

Reducing Risks in Medication Administration

When medication errors occur in health care organizations, a team of staff and administrators typically investigates the cause of the mistake and implements strategies to prevent similar errors in the future. There are four **mistakes** that can be made when implementing quality improvement plans related to medication administration:

1. Depending on one risk-reduction strategy to prevent an error
2. Instituting strategies after an error has occurred that may not decrease the possibility of a similar error; identifying issues that don't have a causal relationship with the error
3. Unsuccessfully addressing all causes of the error
4. Inability to quantify the effectiveness of the action plan

To avoid these mistakes, there are several questions that should be asked:

1. Is there a solitary path to an error?
 - a. Assess the tasks related to the medication administration process that are one wrong action (human or equipment failure) away from an error.
 - b. Evaluate the number of safety layers implemented into practice.
 - c. Implement several layers of risk-reduction strategies; one strategy is never enough to prevent errors.
2. Are multiple safety nets integrated into the action plan?
 - a. Build at least three strategies or "layers of safety" into the plan.
 - b. For example, to prevent an IV line mix up:
 - i. Label all infusion lines between the pump and the infusion bag so the label is visible during bag changes.
 - ii. Clinicians should trace the infusion line from the patient, through the pump, and to the medication to verify the correct route of administration, prior to starting or changing the bag.
 - iii. Change each bag independently, not at the same time.
 - iv. Have another staff member double check high-alert medications and infusions.
 - v. Employ a variety of different overwraps for light-sensitive medications (large, brightly colored drug labels) to avoid confusion.
 - vi. Enable communication between smart infusion pumps and the electronic health record (EHR) to alarm if a medication is placed on the wrong smart pump or channel.
3. Are all causal factors of the error addressed in the action plan?
 - a. Identify all system-based causes or human factors that contribute to an error.
 - b. Barcode scanning a medication at the bedside prior to administration will help reduce errors, however, the right medication for the right patient may still be attached to the wrong IV infusion set, access site, or infusion pump. Implementing barcode scanning alone does not address the causal factors.
 - c. Establish a link between the strategy and the cause which helps:
 - i. Ensure that all causative factors have been given adequate attention
 - ii. Staff understand the reasoning behind the strategy

References

1. Institute for Safe Medication Practices. (2018). *Nurse Advise-ERR*. Retrieved from Institute for Safe Medication Practices: <http://www.ismp.org/newsletters/nursing/issues/NurseAdviseERR201907.pdf>

- iii. Promote support for the new action plan
 - iv. Highlight the risks associated with the underlying cause
 - d. Address factors related to human nature, such as taking short-cuts to save time.
4. Do the planned strategies truly detect errors or prevent patient harm?
 - a. Reevaluate each strategy for its effectiveness to directly address the cause.
 - b. If the strategy does not address the specific cause it will not be effective.
5. Was the action plan implemented and was it successful?
 - a. Plans must be realistic in order to be executed.
 - b. Test the plan on a small scale and revise as necessary before system integration.
 - c. Utilize strategies that blend easily within the workflow.
 - d. Address barriers prior to system-wide implementation.
 - e. Incentivize staff to incorporate the action plan into their daily routine.
 - f. Observe and monitor progress and measure effectiveness of each strategy.

Product Labeling with Medical Cannabis

Legalization of medical cannabis continues to spread while research on this topic cannot keep up. As opposed to the “street” equivalent, medical cannabis must be grown under standard processes so that the quality and quantity of active ingredients can be accurately communicated to dispensaries and patients. Since medical cannabis is not federally regulated, great variation exists in formulation, nomenclature, and labeling among the states where it is legal.

Medical cannabis is available in diverse dosage forms such as capsules, liquids, vapor products, sublingual drops, transmucosal adhesives, creams/ointments, transdermal patches, and suppositories - all with different effects. There are also numerous types of cannabis that contain hundreds of chemical components called cannabinoids, the two most common are tetrahydrocannabinol (THC) and cannabidiol (CBD). THC causes psychoactive effects including euphoria, relaxation, pain relief, anxiety, and memory loss which are dose dependent. CBD does not cause psychoactive effects, but early studies show it has anti-inflammatory, analgesic, anti-nausea, antiemetic, antipsychotic, anxiolytic, and antiepileptic attributes. Side effects of CBD include headache, diarrhea, restlessness, and somnolence. THC can cause physical dependence, but CBD does not.

Products containing medical cannabis must be tested for quality, labeled by the grower, and verified by an independent, accredited third party for THC and CBD content. These active ingredients must be included on the label, however, a lack of standards results in inconsistencies among the various manufacturers. The primary approaches to labeling include the following:

1. **Ratio:** The main cannabinoids are often expressed as a ratio – either THC:CBD or CBD:THC. There is no national standard and the states do not mandate a particular protocol. The order of ingredients may be different among growers which results in confusion.
2. **Percent:** some products are labeled with percent concentration but do not include mg/mL or the mg amount is listed without a corresponding volume making the concentration difficult to calculate.
3. **Label on the outer packaging but no label on the container itself:** if the outer packaging is lost, the unlabeled product doesn't have the contents included.

References

1. Institute for Safe Medication Practices. (2018). *Nurse Advise-ERR*. Retrieved from Institute for Safe Medication Practices: <http://www.ismp.org/newsletters/nursing/issues/NurseAdviseERR201907.pdf>

4. **Label missing key information:** some labels do not include all the ingredients or information such as onset and duration of effect, dose delivered, or side effects. Tincture labels may not contain the alcohol content. Plant terpenes, found in the essential oils of the marijuana plant, have some clinical effects, but these are not usually included on the product label.

Medical cannabis labels should be standardized to indicate the amount of THC and CBD contained in the product in metric units such as mg, g, or mg/mL. All product containers should be labeled, not just the outer packaging, and all non-active ingredients should be included to decrease the risk of allergic reactions.

There are four US Food and Drug Administration (FDA) approved cannabis-based products on the market today: Epidiolex (pure extraction) and Marinol, Syndros and Cesamet, all synthetic formulations. Aside from these products, no other medical cannabis product is FDA-approved. CBD-only products on the market are not currently evaluated or regulated by the FDA and therefore their contents are inconsistent and may contain small amounts of THC that could appear on a drug screen.

References

1. Institute for Safe Medication Practices. (2018). *Nurse Advise-ERR*. Retrieved from Institute for Safe Medication Practices: <http://www.ismp.org/newsletters/nursing/issues/NurseAdviseERR201907.pdf>