Abstracts of the First Biannual General Meeting and Scientific Conference of the African Neonatal Association 2025

A01

Brightening the 'Golden Hour': Strengthening the implementation of evidence-based interventions in the first hour of life at a central referral hospital in Zimbabwe

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Introduction: Evidence-based interventions in the first hour of life, the "Golden Hour", lead to improved outcomes, particularly in low birth weight (LBW) and premature infants. Despite evidence of cost-effectiveness, the implementation of interventions including early skin -to-skin care (ESSC) and delayed cord clamping (DCC), remains inconsistent globally. We introduced a quality improvement (QI) programme to improve Golden Hour practices in a central maternity hospital in Zimbabwe (~21,000 deliveries annually).

Methodology: We utilised QI methodology with iterative Plan-Do-Study-Act cycles, over 6 months from November 2024, including a two-monthly interactive teaching program, equipment provision, healthcare provider incentives (food hamper), regular clinical support and feedback meetings. Data were collected for all deliveries, temperature recorded for neonatal unit admissions and then descriptively analysed.

Results: An observational audit estimated pre-implementation rates of DCC and ESSC at 50%, but without documentation. With this project we recorded improved documentation and adherence to both interventions; 43% at baseline to 76-87% by month 6. Following identification of poorly adherent groups, targeted training resulted in improved rates of DCC for babies born in theatres (6.5 to 19%) and LBW babies (27 to 64%). 7012 of 9812 (71.5%) eligible babies received both interventions. Babies' temperature varied with seasonal trends but not with Golden Hour interventions.

Conclusions: Golden Hour interventions were implemented in a low-resource, busy maternity unit. There are ongoing challenges improving the duration of ESSC, thermoregulation and implementation in vulnerable groups. Next steps include use of observational data to assess impact on survival.

Key words: Golden hour, delayed cord clamping, skin-to-skin care

A02

Prevalence and factors associated with hypothermia following delayed cord clamping among term neonates born via elective caesarean section: a cross-sectional study in a tertiary hospital, Tanzania.

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Background: The World Health Organization recommends delayed cord clamping (DCC) for all newborns due to its numerous benefits. However, it may be associated with increased risk of hypothermia, particularly following cesarean deliveries. Hypothermia contributes directly to newborn morbidity and indirectly to neonatal mortality. This study aimed to determine the prevalence, severity, and factors associated with hypothermia (T ≤36.0 °C) after DCC among term neonates born via elective cesarean section (ECS).

Methodology: An analytic cross-sectional study was conducted at Aga Khan Hospital, Dar es Salaam, including 223 healthy newborns delivered by ECS at ≥37 weeks' gestational age from mothers with singleton pregnancy and normal ultrasound. Cord clamping was delayed for ≥30s. Maternal temperature was recorded before incision, and neonatal temperature was noted at delivery and at cord clamping, along with DCC duration and operating room temperature. Descriptive statistics summarized maternal and newborn characteristics. The presence of a statistically significant difference between hypothermic and non-hypothermic newborns was assessed using the X2-test. Bivariate and multivariable logistic regression identified factors associated with neonatal hypothermia.

Results: Prevalence of hypothermia among neonates who underwent DCC was 14.8% (95% CI of 10.4% to 20.1%), all moderate intensity. 54% of mothers were hypothermic during ECS. Newborns with hypothermia upon delivery, those delivered to hypothermic mothers, and those small-for-gestational-age (SGA) had higher odds of developing hypothermia upon DCC.

Conclusion: A significant number of caesarean-delivered babies develop hypothermia following DCC. To derive maximum benefit from DCC, it is imperative to prevent perioperative maternal hypothermia and exercise precautionary measures while practicing DCC in SGA newborns.

Key words: Delayed cord clamping, hypothermia, elective caesarean section.

A03

Six-month interim analysis report on the effect of prisms and the augmented infant resuscitator on neonatal care outcomes in south Sudan

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Introduction: Neonatal mortality rates remain high in South Sudan. Birth asphyxia, prematurity, and neonatal sepsis are preventable causes that requires timely identification and administration of lifesaving interventions by skilled health workers. However, neonatal care knowledge and skills decay over time after initial training. We evaluated the effect of using Augmented Infant Resuscitator (AIR) and Protecting Infants Remotely by Short Message Service (PRISMS) interventions on newborn survival.

Methods: We collected data on care outcomes at birth and for admitted newborns before intervention and during intervention. The interventions included neonatal care training, use of PRISMS and AIR. Chi-square test determined the effect of the interventions on care outcomes before and during the interventions. The primary outcome were resuscitation outcome (alive or dead) at birth, and survival to discharge.

Results: There were3032/6895(44%) deliveries before intervention and 3863/6895(56%)during intervention. Sex, rates of asphyxia, and birth weight distribution were similar before and during intervention. We recorded higher rates of caesarian births during intervention than before the intervention. We managed875/1985 (44.1%) neonates before and 1110/1985 (55.9%)during intervention. The mean admission weight was 2.6 kg (SD = 0.98) before and 2.7 kg (SD=0.83) during intervention. The neonatal survival to discharge decreased from 13.8% (121/875) before intervention to 11.5% during intervention ($p = 0.125$ and risk ratio of 0.83) that is a 16.7% reduction in neonatal mortality.

Conclusion: The interventions resulted in reduction in neonatal mortality

Recommendation: We recommend the study continue past the 6-month interim analysis period to 12 months post intervention deployment.

Key words: newborn, AIR, PRISM, South Sudan

A04

What happens after discharge? Lessons and intervention outcomes from the watoto care pilot on newborn health in Sengerema – Mwanza Region, Tanzania.

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Introduction: In Tanzania, the Neonatal Mortality Rate (NMR) remains high at 24 deaths per 1,000 live births. While significant efforts focus on in-hospital care, little is known about what happens to newborns after discharge. The ongoing watoto Care pilot in Sengerema is providing valuable insights into newborn health beyond the hospital. The pilot combines a digital triage system, telehealth, community health worker (CHW) home visits, and complementary transport for high-risk newborns to ensure timely follow-up.

Methodology: The pilot follows 3,341 enrolled newborns after discharge from Sengerema Designated Council Hospital. The *Watoto Care* ICT system classifies newborns into low, medium, or high-risk categories and directs CHWs to prioritize the facilitation of telehealth consultations, transport support based on risk level.

Results: Out of 3,341 discharged neonates, 16 (0.5%) neonatal deaths were recorded, with 14 Verbal and Social Autopsies (VASAs) completed. Respiratory conditionsand infections are the leading causes of death. About 80% of deceased newborns received some form of medical care, mostly at lower facilities. Readmission rates dropped from 8.4% in baseline to 2.0% in pilot. PNC completion improved from 36.5% to 65.1%. Caregiver knowledge retention on newborn danger signs markedly increased from 54.1% to 96.4% by day 28.

Conclusion: The *WatotoCare* pilot is improving visibility into newborn outcomes after discharge and enhancing continuity of care through digital tracking, community telehealth follow-up, and transport support. The approach is reducing readmissions, strengthening caregiver awareness, and surfacing neonatal deaths that would otherwise remain undocumented, offering valuable lessons for postnatal care systems in low-resource settings.

Keywords: Newborn Health, Postnatal Care, Digital Health, Neonatal Mortality

A05

Impact of the "Bespoke Online Neo Natal Education for Transfers (BONNETs)" course on the knowledge and self-reported competence and confidence of pre-hospital providers undertaking neonatal interfacility transfers in South Africa

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Introduction: Interfacility transfers are a critical link in the chain of care for ill neonates. In many nascent emergency care systems, Emergency Medical Service (EMS) providers are tasked with undertaking these transfers. These providers lack opportunities for continuous professional development (CPD) and report feeling underprepared to safely manage neonates during transport. Our study aimed to determine the impact of a Bespoke Online Neo Natal Education for Transfers (BONNETs) course on EMS provider knowledge and self-reported competence and confidence.

Methods: Following a pedagogy of communities of practice (COP) and an ADDIE* model of instructional design, the BONNETs course was developed and delivered to a cohort of EMS providers. Median knowledge scores were compared for statistically significant differences before, immediately after the course, and three months later. Knowledge scores were compared through Wilcoxon Signed Rank Test. Self-reported confidence and competence across multiple items were analysed and compared with related samples sign test, before and immediately after the course.

