quality improvement system is a digital innovation deployed at Kamuzu Central Hospital (KCH), Neonatal Unit, Malawi, from April 2019, facilitating automated, real-time, prospective audit via a data dashboard.

Objectives To describe the pattern of admissions and outcomes in a Malawian neonatal unit over a one-year period via a prototype data dashboard, using a bedside electronic data collection and quality improvement system: NeoTree.

Methods An electronic audit of admissions to KCH, Neonatal Unit (1st May 2019 to 31st April 2020) was carried out. Data were collected prospectively by nursing staff at the point of care, using electronic forms in the NeoTree app on tablet devices. Admission and outcome forms contained embedded reminders, education and training regarding newborn care according to national and international guidelines. Data were exported from the tablets to a cloud database. The data were then reviewed, visualised, and retrieved via a Microsoft Power BI dashboard. Data cleaning and descriptive statistics were executed using R.

Results A total of 2732 neonates were admitted and 2413 (88.3%) had an outcome recorded electronically using the NeoTree app. Of 2413 whose outcome was known, 1899 (78.7%) were discharged alive, 12 (0.5%) were referred to another hospital and 10 (0.4%) left the hospital before being discharged. One fifth (n=492) infants died, giving an overall case fatality rate of 204/1000 admissions. Of 492 deaths, the commonest causes of death were prematurity with respiratory distress (n=252, 51%), neonatal sepsis (n=116, 23%), and neonatal encephalopathy (n=80, 16%). Almost half (45%) of deaths occurred within the first 72 hours of admission. The most common perceived modifiable factors around deaths were inadequate monitoring of vital signs and management of sepsis. Monthly trends were tracked in relation to a change in admission criteria and the COVID-19 pandemic. 202 (8.1%) neonates were HIV exposed and 143 (70.8%) of these received nevirapine as prophylaxis leaving 59 (29.2%) vulnerable to vertical infection. Data collected on the NeoTree app were on average 96% complete across all data fields and coverage of admissions, discharges and deaths was 97%, 99% and 91% respectively when compared with the ward logbook.

Conclusions This is the first electronic, point-of-care audit of neonatal admissions and outcomes to a neonatal unit, collected by health professionals using a mobile app, reported via a data dashboard. This system achieved high coverage and completeness of data over a one-year period suggesting that M-health quality improvement systems such as the NeoTree can provide and improve quality of data for audit, timely reporting, and effective decision making regarding neonatal care in low resource settings, even during significant external stresses such as the COVID-19 pandemic. A larger scale evaluation of impact on quality of care and case fatality rate is planned.

British Association of Perinatal Medicine and Neonatal Society

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NEONATAL HYPERTENSION: INCIDENCE AND OUTCOME FROM TEN YEARS' EXPERIENCE OF A REGIONAL NICU

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Background Hypertension in the neonatal period is uncommon with studies reporting an incidence of 0.2–3%. There is little data on the clinical course and outcome of these infants.

Objectives To evaluate the incidence and outcome of neonatal hypertension

Methods A retrospective observational study in newborn infants admitted to NICU over a 10 year period (January 2011 to December 2020). Hypertension was defined as systolic BP >95th centile for gestation and age for at least 3 consecutive readings measured using an indwelling arterial line or non-invasive devices such as Dinamap or manual measurement using a Doppler.

- Inclusion criteria – Coding of Neonatal hypertension in Badgernet neonatal database.
- Exclusion criteria – Early death in the perinatal period or in the first week of life

Demographic details of infants with neonatal hypertension were obtained. Case records were further interrogated to evaluate the management of neonatal hypertension, clinical course, and duration of medical treatment. Information on medical treatment at home and follow-up reviews were ascertained to determine the outcome.

Results 24 infants were found to have hypertension from a total of 11192 admissions to the NICU over the 10 year period, giving an incidence of 0.22%. Mean gestation at birth, birth weight and age at diagnosis were 35+2 weeks, 2.58 Kg respectively. The median age at diagnosis was 2 weeks (IQR 1–4 weeks). 14/24 (58%) infants were out-born.

13 (54%) were found to have a renal abnormality. 7 (29%) had an umbilical arterial line inserted. 5 (21%) had exposure to antenatal steroids. 1 (2.5%) of the infants were found to have a structural cardiac abnormality. Anti-hypertensive therapy was initiated in 12 (50%) and the rest were managed with fluid restriction. At the time of discharge, hypertension had resolved in 13 (54%). At the latest follow-up (mean 31 months), only 3 remained on anti-hypertensive treatment after one year of life with a structurally normal heart on echocardiography.

Conclusions Neonatal hypertension is rare and the most common aetiology is kidney disease. Hypertension resolves in the vast majority of infants in the first year of life.

RCPCCH Trainees Committee

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INVOLVE ME AND I LEARN – INTEGRATING MEDICAL STUDENTS IN MULTIDISCIPLINARY IN-SITU SIMULATION

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Background Paediatric exposure during medical school is often limited to rotations that last a few weeks, and include multiple areas such as clinics, NICU, wards and the emergency department. Many students finish their placement with good theoretical knowledge of managing the critically unwell child but limited practical experience and application of such. Simulation is a growing part of the medical school curriculum however it mainly remains adult based. Simulation