Conclusions It can masquerade as sepsis, acute abdomen and acute renal failure. A high index of suspicion is needed for early diagnosis as management is simple with good prognosis.

British Association of Perinatal Medicine and Neonatal Society

1593 VERTICAL TRANSMISSION OF COVID 19

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Background Severe acute respiratory syndrome coronavirus-2 (SARS-CoV-2) and its pandemic disease have provided unprecedented challenges to medical treatment. To date there has been little definitive evidence of vertical transmission of SARS-CoV-2 from mothers to foetuses/neonates during pregnancy and delivery. There is biological plausibility for in-utero infection of the foetus with SARS-CoV-2 virus as the virus has previously been demonstrated in placenta and amniotic fluid. Goh et al's meta-analysis reports the pooled incidence of vertical transmission as 16 per 1000 newborns.

Objectives To describe cases of Covid-19 with a very high probability of vertical transmission in a large tertiary NICU in United Kingdom

Methods Babies born to Covid positive mothers, who require NICU admission at St. Mary's Hospital, Manchester, receive their initial care in an isolation room within NICU, where all levels of neonatal care (intensive, high dependency or special care) can be provided. Following admission to the NICU isolation room, babies have a nasopharyngeal (NP) swab taken on day 1, 3 and 5 of life. The sample on day 5 is sent for rapid analysis (usually returning a result within 4 hours). If all NP swab results are all negative, the baby is moved from the isolation room on day 5 of life. Conversely, if any swabs are SARS-CoV2 positive, the baby remains in the isolation room for 14 days. We report the characteristics and clinical courses of the cases where any of baby's swabs samples tested positive for SARS-CoV-2.

Results All three babies were admitted directly to the NICU isolation room immediately after birth without physical contact with their respective parents. All hospital staff caring for the babies used full personal protective equipment including a filtering facepiece (FFP) 3 mask, gloves and apron. Reverse transcriptase polymerase chain reaction (RT-PCR) testing of the nasopharyngeal swab detected the SARS-CoV-2 virus. Indeterminate results are presumed positive with sub reportable

thresholds of viral loads. Table 1 summarises the characteristics of cases, their respective parental physical contact and first day of receiving expressed breast milk (EBM).

Two out of three babies received EBM whilst under NICU isolation. Both of these babies had indeterminate SARS-CoV2 levels, prior to the administration of EBM, therefore we do not believe breast-milk to have been the route of transmission. Fortunately, all neonatal infections with COVID-19 in these cases were mild or clinically insignificant. None of these babies were symptomatic of Covid 19 respiratory infection, although some did required respiratory support but this was in keeping with their underlying condition.

Conclusions From our single tertiary centre experience, we hypothesise that vertical transmission of COVID-19 is highly probable.

Quality Improvement and Patient Safety

1594 QI- PROMOTING TEAM BUILDING, TEACHING AND QUALITY IMPROVEMENT DURING PANDEMIC TIMES THROUGH DEPARTMENTAL TRAINEE-LED TEACHING SESSIONS

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Background We had an exciting start to our placement in Paediatric Intensive Care Unit (PICU). However, as part of the weekly plan, we did not have a dedicated session where trainees (from different specialties e.g. paediatrics, intensive care and emergency medicine), could deliver teaching. It was also felt that due to more out of hour shifts on the Covid rota, trainees had felt isolated in work and did not develop a sense of team spirit. This led to the idea of promoting trainee-led weekly teaching sessions with the multiple aims of improving teaching, improving team building amongst colleagues and obtaining work-based assessments in the consultant-supervised teaching sessions.

Objectives Our main aims were

1. to improve interaction amongst the peers
2. to promote learning from each other during these teaching sessions
3. to obtain work-based assessments through these consultant-supervised teaching sessions.

Methods After confirmation that trainees were interested, our next step was to ensure that the consultants would engage in

Abstract 1593 Table 1

	Gestation (Weeks)	Birth Weight	Main Diagnosis	Day 1 Swab	Day 3 Swab	Day 5 Swab	Other positive swabs	First day of EBM	First day of physical contact with parents
Case 1	34+5	3032g	Cyanotic congenital heart disease	Indeterminate	Positive	Positive	D18, D25	Day 2	Day 10
Case 2	37	2980g	Hypoxic ischaemic encephalopathy	Negative	Negative	Positive	D12	Day 7	Day 7
Case 3	32+5	1794g	Surfactant deficient lung disease	Indeterminate	Indeterminate	Indeterminate	D9, D12	Day 2	Day 6

supporting these teaching sessions to form part of the weekly teaching plan. This involved a detailed discussion on their rationale and approach, including evaluation. We then identified the most suitable day and time in the week and ensured that the seminar room was available for these sessions to take place. We ensured that everyone had access to a chosen platform for these sessions which was either Zoom or Teams. The most important and difficult part of the whole process was to recruit volunteers to present at these teaching sessions. This involved a lot of negotiation with my colleagues and personally approaching them to decide on the preferred topic and date for them. Finally, each presenter ensured that they had a work-based assessment from their teaching session that they delivered. We also obtained written feedback from junior doctors.

