**IV medications**: Student Worksheet: Students should solve problems and answer questions before class. Answers will be reviewed in class.

**Directions**: Bring Davis’s Drug Guide and Dosage Calculations to class.

**Complete the following**: Self-study

<table>
<thead>
<tr>
<th>Drug</th>
<th>Classification</th>
<th>Dosage Infusion rate per hr for Continuous Infusion</th>
<th>Adverse Reactions</th>
<th>Side Effects</th>
</tr>
</thead>
<tbody>
<tr>
<td>KCL</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Heparin</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nitroglycerine IV</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Complete true/false to review heparin and KCL infusion in appendix A of packet.

1. **CONTINUOUS IV MEDS**

   a. Do not piggyback other meds into line without checking compatibility chart.
   b. If medications are incompatible, use flush bottles between medications.
   c. Use infusion pumps for accuracy when indicated, e.g. Heparin, Nitroglycerin, and KCL.
   d. Heparin is ordered in units. Common concentration of Heparin solution is 25,000 units of Heparin in 250 or 500 cc D₅W
   e. Heparin infusions are adjusted using a nomogram based on PTT results.
   f. Document heparin infusion on heparin nomogram sheet with correlated lab values and action taken.

Refer to “Advanced IV Calculations” in Dosage Calculations, Pickar and review Continuous IV Heparin protocol practice, medicated IV infusion in appendix B of this packet.
Sample Heparin Nomogram Sheet
Pre-printed Orders for Continuous Heparin Infusions

Date: Time: a.m./p.m.

1. Do not use Heparin Protocol if patient not on previous anticoagulant therapy has an INR > 1.3 and/or PTT > 35 seconds at baseline.
2. Obtain PT/PTT stat if not already drawn within the past 24 hours.
3. Administer Heparin 5000 units IV Bolus stat.
4. Start standard heparin infusion 25000 units /250 ml of D5W at:
   - 1,200 units/hour patients >100 kg
   - 1,000 units/hour patients 80-100 kg
   - 800 units/hour patients <80 kg
5. Place order for repeat PTT under Heparin Protocol in computer system.
6. If patient on Coumadin, obtain PT daily and call results to MD.
7. If patient is receiving both Coumadin and Heparin and INR > 2.5 STOP IVHEPARIN and call MD.
8. Titrate to keep PTT between 45-75 seconds using the following:

### Heparin Adjustment Nomogram

<table>
<thead>
<tr>
<th>PTT</th>
<th>Bolus (Units)</th>
<th>Stop Infusion</th>
<th>Rate Change (ML/HR)</th>
<th>Repeat PTT</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 40</td>
<td>3000</td>
<td>0 min</td>
<td>+1</td>
<td>5+ hours</td>
</tr>
<tr>
<td>40-44</td>
<td>0</td>
<td>0 min</td>
<td>+0.5</td>
<td>5+ hours</td>
</tr>
<tr>
<td>45-75</td>
<td>0</td>
<td>0 min</td>
<td>0 (no change)</td>
<td>Next am</td>
</tr>
<tr>
<td>76-85</td>
<td>0</td>
<td>0 min</td>
<td>-0.5</td>
<td>Next am</td>
</tr>
<tr>
<td>86-100</td>
<td>0</td>
<td>30 min</td>
<td>-1</td>
<td>5+ hours</td>
</tr>
<tr>
<td>101-120</td>
<td>0</td>
<td>60 min</td>
<td>-1.5</td>
<td>5+ hours</td>
</tr>
<tr>
<td>&gt;120</td>
<td>0</td>
<td>60 min</td>
<td>-3</td>
<td>5+ hours</td>
</tr>
</tbody>
</table>

