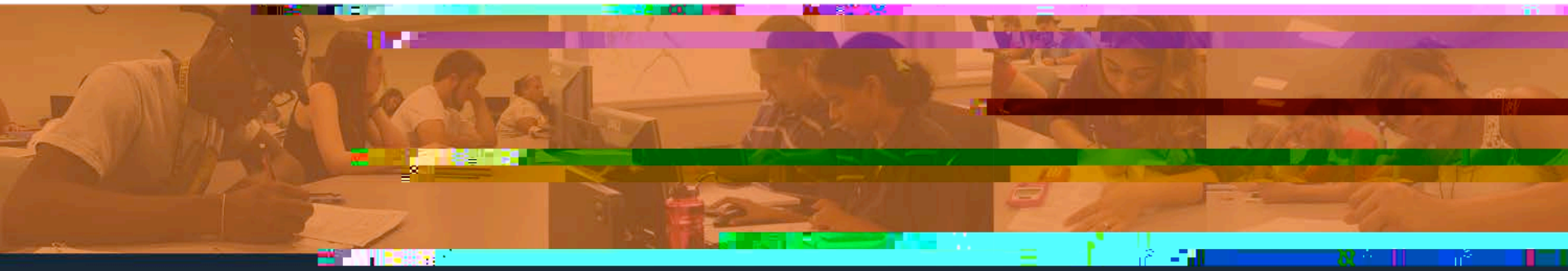
Dana Center
Mathematics
PATHWAYS

Teaching Dosage Calculations: Strategies for Narrowing the Theory-Practice Gap



Order: 500 mg Ibuprofen
Available: 250 mg / 1 tablet
Calculate the amount to administer.

Order: 1 L NS over 4 hours
The available tubing has a drop factor of 25 gtt/mL.
Calculate the appropriate gtt/min flow rate.

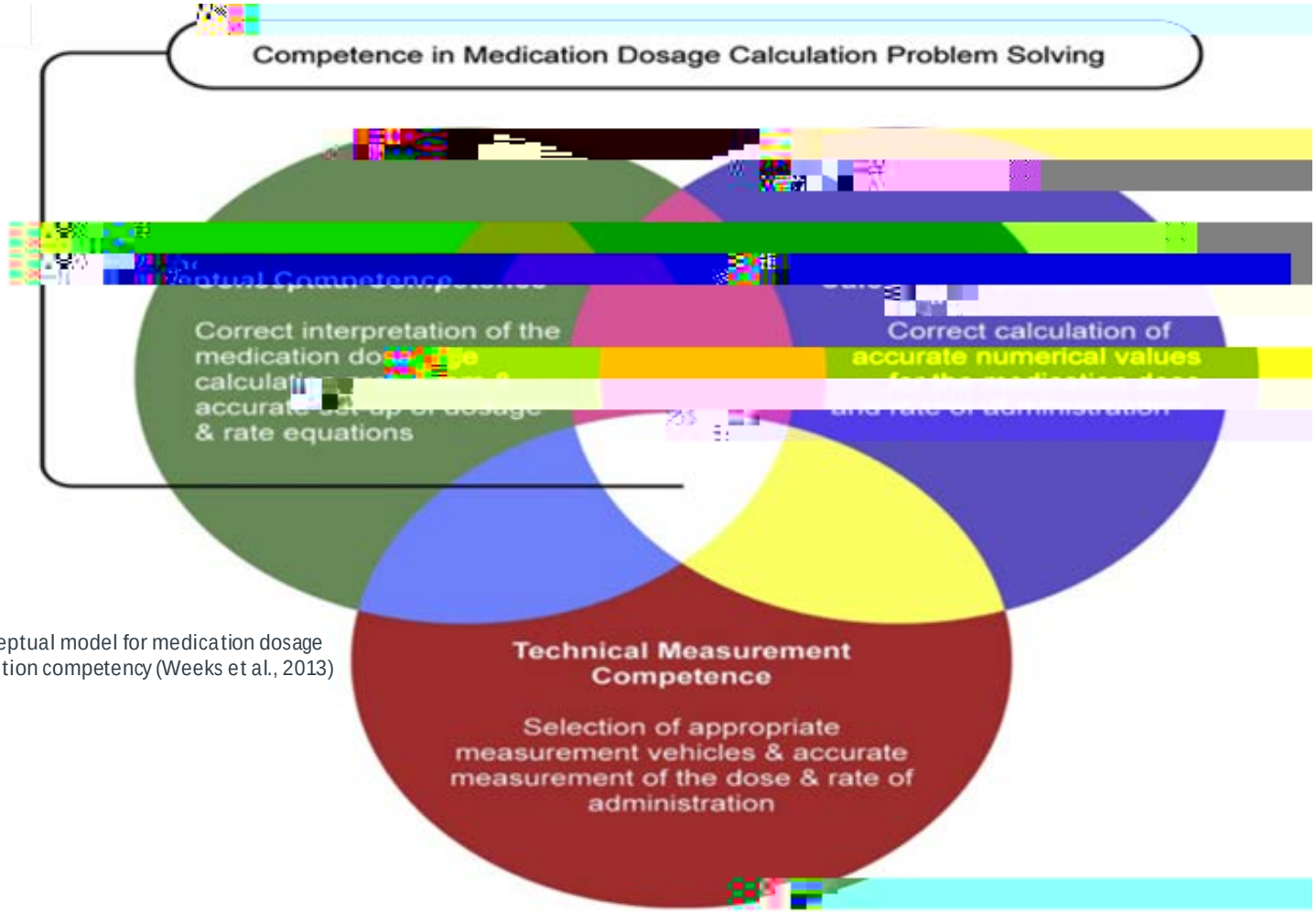
An infant who weighs 7 pounds and 4 ounces has an order for digoxin solution, 49.5 mcg, oral, every 12 hours.
The drug reference states that a safe dosage range is 6-10 mcg/kg/ dose oral daily in 2 divided doses. Digoxin solution contains 0.05 mg/ 1 mL.
What is the minimum recommended dosage range for this child per dose? Round to the nearest tenth.

