

CASE IN POINT 4.2 A 72-year-old male who is diabetic is admitted to the emergency room with shortness of breath and general weakness. Tests reveal anemia, hypotension, atrial fibrillation, and coronary artery blockage. During 2 weeks of hospitalization, the patient receives intravenous infusions, oral medications, and blood transfusions; four cardiovascular stents are inserted; and the patient is discharged with the following prescriptions:

PLAVIX (clopidogrel bisulfate) tablets, 75 mg, 1 tab q.d.

ACTOS (pioglitazone hydrochloride) tablets, 15 mg, 1 tab q.d.

PROTONIX (pantoprazole sodium) tablets, 40 mg, 1 tab b.i.d.

ZOCOR (simvastatin) tablets 40 mg, 1 tab q.d. h.s.

HUMULIN 70/30, inject 35 Units q.d. AM and 45 Units q.d. P.M.

COREG (carvedilol) tablets, 3.125 mg 1 tab b.i.d. × 2 wk; then 6.25 mg 1 tab b.i.d.

CORDARONE (amiodarone hydrochloride) tablets, 200 mg, 2 tabs b.i.d. × 7 d; then 1 tab b.i.d. × 7 d; then 1 tab q.d.

CYMBALTA (duloxetine hydrochloride) capsules, 30 mg, 1 cap q.d. × 7 d; then 1 cap b.i.d.

- How many total tablets and capsules would the patient initially be taking daily?
- If HUMULIN contains 100 units per milliliter, how many milliliters would be administered each morning and each evening?
- How many CORDARONE tablets would constitute a 30-day supply?
- If 60 CYMBALTA capsules were initially dispensed and the patient requested a refill after 17 days, is *medication nonadherence* and thus the patient's well-being a reasonable concern? Show calculations.

PRACTICE PROBLEMS

1. Interpret each of the following *Subscriptions* (directions to the pharmacist) taken from prescriptions:

- Disp. supp. rect. no. xii
- M. ft. iso. sol. Disp. 120 mL.
- M. et div. in pulv. no. xl
- DTD vi. Non rep.
- M. et ft. ungu. Disp. 10 g
- M. et ft. caps. DTD xlvi
- M. et ft. susp. 1 g/tbsp. Disp. 60 mL.
- Ft. cap. #1. DTD no. xxxvi N.R.
- M. et ft. pulv. DTD #C
- M. et ft. I.V. inj.
- Label: hydrocortisone, 20 mg tabs.

2. Interpret each of the following *Signas* (directions to the patient) taken from prescriptions:

- Gtt. ii each eye q. 4 h. p.r.n. pain.
- Tbsp. i in $\frac{1}{3}$ gl. aq. q. 6 h.
- Appl. a.m. & p.m. for pain prn.
- Gtt. iv right ear m. & n.
- Tsp. i ex aq. q. 4 or 5 h. p.r.n. pain.
- Appl. ungu. left eye ad lib.
- Caps i \bar{c} aq. h.s. N.R.
- Gtt. v each ear 3 × d. s.o.s.
- Tab. i sublingually, rep. p.r.n.
- Instill gtt. ii each eye of neonate.
- Dil. \bar{c} = vol. aq. and use as gargle q. 5 h.

- (l) Cap. ii 1 h. prior to departure, then cap. i after 12 h.
- (m) Tab i p.r.n. SOB
- (n) Tab i qAM HBP
- (o) Tab ii q 6h ATC UTI
- (p) $\text{ziii } 4 \times \text{d p.c. \& h.s.}$
- (q) zss a.c. t.i.d.
- (r) Add crushed tablet to pet's food s.i.d.
3. Interpret each of the following taken from medication orders:
- (a) AMBIEN 10 mg p.o. qhs $\times 5$ d
- (b) 1000 mL D5W q. 8 h. IV \bar{c} 20 mEq KCl to every third bottle.
- (c) Admin. Prochlorperazine 10 mg IM q. 3h. prn N&V
- (d) Minocycline HCl susp. 1 tsp p.o. q.i.d. DC after 5 d.
- (e) Propranolol HCl 10 mg p.o. t.i.d. a.c. & h.s.
- (f) NPH U-100 insulin 40 Units subc every day A.M.
- (g) Cefamandole nafate 250 mg IM q. 12 h.
- (h) Potassium chloride 15 mEq p.o. b.i.d. p.c.
- (i) Vincristine sulfate 1 mg/m² pt. BSA.
- (j) Flurazepam 30 mg at HS prn sleep.
- (k) D5W + 20 mEq KCl/L at 84 mL/hour.
- (l) 2.5 g/kg/day amino acids TPN.
- (m) PROCRT (epoetin alpha) stat. 150 units/kg subQ. $3 \times \text{wk.} \times 3-4$ wks.
- (n) MTX 2.5 mg tab t.i.d. 1 \times /wk.
- (o) HCTZ tabs 12.5 mg q.d. AM
4. (a) If a 10-mL vial of insulin contains 100 units of insulin per milliliter, and a patient is to administer 20 units daily, how many days will the product last the patient? (b) If the patient returned to the pharmacy in exactly 7 weeks for another vial of insulin, was the patient compliant as indicated by the percent compliance rate?