Results: A total of 88 EMS personnel enrolled and consented to participate; attrition was low (19.3%). The median (IQR) knowledge scores improved significantly from 72% (16%) prior to 92% (12%) immediately post; $p<0.01$ and were maintained at 88% (8%) 3 months post. Agreement increased across all 26 confidence & competence items following the BONNETs course. The median proportion of agreement rose from 76.8% pre-course to 98.5% post-course (proportion change of 21.7%; $p < 0.01$).

Conclusion: The BONNETs course had a positive impact on EMS provider knowledge, and self-reported confidence and competence.

Keywords: "Patient Transfer", "Newborn", "Education", "Medical Service"."Online course"

*ADDIE = Analysis, Design, Development, Implementation, Evaluation.

A06

The development and dissemination of an Integrated Comprehensive and Essential Newborn Care training package to strengthen the management of Small and Sick Newborns in resource-limited settings

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Background: Small and sick newborns face a heightened risk of mortality in resource-constrained setting due to a lack of adequately trained health providers.
Objective: To roll out a national, integrated, comprehensive, and essential newborn training package for coordinated management of small and sick newborns at all levels of newborn care.
Methods: A needs assessment conducted by the Ministry of Health (MOH) across 75 referral hospitals managing small and sick newborns identified gaps in health provider knowledge due to limited coverage and fragmentation of newborn training packages. The MOH engaged a multidisciplinary team of neonatal specialists to develop an integrated newborn training package for Kenya. The team prioritized interactive lectures, scenarios, simulations, pre and post-tests, and practical sessions. To maximize scalability, the train-the-trainer model was adopted.
Results: In line with WHO standards, comprehensive newborn care (CNC) training was developed for secondary and tertiary newborn units (NBUs), and essential newborn care (ENC) training was developed for primary NBUs. CNC training was rolled out in 75 hospitals with secondary and tertiary NBUs. A total of 574 health providers were trained, comprising nurses (259), clinical officers (79), midwives (48), medical officers (49), anaesthetists (50), obstetricians (27), paediatricians (55), and neonatologists (7). A total of 122 trainers were trained in facilitation/ mentorship skills. Fragmented newborn training packages were eliminated, leading to wide coverage of trained multidisciplinary teams from maternity and newborn departments.
Conclusion: An integrated newborn training package targeting all levels of newborn care empowers multidisciplinary teams to provide coordinated care and improve newborn survival.

A07

A quality improvement project to improve the knowledge of nurses working at Tikur Anbessa Specialized Hospital Neonatal Intensive Care Unit (NICU): A Pre - and Post - Test Study

Abstract: *Background:* The first 28 days of life – the neonatal period – is the most vulnerable time for a child's survival. Globally 2.3 million children died in the first 28 days of life in 2022. A staggering 6,500 newborns died each day, representing 47% of all under-5 child deaths. Sub-Saharan Africa accounted for 57% of under-5 deaths in 2022, despite only representing 30% of global live births, and had the highest neonatal mortality rate at 27 deaths per 1,000 live births. Premature birth, birth complications, neonatal infections, and congenital anomalies remain the primary causes of these deaths. Children who die within the first 28 days of birth suffer from conditions and diseases associated with lack of quality care at birth or skilled care and treatment immediately after birth and in the first days of life.
Objective of the study: The aim of this study is to improve the knowledge of NICU nurses by training on common neonatal problems.
Method and Materials: A Quasi Experimental Pre- and Post- Test study design was used to assess knowledge of NICU nurses in Tikur Anbessa Specialized Hospital (TASH). Statistical analysis included differences in the knowledge scores before, immediately after the training and after 1 year of the training sessions and between the three periods.
Result: A total of 35 NICU nurses were trained on common newborn problems with a majority of female participants(82.9%). Seventeen(48.0%) of the nurses have Bachelor's degree in nursing and 14(40%) have Masters in Neonatal Nursing. The majority of them 14 (40.0%) had over 10 years of nursing experience. The participants' mean knowledge score during pre-test was 6.97 ±1.85 which increased to 9.23 ±1.09 immediately after the training and dropped to 6.94 ±1.51. This increase in mean scores indicates the effectiveness of the training in enhancing participants' performance in the short term.
Conclusion: The training programs are effective and significantly improve knowledge of nurses on common neonatal problems.

Key words: Neonatal Resuscitation, Hypothermia, Training, Pre-test, Post-test

A08

A quality improvement project on reducing admission Hypothermia in a Neonatal Intensive Care unit at a Tertiary Center, Addis Ababa; Ethiopia

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Background: Hypothermia is a global problem, especially in low- and middle-income countries. The World Health Organization has suggested 10 ways of keeping infants warm but practice can be inconsistent. This quality improvement project was undertaken in a resource limited teaching, tertiary hospital in Ethiopia. The rate of admission hypothermia to the neonatal intensive care unit (NICU) is 81%. Methods The aim of the QI project was to reduce NICU admission hypothermia by 50% from baseline in 32 weeks. This prospective study had a baseline, implementation and sustenance phase. Three PDSA cycles, including training on hypothermia and keeping warm chain, increasing delivery room temperature, and essential newborn care were undertaken. Results were expressed in descriptive statistics. Results We were able to reduce NICU admission hypothermia (< 36.00C) decreased from 48% to 13% which is a 72.9% reduction from the baseline. The average delivery room temperature was 22.30C, 21.30C, 24.60C, and 22.80C in the phase I,II,III and sustenance phase respectively. *Conclusion:* We were able to reduce NICU admission hypothermia by 25% and moderate hypothermia by 73% from baseline. We did not meet our target reduction in NICU admission hypothermia but observed that repeated training and on job mentorship changed attitudes and practices

A09

Embrace warmer versus routine care for prevention of hypothermia on admission in low-birthweight newborns in Tanzania

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Introduction: In many low-income countries, hypothermia on admission to neonatal units is still a common problem and sometimes goes unnoticed, leading to increased risk of infections and other complications of newborns. At Muhimbili National Hospital (MNH) admission hypothermia accounts for 33% of newborns despite of the low-cost interventions such as skin-to-skin contact and use of warm blankets which are not reliably effective and feasible. The Embrace warmer is an innovation designed to prevent hypothermia among low-birth weight newborns in low-income countries, specifically by addressing challenges related to power supply and use of expensive devices such as incubators. Although it has been shown to be effective at preventing hypothermia in newborns, less is known about its use for newborn transport. Therefore, this study aims in evaluating the effectiveness of Embrace warmer in preventing hypothermia on admission during intra hospital transfer.
Methods: From July 2022 to July 2023, a total of 145 newborns delivered at MNH, with a birth weight less than 2000g were randomly allocated into two groups: the Embrace warmer group (n=77) and the routine care group (n= 68). All newborns had normal body temperature before being transferred from delivery rooms. Upon admission, axillary body temperature and random blood glucose levels were measured, while C-reactive protein levels were assessed between 48 and 72 hours after admission. Data was entered in the Red Cap, and analyzed with R software.

Results: The mean body temperature on admission to the neonatal unit in the intervention group (Embrace warmer) (36.7^0C) was significantly higher than the temperature in the control group (routine care) (36.3^0C) (p=0.0001). This showed that the Embrace warmer maintained the body temperature of newborns during intra hospital transfer.
Conclusion: The study demonstrated that using the Embrace warmer in low-birth weight newborns during intra hospital transfer can reduce hypothermia upon admission.

Keywords: Hypothermia, hypoglycemia, Embrace warmer, low-birth weight, newborns.

