

Writing Correct Medication Orders for Simulation Scenarios



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Required Elements

According to Medicare, a *physician order* must include the following *elements* in *order* to be considered valid:

- Reason for *ordering* the test or service (diagnosis description, ICD-9 code, sign(s), symptoms)
- Test or service requested.
- Provider's name.
- Provider's signature.
- Patient complete name.

- Patient date of birth.
- Date and time
- Medication Name (generic and brand)
- Dosage strength
 - May depend on weight, BMI, lab results, comorbidities (e.g. liver or kidney disease).
 - E.g. 10 mg per kilogram.
- Dosage form (e.g. syrup, solution etc)
- Route of administration (by mouth, intravenous, eye drops, per rectum etc)
- Frequency of administration e.g. once a day, four times a day, every 6 hours.
 - Hospitals typically have set hours for meds
 - Four times a day might be 0800, 1200, 1600, 2000 or 0900, 1300, 1700, 2100. Meds are given at set times depending on pharmacy schedules. These times usually allow patients periods of uninterrupted rest without meds.
 - Every 6 hours: Meds may also be given with set intervals between doses such as 0600, 1200, 1800, 2400 depending on when the med was started. This method ensures the patient's blood level of medicine remains level throughout the 24 hour period. This may be crucial for some disorders such as Myasthenia Gravis.
- Time of administration e.g. before meals, with meals or on call to OR
- Duration of therapy/Order expiration.

Types of Orders:

- Standing orders
- Stat – immediate administration
- As needed (PRN)
- One time
- Medication reconciliation when patients transition from one type of care unit to another.
 - E.g when patients move from ICU to med-surg floor or are discharged to another facility.

Parameters:

- Some medications are given with explicit parameters:
 - E.g. hold for SBP less than 110 mmHg or give for fever over 100°F
 - A lack of a written parameters does not necessarily mean there are none.
 - E.g. digoxin is typically held if the HR is less than 60 beats per minute – this may or may not be written as part of the order.
- Some medication administration such as insulin or heparin, may be dependent on lab results.
 - E.g. heparin (aPTT)
 - Insulin (blood sugar – finger stick or lab).
 - Kidney function labs e.g. creatinine.
 - Blood levels of medication e.g. vancomycin peak and trough
- As needed orders (PRN) should have parameters e.g. as needed for nausea every three hours. Learners will need to determine the time of the previous dose to check that the patient can be safely given another dose.

Zeros and units of measurement:

- If decimal points are necessary, use a “**leading zero**” before a decimal point (e.g. write 0.5 mg not .5 mg). Never use a “**trailing zero**” after a decimal point (e.g. write 5 mg not 5.0 mg).

Abbreviations:

- To avoid medication errors, the spelling-out of words that are often abbreviated is also recommended, for example:
 - Write “units”, not U or u;
 - Write “daily”, not od (once daily) or qd / QD;
 - Write “every other day”, not qod or QOD;
 - Write full drug names (e.g. Penicillin, not PCN)
 - Use “greater than” or “less than” instead of > or <
 - Do not use @, write “at”.
 - Do not use “+”, use “and” or “plus” instead.
 - Do not use “&”, use “and”.
 - Drug names should be written out in full
 - E.g. MS or MSO₄ must be written out in full, morphine sulfate.
 - Apothecary measurements should not be used. Use metric instead.
- Care with units:
 - E.g. 60 mg or 60 mEq (milliequivalents)
 - The Potassium Chloride Extended Release Tablets, USP **20 mEq** product is an immediately dispersing extended release oral dosage form of potassium chloride containing **1500 mg** (1.5 grams) of microencapsulated potassium chloride, USP equivalent to **20 mEq** of potassium in a tablet.
 - Mg, g, mEq are different.

Order Sets

- Many electronic healthcare records now include order sets with boxes that the prescriber checks. The physician may select different medications or doses by checking the appropriate box. Standardized orders improve patient safety when compared to old handwritten orders which were frequently impossible to read. Errors have been made however, when physicians check the wrong box or multiple boxes by mistake.
 - If the focus of a simulation is safe medication administration, consider creating an order set and then deliberately check inappropriate boxes.
 - Check your own or local hospitals to obtain copies of order sets (makes your life easier).

Other Considerations:

- - The following are not acceptable orders:
 - **“Blanket Orders”** – such as “*continue previous orders*”; or
 - **“Range Orders”** – such as “*one or two tablets every 4-6 hours*”
 - Correct: One tablet for moderate pain (4-6 on a scale of 1-10), two tablets for severe pain.
 - Look-alike drug names should be listed using standardized Tall Man letters to help differentiate one drug from one another.
 - E.g. aceto**HEXAMIDE** versus aceta**ZOLAMIDE**
- **diphenhydrAMINE versus dimenhyDRINATE**
- Extended release tables. These medications are designed to be released slowly over time.
 - E.g. Metoprolol succinate extended release tablets 50mg (generic for Toprol XL) one tablet orally every morning.
 - Note: these meds should not be crushed.
 - If a patient is NPO (nothing by mouth), some meds can be crushed and given via nasogastric tube (NG tube), however, slow release tablets should not be crushed.
 - An order that contains an extended release pill for an NPO patient will create a dilemma for the learner, they will need to seek clarification about the order (provides practice in calling provider).
 - Some extended release capsules contain small beads of medicine. The plastic capsule can be pulled apart and the beads may be given via NG tube. The safety of this should be checked with either the prescriber or pharmacy. The beads should not be crushed.
 - Safer to give liquid form of medicine.
- Enteric-coated tablets
 - Are formulated because certain drugs can be irritating to the stomach or are degraded by stomach acid. By enteric-coating tablets or capsule beads, the drug’s release can be delayed until it reaches the small intestine. Prefixes include EN- and EC-.
 - Ecotrin
- Black Box Warning
 - A **boxed warning** is the most serious type of **warning** mandated by the U.S. Food and Drug Administration (**FDA**). They are prominently featured in the labeling of drugs to warn prescribers about serious adverse reactions or special problems.

- E.g. levothyroxine
- Generic versus brand name:
 - Each drug has only one generic name and this is the preferred name to order a drug. However, there may be several brand names.
 - E.g. ibuprofen – generic. Brand or proprietary names: Advil, Motrin, IBU
- DAW
 - Dispense as written. Physicians may add this to indicate they do not want any substitutions but want the brand name eg. Advil (DAW)
- Cumulative doses:
 - The total dose of medications which is safe to give in 24 hours.
 - E.g. Acetaminophen – maximum dose 4 grams in 24 hours (adult). This may or may not be included in the original order.
- Combination drugs
 - hydrocodone/acetaminophen 10mg/325mg (Norco)
 - There are many combinations of drugs.