Mathematics

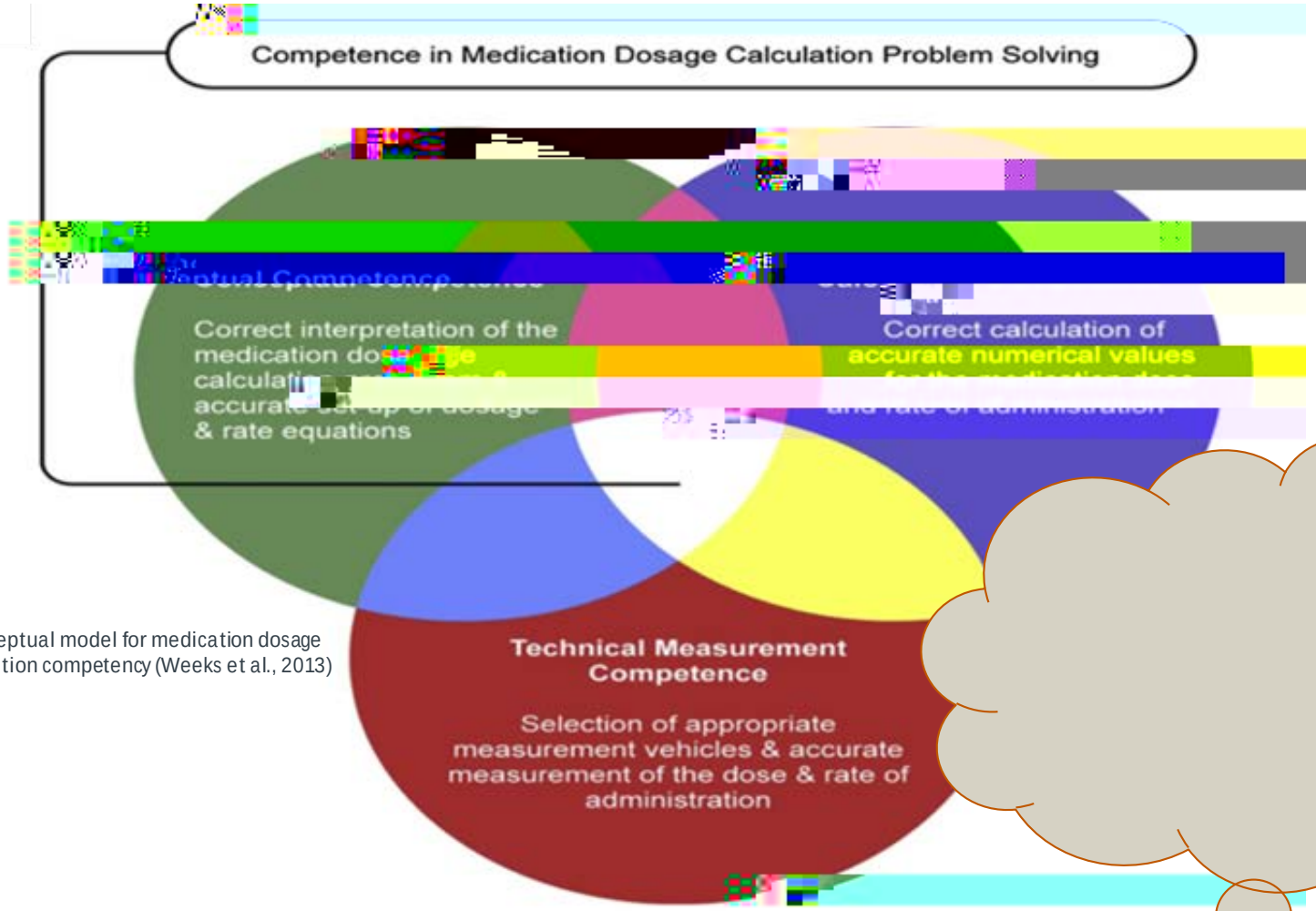
(IOM, 2000)