**NOTE:** ANTICIPATED REDRAW TIME IS 5-12 HOURS

### Ongoing Monitoring and Heparin Dose Adjustments

<table>
<thead>
<tr>
<th>Date</th>
<th>Time</th>
<th>Initials</th>
<th>PTT</th>
<th>Bolus (units)</th>
<th>Infusion (units/hr)</th>
<th>Doctor Notified</th>
<th>Date</th>
<th>Time</th>
<th>Initials</th>
<th>PTT</th>
<th>Bolus (units)</th>
<th>Infusion (unit/hr)</th>
<th>Doctor Notified</th>
</tr>
</thead>
<tbody>
<tr>
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</tbody>
</table>

### RN Initials & Signature:

<table>
<thead>
<tr>
<th>Initials</th>
<th>RN Signature</th>
<th>Initials</th>
<th>RN Signature</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
2. **INTERMITTENT IV MEDS (IVPB) ADMINISTRATION**

   Students should review peripheral saline lock care and maintenance prior to secondary set administration

### IVPB Solution and Sample Medication Added Label

*Meds is added to a base solution*

<table>
<thead>
<tr>
<th>MEDICATION ADDED</th>
</tr>
</thead>
<tbody>
<tr>
<td>PATIENT</td>
</tr>
<tr>
<td>DRUG</td>
</tr>
<tr>
<td>AMOUNT</td>
</tr>
<tr>
<td>RATE</td>
</tr>
<tr>
<td>ML/HR</td>
</tr>
<tr>
<td>ADDED BY BASE SOLUTION</td>
</tr>
<tr>
<td>DATE</td>
</tr>
<tr>
<td>TIME</td>
</tr>
<tr>
<td>EXP DATE</td>
</tr>
</tbody>
</table>

Intravenous solution set used for IVPB

IV medication label used for Intravenous solution set

### IVPB SOLUTION WITH ADMIXTURE ATTACHED

*Meds is Attached to base solution and mixed just prior to administration*

What additional equipment would be required?

- Type of infusion set?
- If the client has an IV in progress?
- If the client has a peripheral saline lock?
Review of Formulas to calculate rate of intermittent infusions

To calculate gtt/min: \[ \frac{\text{Volume}}{\text{Time in minutes}} \times \text{gtt factor} \]

To calculate ml/hr: \[ \frac{\text{Volume}}{\text{Time in minutes}} \times 60 \]

Review of Preparation to Administer A IVPB to avoid medication errors

- Using your Davis drug guide as a reference and check the implementation section for the example IVPB medication orders.
- Review the sample table below and note the information required to prepare to administer an IVPB:
  - Correctly interpret physician orders:
    - Note that the physician does not prescribe the volume or rate in the physician order
    - Identify the type and volume of solution to dilute the medication
    - Determines the rate in which to administer the intermittent medication
    - This differs from the frequency of administration. The intermittent medication is administered at the frequency prescribed over the number of minutes recommended according to the drug guide
  - Calculates the gtt/minute or ml/hr based on the use of an IV administration set and/or electronic IV pump, if applicable.
    - When a range of times are provided, select the number of minutes you would prefer to use based on the client’s status and calculate the drip rate accordingly. For example: 15 – 30 minutes 100 gtt/min over 15 minutes
      - Note: the example medication must be administered on an IV pump due to the risk of accidental rapid infusion.

Example dosage calculation and drug guide review problem for IVPB medication administration:

Physician order:

Potassium Chloride 10 meq IVPB stat and q 4 hours X 2 doses

<table>
<thead>
<tr>
<th>Type(s) of base solution for dilution of medication</th>
<th>Dextrose, saline, ringers, or LR, dextrose/saline, dextrose/LR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Volume of solution for dilution</td>
<td>100 ml for a concentration of 0.1 meq/ml</td>
</tr>
<tr>
<td>Rate of administration in minutes/hours</td>
<td>60 minutes</td>
</tr>
<tr>
<td>Number of gtts/min if using a 15 gtts/ml secondary set</td>
<td>Must be administered on a pump</td>
</tr>
<tr>
<td>Number of ml/hr if using an electronic delivery pump</td>
<td>100 ml/hr</td>
</tr>
</tbody>
</table>
The completed medication label on the IVPB bag for the above order who read:

Look up assigned drug for IVPB testing and complete a drug card for lab 4. Complete the table below for lab # 2.

**Physician orders: (to be entered on lab # 1)**

<table>
<thead>
<tr>
<th>Type(s) of base solution for dilution of medication</th>
<th>Answer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Volume of solution for dilution</td>
<td></td>
</tr>
<tr>
<td>Rate of administration in minutes/hours</td>
<td></td>
</tr>
<tr>
<td>Number of gtts/min if using a 15 gtts/ml secondary set</td>
<td></td>
</tr>
<tr>
<td>Number of ml/hr if using an electronic delivery pump</td>
<td></td>
</tr>
</tbody>
</table>

How would the medication label be completed for your assigned medication.

- **Homework:** (after this class) In Pickar, “Dosage Calculations”: calculate problems – p. 246-47
  Review IVPB practice questions, the procedural steps and practice the IVPB song in Appendix C
3. **IV PUSH MEDS (DIRECT IV ROUTE) (INTRAVENOUS BOLUS)**
Concentrated dose of a drug injected directly into systemic circulation directly into a vein or into an existing IV line through injection port closest to patient or through a saline lock.

IV bolus is the most dangerous method for IV drug administration as there is no time to correct errors and the medication may cause direct irritation to the lining of blood vessels.

- Review procedural steps in text.

**IMPORTANT POINTS**

1. Check agency IV push policy. STUDENTS MAY NOT GIVE IV PUSH MEDS. RNs must be certified to push IV meds and med/surg units may only push approved meds.

2. Medications must be injected slowly over recommended number of minutes. Refer to Drug Reference for time period.

   Example
   Look up Heparin – direct IV
   What is the recommended time period for administering 5000 units?

   ____________________

- Practice calculating weight adjusted heparin boluses in Appendix D

**VOLUME CONTROL DEVICES:** Infusion Controllers and Pumps

**PURPOSE:** to maintain the prescribed fluid infusion rate.

**Infusion Controllers:** Operate solely by gravitational force to deliver a constant rate of flow. They do not have the ability to add pressure to the line to overcome resistance to fluid flow.

   Rate is set in drops per minute or mL/hr.

**Infusion Pumps:** deliver fluid by exerting positive pressure on the tubing or on the fluid. When the fluid flow is unrestricted, the pump pressure is comparable to that of gravity flow. However, if restrictions develop (increased venous resistance), the pump can maintain the fluid flow by increasing the pressure applied to the fluid. This pressure is a disadvantage when infiltration occurs. The machine can continue to pump fluid into the tissue, causing an extensive infiltration if the patient is not assessed frequently.

   Rate is set in milliliters per hours.
KEY POINTS:

1. Select the appropriate tubing for the controller/pump.

2. **Set the Rate**: Set in mL/hour

3. **Set the Volume To Be Infused (VTBI)**: To avoid the transfer of air from the fluid container to the patient, the selected volume to be infused should not exceed the volume of fluid in the container.

4. **Pressure Setting**: Infusion pumps require you to set the pressure at which fluid is to be delivered. Check the manufacturer’s instructions for recommended pressure settings, considering type and rate of fluid to be delivered and age and condition of patient.

5. **Multiple Alarm Systems**: Notify you if infusion is blocked, air is in system, or if the desired infusion volume has been reached. Check manufacturer’s directions for specific information.

6. **Battery**: To allow client mobility, most models are equipped with a rechargeable battery that operates the device from 1 to 4 hours.

7. **Monitor the Infusion**: Monitor the infusion flow at least hourly, and compare the volume of fluid infused with the time tape on the IV container. Controllers and pumps are not infallible.

**Practice reviewing components of electronic infusion pumps in Appendix E**
Appendix A

Review your text and drug guide about potassium chloride and heparin infusions.

