC) instead of Warfarin. Since the NOACs do not require dose adjustments to achieve a therapeutic level in this situation they may have produced a lower risk of a bleed to Mrs. Taylor.

Medication administration

Omission errors and wrong time errors occur when a scheduled dose of a drug is missed and not given prior to the time of the next scheduled dose. In LTC facilities, by regulation, staff have one hour prior to and up to one after the scheduled dose of the medication to give it and remain compliant with time of administration.

Improper dose errors are defined as giving a dose of a drug to a patient that is either greater than or less than the amount ordered by the prescriber (for example: 5 ml or liquid morphine given instead of 5 mg of liquid morphine) while a wrong dosage form error involves administration of a drug in a different dosage form than ordered by the prescriber (for example: liquid levetiracetam is given instead of the tablets that were ordered).

Deteriorated drug errors are very common occurrences and are defined as administration of a drug that is expired. Insulin pens are often opened and used beyond the date that would be recommended by facility policy. Many LTC facilities have policies in place that state an insulin pen should be discarded 30 days after they are opened. This is done for simplicity as different manufacturers can have varying lengths of time that insulin can be used from a pen before the pen should be discarded. Some insulins are good, in their opened pen device, for more than 40 days, however, to keep things simple and less confusing the facility may have a policy that states all insulin pens should be discarded after 30 days regardless of manufacturers guidelines. This can be very confusing for some nurses and lead to medication errors with insulin administration.

Monitoring errors are another common occurrence in LTC and often can be easily prevented with a higher level of coordination between nursing staff and prescribers. For example, a prescriber initiates an antihypertensive medication and wants the blood pressure monitored daily to measure the response to the medication. Several months later, the resident is showing an appropriate level of blood pressure control on the medication and is stable but continues to have orders for daily blood pressure monitoring prior to administration of the medication with additional instructions to hold the medication if the systolic blood pressure is less than 100 mm Hg. Over time, additional residents are having orders generated for monitoring blood pressure withhold parameters for their antihypertensive medication. There are two obvious dangers with this situation. The first is that it will be more difficult for the nurse to complete the medication pass on time if he or she has so many blood pressures to check prior to administration of antihypertensive medication that is to be given. Eventually, some medications will not be given on time. The second danger is that the same nurse, finding it impossible to complete her medication pass on time, may omit taking blood pressure to save the time needed to get every medication to each resident on time. This will result in monitoring errors. Collaboration between nurse and prescriber on this matter should occur where the nurse can bring the issue to the prescriber's attention and review a list of residents who are stable