(Harvey et al., 2010)

(McMullan, Jones, & Lea, 2010)



A conceptual model for medication dosage calculation competency (Weeks et al., 2013)

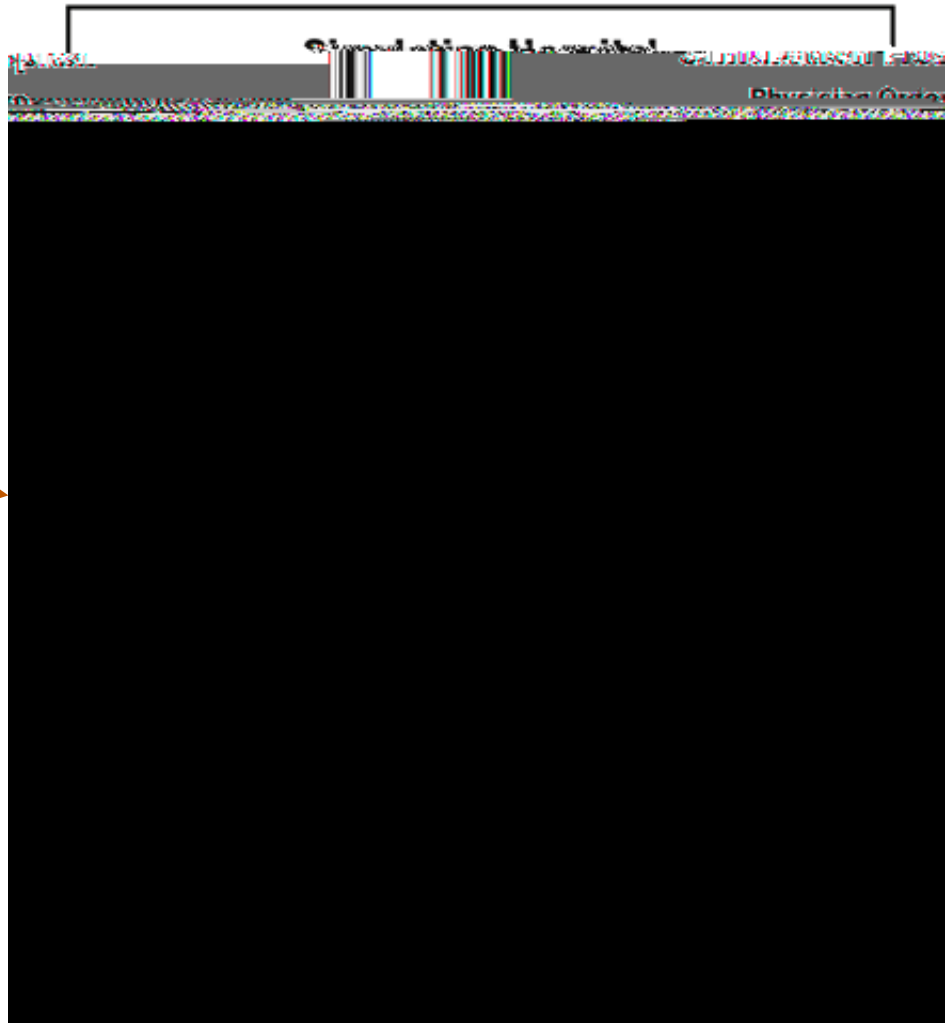


A conceptual model for medication dosage calculation competency (Weeks et al., 2013)

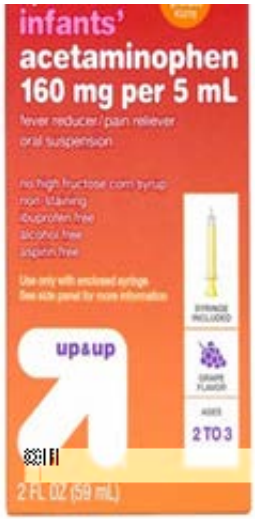
(Abell et al., 2019; Wright, 2012)