5. A prescription is to be taken as follows: 1 tablet q.i.d. the first day; 1 tablet t.i.d. the second day; 1 tablet b.i.d. $\times 5$ d; and 1 tablet q.d. thereafter. How many tablets should be dispensed to equal a 30-day supply?

6. In preparing the prescription in Figure 4.3, the pharmacist calculated and labeled the dose as "1 teaspoonful every 12 hours." Is this correct or in error?

7. Refer to Figure 4.1 and identify any errors or omissions in the following prescription label:

Patient: Mary Smith Dr. JM Brown
Date: Jan 9, 20yy

Take 1 capsule every day in the morning

Refills: 5

8. Refer to Figure 4.4 and identify any errors or omissions in the following prescription label:

Patient: Brad Smith Dr. JM Brown
Date: Jan 9, 20yy

Take two (2) teaspoonfuls every twelve (12) hours until all of the medicine is gone

Amoxicillin 250 mL/5 mL

Refills: 0

9. Refer to Figure 4.5 and identify any errors or omissions in the following prescription label:

Patient: Brad Smith Dr. JM Brown
Date: Jan 9, 20yy

Nasal spray for chemotherapy-induced emesis. Use as directed.
Discard after 60 days.

Metoclopramide HCl
10 g/100 mL Nasal Spray

Refills: 0

- (b) Since q.s. ad means "a sufficient quantity to make," the total in each capsule is 300 mg. The amount of lactose per capsule would equal 300 mg less the quantity of the other ingredients (10 mg + 10 mg + 40 mg), or 240 mg. Thus,

$$240 \text{ mg lactose/capsule} \times 30 \text{ (capsules)} = 7200 \text{ mg} = 7.2 \text{ g lactose.}$$

- (c) Take one (1) capsule in the morning before breakfast.

Case in Point 4.2

- (a) 12 total tablets and capsules.

$$\begin{aligned} \text{(b) } ? \text{ mL} &= \frac{1 \text{ mL}}{100 \text{ units}} \times \frac{35 \text{ units}}{\text{AM}} \\ &= 0.35 \text{ mL in the AM} \end{aligned}$$

$$\begin{aligned} ? \text{ mL} &= \frac{1 \text{ mL}}{100 \text{ units}} \times \frac{45 \text{ Units}}{\text{PM}} \\ &= 0.45 \text{ mL in the PM} \end{aligned}$$

- (c) First 7 days: 2 tablets \times 2 (twice daily) \times 7 days = 28 tablets;
Next 7 days: 1 tablet \times 2 (twice daily) \times 7 days = 14 tablets;
Next 16 days: 1 tablet (daily) = 16 tablets;
28 + 14 + 16 = 58 tablets.

- (d) 1 capsule daily \times 7 days = 7 capsules;
1 capsule \times 2 (twice daily) \times (next) 10 days = 20 capsules;
7 + 20 = 27 capsules taken with 33 capsules remaining.

Thus, nonadherence *would be* a concern.

Practice Problems

1. (a) Dispense 12 rectal suppositories.
- (b) Mix and make an isotonic solution. Dispense 120 mL.
- (c) Mix and divide into 40 powders.
- (d) Dispense six such doses. Do not repeat.
- (e) Mix and make ointment. Dispense 10 grams.

