An Assessment of the Agreement Between Laboratory and POCT Blood Gas Analysis Measurements of Haematological Indices on the NICU: A Service Evaluation

Methods We created a working group with the postgraduate clinical tutor, the postgraduate team and doctors interested in supporting the well being of trainees to brainstorm ideas on location and necessary provisions.

An appropriate space that was easily accessible and centrally located was high on our priority list. Our central education centre contains many rooms which remained unused overnight which provided an ideal space to create our ‘snooze’ rooms.

We used funding from our postgraduate budget to purchase essential items to create rest rooms that promoted rest and relaxation.

Results We have created 2 identical ‘snooze’ rooms for our trainees working the hospital at night rota. Each room contains a single sofa which can be pulled out to a single bed and easily wipeable to comply with infection control standards. Linen is provided and replaced by our domestics team daily. To promote a relaxing and restful atmosphere we included plants, a bedside lamp, lavender essence, hot drink facilities, phone chargers, blackout blinds and ‘please do not disturb, doctor resting’ door displays.

Our rest rooms have been launched since Wednesday 3rd March 2021, and we will be seeking feedback from the trainees to assess their experience and see if further improvements for their well being can be made.

Conclusions Despite the current COVID 19 pandemic, the well-being of our trainees remains paramount. Although space is limited, we have demonstrated that it is possible to adapt already used spaces to overnight rest facilities, even in a busy tertiary hospital. Using this model, we hope to work with our local Trainee Committee and School Board to develop rest facilities in each of our district general hospitals for our paediatric and neonatal departments.

We also intend to appointment trainee well being representatives without our Trust to work on other well being projects like catering facilities and engagement with managers.

Quality Improvement and Patient Safety

AN ASSESSMENT OF THE AGREEMENT BETWEEN LABORATORY AND POCT BLOOD GAS ANALYSIS MEASUREMENTS OF HAEMATOLOGICAL INDICES ON THE NICU: A SERVICE EVALUATION

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Background Accurate biochemical monitoring is an essential component of neonatal care and fluid management. Point of care testing (POCT) offers a rapid, low blood volume alternative to laboratory testing, reducing the risk of iatrogenic anaemia in neonates and potentially improving patients’ prognoses.

If the blood gas analyser (BGA) can act as a reasonably accurate proxy for laboratory analyses, this will enable more rapid biochemical analyses, accelerating clinical decision making.

Objectives To assess the agreement of haematological indices (sodium, potassium, chloride, and bilirubin concentrations, and haemoglobin levels) when measured by BGA and laboratory testing.

Methods This service evaluation took place in the neonatal intensive care unit (NICU) at Liverpool Women’s Hospital (LWH). The BGA used on the NICU at LWH is the Siemens Rapidlab 1265 and the Abbott Alinity analysers are used at Alder Hey Children’s Hospital Laboratory.

Temporally paired sets of results from POCT blood gas analysis and laboratory testing were identified from the historical NICU Badger database to allow comparison of agreement. The blood gas sample taken within the closest proximity to the biochemistry or haematology sample was used, with samples taken within two hours of each other regarded as adequately paired.

Statistical analyses were undertaken using the SPSS software version 26.0 and within Excel 2010. The data were processed using the method outlined by Bland and Altman, for the calculation of Bland Altman plots where repeated measures have occurred.

Grubb’s test for outliers was performed on the data to identify and remove obviously aberrant values.

Results Paired samples for analyses were available from 99 patients over a two-month period. Following the application of Grubb’s outlier test and considering the matched pairs for which not all data were available, there were 195 paired samples for sodium analyses, 186 paired samples for potassium, 185 paired samples for chloride, 135 paired samples for bilirubin and 124 paired samples for haemoglobin.

The mean difference for sodium measurements between the laboratory and blood gas measurements was +1.72 mmol/L (95% confidence interval (95%CI) −4.95 mmol/L to 8.40 mmol/L); for potassium measurements +0.29 mmol/L (95%CI −0.88 mmol/L to 1.46 mmol/L); for chloride measurements +1.93 mmol/L (95%CI −3.74 mmol/L to 7.60 mmol/L) for bilirubin measurements +5.39 μmol/L (95%CI −42.57 μmol/L to 31.80 μmol/L) and for haemoglobin measurements −1.89 g/L (95%CI −15.89 g/L to 12.12 g/L).

Conclusions Assessment of some of these measurements (namely bilirubin concentration and haemoglobin levels) by POCT may be acceptable for intermittent monitoring of haematological parameters in neonates, providing that the extremes of the estimated true value (indicated by the range of the 95%CI) would not mandate a different treatment course. The relatively wide 95%CI for some of the electrolyte levels (namely sodium and potassium concentrations), which exceeds the normal range of those values, limits the value of these measurements as independent measures, without laboratory corroboration, although trends may still be inferred. It may be necessary to explain these caveats to clinical staff interpreting the results and provide further education regarding reference ranges.

British Paediatric Allergy Immunity and Infection Group

PIMS OR NOT? ALTERNATIVE DIAGNOSES IN THE FEBRILE CHILD DURING THE COVID-19 PANDEMIC

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Background The majority of children and young people affected by COVID-19 have remained asymptomatic or suffered mild illnesses. However throughout the pandemic...