- Select the statements that are true about potassium chloride (KCL).
  a. KCL is an essential vitamin found in bananas.
  b. KCL is the chief ion of intracellular fluid.
  c. Potassium deficiency can lead to irregular heart rhythms.
  d. Potassium chloride can never be administered IV push.
  e. Potassium chloride can never be administered as an IVPB.
  f. Rapid administration of KCL can lead to cardiac arrest.
  g. IV KCL must be administered on an infusion pump.
  h. Concentrations of 0.1 meq to 0.4 meq/ml are intended for administration on an IV administration set.
  i. The maximum infusion rate for KCL on a med-surg floor is 40 meq /hour.
  j. Clients receiving KCL infusions greater that 10 meq but less that to equal to 20 meq/hr should be on a cardiac monitor in a specialty unit.
  k. KCL is the antidote to coumadin overdoses.

- Select the statements that are true regarding heparin infusions:
  a. A heparin infusion is indicated for clients experiencing thrombotic conditions such as MI, CVA, DVT and PE.
  b. The therapeutic effect of heparin is as an anticoagulant to minimize clot formation.
  c. Clients receiving heparin must have their PT/INR monitored frequently.
  d. Heparin can be administered SQ, IM, or IV.
  e. When administering heparin to a client it is important to initiate the infusion with a loading dose.
  f. The loading dose for heparin is a weight-adjusted dose based on the diagnosis.
  g. Heparin is ordered in units/kg/minute.
  h. When caring for a client, the nurse initiates bleeding precautions.
  i. Heparin must be administered on an infusion pump.
  j. The nurse must calculate cc/hr to administer heparin.
  k. The therapeutic range of heparin is determined by the disorder but is generally 1.5 -2 times the range.
  l. When administering the loading dose of heparin, the nurse selects the concentration of 10,000 units /ml using a tuberculin syringe.
  m. The nurse rounds off the heparin infusion calculation to the nearest 0.1 (tenth).
  n. The following actions should be included:
     - wear masks in close contact
     - no flowers
     - no razors
     - soft bristled toothbrushes
     - activity as tolerated
     - avoid excessive venipuncture
     - monitor H & H
     - monitor for thrombocytopenia
     - Monitor for heparin resistance.
     - Monitor ptt time.
Appendix B

1. The doctor orders heparin to infuse at 750 units per hour. The pre-mixed intravenous solution available is 250cc D5W with 25000 units heparin added. Calculate the infusion rate for delivery with an infusion pump.

____________

2. The doctor orders heparin to infuse at 1200 unit per hour. The pre-mixed intravenous solution available is 250cc D5W with 25000 units heparin added. Calculate the infusion rate for delivery with an infusion pump.

____________

3. The doctor orders heparin to infuse at 800 unit per hour. The pre-mixed intravenous solution available is 250cc D5W with 25000 units heparin added. Calculate the infusion rate for delivery with an infusion pump.

____________

4. The doctor orders heparin to infuse at 750 unit per hour. The pre-mixed intravenous solution available is 500cc D5W with 25000 units heparin added. Calculate the infusion rate for delivery with an infusion pump.

____________

5. The doctor orders heparin to infuse at 1000 unit per hour. The pre-mixed intravenous solution available is 500cc D5W with 25000 units heparin added. Calculate the infusion rate for delivery with an infusion pump.

____________

6. The doctor orders heparin to infuse at 1250 unit per hour. The pre-mixed intravenous solution available is 500cc D5W with 25000 units heparin added. Calculate the infusion rate for delivery with an infusion pump.

____________

7. The doctor orders heparin to infuse at 950 unit per hour. The pre-mixed intravenous solution available is 500cc D5W with 25000 units heparin added. Calculate the infusion rate for delivery with an infusion pump.

____________
HEPARIN PROTOCOL PRACTICE

Use the following physician orders to answer questions.

