

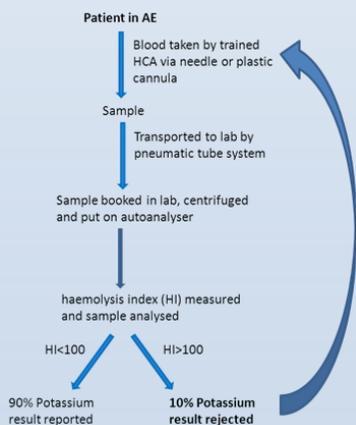
Improving Patient Journey in A&E Through Reducing Blood Sample Haemolysis

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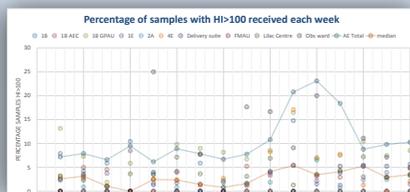
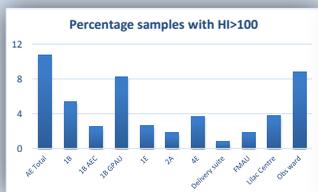
Problem

A significant number of samples from A&E are haemolysed precluding potassium result reporting thus warranting repeats and causing delays in the patient journey.

Current state



- A&E consistently have a higher percentage of haemolysed samples than other locations
- 1 in 10 samples from A&E requires a repeat



Waste Identified

A&E:

- HCA staff time repeating blood collection
- Blood collection material
- Delays in patient management waiting for results.

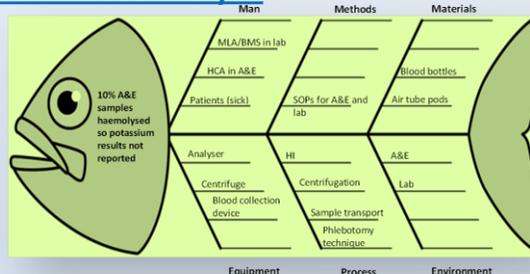
Lab:

- MLA and BMS staff time repeating analysis
- reagents wastage
- autoanalyser time

Goal

To reduce the percentage of haemolysis in A&E blood samples to < 5% and to sustain the reduction long term.

Root Cause Analysis



Transport, centrifuge and analyser:

- The same equipment is used by other locations which don't have the same problem.
- An alternative centrifuge did not improve the haemolysis rate from A&E.
- The same problem has been identified from A&E at an alternative hospital.

Personnel:

- The haemolysis rate is consistently high and is not affected by time of collection.
- Haemolysis cannot be attributed to the training of particular individuals either in A&E or the lab.
- Patients attending A&E are 'sick' which may be a factor.

Action Plan

Meet with A&E to discuss the problem:

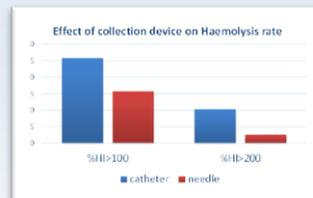
- Transport, centrifuge and analyser excluded as cause. Collect data on sample collection
- Needle vs plastic cannula.
- Gauge of cannula used.
- Collect data on samples with a HI>200.
- Examine possibility of releasing potassium result if HI>100 but <200.

N.B: HI = Haemolysis Index measured by autoanalyser

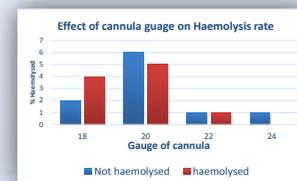
Results

Sample Collection:

- The use of plastic cannulas may contribute to the high percentage of haemolysed samples, however, many patients have a cannula because iv fluids are required.

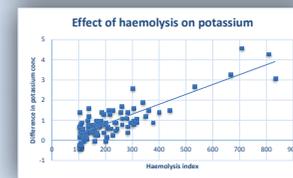
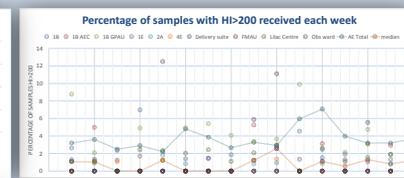
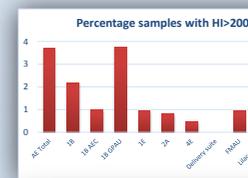


- Patient records were reviewed to see what gauge of catheter had been used. In the haemolysed group there seems to be a higher use of 18 gauge.



Increasing HI cut-off to 200:

At this level A&E has a mean haemolysis rate of 3.7%



- Haemolysis does cause the potassium result to be up to 1 mmol/L higher but this is not always the case.

- Sample collection does seem to play a part in causing haemolysis but this may be dictated by the patients needs and therefore not possible to change.
- Changing the cut-off for haemolysis would reduce the haemolysis rate to an acceptable level and mean that more potassium results would be reported.

Next Steps

- Introduce a cut-off for haemolysis of HI>200 for A&E samples.
- Report these samples with a comment regarding haemolysis and the possible effect on the potassium result.
- Perform a trial period to assess the effect on the laboratory, such as:
 - Increased number of high potassium results requiring phoning.
 - Impact of having to manually input potassium result for A&E if HI 100-200.