(AMATYC, 2018; Murphy & Murphy, 2019)

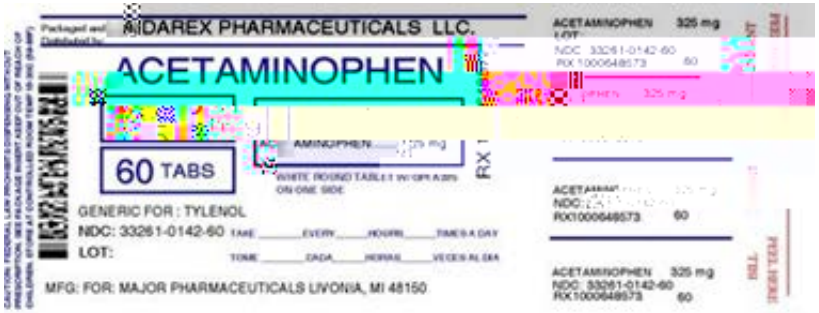
How could this task be modified to be more “authentic”?



Physician Orders
Age: 4 weeks
Fever
DOB:
Weight
Date
Provider Order
CBC, BMP, UA


infants'
acetaminophen
160 mg per 5 mL
fever reducer/pain reliever
oral suspension
up&up
2 TO 3
2 FL OZ (59 mL)

Delivers 5 mL
ACETAMINOPHEN and
CODEINE PHOSPHATE
ORAL SOLUTION USP
FOR INSTITUTIONAL USE ONLY
Rx ONLY
PHARMACEUTICAL ASSOCIATES, INC.
GREENVILLE, SC 29605
SEE INSERT


AIDAREX PHARMACEUTICALS LLC.
ACETAMINOPHEN
60 TABS
GENERIC FOR : TYLENOL
NDC: 33261-0142-60
LOT:
MFG: FOR: MAJOR PHARMACEUTICALS LIVONIA, MI 48150
ACETAMINOPHEN 325 mg

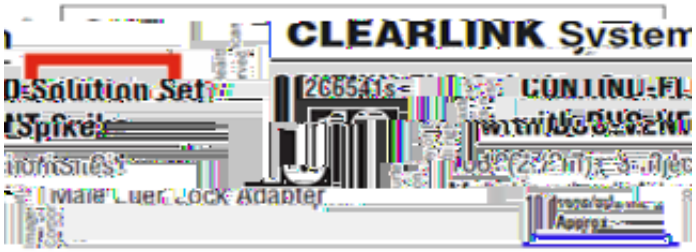
Mathematics

CefTRIaxONE for Injection and Dextrose Injection
2g
DUPLEX®
DRUG DELIVERY SYSTEM
50 mL
B BRAUN
Rx only
LOT
EXP