A10
Evaluating the penetration of interventions for Small and Sick Newborns in hospitals in Kenya: An assessment of health system strengthening and outcomes

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Background: In Kenya, neonatal mortality contributes to 51% of total under-five deaths. Preventable causes such as prematurity, birth asphyxia, and neonatal sepsis significantly contribute to these deaths. Disparities in healthcare access in Kenya underscores the need for equitable access.
Objective: This study aims to provide evidence-based recommendations for policymakers and healthcare providers in reducing mortality for small and sick newborns.
Methods: This study conducted comprehensive evaluation of neonatal care in public healthcare facilities in Kenya using mixed-methods approach. From July to September 2023, 75 hospitals within three categories, comprising of 12 Teaching Referral Hospitals, 44 County Referral Hospitals, and 19 Sub-County Hospitals, were assessed. The assessment involved collection of service delivery data in newborn units, maternity wards, and pharmacies using an electronic tool.
Results: The assessment revealed significant disparities in the availability of essential infrastructure, tools, and practices across hospital categories. Teaching and Referral Hospitals (TRHs) had the highest availability of critical infrastructure, while County Referral Hospitals (CRHs) and Sub-County Hospitals (SCHs) had notably low availability. NICU was available in 1.3% of health facilities, all of which were TRHs. Routine clinical mentorship was in 67% of TRHs, 53% of CRHs, and 32% of SCHs. Key commodities such as caffeine citrate and surfactant had lowest availability at 23% and <1% respectively. Nasal CPAP was available in 54% of Hospitals assessed.
Conclusion: The assessment uncovers disparities across hospitals, while highlighting sub-optimal coverage of critical infrastructure in all. Targeted interventions are needed to improve equitable access to services for small and sick newborns.

A11
Prevalence of early initiation of breastfeeding among mothers of babies admitted to postnatal units of public health facilities, in Addis Ababa, Ethiopia, and factors influencing.

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Introduction: Early initiation of breastfeeding (EIBF) is important for child survival. This study was aimed to determine the prevalence of EIBF and assess associated predictors among mothers admitted to postnatal wards.
Methods: Cross-sectional study with internal comparison was conducted involving 732 mothers admitted to the postnatal wards at Zewditu and Ghandi Memorial hospitals. Relevant variables were collected. Data was obtained through interviews of mothers using, standard & pretested questionnaire and from infants' medical records. The study was conducted 1stJanuary through 29th February, 2024.
Results: The breastfeeding within 1 hour after birth was 85% (95% CI: 83, 87; p.v< 0.05). The odds of being age 26 through 35 years in those who initiated early breastfeeding were higher (AOR = 1.84[CI: 1.09, 3.12]), similarly, having one or more previous babies (AOR = 4.01 [CI: 2.29, 7.01]), the presence of partner's support (AOR = 5.14[CI: 2.90, 9.11), and putting babies on mother's breast by the health care provider (AOR = 10.09[CI: 4.36, 23.38]) were associated with EIBF.
Conclusion: Large proportion of mothers initiated early breastfeeding. The odds of initiating early were higher in mothers who were older in age, multiparous, and those who received support from partners and healthcare providers. Counseling for young and nulliparous mothers support from partner and health care providers should be encouraged.

Key words: Breastfeeding, early initiation, postnatal, ward

A12
Evaluating the progress towards the Sustainable Development Goal for neonatal mortality in Africa

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Introduction: Sustainable Development Goal 3.2 aims to reduce neonatal mortality rate to less than 12 deaths per 1,000 live births by 2030. Africa has wide disparities between and within countries with regards to neonatal mortality. The present study seeks to assess the progress of 54 African countries towards this objective and compare the regional trends using recent data.
Methodology: The United Nations Inter-agency Group for Child Mortality Estimation (UN IGME) 2024 report and the GBD Compare tool was used as the source of data for Neonatal mortality rates (NMR). Countries with

NMR ≤12 per 1,000 live births or with a reduction rate suggesting meeting the target by 2030 were classified as "on-track". Regional comparison between sub-Saharan Africa and North Africa was carried to gauge countries that need accelerated effort.
Results: Only four countries in Africa have achieved an NMR of less than or equal to 12: Mauritius (10, 5-19), Tunisia (10, 6-15), Egypt (12, 8-18), and South Africa (11, 2022 data). Sub-Saharan Africa registered an average NMR of 26 (24-32), with some countries having very high rates such as Benin at 46 and Angola at 38, whilst North Africa exhibited better progress. Sub-Saharan Africa accounts for two-thirds of the 65 countries worldwide that are off-track.
Conclusion: Only four African countries have met the SDG neonatal mortality target. The situation is worse in Sub-Saharan Africa. Interventions are needed urgently to enhance access to health care and to improve maternal care, and data quality to accelerate progress across the

A13

A Survey evaluating the current status of data collection systems in African Neonatal Units: Implementation challenges, sustainability issues, and potential solutions

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Data collection systems and databases facilitate quality improvement (QI) initiatives which can improve neonatal care quality and mortality outcomes. Seventeen of the twenty countries with the highest neonatal mortality are in Africa, yet most African countries lack standardized neonatal databases. A survey was developed to assess the state of neonatal databases, QI and research initiatives, and obstacles and potential solutions to data collection amongst facilities associated with the African Neonatal Association (ANA).
A RED Cap survey was co-designed by ANA research members and Children's Hospital Neonatal Consortium (CHNC) members. The survey was administered by email and messaging applications to ANA members. The responses were analyzed using descriptive statistics in Microsoft Excel.
Forty surveys were fully completed, representing 26 of the 37 (70%) ANA-represented countries. Most surveys were completed in French (53%), followed by English (40%) and Portuguese (7%). Twenty-four respondents (60%) described having a neonatal specific database with half using a mixed electronic and paper format (50%). The most common database useswere monitoring outcomes and metrics (96%), data collection (92%), and QI initiatives (79%). The most common obstacles to data collection were lack of staff (75%), funding (70%), and collection materials, i.e. forms, electronics, and applications (63%). All 40 respondents (100%) reported interest in gaining QI skills and 38 respondents (95%) were interested in gaining data collections skills.
Next steps include developing an educational workshop for conducting QI initiatives in low- and middle-income countries and partnering CHNC members with select ANA facilities to mentor and support QI initiatives.(248 words)

Key words: Data collection, database, quality improvement

A14

Usefulness of neonatal pulse oximetry in early detection of cyanotic congenital heart disease at the Moi Teaching and Referral Hospital, Eldoret, Kenya

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Introduction: Congenital heart disease is the commonest birth defect globally and the main cause of death among children with congenital malformations. Most cyanotic congenital heart diseases are critical. Early detection and intervention is important. Neonatal pulse oximetry can be a good screening tool for Cyanotic Congenital Heart Disease (CCHD). The study aimed to determine the sensitivity, specificity and predictive values of neonatal pulse oximetry as a screening tool for CCHD.
Methodology: A cross sectional study was done at the Moi Teaching and Referral Hospital, Kenya. Five hundred and fifty six newborns were enrolled from July 2023 to November 2023. Pre ductal and post ductal oxygen saturations were taken in the first 6-36 hours of life followed by an echocardiographic imaging study. Newborns with oxygen saturations of less than 90% or 90-94% on two occasions one hour apart and those with pre ductal and post ductal difference of more than 3% were considered to have a positive screen. Sensitivity, Specificity and Predictive values were calculated using the two by two contingency table. Research ethics were adhered to.
Results: Out of 556 newborns screened, one newborn had a true positive screen (0.18% true positive rate).All newborns who screened negative did not have cyanotic congenital heart disease. The sensitivity, specificity, negative and positive predictive values were 100%, 99.5%, 100% and 25% respectively.
Conclusion: Neonatal pulse oximetry has a high sensitivity, specificity and negative Predictive value in early detection of cyanotic congenital heart disease.

Key words: Cyanotic congenital heart disease, neonatal pulse oximetry, sensitivity, predictive values

A15
Nucleated red blood cell level predicts in-hospital death among preterm infants born and admitted into neonatal intensive care unit of Lagos State University Teaching Hospital, Ikeja, Lagos, Nigeria

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Introduction: Preterm birth (live birth before 37 weeks) remains a global concern, especially in sub-Saharan Africa countries (including Nigeria) which, along with Asia, accounts for over 80% of global morbidity/ mortality. Improving outcomes among preterm infants (PIs) requires identifying predictors/prognosticators of death, to inform early targeted interventions/escalated care. Notably, nucleated red-blood-cell counts (nRBC), a marker of chronic intrauterine hypoxia, has been suggested as having such utility but little studied.
Methods: Retrospective analysis of clinical and laboratory data from a database of PIs admitted into our inborn Neonatal Unit from January-December 2023 (excluding out born infants). Data were originally obtained from medical folders of admitted PIs by trained research assistants and inputted into the database. Predictors of death were explored with bivariate and multivariable analyses. ROC was used to determine utility of nRBC.
Results: Total of 267 PIs, (73.3% of total preterm admissions in 2023), with mean (SD) gestational age (GA) 32.0 weeks (range=22.9-36.9), birth weight 1670.6g (380-3700g),comprising50.6% females (135/252). Overall mortality was21.6% (52/241) [extreme-preterm: 72.4% (21/29); very-preterm: 25% (18/72); moderate-preterm: 20.5% (9/44); and late-preterm: 3.3% (3/92)]. Mortality factors were *lower GA/birth weight, Apgar-scores, admission-temperature; higher white cells, parity, nRBC; respiratory morbidity, female-sex, spontaneous-conception, unbooked-status, vaginal-birth and intermittent-positive-pressure-ventilation*. However, only *GA*(unstand. beta= -0.44, P<0.001) and *nRBC* (unstand.beta= -0.11, P=0.013)) independently predicted death. ROC shows that absolute nRBC>1.0cells/uL had AUC of 77.9% [(95% CI: 65.2, 90.5); Sensitivity65.9%; Specificity=88.2%]in predicting mortality.
Discussion: NRBC has potential as a low-cost prognostic parameter for predicting death among high-risk PIs. Utility needs validation in larger/wider cohorts of PIs.

