



Neonatal Blood Culture Collection Technique

Trusting the validity and reliability of the blood culture is a key component to antibiotic stewardship in the NICU (Cantey 2011; Klingenberg et al, 2018).

The CDC has general recommendations for optimizing cultures (<https://www.cdc.gov/antibiotic-use/core-elements/collecting-cultures.html>). Below are more neonatal specific instructions:

1. Clean skin and allow prep to dry for > 1 min. Chlorhexidine is preferred over betadine for late preterm and term infants.
2. Collect enough blood for at least 1 ml per culture bottle.
3. Clean top of blood culture bottle with (70% isopropyl) alcohol pad before inoculating.

Automated blood culture reading devices operate by detecting CO₂ produced by bacteria either with colorimetric sensors, chemical sensors, or pressure sensors (Li et al, 2019). These systems have been compared for ability to detect the low colony count bacteremia of neonatal sepsis showing that while some pathogens are detected at blood volumes as low as 0.5 ml, specifically, Group B Strep requires blood volumes of at least 1 ml for accurate detection (Lancaster et al, 2015). This echoes the previous work by Shelonka, et al (1996), that a minimum culture volume of 1-2 ml is necessary in culture bottles for neonatal sepsis. On average, 2% of neonatal blood cultures are contaminated (Bekeris et al, 2005). This rate is decreased by using a team of dedicated personnel for culture collections, increasing the volume of blood collected and inoculated into the culture bottle, as well as careful attention to aseptic technique in drawing the culture (Buttery, 2002).

[The Life of a Blood Culture](#) is a quick (17 min) vimeo that demonstrates the processing of blood cultures once they arrive in the laboratory.



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