Pre-printed Orders for Continuous Heparin Infusions

<table>
<thead>
<tr>
<th>Date:</th>
<th>Time:</th>
<th>a.m./p.m.</th>
</tr>
</thead>
<tbody>
<tr>
<td>5. Do not use Heparin Protocol if patient, not on previous anticoagulant therapy, has an INR &gt; 1.3 and/or PTT &gt; 35 seconds at baseline.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Obtain PT/PTT stat if not already drawn within the past 24 hours.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. administer Heparin 5000 units IV Bolus stat</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Start standard heparin infusion 25000 units /250 ml of D5W at:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1,200 units/hour patients &gt;100 kg</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1,000 units/hour patients 80-100 kg</td>
<td></td>
<td></td>
</tr>
<tr>
<td>800 units/hour patients &lt;80 kg</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. Place order for repeat PTT under Heparin Protocol in computer system.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10. If patient on Coumadin, obtain PT daily and call results to MD</td>
<td></td>
<td></td>
</tr>
<tr>
<td>11. If patient is receiving both Coumadin and Heparin and INR &gt; 2.5 STOP IV HEPARIN and call MD</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12. Titrate to keep PTT between 45-75 seconds using the following:</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

HEPARIN ADJUSTMENT NOMOGRAM

<table>
<thead>
<tr>
<th>PTT</th>
<th>BOLUS (UNITS)</th>
<th>STOP INFUSION</th>
<th>RATE CHANGE (ML/HR)</th>
<th>REPEAT PTT</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 40</td>
<td>3000</td>
<td>0 min.</td>
<td>+1</td>
<td>5+ hours</td>
</tr>
<tr>
<td>40-44</td>
<td>0</td>
<td>0 min</td>
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<td>-1.5</td>
<td>5+ hours</td>
</tr>
<tr>
<td>&gt;120</td>
<td>0</td>
<td>60 min</td>
<td>-3</td>
<td>5+ hours</td>
</tr>
</tbody>
</table>

NOTE: ANTICIPATED REDRAW TIME IS 5-12 HOURS

11. You are caring for a client who has the above orders placed on their chart to initiate the heparin protocol. The morning results of the client’s baseline PTT is 25 seconds. The INR 1.0. What would you do next?

12. You are preparing to administer the bolus and have available heparin 10000 units/ml. How many milliliters would you prepare to administer? _________________

13. The client weighs 218 pounds. How many units per hour would you initiate? _________________

14. What would you program the infusion pump at? _________________

15. The IV infusion is initiated at 8 am. A PTT result of 28 seconds is released at 12pm. What action would you take?

16. The client has a PTT result of 44 seconds released at 4 pm. What would you prepare to perform? (check all that apply)
a. Stop infusion for one hour  
b. Bolus 3000 units of heparin  
c. Increase infusion by 50 units/Hr  
d. Repeat the PTT at least five hours later  
e. Repeat the PTT in the morning.

17. The client has a PTT result of 39 seconds released at 12am. What would you prepare to perform?  
(check all that apply)

f. Stop infusion for one hour  
g. Bolus 3000 units of heparin  
h. Increase infusion by 50 units/hr  
i. Increase the infusion by 100 units/hr  
j. Repeat the PTT at least five hours later  
k. Repeat the PTT in the morning.

18. The client has a PTT result of 87 seconds released at 6am. What would you prepare to perform?  
(check all that apply)

l. Stop infusion for 30 minutes  
m. Stop infusion for 60 minutes  
n. Bolus 3000 units of heparin  
o. Decrease infusion by 50 units/hr  
p. Decrease the infusion by 100 units/hr  
q. Repeat the PTT at least five hours later  
r. Repeat the PTT in the morning.

19. The client has a PTT result of 77 seconds released at 2 pm. What would you prepare to perform?  
(check all that apply)

s. Stop infusion for 30 minutes  
t. Stop infusion for 60 minutes  
u. Bolus 3000 units of heparin  
v. Decrease infusion by 50 units/hr  
w. Decrease the infusion by 100 units/hr  
x. Repeat the PTT at least five hours later  
y. Repeat the PTT in the morning.

