

# Intravenous Therapy: Dose and Flow Rate Calculation – CE

## CHECKLIST

S = Satisfactory    U = Unsatisfactory    NP = Not Performed

Step	S	U	NP	Comments
Performed hand hygiene and donned PPE as indicated for needed isolation precautions.				
Introduced self to the patient.				
Verified the correct patient using two identifiers.				
Assessed the patient for medication allergies.				
Assessed the patient for contraindications to receiving the medication and notified the practitioner accordingly.				
Obtained vital signs, hemodynamic parameters, and laboratory results, if applicable.				
Obtained other assessment findings relevant to the medication, such as a sedation scale score for a sedative or a pain scale score for an analgesic.				
Selected the most appropriate IV site to minimize the risk of extravasation and infiltration of the medication.				
Determined which weight to use if the dosage was weight based.				
Verified the patient’s actual admission weight in kilograms. Reweighed the patient if appropriate.				
Obtained the medication, checked the practitioner’s order, verified the expiration date, and inspected the medication for particulates, discoloration, or other loss of integrity. Did not use medication that was cloudy or precipitated unless such was indicated by its manufacturer as being safe.				
Performed hand hygiene and donned gloves and appropriate PPE based on the patient’s signs and symptoms and indications for isolation precautions.				
Explained the procedure to the patient and ensured that he or she agreed to treatment.				
Ensured the six rights of medication safety: right medication, right dose, right time, right				

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route, right patient, and right documentation. Used a bar code system or compared the MAR to the patient’s identification band.				
Established patency of the VAD before administering the medication.				
Removed the protective cap from the medication container.				
Removed the protective cap from the spike of the IV administration set tubing				
Inserted the administration set spike into the medication container.				
Hung the medication container on the IV pole.				
Labeled the container with the date and time the container was hung, any additives, and the nurse’s initials.				
Squeezed the drip chamber to fill it approximately one-half full.				
Attached an inline filter to the end of the administration set per the organization’s practice.				
Opened the clamp on the IV administration set, allowed the tubing to fill slowly, and expelled air. If an electronic infusion device was used, purged air from the tubing according to the manufacturer’s recommendations.				
Closed the clamp on the IV administration set tubing when air was expelled.				
Labeled the tubing with the date in accordance with the organization’s practice.				
Traced tubing or catheter from the patient to point of origin.				
Disinfected the needleless connector using vigorous mechanical scrubbing for a minimum of 5 to 60 seconds, according to the organization’s practice with an appropriate disinfecting agent (e.g., 70% isopropyl alcohol, an iodophor such as povidone-iodine, or greater than 0.5% chlorhexidine in alcohol solution), and allowed the solution to dry.				

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Removed the protective cover from the end of the IV administration set tubing and attached the tubing to the VAD via the needleless connector.				
Determined the correct flow rate using the manual mathematical calculation method, an electronic device, or both methods before opening the clamp on the IV administration tubing or initiating an IV continuous infusion.				
1. Manual mathematical calculation method:				
a. Determined the flow rate: $\text{ml/hr} \div 60 \text{ min/hr} = \text{ml/min}$ .				
b. Determined the number of drops/minute: $\text{ml/min} \times \text{drops/ml} = \text{drops/min}$ .				
c. Converted to the same units of measure, if applicable.				
2. Smart electronic infusion device method:				
a. Referred to the manufacturer’s user guide to program the smart electronic infusion device accurately.				
b. Entered the necessary information into the device.				
c. Programmed the device to calculate the flow rate electronically.				
For high-alert medications, double-checked the flow rate with another qualified person to verify that the order and the set rate of infusion matched.				
Labeled the tubing at the connection site closest to the patient and the source.				
Discarded supplies, removed PPE, and performed hand hygiene.				
Documented the procedure in the patient’s record.				

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Learner: \_\_\_\_\_ Signature: \_\_\_\_\_

Evaluator: \_\_\_\_\_ Signature: \_\_\_\_\_

Date: \_\_\_\_\_