

FLOW ACCURACY

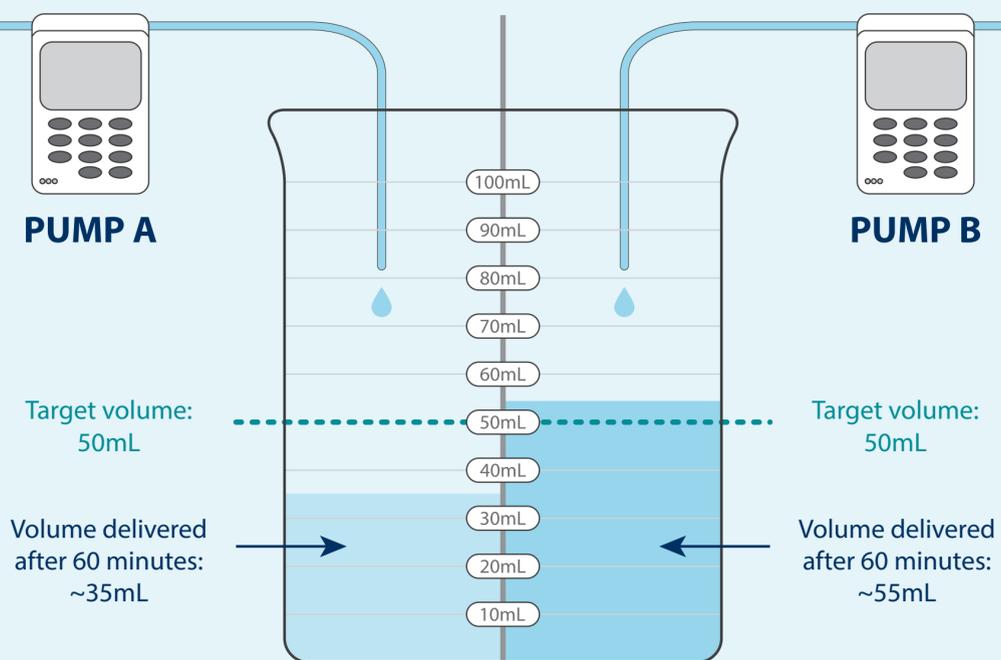
HOW FLUID DELIVERY IMPACTS INFUSION THERAPY

Understanding the mechanisms that infusion pumps use to deliver fluid can help ensure that an optimal pump is chosen for use in specific applications.

FLOW ACCURACY

Accuracy is used to gauge how closely the average pump flow rate correlates with the programmed rate. Accuracy measurements are typically based on an average fluid delivery over a pre-determined amount of time.

For example, if two pumps are programmed to deliver 50mL per hour, measuring the amount of actual fluid delivered after 60 minutes can show how accurate each pump actually is.



Pump A under-delivered by 15mL, and is determined to have a flow accuracy of $\pm 30\%$

(programmed mL - actual mL) \div programmed mL = accuracy
 $(50 \text{ mL} - 35 \text{ mL}) \div 50 \text{ mL} = \pm 30\%$ accuracy

Pump B over-delivered by 5mL, and is determined to have a flow accuracy of $\pm 10\%$

(programmed mL - actual mL) \div programmed mL = accuracy
 $(50 \text{ mL} - 55 \text{ mL}) \div 50 \text{ mL} = \pm 10\%$ accuracy

RESOLUTION & CONTINUITY OF FLOW

Flow accuracy describes average performance over a long period of time (in the example above, a 60 minute window). Resolution and Continuity of Flow are used to describe how the pump delivers fluid at specific moments during that time-frame, and throughout the entire infusion.



Resolution of Flow
 The amount of fluid pushed into the downstream tubing with each turn of the motor.



Continuity of Flow
 The accurate delivery of fluid boluses at precise intervals throughout an infusion.



Infusion of smaller micro-boluses is often much more therapeutically effective than infusion of larger boluses administered less often, especially when infusing drugs at very low infusion rates (0.1 – 5mL/hr).



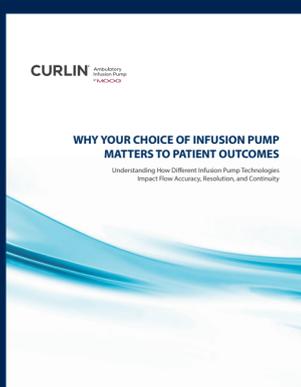
Many drugs have relatively short half-lives, and can be classified as critical or high-risk drugs. Most of these drugs infuse at very low infusion rates. Evenly and closely spaced fluid delivery reduces the spiking and \ of medication blood serum levels and provides a more constant therapeutic effect.



According to the Emergency Care Research Institute (ECRI), a no-flow period of 20-seconds or less maintains adequate drug levels and vessel patency. Pumps with higher Continuity of Flow ensure that this threshold is met by delivering boluses extremely close in time for more continuous fluid delivery.



Precise and steady medication delivery to the patient ensures proper pain management, and increases the clinical efficacy of the drug being infused.



Why Your Choice of Infusion Pump Matters to Patient Outcomes

Understanding How Different Infusion Pump Technologies Impact Flow Accuracy, Resolution, and Continuity

A recently published whitepaper describes how different infusion pump technologies operate, and why Resolution and Continuity of Flow are important factors when choosing an infusion pump. If you are interested in learning more, call us at **800.970.2337** or visit **www.curlinpump.com**.