

# Technical Note

## *Blood Sampling Options for Critical Care Medicine and Pharmacology Research*

Compare the new, automated method with traditional approaches to blood collection and consider the improvements in patient care. For perspective, keep in mind that this table may refer to 10 or more individual collections of blood, ranging in volume from 0.025 to 10 cc over 24 hours.

Factor	MANUAL BLOOD COLLECTION			AUTOMATED
	Finger Sticks (Lancet)	Needle Sticks (Vacutainer®)	Indwelling Catheter (Syringe)	Indwelling Catheter (Phlebot)
Prechilled and presealed sample vials	no	no	no	yes
Patient experiences pain/discomfort during initial insertion of a needle	yes	yes	yes	yes
Patient continues to feel discomfort with repeated insertion of needles	yes	yes	yes	no
Nosocomial infection risk	+	++	+++	+
Patient blood exposure risk for medical personnel	yes	yes	yes	no
Programmable blood collection protocol for multiple subjects	no	no	no	yes
Labor required for collection of a series of samples	yes	yes	yes	no
Need lock solution to maintain patency	no	no	yes	no
Precisely collect very small volumes (<1 mL) with no blood wasted	yes	no	no	yes
Collection of 10 or more blood samples per hour, 24/7	no	no	no	yes
Hemolysis risk	no	yes	yes	no
Samples collected without disturbing a sleeping patient.	no	no	no	yes
Sample ID linked to patient ID, time of collection and physician name	no	no	no	yes
Log file of sampling times and volumes automatically recorded	no	no	no	yes
Feasible to autolink sampling and physiological data	no	no	no	yes