

Key Learnings: Interpretation of intraosseous samples and Point of Care Testing webinar

Can you test intraosseous samples via Point of Care Testing (PoCT) devices?

In NSW, intraosseous samples are not approved for use by the Therapeutic Goods Administration (TGA) for any Point of Care Testing (PoCT) devices or blood gas analysers (refer to the [PoCT Notice Alert for Non-Approved Specimens](#)).

Results from intraosseous samples are highly variable compared to venous or arterial samples. These results do not have validated reference ranges and must not be used for decision making.

Intraosseous samples must not be processed through a blood gas analyser or any handheld device, such as i-STAT, because an intraosseous sample irretrievably damages the instrument.

Currently, capillary samples cannot be analysed using CHEM8+ cartridges on i-STAT devices due to a regulatory issue identified by the Food and Drug Administration (FDA), reinforced by the TGA (refer to the [NSW Health Pathology Point of Care Testing TGA Notice](#)). This is temporary, however in the interim, if you do need urgent/critical capillary testing AND you have an i-STAT device, contact your PoCT coordinator and they will provide appropriate cartridge options (find your local PoCT coordinator [here](#)).

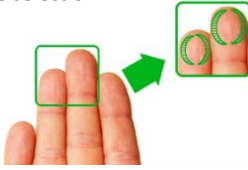

What alternatives are there to an intraosseous sample?

Capillary sampling via heel prick or fingertip are alternatives for testing when venous access is not able to be attained (see table).

Clinical considerations for venepuncture and cannulation

When collecting a venous sample for testing on PoCT devices, ensure your syringe is at least half full (for example, 1ml = 0.5ml minimum sample amount required). The sample will otherwise be over heparinised and affect the result.

Clinical considerations for capillary sampling

Finger vs Heel stick	
Decision to use the finger vs heel in infants aged 6 to 12 months is based on weight. Finger can be used in children 10kg and over.	
Use of an incorrect site for fingers or heel stick can lead to injury of nerves, tendons and cartilage.	
Lancet site selection and depth are important (see below).	
Fingers	Heel stick
Acceptable for: Adults and children weighing over 10kg (do not use on newborns and infants under 6 months of age).	Acceptable for: Newborns and infants under 6 months of age.
Site selection:  Use sides of the middle and ring finger only (shown in the green shaded areas). Do not use the thumb and index finger as it contains an artery or the 5th finger (insufficient tissue depth).	Site selection:  Use plantar surface of the heel (shown in the green shaded areas).
Lancet depth: Should not exceed 1.5mm.	Maximum Lancet depth: <ul style="list-style-type: none"> • 2mm for term newborns and infants • 0.85 mm for preterm and low birth weight infants.

Useful resources in collecting capillary or venepuncture samples

- [How to use Neosafe](#)
- [Minivette demonstration](#)
- [Capillary tubes demonstration](#)

Further information is available via:

<https://www.pathology.health.nsw.gov.au/clinical-services/point-of-care-testing>

References

Miller L, Philbeck TE, Montez D, & Spadaccini CJ. 2010. A new study of intraosseous blood for laboratory analysis. *Archives of Pathology & Laboratory Medicine*, 134(9):1253-60.