Keywords: nucleated red blood cells, predictors, preterm, mortality, Africa

A16
Adverse events in a neonatal intensive care unit in South Africa

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Introduction: Adverse events (AEs) occur commonly in hospitalized neonates with type and severity varying widely across countries and institutions.
Methods: An A Etick sheet was developed to support anonymous reporting by staff at a tertiary South African neonatal intensive care unit (NICU). Five AE types were included: intubation-related AEs, extubation-related AEs, hypoglycaemia, skin and soft tissue injuries (SSTIs) and healthcare associated infections (HAIs). Patient folders and AE tick sheets were reviewed between 1 February – 31 August 2024 to determine AE prevalence, distribution, risk factors and clinical impact.
Results: Of 226 NICU admissions, 108 (48%) neonates developed AEs: median birth weight 2005g; gestational age 33.5weeks. SSTIs (74 AEs in 47 neonates) were the most frequent AE type and largely considered preventable (93%). The most severe AE type was HAI with 58 episodes in 44 neonates: 11/58 (19%) contributed to theneonate's demise. Neonates born weighing <1500g had more AEs compared to those weighing >1500g ($p = 0.007$), as did those admitted for surgical indications ($p = 0.028$), those arriving intubated ($p = 0.073$) or those receiving mechanical ventilation at any time ($p < 0.0001$). Length of NICU stay was longer in neonates who suffered AEs ($p < 0.001$), with higher death rates ($p = 0.057$).
Conclusion: AEs, of which many were preventable, were identified in a high proportion of neonates and led to prolonged hospitalization. Implementation of targeted quality improvement initiatives is essential to reduce AE rates and improve neonatal safety.

Key words:
Adverse events
Neonatal intensive care unit
Quality improvement
Skin and soft tissue injury
Healthcare associated infection

A17

Successful management of parasitic conjoined twins at Beira Central Hospital, Mozambique: Case report

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Introduction: Parasitic conjoined twins is a rare condition in which a portion of the parasitic (undeveloped) fetus is attached to the body of a normal fetus. The union is ventral-caudal and extends from the umbilicus to the pelvic region, and some viscera may be shared.
Case report: Newborn, female, 3 days old, 4th child of young non-consanguineous parents. The pregnancy was poorly monitored. Mother tested negative for both HIV and RPR. No clear history of exposure to teratogens or hereditary diseases. Intra-hospital delivery, normal Apgar score, and weight 4000g.Clinically stable and active, with four lower limbs (two lateral normal, warm, active, and two medial, cold, hypotonic, weak pulses, inert, rudimentary limbs. Genitalia and anal orifice lateralized, between the right distal and medial limbs. Lower limbs radiograph showed four femoral bones, articulated with the iliac bone. The barium enema and voiding urethrocystographic image showed single colon, and bladder. The surgery consisted of the introduction of a Folly catheter and anorectal tube, transverse incision between the lateral and medial limbs, disarticulation of the medial limbs, lacquer of the collateral branches of the right and left femoral arteries, and skin suture. Complications were wound descent, sepsis, anemia, and skin infection. Surgical cleaning of the wound was performed. Antibiotics, opioids, sedatives, antipyretics, and blood transfusion were given. She was discharged from the hospital, good health conditions.

Key words: Conjoined twins, polymelia, is chiopagus, congenital malformation, Mozambique.

A18

Establish a multicountry Neonatal Registry in Low Income African Countries: Insights from Wolisso Hospital, Ethiopia and Beira Central Hospital Mozambique

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Neonatal mortality remains a critical global health challenge. The first month of life is the most vulnerable period, highlighting the need for monitoring systems to evaluate health outcomes and inform policy. As part of Critical Care Asia and Africa (CCAA), neonatal data were collected to build a real-time, multicentre Neonatal Units (NUs) registry in two African Countries (Ethiopia, Mozambique).
Objectives: This study aims to describe the baseline characteristics of a multi-center newborn population in two Low-Income Countries (LICs).
Methods: We conducted a registry-based descriptive study from August 2023 to December 2024 in two NUs of Wolisso Hospital (Ethiopia) and Beira Central Hospital (Mozambique) supported by Doctors with Africa CUAMM. Demographic, clinical and outcome data were collected and analysed.
Results: A total of 2,654 newborns were enrolled (904 in Wolisso; 1,750 in Beira). Low birth weight (<2500 g) was observed in 29.3% (n=265) and 38.2% (n=669) of neonates in Wolisso and Beira, respectively. Cesarean section rates differed between sites (20.3% in Wolisso vs. 30.4% in Beira). Positive pressure ventilation at birth was required for 3.1% (n=28) of newborns in Wolisso compared to 9.9% (n=173) in Beira. The leading admission diagnoses included respiratory distress, prematurity, birth asphyxia, and infections. The reliability of the mortality rate was low in both centers.
Conclusions: This study demonstrates the feasibility and value of clinical quality registries in LICs, providing low-cost, real-time patient-level data. Data quality needs further investigation.

Keywords: neonatal registry; neonatal data/indicators; low-income countries.

A19

Unifying midwives in Africa for maternal and newborn health impacts

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Introduction: The Centre for Health Development and Research (CEHDAR), a registered non-governmental organization dedicated to contributing to sustainable health systems, projects, and programs, locally and internationally focusing on midwives and midwifery, women's health improvements, health systems strengthening, policy and advocacy towards quality and equitable health services.
At the 2023 Midwifery Symposium during the International Maternal Newborn Health Conference in Cape Town, concerns were raised regarding the lack of a unified voice for African midwives. This spurred a group of Africa-rooted yet globally engaged midwives to conceptualize an initiative aimed at unifying midwifery efforts across the continent. This initiative also supports the attainment of Africa's broader health and workforce development goals.
Methodology: With a one-time grant, CEHDAR organ

ized the "Unifying Midwifery in Africa" Summit. An 11-member Steering Committee, including representatives from UNFPA, BMGF, and prominent midwifery leaders from Africa and the diaspora, was established to provide strategic guidance. *Results:* The Summit convened over 100 participants from over 29 African countries, the USA, and the Caribbean. Midwives and allied health professionals deliberated on the strategic importance of a unified midwifery voice, recognizing the midwife's central role in improving the lives of women and newborns. *Conclusion:* Establishing a regional midwifery entity is a necessary step to amplify their impact to maternal-newborn health. The Roadmap and communique developed during the Summit outline key strategies toward this goal.

Keywords: CEHDAR, midwifery, Africa, maternal health, newborn care

A20

Prevalence of birth asphyxia and associated factors in selected district hospitals in Kigali, Rwanda

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Background: Birth asphyxia is a leading cause of early neonatal mortality worldwide and remains a major contributor to neonatal deaths in Rwanda. Identifying local risk factors is essential to target prevention and improve newborn outcomes.
Methods: We conducted a retrospective descriptive cross-sectional study of 870 NICU admissions from January to data collection across three Kigali district hospitals (Kibagabaga n=290; Masaka n=284; Muhima n=296). Data were extracted using a validated tool and analyzed in STATA v14.2. Ethical clearance was obtained.
Results: Overall prevalence of birth asphyxia in the study hospitals was 46.6%, with facility variation: Masaka 67.1%, Muhima 44.9%, and Kibagabaga 28.1%. Multivariable analysis identified several factors independently associated with birth asphyxia: female sex (AOR 1.25, p=0.004), transferred cases (AOR 4.21, p=0.002), meconium aspiration (AOR 1.28, p=0.004), congenital birth defects (AOR 32.02, p<0.0001), and fetal distress (AOR 1.94, p=0.001). These factors included both potentially modifiable (e.g., timely referral/ management of fetal distress, meconium management) and non-modifiable determinants (e.g., congenital anomalies).
Conclusion: The high prevalence and identified risk profile highlight the need for strengthened intrapartum monitoring, expedited referrals, and targeted clinical protocols to reduce preventable neonatal asphyxia and its sequelae in Kigali. Further prospective research is recommended to evaluate targeted interventions.

