Reduction of Blood Loss due to Arterial Blood Gas (ABG) Sampling in an Intensive Care Unit setting

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Background:
Studies highlighted phlebotomy blood loss in intensive care patients leads to diagnostic anemia resulting in slower recovery, increased length of stay and more transfusions. We wanted to investigate if and how we could address this in our tertiary regional Intensive Care Unit.

What we did:
- Established a multi-disciplinary team October 2016 to look at phlebotomy frequency and volumes in our tertiary regional Intensive Care Unit
- Investigated blood test data and analyzed the findings as baselines
- Designed & circulated a questionnaire to staff who took samples. This focused our initial aim on arterial blood gas analysis (ABGA)
- We looked for ABGA protocol within BHSCT

What we found in blood gas sampling:
Variation:
- In practice across BHSCT sites
- In pre-sample waste volume
- In ABGA sample volume

Waste:
- Staff time
- Unnecessary use of heparin
- Repeat samples

Risk:
- No standardised ABGA protocol in RICU
- Potential infection control

Aims:
1. To reduce the amount of blood loss due to ABGA sampling in RICU by 30% by June 2017
2. To reduce variation in pre-test waste and sample volume in ABGA
3. To eliminate identified risks in current ABGA

Conclusion
Reduction of phlebotomy blood loss in ABGA was simple and resulted in elimination of variations in practice by introducing a standard operating procedure. With the calculated average ABGA frequency in our ICU being 6.2 per day, the reduction equates to approx. 6mls of blood per day per patient in just ABGA sampling.

Other parts of our Phlebotomy Blood loss reduction project:
Standardisation of other blood testing protocols regarding specific volume and frequency.
Use of small volume sample bottles
Reduction of any unnecessary sampling.
Improved pre-analytical sampling techniques to reduce repeat sampling
Practices to be extended to all clinical areas within the Belfast Trust.
Eventually to measure reduction in phlebotomy blood loss Vs reduction in transfusion in the non-bleeding haemodynamically stable patient.

References: