

## GUIDE TO EDTA CONTAMINATION

Contamination of blood specimens with potassium EDTA is a **major** problem for the Clinical Biochemistry department.

**What are the effects of EDTA contamination?**

**Increased potassium- leading to an invalid interpretation of potassium status.**

Decreased calcium, magnesium and alkaline phosphatase.

**So why use potassium EDTA if it is such a problem?** - Potassium EDTA (ethylenediaminetetraacetic acid) is the anticoagulant primarily used by the Haematology laboratory because the cellular components and morphology of the blood cells are preserved and is the recommended anticoagulant for haematology.

**How does it work?** - EDTA inhibits clotting by chelation of the divalent cations  $\text{Ca}^{++}$  and  $\text{Mg}^{++}$ , which inhibits several of the divalent cation-dependent proteolytic enzymes critical to the clotting cascade.

**How to avoid contamination** - When taking a series of blood specimens, it is essential that the **specimens are taken in the correct order – see Order of Draw Chart.**  
**It is essential that serum samples are taken before citrate and EDTA.**

Failure to adhere to this sequence will lead to contamination of blood specimens with EDTA. Only a tiny amount of contamination will lead to a falsely high potassium result. There are frequent examples of patients being treated inappropriately and dangerously with insulin and glucose to bring down a potassium result, which was subsequently found to be normal, or even already low.

If you have any doubts about the accuracy of a potassium result e.g. if it does not agree with the patient's condition or with previous results, obtain a fresh sample in which you are sure of the sample integrity, and have it analysed as an emergency.