Keywords: Birth asphyxia; risk factors; neonatal mortality; Rwanda

A21

Comparative mortality and neurological outcomes in term neonates with severe perinatal asphyxia treated with combined erythropoietin and magnesium sulphate versus magnesium sulphate alone

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Background: Perinatal asphyxia (PA) remains a major cause of neonatal mortality in low- and middle-income countries (LMICs), where therapeutic hypothermia is often unavailable. Neuroprotective agents such as erythropoietin (EPO) and magnesium sulphate ($MgSO_4$) have been investigated as alternative treatments. *Objective:* To compare in-hospital mortality among severely asphyxiated term neonates treated with a combination of EPO and $MgSO_4$ versus $MgSO_4$ alone. *Methods:* A prospective, randomized study was conducted at Federal Medical Centre, (FMC) Asaba, Nigeria. One hundred neonates with stage II or III hypoxic-ischaemic encephalopathy (HIE) were randomized into two equal groups: combination therapy (EPO+$MgSO_4$) and monotherapy ($MgSO_4$ only). The primary outcome was mortality within 28 days of life. *Results:* The combination group exhibited significantly lower mortality (4%) compared to the $MgSO_4$-only group (18%) ($\chi^2 = 5.005$, $p = 0.025$). Logistic regression identified low birth weight, low APGAR score, and out-of-hospital delivery as independent predictors of mortality. *Conclusion:* Combined therapy with EPO and $MgSO_4$ significantly reduces mortality in severely asphyxiated neonates compared to $MgSO_4$ alone. This low-cost intervention may offer a viable alternative in settings lacking advanced neonatal intensive care.

Key Words: Perinatal Asphyxia ;combined Postnatal Magnesium sulfate Erythropoietin versus Magnesium Sufate alone

A22

Introduction of a Novel Bubble Continuous Positive Airway Pressure Device into labor and delivery and the operating theatre at a regional referral facility in Western Kenya

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Introduction: WHO strongly recommended initiation of Continuous Positive Airway Pressure (CPAP) for neo

neonates with signs of respiratory distress syndrome (RDS) in November of 2022. Additional WHO recommendations included prophylactic application of CPAP in very preterm neonates and preferential use of bubble CPAP (bCPAP). In this study we evaluated the impact of initiating early bCPAP in Labor and Delivery or in the Operating Theatre for neonates with any signs of RDS and prophylactically for all neonates less than 32 weeks gestational age at the Jaramogi Oginga Odinga Teaching and Referral Hospital (JOOTRH).
Methodology: A mixed methods study included the retrospective collection of data on demographics and clinical characteristics of all neonates treated with the novel bCPAP device in JOOTRH from January to April, 2025. The study also included the deployment of a survey to evaluate uptake, perceptions, facilitators, and barriers.
Results: From January through April 2025, the novel bCPAP device was used to treat 85 neonates, 56 of whom were initiated in either Labor and Delivery or in the Theatre. The mean and median birthweights of the 56 were 1563 and 1500 respectively (range: 880-2910). Of the neonates for whom bCPAP was initiated in Labor and Delivery or the Theatre, 91.3% were successfully weaned off bCPAP. A survey is in the process of being disseminated and the results will be presented.
Conclusion: The novel bCPAP device was able to be integrated into the Theatre and Labor and Delivery of this regional referral facility. The survey conclusion will be reported. Further study is needed to better identify optimal opportunities to bring bCPAP to every newborn in respiratory distress worldwide.

Keywords; bubble CPAP, Respiratory Distress Syndrome, Neonatal Survival

A23
Effectiveness of a venturi-style low-flow oxygen blender in preventing hyperoxia

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Introduction: Excessive amounts of supplemental oxygen are a preventable cause of hyperoxia-induced morbidity among neonates. Blenders are used in many high-resource settings to reduce the delivered concentration of supplemental oxygen and maintain the newborn's oxygen saturation below 95%. However, blenders are often not available in low—and middle-income countries. A novel venturi-style low-flow blender was developed to address this challenge.
Methodology: We conducted a randomized controlled trial at the NICU of Greater Accra Regional Hospital in Accra, Ghana. The intervention group received low-flow oxygen via the Vayu Oxygen Blender System, and the control group received low-flow oxygen at 100%, as is the standard of care in Ghana. The SpO2 of patients in both groups was continuously recorded with Masimo Rad-G pulse oximeters over 72 hours or until the end of low-flow therapy, whichever occurred first.
Results: A total of 202 newborns were randomly assigned, with 101 in each group. There were no significant differences in clinical and demographic characteristics. The time spent in hyperoxic saturation ranges decreased from 74.2% to 55.7%, corresponding to a 24.9% relative reduction ($p<.0001$). The time spent in normoxic saturation ranges increased from 22.2% to 37.7%, corresponding to a 41.1% relative change ($p <.0001$).
Conclusion: Use of the novel venturi-style low-flow blender decreased the time spent in hyperoxic saturation ranges and increased the time spent in the normoxic saturation range.

Keywords: oxygen treatment, newborn, oxygen blending, low-flow oxygen, RCT

A24
Initial respiratory support outcomes and associated factors among preterm neonates with respiratory distress syndrome admitted at a tertiary hospital, Kenya

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Introduction: Respiratory distress syndrome (RDS) is the most important cause of morbidity and mortality in preterm neonates. Early management of RDS is crucial in determining short- and long-term outcomes and studies have established initial respiratory support (IRS) among other factors as an important determinant. Despite preexisting guidelines and advancements in its management, IRS failure is common and is associated with unfavorable outcomes.
Methodology: Using prospective observational hospital based study, preterm neonates ≤ 35weeks at the newborn unit with clinical RDS were followed up. Primary outcome was IRS success or failure characterized by not stepping up or stepping up the respiratory support respectively within 72 hours of life and the associated maternal and neonatal factors. Descriptive statistics described using mean ± (SD) for continuous variables and frequencies and percentages for categorical variables. Simple and multinomial regression analysis was performed to evaluate relationship between different IRS methods with outcome variables. P-value of < 0.05 was considered significant.
Results: We enrolled 320 neonates, 172(53.8%) were male with a mean (SD) gestation age of 30.9 (2.95) weeks. Mothers mean age was 27 years, ranging (15-43). 70(22.4%) 95%CI:17.95,27.47] had IRS failure and

243(77.6%) had IRS success. On multivariate analysis IRS success was associated with primiparity (AOR=2.81;95%CI: 1.42, 7.99), birthweight > 1300g (AOR= 5.04;95%CI 1.81, 14.6), low modified Downes score (AOR=26.3;95%CI 3.37, 230) and normal admission temperatures (AOR=0.32;95%CI 0.12, 0.72) (p= <0.001).
Conclusion: Noninvasive ventilation had a high initial respiratory support success. Primiparity, birthweight >1300g, normal admission temperatures and low Downes score were associated with IRS success.

Keywords: Respiratory distress syndrome (RDS), Initial respiratory support (IRS), IRS failure/success

A25
Effect of training and real-time feedback on ventilation skills acquisition and retention conflict setting in South Sudan

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Introduction: Effective ventilation (EV) is live saving intervention for asphyxiated newborns at birth. Health providers quickly lose ventilation skills post training. We evaluated the effect of ventilation practice using Augmented Infant Resuscitator (AIR) on ventilations skills retention in South Sudan. The AIR measures quality of ventilation and provides real-time feedback.
Methods: We measured total EV duration and time to achieve first EV in timed 120 seconds ventilation sessions before, immediately post, and six months after Essential Newborn Care training. We used Structured Clinical Examination scenario to compare EV duration and time to first EV before, immediate post, and at six months for skills retention.
Results: A total of 33(91.7%) providers completed pre and post training assessments, 23(69.7%) were assessed at six months. The median total EV duration increased from 2-seconds before to 35 seconds post training ($z = 6.94$, $p < 0.001$). The median time to first EV decreased from 46 seconds pre training to 2 seconds post training ($z = 6.06$, $p < 0.001$). At six months, the median total EV duration improved to 95 seconds compared to 35 seconds immediately post training ($z = 6.26$, $p < 0.001$). The median time to first EV improved from 2 seconds post training to 0.00 seconds at 6 months ($z = 2.01$, $p < 0.045$).
Conclusion: Ventilation practice using AIR resulted into post training ventilation skills growth in a conflict setting.
Recommendation: We recommend the use of the AIR in all health setting for ventilation practice in South Sudan.