20. The client has a PTT result of 67 seconds released at 8 pm. What would you prepare to perform?  
(check all that apply)

z. Stop infusion for 30 minutes  
aa. Stop infusion for 60 minutes  
bb. Bolus 3000 units of heparin  
c. Increase infusion by 50 units/hr  
d. Increase the infusion by 100 units/hr  
ee. Repeat the PTT at least five hours later  
ff. Repeat the PTT in the morning.
7. Additional dosage calculation practice:

a. Administer Dopamine 2.5 mcg/kg/minute
Client’s weight 70 kgs
Available infusion Dopamine 400 mg/500 cc D5W

Answer ___________________________________________________

b. Administer Dopamine 5 mcg/kg/minute
Client’s weight 100 kgs
Available infusion Dopamine 400 mg/500 cc D5W

Answer ___________________________________________________

c. Administer Dopamine 5 mcg/kg/minute
Client’s weight 70 kgs
Available infusion Dopamine 400 mg/250 cc D5W

Answer ___________________________________________________

d. Administer Nitroglycerine 5 mcg/minute
Available infusion Nitroglycerine 50 mg/250 ml D5W

Answer ___________________________________________________

e. Administer Nitroglycerine 10 mcg/minute
Available infusion Nitroglycerine 50 mg/250 ml D5W

Answer ___________________________________________________

Nitroglycerin in D5W Intravenous Case scenario

You are caring for a client post-operatively in the PACU. The client is experiencing post-operative hypertension and receives the following orders from the anesthesiologist:

Start Tridil (nitroglycerine) IV 50mg in 250 ml at 5mcg/min and titrate for SBP >100 and <140

What would you do next?

Look up nitroglycerine.

After reviewing the indications, actions, side effects, contraindications and nursing considerations you discover that the standard orders for Perioperative hypertension are:

- infuse 5mcg/min by intravenous route; titrate to effect by 5mcg/min every 3-5 minutes until 20mcg/min, then titrate by 10-20mcg/min
  - In this circumstance, the nurse uses parameters that are prescribed instead of a standard nomogram as in heparin to adjust the rate of infusion for the medication.

What would the nurse monitor to adjust the infusion rate?
What equipment would be required?

- D5W IV for KVO infusion
- Tridil 50 mg /250 ml bottle
- Continuous cardiac monitor
- Automatic BP monitor (NIBP)
- IV pump
- Nitroglycerine IV tubing and adapter to connect to primary line
- Separate IV line (according to institution policy)
- Calculator

What rate would you initiate the infusion?

____________________________________________

How frequently would you monitor the BP?

____________________________________________

What would your actions be based on the following findings.

- 5 minutes has elapsed and SBP is 160:
- 5 minutes has elapsed and SBP is 180:
- 5 minutes has elapsed and SBP is 170:
- 5 minutes has elapsed and SBP is 130:
Appendix C

Which of the following statements are true regarding administration of intravenous piggyback medications (IVPB): (circle all that apply)

a. IVPB’s are indicated when a client requires medication that cannot be given by any other route.
b. IVPB’s can be administered in place of other routes at the nurse’s discretion.
c. The complications of IVPB’s include all the complications of IV therapy and the medication that is being administered.
d. The medication added to the IV solution set is usually added by the pharmacist but may be added by the nurse if agency protocol permits.
e. The medication is checked against both the medication administration record and physician order only when initiated.
f. The time an order is placed is the same thing as the time and order is transcribed for.
g. The nurse selects the rate of infusion for the IVPB based on the recommendations in the drug guide for intermittent infusion and selects the rate appropriate in the range for the client’s condition.
h. The port selected for attachment on the primary IV set is the port closest to the patient.
i. The secondary set is hung at a height above the primary IV bag and the secondary set roller clamp remains wide open so that it may infuse.
j. The nurse selects the roller clamp of the primary IV infusion bag to regulate IV flow.
k. If a pump is used, the nurse calculates ml/hr.
l. If a roller clamp is used, the nurse calculates gtts/min.
m. When administering and IVPB to a Normal Saline lock the nurse flush the NSL with 20 cc of NS.
n. When preparing to administer an IVPB to a NSL the nurse selects secondary set tubing that is 40 inches long.
o. The acronym for infusing through a NSL is S-A-S.
p. If the nurse administers medication IV push the nurse must look up the infusion rate direct IV in the drug guide.
q. When administering IV push medications, the nurse selects the port closest to the drip chamber.
r. If incompatibility exists between the primary IV and the IVP medication, the nurse flushes before and after the medication with normal saline.
s. It is appropriate to flush with normal saline following medication administration IVP.
t. If the secondary set does not infuse, the nurse should check to see if the roller clamp of the secondary set is closed.
u. If the IVPB is not infusing into the NSL the nurse should check the IV site and reposition the extremity.
IVPB song
*To the tune of "I'm bringing sexy back"