- (f) Mix and make capsules. Dispense 48 such doses.
 - (g) Mix and make a suspension containing 1 gram per tablespoon. Dispense 60 milliliters.
 - (h) Make one capsule. Dispense 36 such doses. Do not repeat.
 - (i) Mix and make powder. Divide into 100 such doses.
 - (j) Mix and make an intravenous injection.
 - (k) Label: hydrocortisone, 20 mg tabs.
2. (a) Instill 2 drops in each eye every four (4) hours as needed for pain.
 - (b) Take 1 tablespoonful in one-third glass of water every 6 hours.
 - (c) Apply morning and night as needed for pain.
 - (d) Instill 4 drops into the right ear morning and night.
 - (e) Take 1 teaspoonful in water every 4 or 5 hours as needed for pain.
 - (f) Apply ointment to the left eye as needed.
 - (g) Take 1 capsule with water at bedtime. Do not repeat.
 - (h) Instill 5 drops into each ear 3 times a day as needed.
 - (i) Place 1 tablet under the tongue, repeat if needed.
 - (j) Instill 2 drops into each eye of the newborn.
 - (k) Dilute with an equal volume of water and use as gargle every 5 hours.
 - (l) Take 2 capsules 1 hour prior to departure, then 1 capsule after 12 hours.
 - (m) Take 1 tablet as needed for shortness of breath.
 - (n) Take 1 tablet every morning for high blood pressure.
 - (o) Take 2 tablets every 6 hours around the clock for urinary tract infection.
 - (p) Take 2 teaspoonfuls 4 times a day after meals and at bedtime.

- (q) Take 1 tablespoonful before meals 3 times a day.
- (r) Add crushed tablet to pet's food once a day.
3. (a) AMBIEN 10 milligrams by mouth at every bedtime for 5 days.
- (b) 1000 milliliters of 5% dextrose in water every 8 hours intravenously with 20 milliequivalents of potassium chloride added to every third bottle.
- (c) Administer 10 milligrams of prochlorperazine intramuscularly every 3 hours, if there is need, for nausea and vomiting.
- (d) One teaspoonful of minocycline hydrochloride suspension by mouth four times a day. Discontinue after 5 days.
- (e) 10 milligrams of propranolol hydrochloride by mouth three times a day before meals and at bedtime.
- (f) 40 units of NPH 100-Unit insulin subcutaneously every day in the morning.
- (g) 250 milligrams of cefamandole nafate intramuscularly every 12 hours.
- (h) 15 milliequivalents of potassium chloride by mouth twice a day after meals.
- (i) 1 milligram of vincristine sulfate per square meter of patient's body surface area.
- (j) Administer 30 mg of flurazepam at bedtime as needed for sleep.
- (k) Administer 20 milliequivalents of potassium chloride per liter in D5W (5% dextrose in water) at the rate of 84 milliliters per hour.
- (l) Administer 2.5 grams per kilogram of body weight per day of amino acids in total parenteral nutrition.
- (m) Start epoetin alpha (PROCRIT) immediately at 150 units per kilogram of body weight subcutaneously and then 3 times a week for 3 to 4 weeks.
- (n) Methotrexate tablets, 2.5 mg each, to be taken 3 times a day one day a week.
- (o) Hydrochlorothiazide tablets, 12.5 mg, to be taken once each day in the morning.
4. (a) 50 days
(b) yes
5. (a) 40 tablets
6. (a) correct
7. \mathcal{R} calls for *tablets* but label indicates *capsules*.
Sig: "in the morning" has been added, which may be correct if that is the prescriber's usual directive.
Refill "5" times is incorrect; the original filling of a prescription does not count as a refill.
 \mathcal{R} calls for drug name/strength on label; an omission.
It should be noted that after filling the prescription, the pharmacist would have added a prescription number, which would also appear on the label.
8. The words "all of the medicine" have been added and the numbers enhanced; this clarifies the directions and thus is positive. 250 mL should be 250 mg.
The prescription number should appear on the label.
9. Patient's name is incorrect. The active drug name *only* on the label is proper for a compounded prescription. The other ingredients are "pharmaceutic."
It should be noted that after filling the prescription, the pharmacist would have added a prescription number, which would also appear on the label.
10. (1) "QID" means 4 times a day.
(2) Drug name is incorrect.
(3) Correct.
11. Correct label.