Results

- Period of observation: Nov 2020–Feb 2021
- Total number of trainees who presented: 7/10
- No of possible sessions: 15
- No. of sessions that actually happened: 11
- No. of sessions supervised by consultants: 10 (of 11 possible)
- WBA obtained: 11 (11)
- Reasons for non-delivery of sessions: increased workload and department being busy on the day; non-availability of seminar room; technical difficulties with the computer; and non-availability of presenter

Conclusions

1. These sessions improved participation of junior doctors in teaching.
2. These sessions improved social interaction amongst colleagues as they participated in discussions during these sessions and were able to join them remotely.
3. This was an idea that was welcomed by all, including the ANPs.
4. Trainees found these sessions to be useful; going forwards, they would like these sessions to be tailored to our curricula.
5. Despite many factors had the potential to interfere with the delivery of the sessions, the majority took place.

In this introductory 4-month period these sessions have received positive feedback and they will be embedded in the weekly teaching plan for future trainees joining the department.

International Child Health Group

1599

USABILITY-FOCUSED DEVELOPMENT OF A NEONATAL FEEDBACK DASHBOARD FOR A LOW-RESOURCE NEONATAL UNIT, MALAWI

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Background Neonatal mortality remains high in low-income countries; 22/1000 in Malawi. The World Health

Organisation has called for actionable information systems to monitor and impact and outcomes. Electronic Audit and Feedback dashboards are an increasingly used healthcare quality improvement strategy which summarise clinical practice over a specified time period and feed information back to clinicians, via graphs and data visualisations. Audit and feedback dashboards have had limited previous use in low-resource hospitals. 'NeoTree' is a digital newborn quality improvement platform currently under development, that provides electronic audit and feedback. This study aimed to apply a usability-focused approach to co-developing the dashboard component of the NeoTree system in Kamuzu Central Hospital, Malawi.

Objectives To develop a first working prototype of the NeoTree dashboard and then gather usability feedback regarding this prototype to develop a beta version referred to as a Minimum Viable Product (MVP-1).

Methods Over a seven-month period Microsoft Excel and then Power BI were used to co-develop and user-test a first prototype dashboard, visualising data collected by nurses on the NeoTree app on bedside tablet devices at Kamuzu Central Hospital Neonatal Unit. Data were exported from the app to a cloud database in Amazon Web Service via a WIFI network. The first prototype was co-designed with neonatal health professionals, during scoping meetings with front-line nurses (micro-level), senior department managers (meso-level) and Ministry of Health experts (Macro-level stakeholders). Theory and evidence from current behaviour change and implementation science were mapped onto the dashboard. The first prototype was then user-tested with frontline neonatal nursing staff during one-to-one, video-recorded, usability sessions following think-aloud interview methods. System usability scores were collected from the same nurses. Rapid insights and inductive themes from thematic analysis of usability session transcripts informed dashboard changes. Iterative changes were also made to the dashboard while it was used at six morbidity and mortality (M&M) meetings and was played live on the ward screen for one-month.

Results Twenty micro-level, nine meso-level and two macro-level participants attended scoping meetings. Twenty-three evidence-based feedback characteristics and six behaviour change techniques from Control Theory were mapped onto the dashboard. Ten frontline neonatal staff attended usability sessions, and fifty staff used the dashboard in M&M meetings and live on the ward. Eleven rapid insights included; *data visualisations should reflect local understanding of colours and use locally appropriate language*. Eight inductively generated themes included; *difficulty interpreting complex charts, data alone are not useful, tendency to focus on extremes of graphs and positive interpretation of data*. Nurses were motivated to change when data were accompanied by specific feedback characteristics such as take-home messages, standards, goals and recommendations. Mean system usability score of the NeoTree system including the dashboard, was high (89.3/100).

Conclusions Electronic Audit and Feedback dashboards for neonatal nurses can be highly usable in low-income countries. Usability of dashboards can be enhanced by clear messaging of how to change practice in response to feedback. This study substantiates previous electronic audit and feedback evidence from high-income countries, spearheads usability-focused approaches to dashboard development and could support dashboard-driven quality improvement in similar settings.