My IVPB
I check the orders and that's a fact
Name drug dose route and time and allergy
& then it's time to check the IV (that's the bag to the MAR)

Go to the patient....

Wash my hands and provide privacy
I check the ID twice as you can see
And then the site for its integrity
Check the IV bag for patency
.....and compatability!!!

*Take out the hanger*
  Quick 1-2-3
  *Lower the bag*
  It’s easy you see
  *Pull out the tubing*
  You’re almost home free
  And clamp down hard
  Spike aseptically!!!

Time to get on with this
Swab the first port below the IV drip
(That’s the drip chamber)
Connect the IV set as they showed me
  Lower the bag
  Below the main IV

Time to clear your tubing!!!

Release the roller clamp
The fluid backfills from the main IV
Clamp down real quick
So you don't overfill
And hang it up so you can take a pill.

Take it home now....
Open the clamp up
As wide open as can be
Then grab the roller clamp
From the primary IV
Count the number of drops
You just can't stop
Until the numbers right
According to the clock

Now its time to chart
First on the I/O and MAR
I'd check my patient very frequently
Make sure it's running right and properly

The drip is almost done
I can't believe it went so easily
Just one more thing to do as you can see
Reset the rate of the main IV.
Appendix D

Calculating Weight-Adjusted Heparin Boluses

Calculate the weight adjusted bolus dose of 64 units/kg and round to the nearest 100 units.

1. ORDER: 64 units/kg and round to the nearest 100 units.
   WEIGHT: 110 lbs
   AVAILABLE: Heparin 10000 units/1 ml
   ADMINISTER: ________________________________

2. ORDER: 64 units/kg and round to the nearest 100 units.
   WEIGHT: 165 lbs
   AVAILABLE: Heparin 10000 units/1 ml
   ADMINISTER: ________________________________

3. ORDER: 64 units/kg and round to the nearest 100 units.
   WEIGHT: 150 lbs
   AVAILABLE: Heparin 10000 units/1 ml
   ADMINISTER: ________________________________

4. ORDER: 64 units/kg and round to the nearest 100 units.
   WEIGHT: 200 lbs
   AVAILABLE: Heparin 10000 units/1 ml
   ADMINISTER: ________________________________
Electronic infusion pump exercises

Review the procedure in your text about use of electronic infusion pumps. Examine the mock up of a Baxter infusion pump below.

Based on the display of an infusion pump above, answer the following:

a. Can you explain the following:
   - **PRI RATE**
   - **PRI VTBI**
   - **SEC RATE**
   - **SEC VTBI**
b. Can you describe the steps to initiate an IV infusion through the pump.

❖ Select the statements that are true regarding the use of an electronic infusion pump. (circle all that apply)

a. Electronic infusion pumps use positive pressure to overcome resistance.
b. Electronic infusion pumps will alarm if there is an occlusion.
c. When assessing for occlusion, the nurse checks the site and tubing for kinking.
d. If the pump alarms for “air in Line”, the nurse opens the IV pump door and allows the IV to run freely to permit the air to pass the pump controls.
e. Electronic pumps are programmed in gtts/minute.
f. Gravity control devices will not alarm for occlusion or air but will regulate flow according to gravity.
g. Either Electronic infusion pumps or IV administration sets can be used for medication intravenous infusions such as heparin or potassium.