Infusion Drip Rate Formula

Given a certain amount of liquid, a time period, and a drop factor (gtts/mL), what is the necessary IV flow rate in gtts/min?

This measurement is used when the IV is regulated manually. Because it is not possible to give a patient a fraction of a drop, it is typical to round answers for these problems up or down to the nearest whole number.

Formula:

Volume (mL) Time (min)	x Drop Factor (gtts/mL) = Y (Flow Rate in gtts/min)

Example: Calculate the IV flow rate for 1200 mL of NS to be infused in 6 hours. The infusion set is calibrated for a drop factor of 15 gtts/mL.

Volume (mL) Time (min)	x Drop Factor (gtts/mL) = Y (Flow Rate in gtts/min)

Convert 6 hours to minutes.

- min ← hr (x by 60)
- 6 hr x 60 = 360 min

1200 mL 360 min	x 15 gtts/mL = 50 gtts/min

Example: Calculate the IV flow rate for 200 mL of 0.9% NaCl IV over 120 minutes. Infusion set has drop factor of 20 gtts/mL.

Volume (mL) Time (min)	x Drop Factor (gtts/mL) = Y (Flow Rate in gtts/min)
200 mL 120 min	x 20 gtts/mL = 33 gtts/min

Amiodarone Infusion

150 mg over 10 minutes

Saline Bag	**50 mL**	**250 mL**
Drip Set	10 gtts	10 gtts
Add Drug	150 mg	150 mg
Drip Rate	1 gtt/s	5 gtts/s (open)

Epinephrine Infusions

Saline Bag	250 mL	500 mL	1000 mL
Drip Set	60 gtts	10 gtts	10 gtts
Add Drug	1.0 mg Epinephrine	0.5 mg Epinephrine	1.0 mg Epinephrine
Result	4 mcg/mL	1 mcg/mL	1 mcg/mL
1 mcg/min	15 gtts/min (1 gt/4s)	10 gtts/min (1 gt/6s)	10 gtts/min (1 gt/6s)
2 mcg/min	30 gtts/min (1 gt/2s)	20 gtts/min (1 gt/3s)	20 gtts/min (1 gt/3s)
4 mcg/min	60 gtts/min (1 gt/1s)		
6 mcg/min		60 gtts/min (1 gt/1s)	60 gtts/min (1 gt/1s)
8 mcg/min	120 gt/min (2 gt/1s)		
12 mcg/min		120 gt/min (2 gt/1s)	120 gt/min (2 gt/1s)

Magnesium Sulfate Infusion

2 g over 20 minutes

Saline Bag	50 mL	250 mL
Drip Set	10 gtts	10gtts
Drip Rate	1 gt/2s	2-3 gtts/s

Tranexemic Acid (TXA) Infusion

1 g over 10 minutes

Saline Bag	50 mL	250 mL
Drip Set	10 gtts	10 gtts
Drip Rate	1 gt/1s	5 gtts/s (open)