

Blood Transfer and Sampling Using the Hummi Micro Draw

What are the key elements of a successful blood draw in a Neonatal/Pediatric Patient?

A successful blood draw is one that provides a clean sample for testing without contaminants or hemolysis and delivered in a timeframe that contributes to good accurate clinical information provided as needed.

A number of methods for drawing blood may provide a “clean sample” for testing but current methods often do so at the risk of compromising the neonatal/pediatric patient in other ways that could affect their long term morbidity and mortality.

What are some of the issues with current blood draw methods?

1. OPEN STOPCOCK METHOD The method used to draw the blood is important. If the drawing method does not provide for low infection risk, the patient could be compromised. **Using open stopcocks to draw blood significantly increases infection risk vs the use of closed ports for access.**
2. HIGH CLEARANCE/FLUSH VOLUMES with In Line Systems. If the method used to draw the blood requires more than desired clearance volumes and flush volumes for the draw, patients at risk for alteration in Cerebral Blood Flow such as premature neonates could be put at higher risk for IVH/PVL complications. **This is especially true when larger clearance volumes are required for some venous applications due to the use of lipids, TPN, Glucose, Hyperal when using closed in line systems.**
3. BLOOD DRAW IN LINE METHOD If the method used to draw the blood requires that blood be drawn into the line and held in line or in a syringe using stopcocks in the line during the sampling procedure, the patient could be put at greater risk for infection due to residual blood remaining in the line and line components after the draw, even when flushed. **Repeated draws only increase the risk for infection due to the potential for biofilm formation and bacterial growth over time.**
4. CLOSED IN LINE SYSTEMS When in line closed systems are used for blood drawing the line setup and maintenance is usually the responsibility of the nursing staff. **Setup and priming of inline systems requires extra nursing time devoted to careful priming and air removal** from the system as well as **ongoing maintenance** of the line and the inline components used for blood drawing. In Line systems also have an impact on wave form fidelity when sample and flush ports and syringes and stopcocks are in line as part of the arterial line setup.

How does the Hummi Micro Draw device provide an improved method for blood sampling vs. other current methods in use, Example: in line systems and open stopcocks?

Open stopcocks are used today by many neonatal/pediatric units to draw blood from central line catheters. Due to cost, complexity of in line systems and other factors, the stopcock continues to be a blood draw method used by many in spite of its proven higher risk for infection than closed port access. This is slowly changing as focus on CLABSI is becoming more acute, and the cost of treating infections is higher than ever before, and not reimbursable for the Hospital.

The in line system is a better alternative to the stopcock but still has issues as mentioned above. Studies are definitely showing that the amount of blood and fluid being moved in and out of premature infants definitely exposes them to a higher risk of IVH development as well as other complications.

- The Hummi Micro Draw is a closed system in use, reducing infection risk with **the smallest blunt cannula (1 mm size) of any blood draw system** with only 1 access to the system required for each blood draw.
- The Hummi further improves the blood draw procedure **by reducing clearance and flush volumes by 70% to safer levels than current methods** while reducing infection risk.
- In use the Hummi system **transfers blood and fluid directly from the catheter hub to a collection device, bypassing dead space normally requiring clearance.** This allows for a clean line free of residual blood at all times, thus improving the infection control aspect of the Hummi system.
- With the Hummi **no blood is drawn into the line for sampling, as the Hummi transfers the blood directly from the catheter hub to the collection device.** This improved method for sampling **reduces the risk for alteration in cerebral blood flow and maintains more stable sodium values when drawing blood from the low gestational age infant thereby reducing the risk factors for IVH development.**
- **NO other system** for blood sampling offers the unique benefits of the Hummi System for **reduced IVH risk and improved infection control.**

NOW the Hummi Micro Draw blood transfer system has been further improved to provide an even safer closed system for the neonate. In an effort to further improve the **closed system aspect** of the Hummi Micro Draw System and to **further improve infection risk**, the **Hummi Micro Draw System is now available as an integral closed system pre-connected and integrated into the Umbilical Catheter.**

This Umbilical Catheter integration of the Hummi Micro Draw system provides the benefits above PLUS:

- a closed system for blood sampling without assembly and add ons required
- a closed integral catheter flush port for multiple flushes without increased accesses
- a closed line change port to further improve infection control during line changes