Key wards: newborn, AIR, Ventilation, South Sudan

A26
Enhancing access to caffeine citrate for the management of Apnoea of prematurity: Insights from practitioner knowledge, Hospital resources, and strategic interventions

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Background: Most neonatal deaths in Kenya are due to prematurity, which contributes to 37% of neonatal mortality. Preterm infants are vulnerable and are at risk of apnoea of prematurity (AOP). Managing AOP is therefore a priority for the country.
Objective: A nationwide facility assessment was conducted with the goal of improving AOP management to enhancing preterm care and reducing mortality rates in Kenya.
Methods: A comprehensive evaluation of neonatal care in Kenyan healthcare facilities was conducted using mixed-methods approach. From July to September 2023, 75 hospitals across Kenya were assessed, including Teaching and Referral Hospitals, County Referral Hospitals, and Sub-County Hospitals. Interviews were conducted with 217 healthcare providers in neonatal care.
Results: Among those interviewed, 100% of neonatologists, 98% of neonatal nurses, 62% of Paeditricians, and 37% of general nurses were aware of prophylactic use of caffeine citrate for children below 34 weeks gestational age. Majority of the hospitals (68%) procured aminophylline, while only 19% procured caffeine citrate for the management of AOP. Reasons for not using caffeine citrate included stock-outs (44%), lack of procurement due to prohibitive cost (35%), and lack of awareness (10%). To address these gaps, the Ministry developed National Guidelines on management of AOP, was supported by Clinton Health Access Initiative to secure 75% reduction in price for caffeine citrate and led the development of a comprehensive newborn training package.
Conclusion: Addressing the multifaceted challenges in apnoea of prematurity management requires collective effort to ensure access to affordable treatment, clinical guidelines, and trained health providers.

A27
Automated oxygen control for preterm infants receiving continuous positive airway pressure (CPAP) in southwest Nigeria: an open-label randomised crossover trial

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Introduction: Titra on of oxygen therapy to target safe

oxygen saturation (SpO2) values is a vital part of care for preterm infants, but is difficult to achieve, particularly in seeings in which oxygen, monitoring technology, and human resources are scarce. We aimed to evaluate the safety and efficacy of automated tra on of oxygen therapy partnered with a low-cost CPAP device.
Methodology: We conducted an open-label, randomised sequence, crossover trial within two centres in SW Nigeria, enrolling preterm infants 12 h who required CPAP and oxygen due to respiratory insufficiency. Infants received automated or manual oxygen control for two 24-h periods in random sequence. Automated oxygen titration used a control algorithm of proven efficacy, robotically adjusting air and oxygen flows to optimise oxygenation. The primary outcome was time spent in the SpO2 target range (SpO2 91–95% or 91–100% when in air).
Result: 49 infants (median gestation 29 weeks [IQR 28–31]) were enrolled; data from 80 study periods in 46 infants contributed to the analysis of the primary outcome. Time spent in the SpO2 target range was considerably higher during automated control periods than during periods of manual control (adjusted mean 88.1% [95% CI 84.0–92.2] vs 30.1% [20.9–39.3]; adjusted mean difference 58.0% [95% CI 48.0–67.9]; p<00.0001). There were no device related adverse patient outcome and short term safety outcome favoured automated control
Conclusion: Automated titration of oxygen patterned with a low cost CPAP device improved time spent in the safe SpO_2 range compared with manual control

A28
Oxygen saturation targeting strategies for preterm infants born in low resource settings: A mixed methods review

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Background: Globally, 15 million infants are born prematurely each year. Most of these preterm births occur in the low- and middle- income countries (LMICs) of sub-Saharan Africa and Asia. Oxygen is the most used treatment in preterm infants. Targeting of the therapeutic window for oxygen is guided by oxygen saturation monitoring. The process of targeting oxygen saturations in preterm infants is difficult and requires considerable resources. This review aims to overview the current research on saturation targeting strategies amongst preterm neonates in low-resource settings.
Methods: A convergent segregated mixed methods approach was used. A systematic literature search was conducted. Articles were included if reported on any strategy for targeting oxygen saturation in preterm infants. Studies were limited to those with full publications available in English and conducted in LMICs (Defined using World Bank data). Quantitative and qualitative articles were included. Separate data extraction and analysis were undertaken, with the results integrated.
Results: 3964 studies were screened for eligibility. 6 quantitative and 2 qualitative studies were included – 3 from Africa, 3 from South America and 2 from India. Both manual and automated control strategies were reported. Automated control was more effective in keeping saturations within the target range. Included studies reported on quality improvement interventions with mixed results on effectiveness.
Conclusion: Manual control strategies are more commonly used, but automated control devices may offer better outcomes. Promoting access to equipment and education can improve existing manual control strategies. Future research should explore the use of automated control devices in low-resource settings.

Keywords: Neonatal, Prematurity, Oxygen Saturation Targeting

A29
Countrywide assessment of the utilization of caffeine citrate for management of apnea of prematurity in Nigeria

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Background: Every year, over seven million births occur in Nigeria. Preterm birth rate is 12% and preterm deaths account for 31% of all newborn deaths in the country. Apnea – the cessation of breathing for 20 seconds or more is a major complication in preterm babies.
Caffeine citrate (CC) is a proven, safe and effective medication for management of Apnea of Prematurity (AOP) but is largely unavailable in low- and middle-income countries, limiting its use.
Objectives: This study aimed to assess the utilization rates of CC for AOP management across facilities that offer levels II and III newborn care in Nigeria.
Methods: A survey was conducted using an electronic open-source data collection tool to deploy a questionnaire across219 facilities offering Level II and III newborn care in Nigeria. Descriptive statistics were used to summarize the data and generate insights.
Findings: 138 facilities responded to the survey indicating 63.0% response rate. 44.2% of the facilities reported

the availability of the national guidelines for comprehensive newborn care which recommends the use of CC for management of AOP. 49.3% facilities still use aminophylline for management of AOP and only 50.7% of facilities use CC for management of AOP.
Conclusion: Utilization of CC for AOP management in Nigeria is suboptimal despite clinical evidence and recommendations. Ministries of Health at national and subnational levels need to implement sustainable interventions to increase awareness, reduce costs, address regulatory bottle necks, optimize procurement and last mile delivery.

A30
Uncovering insights and empowering caregivers in the fight against neonatal sepsis: Community insights from Zimbabwe

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Background: Caregivers are key partners in early recognition and response to neonatal sepsis. Yet, knowledge gaps, cultural perceptions, and systemic barriers often delay care-seeking and compromise outcomes, particularly in rural and peri-urban communities in Zimbabwe.
Aims: To explore caregiver knowledge, beliefs, and experiences in neonatal infections, identifying opportunities to strengthen family-centred care practices and shared decision making in Zimbabwe.
Methods: Focus group discussions and semi-structured interviews were held with parents and caregivers at four health facilities (Chinhoyi Provincial Hospital, Sally Mugabe Central Hospital, Mtala Rural Clinic, and Murereka Peri-Urban Clinic). Thematic analysis identified key narratives on understanding of sepsis, home care practices, and interactions with healthcare providers.
Results: Caregivers had limited knowledge of neonatal sepsis, often associating symptoms with alternative factors like bewitchment or bad spirits. Key barriers impeding prompt care-seeking included fear of judgment by healthcare staff, reliance on traditional remedies, and logistical challenges such as transport. Stigma around infection and power dynamics in clinics emerged as deterrents to early reporting of symptoms. Cord care practices varied, with access to hygienic supplies lacking and inadequate health education. Caregivers expressed a strong desire for more health education, involvement in decision making, and digital content, requesting respectful, participatory communication from health workers.
Conclusion: Family members are willing and capable partners in neonatal care when supported with culturally sensitive, accessible, and respectful health education. To accelerate improvements in neonatal outcomes, health systems must address systemic barriers, promote trust-building with families, and develop community-informed strategies that place caregivers at the heart of early detection and intervention for neonatal sepsis.

