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Pen Injection Medications and Glucometer Calibration

A common deficiency that occurs in nursing homes is related to professional standards and/or medication errors when individuals who are administering injections from a pen (usually insulin) fail to prime the insulin pen or hold the plunger down on the pen for the recommended time after the medication is injected. While reading surveys it was noted that there are different recommendations based on the type of medication that is being administered, which can be very difficult for those administering the medication to remember.

Based on member feedback on common medications administered in both Assisted Living and Nursing Homes, a resource was developed for members to use that lists the different types of insulin commonly used as well as human GLP-1 receptor agonist medications including Ozempic, Trulicity, and Mounjaro. While researching the different medications, it was identified that there are several directions that should be included when determining competencies for pen medication injections. These are outlined below.

- The length of time that pens are good for once opened or once stored at a room temperature vary from medication to medication. One time use pens (such as Trulicity and Mounjaro) can remain stored at a room temperature for no more than 14-21 days. The best practice for this would be to keep the pen refrigerated until needed, however, if you want to establish a "best practice" for discarding once stored at room temperature would be 14-days. The length pens are considered safe once they have been opened (or punctured) vary also. Medications such as Lantus and Humalog are only good for 28 days once punctured, however, others such as Toujeo can be used for up to 56 days (8 weeks).
- When priming the pens, there are directions in the patient leaflets for each medication that describe a maximum number of times priming should be attempted. These vary anywhere from 3 to 6 times and the leaflets note that if medication is not seen from the needle within these maximum attempts, the pen needle should be changed and priming should be attempted again. If the medication is still not seen from the needle again in the maximum number of attempts, the pen should be discarded and a new one obtained. A best practice for teaching the person administering to prime for number of units was nearly always 2 units, except Toujeo which was determined based on if it was the Solostar or the Max Solostar pen which ranged from 3-4 units.

- When administering the medication from a multi-use pen, the pen should be left in the skin with the plunger held for a period of time. This also varied from medication to medication and ranged anywhere from 5-10 seconds. A best practice to teach individuals who are administering medications would be to leave the needle in the skin with the plunger pushed in for at least 10 seconds after the dial reaches 0. If using a single dose pen such as Trulicity and Mounjaro, the pen will click twice and once the 2nd click (or generally the louder click) is heard the needle has been removed from the skin.
- There were a few recommendations that didn't fall into the same category that were noteworthy for medication administration including directions on Humulin N Kwikpen. Humulin N is a NPH insulin which has both short and long-acting in it. As you may recall from training on this in nursing school, the NPH insulin must be mixed appropriately prior to administration. These directions included rolling the pen 10 times and then inverting the pen 10 times before placing the pen needle on. Toujeo also included recommendations to remove from the refrigerator at least 1 hour before using the first time.

A member also asked to include what best practices are for calibrating glucometers as tenants in AL may utilize their own, or a multi-use glucometer. Based on research, the recommendations for calibrating glucometers includes:

- Always follow the manufacturer recommendations for the glucometer for calibration.
- If there are not manufacturer recommendations on calibrating, the minimum calibration should be completed when a new bottle of strips are opened or if there is a reason to suspect that the glucometer reading is inaccurate.
- The Joint Commission included a standard of daily quality controls on glucometers used, however there were also recommendations that exceeded that standard such as twice a day for the first 21 days when a new glucometer is used and then at least daily.
- Whichever recommendations you follow, you should ensure that this is outlined in your policies and procedures and that there is a method for documenting when the calibration/quality controls are checked.

As a reminder for infection control purposes, if you're using a glucometer for multiple residents you should ensure that the glucometer is sanitized appropriately between the residents as well as before the glucometer is placed back into storage. If you're using separate glucometers, they should be disinfected prior to being placed back into storage.

Whenever a glucometer is used, a barrier must be placed down and then the glucometer should be sat on top of the barrier.