LIMITATIONS OF LIQUID NARCOTIC COUNTS

In health care facilities, the nurses are required to perform change of shift counts of any scheduled II through IV medications, primarily narcotics and benzodiazepines. There are a multitude of inherent limitations, outside the nurses control, which impair the ability to perform the count accurately. This occurs primarily with liquid forms of morphine and lorazepam, though other medications are not excluded.

Facility policies shows that the goal of these counts is to maintain an accurate count at all times. The nurses performing the count are professionally responsible for accuracy which may not be attainable and is outside their control. In addition, licensing agencies perform evaluations of these processes looking in particular for discrepancies in the count. When an inaccuracy is observed, both the facility and nurses involved are potentially liable for disciplinary action.

LISTING OF INHERENT LIMITATIONS

Manufacturer-Related Issues
- The manufacturers commonly overfill the containers
  - Which can lead to accusations of missed doses or underdosing.
- The containers with graduations on the side of the bottle show the first increment anywhere from 7-27% of the total volume.
  - The actual first dose may be as little as 1.5% of the total volume. Thus a completely accurate measurement is not possible.
- The bottles are often provided in a plastic form and as such have a higher potential for warping or deformity.
  - This can lead to varying observed levels on the graduations vs. the actual volume.
- The window on the side of the bottle which allows the nurse to view the contents is often only a few millimeters wide and contributes to the difficulty to provide an accurate visualization.
  - The meniscus may not be visible when the nurse cannot see entirely though the bottle.
- The use of a dropper does not allow the best degree of precision.
  - When a syringe is utilized this then adds the factor that some amount of the liquid may adhere either to the outside of the syringe and/or within the housing of the syringe between the plunger and the opening.

Human-Related Issues
- The dropper may or may not have had the contents of the liquid expelled when the count is performed.
  - This can show a lower level than expected.
- The fact the nurses have to estimate the level between the increments of the graduations.
  - As described above, the dosing increment may be so small a change that in essence the level appears the same before and after the volume removal.
  - viscosity
- Due to the small volume of a dose, the syringe is sometimes placed in the resident’s mouth and saliva may inadvertently adhere to the syringe or have been pulled in by the syringe.
  - This has the possibility of adding to the volume by the amount of saliva and/or the acid from the saliva has interacted with the preservative which alters the color and more importantly the consistency. This has the possibility of altering the volume.

In summary, as the factors for potential misinterpretation of the count are digested, we can see the expectation of a completely accurate count of these liquids is exposing the ignorance of the situation.

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