

Procedure 0: Setting the IV Flow Rate

Equipment

- Watch with a second hand
- IV solution in a bag
- IV tubing
- IV infusion pump
- Volume-control device
- Paper and pencil

ACTION

1. Check prescribing practitioner's order for the IV solution and rate of infusion.
2. Wash hands/hand hygiene.
3. Check client's identification bracelet.
4. Prepare to set flow rate:
 - Have paper and pencil ready to calculate flow rate.
 - Review calibration in drops per milliliter (gtt/mL) of each infusion set.
5. Determine hourly rate by dividing total volume by total hours.
6. Apply a time label to the IV bag with the hourly time periods according to the rate.

Example 1:

The order reads 1000 mL D5W with 20 mEq KCl over 8 hours:

$$\frac{1000 \text{ mL}}{8 \text{ h}} = 125 \text{ mL/h}$$

Example 2:

Three liters are ordered for 24 hours:

$$\frac{3000 \text{ mL}}{24 \text{ h}} = 125 \text{ mL/h}$$

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$$\text{Drop factor} \times \text{mL/min} = \text{gtt/min}$$

$$\frac{\text{mL/h} \times \text{drop factor}}{60 \text{ min}} = \text{gtt/min}$$

$$\frac{\text{hourly rate} \times \text{drop factor}}{\text{infusion time in minutes}} = \text{gtt/min}$$

7. Calculate the minute rate based on the drop factor of the infusion set:

- Microdrip example:

$$\frac{125 \text{ mL} \times 60 \text{ gtt/mL}}{60 \text{ min}} = \frac{7500 \text{ gtt}}{60 \text{ min}} = 125 \text{ gtt/min}$$

- Macro drip example:

$$\frac{125 \text{ mL} \times 15 \text{ gtt/mL}}{60 \text{ min}} = 31 \text{ gtt/min}$$

8. Set flow rate using the appropriate device (see Figures 33-43 and 33-44 on page 978).

- For regular tubing without a device: Count

drops in drip chamber for 1 minute while watching second hand of watch and

adjust the roller clamp as necessary (see

Figure 33-45 on page 979)

- For an infusion pump: Insert the tubing into the flow-control chamber, select the desired

rate (generally calibrated in cc/min), open the roller clamp, and push the start button.

- For a controller: Place IV bag 36 inches above the IV site, select the desired drops per minute, open the roller clamp, and count drops for 1 minute to verify rate.

- For volume-control device: Place device between IV bag and insertion spike of IV tubing, fill with 1–2 hours amount of IV fluid,



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and count drops for 1 minute (see Figure 33-46).



9. Monitor infusion rates and IV site for infiltration
10. Assess infusion when alarm sounds.
11. Wash hands/hand hygiene.

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