___ . __ mL/hr ____ mL __:__hr:min

Mathematics

Mathematics

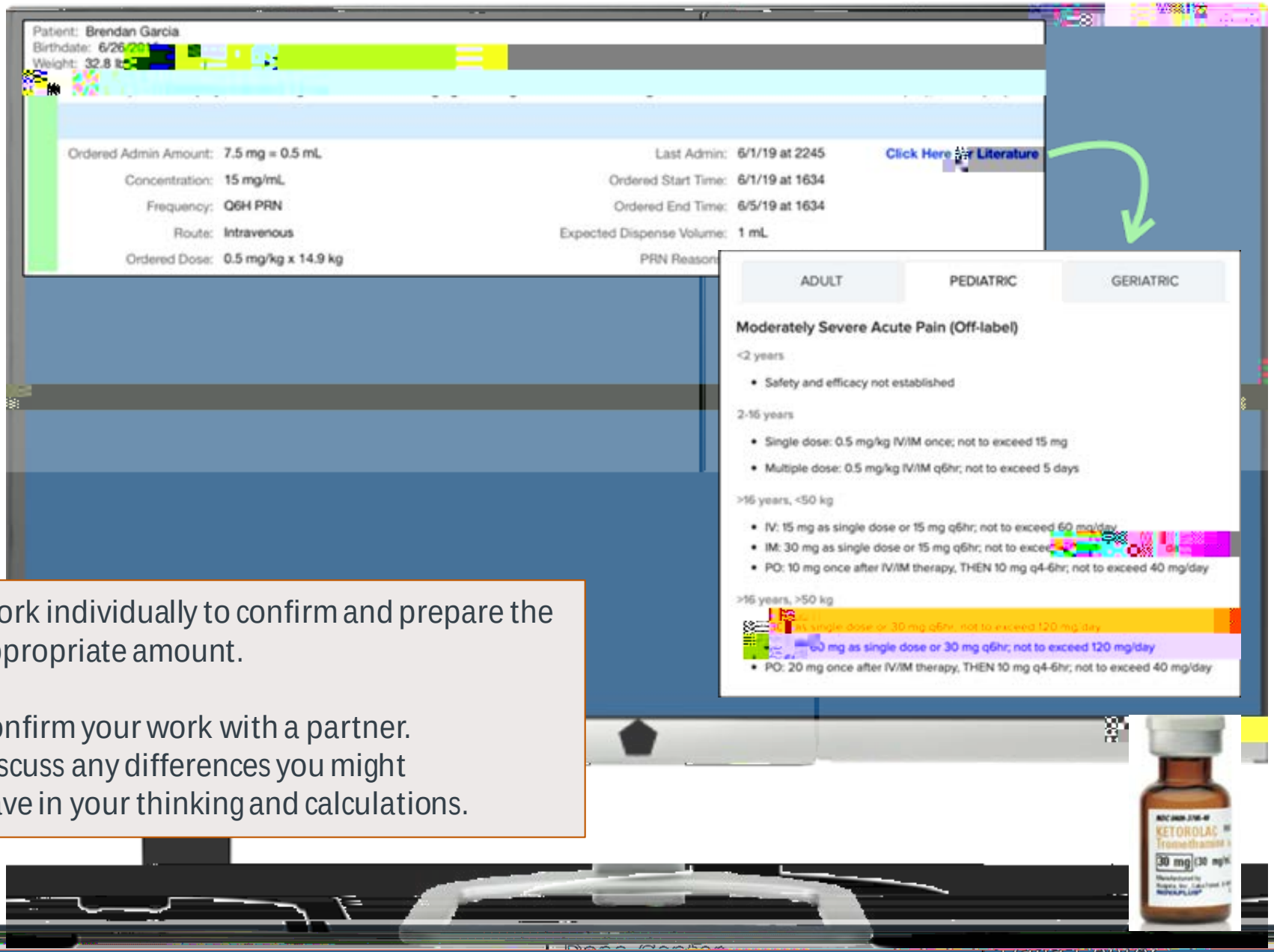

CLEARLINK Systen
Male Luer Lock Adapter

500 mL
B BRAUN
EXP 08/13 4 LOT J1B478

500 mL
B. BRAUN

500 mL
B. BRAUN

Mathematics



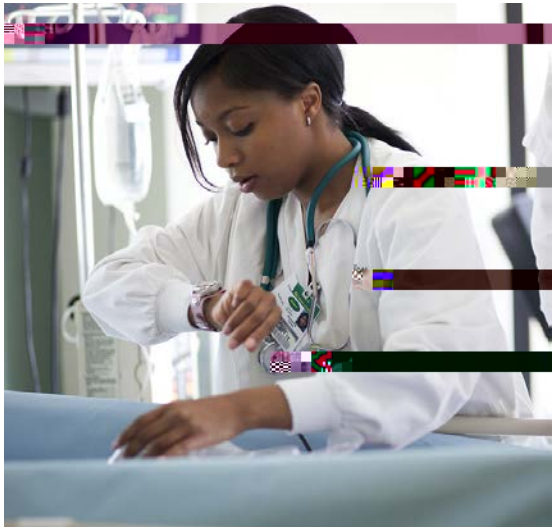
Work individually to confirm and prepare the appropriate amount.

Confirm your work with a partner.
Discuss any differences you might have in your thinking and calculations.

(Dyjur, Rankin, & Lane, 2011; p. 206)

Mathematics

-
-
-
-
-



Station #8

Order: enoxaparin injection 15 mg, Subcutaneous, EVERY 12 HOURS

Questions:

1. Convert lb – kg _____ kg
2. Is this ordered dose safe? 0.5 mg/kg/DOSE _____
3. What [illegible] _____
4. What size needle would you use? ____ g ____ inch
5. Where would you administer? _____
6. How many mL will you administer? 300 mg/3 mL _____ mL
7. [illegible] syringe and practice administering

-
-
-
-

-
-
-
-

Goal- safe medication administration
Bridge the theory-practice gap
Inclusive environment
Individual accountability

Mathematics

Mathematics

Mathematics

Mathematics

awendel2@pacollege.edu

jm532@drexel.edu

dozimek2@pacollege.edu

gpmurphy@pacollege.edu

The University of Te