



DATE: Tuesday, May-28-19
TO: SHA Clinical Care Providers
FROM: SHA Clinical Biochemistry Working Group
RE: Intraosseous specimen submissions for chemistry testing

Intraosseous specimens are not acceptable for chemistry testing.

The availability of published studies, as of February 1, 2019, on the use of intraosseous specimens for chemistry testing does not support their use for chemistry testing based upon;

- 1. Low number of publications** - 25 published manuscripts were found in a PubMed literature search and included both systemic reviews as well as original studies in human and animal models; more than half of the studies evaluated hemodynamically stable patients.
- 2. Poor Correlation between intraosseous and blood (venous, arterial, whole, capillary) specimens** – significant bias was observed for commonly measured analytes, including; sodium, potassium, chloride, bicarbonate, pH, carbon dioxide, oxygen and glucose.
- 3. Small sample populations** – the largest sample size employed in an original studies was 34 patients, which reduces the statistical significance of the conclusions. Furthermore, significant discrepancies between studies measured concentrations in intraosseous and blood specimens, with a significant difference for the calculated bias, were observed within studies.
- 4. Statistically rigor applied** - many of the studies used inadequate statistical methods for the comparative measures as well as inappropriately concluded that correlation between results was identical to agreement between results.

Furthermore, no study stated that intraosseous specimens are a preferred specimen for chemistry testing, while several studies concluded that intraosseous samples can damage conventional laboratory equipment and that additional studies are warranted.

If you have any questions please contact;

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