A31
Cytomegalovirus infection in preterm and HIV-exposed infants: a prospective south African cohort study

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Background: Congenital and postnatal cytomegalovirus (cCMV, pCMV) infection cause significant morbidity in preterm low birthweight infants, although not all CMV-infected infants develop disease. Understanding the impact of CMV acquisition and immune response to CMV may guide treatment.
Methods: VLBW infants <14 days old were recruited from a South African tertiary neonatal unit. Samples collected included blood and saliva at enrolment, then weekly saliva and clinical data. Saliva CMV DNA detection and PCR quantification were performed. interferon gamma (IFNγ) by T-cell release was measured using CMV ELISPOT assay after stimulation with CMV peptides.
Results: 155 infants of gestational age 28 weeks [IQR 28.0-30.0] and birthweight 1073g [950-1276] were enrolled; 31 (20%) were HIV-exposed uninfected (HEU). Of thirteen (8.4%) infants with cCMV, five (38%) were HEU, two (15%) had neurological abnormalities and none had hearing loss. Forty-eight (31%) acquired pCMV at age 4.0 weeks [IQR 3.0–5.0]; 8 (16.7%) had persistent positive CMV PCR associated with new symptoms such as requiring increased respiratory support or suspected/confirmed necrotising enterocolitis. None were treated. Peak saliva CMV viral load correlated with longer admission (r2=0.7, p=0.0046). The lowest IFNγ release from T-cells was seen in HEU infants with cCMV.
Conclusions: The prevalence of cCMV and pCMV is higher than previously reported in South Africa. Both CMV and HIV exposure in utero may disrupt CMV-specific T-cell responses, suggesting T-cell exhaustion or immune-tolerance. High peak saliva CMV viral load and persistent positive CMV PCR associated with new symptoms might characterise premature infants who could benefit from ganciclovir treatment.

A32
A quality improvement strategy to reduce antibiotic prescription errors and hangtime in neonatal sepsis

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Introduction: Sepsis is a leading cause of neonatal mortality. Appropriately prescribed and promptly administered antibiotics can improve neonatal outcomes.
Methods: We conducted a before-after study in hospitalised very low birth weight (VLBW) neonates to improve the quality of antibiotic prescribing, focussing on reducing antibiotic prescription errors and hangtime (time from sepsis diagnosis to first dose of antibiotic) at a large South African hospital. Standardised dosing guidelines were produced, and neonatal unit staff undertook in -service training on the importance of early and accurate antimicrobial administration. We retrospectively compared prescribing errors and hangtime duration for the five most frequently prescribed antibiotics (meropenem, piperacillin-tazobactam, amikacin, vancomycin and colistin) before (July 2018 – December 2019) and after (November 2023–June2024) implementation of the antibiotic prescribing quality intervention.
Results: Of the 586 admitted VLBW neonates 246 (42%) received one or more of the targeted antibiotics. The median birth weight (1060g) and gestational age (28weeks) was comparable to the pre-intervention cohort. We analysed 386 prescriptions from 130 neonates and 956 prescriptions from 246 neonates in the pre and post intervention studies. Dose and dose interval prescription errors were significantly reduced following the intervention (14% to 3.7%, p = 0.0001, and 14% – 4.5%, p = 0.0001 respectively). The median hangtime was reduced from 115 (48 – 210) minutes pre-intervention to 50 (22 – 100) minutes (p < 0.001).
Conclusion: Low-cost interventions including simplification of dosing guidelines and staff education were successful in reducing antibiotic prescription errors and hangtime. Ongoing training to maintain the positive effect is essential.

Key words: Neonatal sepsis, Antibiotic prescription errors, Hangtime

A33
Evaluating early life antibiotic use and subsequent infection-associated adverse events in very low birth weight neonates at two South African neonatal units

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Background: Preterm neonatesfrequently receive empiric antibiotic therapy, but the associatedshort and long-term risks of early life antibiotic exposure remain unclear.
Methods: We conducted a retrospective cross-sectional study of neonates<1500g admitted to two neonatal units in Cape Town, South Africa (January–December 2024). Early antibiotic use (day 1–7) was described, and associations with adverse outcomes were assessed using univariate logistic regression.
Results: Among 1028 infants, 529 (51.5%) were female. Median gestational age was 29 weeks (IQR 28–31) and birth weight 1165g (IQR 960–1330). Early antibiotic exposure was frequent (482, 57.1%), typically 2 days (IQR 2–5), with frequent subsequent antibiotic therapy episodes (196; 43.9%) within 60 days.Antibiotic-exposed neonates were of lower gestation, more often male, and from multiple pregnancies, with no differences in birthweight, HIV exposure, or congenital anomalies.

Table 1*:* Univariate regression analysis of early antibiotic exposures and selected adverse health outcomes*

Adverse health outcomes	Odds ratio	95% CI	p-value
Necrotizing enterocolitis	1.70	1.03 - 2.82	0.04
Periventricular leukomalacia	1.14	0.71 - 1.81	0.60
Retinopathy of prematurity	1.56	0.16 -15.22	0.70
Bronchopulmonary dysplasia	1.42	0.81–2.51	0.22
Mortality	2.33	1.08 - 5.01	0.03
Length of stay	1.01	1.00 - 1.01	<0.01

**Preliminary analysis- results may be attenuated when adjusted for confounding*

Conclusion: Early life antibiotic use is common and linked to necrotizing enterocolitis, mortality, and prolonged hospitalization in unadjusted analyses. These findings highlight the importance of further research to clarify causality and guide antimicrobial stewardship in neonatal care.

A34
Improving sepsis detection using a rapid-SAA diagnostic test in resource-limited settings.

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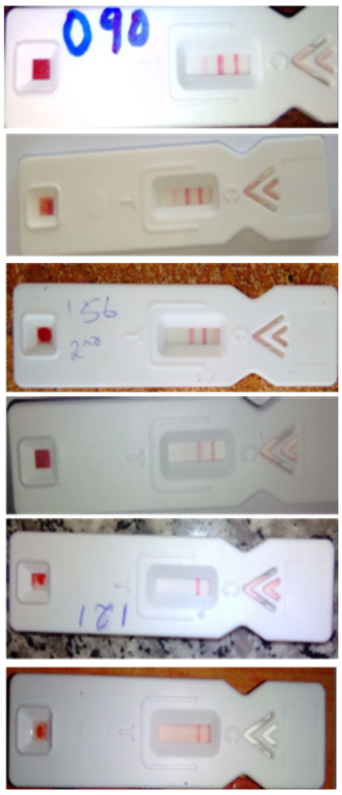
Background: Sepsis is a leading cause of neonatal and maternal mortality particularly in low- and middle- income countries (LMICs) where the diagnostic and surveillance are limited. Serum amyloid A (SAA) is emerg

emerging as a promising biomarker for rapid sepsis detection. While currently measurable through laboratory-based methods, access remains limited in LMICs.
Aim: To evaluate the feasibility and performance of a rapid lateral flow diagnostic test using SAA to detect sepsis in neonates and adults in resource-limited settings.
Methods: We conducted a feasibility study involving 955 neonatal samples alongside a familiarization study with 450 adult samples and 50 neonatal samples, we deployed a competitive, lateral flow test (NeoSep-SAA™; Accuplex Diagnostics Limited, Ireland) to semi-quantitatively detect a biomarker of sepsis SAA in whole blood. Healthy controls and clinically suspected-sepsis adult and neonatal samples from hospital and non-hospital settings (Jinja RRH, Kiwoko hospital, Kawempe NRH, Mulago SWNH and Iganga Hospital). C-Reactive Protein, a widely recognized sepsis-related test was run alongside as a comparator. Results are available within 10 minutes and test format is compatible with small blood volumes available from neonates (5 µl).



Results: The NeoSep-SAA test showed a higher sensitivity compared to the CRP, but less specificity as summarized in table1below.

Table 1: Summary of results of NeoSep-SAA lateral flow test compared to CRP

	Sensitivity %	Specificity %	Positive Predictive Value %	Negative Predictive Value %
NeoSep-SAA	92	73	78	90
CRP test	36	100	100	54

Conclusion: NeoSep-SAA™ offers a promising rapid diagnostic tool for early sepsis detection, with potential to reduce delays in treatment initiation. A larger validation study comparing the test against blood culture is recommended.

Keywords: Neonatal sepsis, Diagnostic test, Serum amyloid A

A35
Profil de la séroprévalence des anticorps dirigés contre la rougeole dans le couple mère-enfant à Libreville en 2024

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Introduction : la survenue de la rougeole en période néonatale est rare mais reste possible dans un contexte endémique chez des enfants nésde mère n'ayant pas développé une immunité naturelle ou vaccinale.L'objectif était d'évaluer la séroprévalence des anticorps dirigés contre la rougeole dans le couple mère-enfant à Libreville.
Patientes et méthodes: étude multicentrique, prospective, transversale, à visée descriptive et analytique menée du 1er octobre 2023 au 31 mars 2024 (6 mois). Ont été inclus le couple mère-nouveau-né présent en salle de naissance dans 5 structures publiques de référence Libreville. Les caractéristiques sociodémographiques, cliniques et le dosage des anticorps anti rougeoleux étaient étudiés chez la mère et son nouveau-né. L'analyse statistique s'est faite par le logiciel SPSS version 26. Le test de Student, de Fisher exact et le test de corrélation de Spearman ont été utilisés.
Résultats :nous avons inclus 92 couples mère-enfants.L'âge moyen des mères était de 27,4± 6,7 ans (extrêmes de 17 ans et 44 ans). Dans 68,5%(n=63), le statut vaccinal était inconnu.Les mères étaient apprenantes (44,6%) et primipares (56,5%).Les Immunoglobuline G (IgG) anti-rougeoleux chez la femme enceinte était observée dans 82.6%.Chez le nouveau-né, les IgG anti-rougeoleux étaient absent dans 24,0% des cas et présent dans 76.0 de cas.Il existe une corrélation entre le taux d'anticorps IgG anti-rougeoleux des nouveau-nés et celui des mères ($r = 0.87$; $p < 0.0001$)
Conclusion : en définitive, l'immunité antirougeoleuse des nouveau-nés est corrélée à celle de leur mère d'où l'intérêt de toujours vérifier la vaccination antirougeoleuse des femmes enceintes.

Mots clés : séroprévalence, anticorps rougeoleux, mère-enfant, vaccin antirougeoleux Gabon.

A36

Profil bactériologique et sensibilité aux antibiotiques des infections bactériennes néonatales précoces dans le service de néonatalogie de l'hôpital gyneco-obstetrique et pediatrique de douala au Cameroun

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Contexte: L'infection néonatale est un problème majeur de santé publique. Selon l'Organisation mondiale de la santé, 2,3 millions de nouveau-nés meurent chaque année, l'infection est la principale cause. Ce problème reste une préoccupation majeure pour les praticiens en raison de l'émergence de la résistance aux antibiotiques.
Objectifs : Le but était d'évaluer le profil bactériologique et la sensibilité aux antibiotiques des infections bactériennes néonatales précoces à l'hôpital gynéco-obstétrique et pédiatrique de Douala (HGOPED).
Méthodes: Il s'agissait d'une étude transversale descriptive sur 18 mois recueillant des informations sur les nouveau-nés âgés de 0 à 3 jours admis du 1er janvier 2020 au 31 janvier 2024. L'analyse des données a été réalisée à l'aide du logiciel SPSS et le test du chi-carré de Pearson a été utilisé pour évaluer le niveau de différence entre les proportions.
Résultats : Sur les 1520 nouveau-nés admis dans l'unité de néonatalogie, 761 ont été suspectés d'avoir une infection néonatale précoce. La prévalence hospitalière d'infection néonatale précoce confirmée était de 23,5 % (179/761). Les bacilles à Gram négatif étaient les isolats les plus fréquents (97,2 %), avec Escherichia coli (22,7 %), Burkholderiacepacia (18,8 %) et Klebsiella pneumoniae (7,7 %). Les fluoroquinolones et les pénèmes étaient les classes d'antibiotiques les plus efficaces de 85 à 100%. La résistance des bactéries au céfotaxime était de 66,7 %. La mortalité était élevée, 5,5 % des décès étant liés à une infection bactérienne néonatale précoce.
*Conclusion:*L'émergence de germes multirésistants suscite des réflexions approfondies sur l'antibiothérapie maternelle et néonatale mais aussi sur l'asepsie en milieu hospitalier.

Mots clés: Profil bactériologique, sensibilité aux antibiotiques, infection néonatale, Cameroun.

A37

Apport du sulfate de magnésium dans la prise en charge de l'asphyxiepérinatale du nouveau-né à terme au Centre Hospitalier Universitaire Mère et Enfant de N'Djamena

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Introduction: l'asphyxie périnatale demeure un véritable problème de santé publique dans les pays en voie de développement.L'objectif de cette étude était d''évaluer l'apport du sulfate de magnésium dans la prise en charge de l'asphyxie périnatale au Centre Hospitalier Universitaire Mère et Enfant de N'Djamena.
Patients et Méthodes: il s'est agi d'une étude cas- témoin ayant comparé deux groupes de nouveau-nés à terme et sans malformation admis dans le service de néonatologie pour une asphyxie périnatale, avant et après l'introduction de l'usage du sulfate de magnésium. Les variables étudiées étaient : l'état neurologique, l'application correcte du protocole de sulfate de magnésium et l'évolution.
Résultats: au total 277 nouveau-nés dont 92 témoins et 185 cas ont été colligés. Parmi les cas,53,4% avaient une encéphalopathie de grade II selon SANART contre 68,1% pour les témoins. L'application du protocole a été respectée dans 55,1%.La durée d'hospitalisation était supérieure à 5 jours dans 66,7% chez les cas contre 44,9% chez les témoins. La létalité était de 26,4 % chez les cas versus 30,6%. Les cas avaient un meilleur taux de survie par rapport aux témoins, avec une différence statistiquement significative (p =0,0349). La différence de la durée d'hospitalisation des 2 groupes n'était pas statistiquement significative (p=0,546).
Conclusion: l'usage du sulfate de magnésium peut améliorer la survie du nouveau-né à court terme.

Mots clés: Asphyxie périnatale, sulfate de magnésium, nouveau-né àterme, N'Djamena

A38

Soins Maternels Kangourou : Etat des lieux de la mise en œuvre dans le service de Pédiatrie du Centre Hospitalier Universitaire (CHU) De Bogodogo

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Introduction : Les soins maternels kangourou (SMK) sont une alternative aux soins néonataux conventionnels chez les nouveau-nés de faible poids de naissance (FPN) pour réduire la mortalité néonatale surtout dans les pays en développement.

Patients et méthodes: Il s'est agi d'une étude descriptive à collecte rétrospective allant de Janvier à Août 2022, portant sur tous les nouveau-nés de poids de naissance inférieur à 2500 g, admis dans le service de pédiatrie du CHU-B.
Résultats : Nous avons colligé 287 nouveau-nés de faible poids de naissance parmi lesquels
121 (51,49%) ont bénéficié des SMK, avec un sex-ratio de 0,78. Le poids de naissance moyen était de 1403,80 g. Le délai de mise sous SMK était inférieur à 7 jours dans 31,4% des cas, avec une durée d'application journalière d'au moins 6 heures dans 68,6% des cas. La durée moyenne d'hospitalisation en SMK était de 09,82 jours. L'anémie (53,71%) et l'ictère (32,23%) étaient les principales pathologies associées. L'évolution a été marquée par un gain pondéral moyen de 25,81g par jour en SMK contre 11,25 g par jour avant SMK. Des abandons de SMK ont été notés dans 4,13% . Le taux de guérison en SMK était de 97,52%.
Conclusion : Les SMK restent une méthode efficace pour la prise en charge des nouveau-nés de FPN d'où l'intérêt de sa vulgarisation dans toutes les structures sanitaires.

Mots-clés : FPN,SMK, CHU-Bogodogo, Ouagadougou, Burkina Faso

A39

Evolution de la croissance staturo-pondérale des nouveau-nés de petits poids de naissance au CHU mère-enfant Fondation Jeanne Ebori (CHUMEFJE) de Libreville de 2019 à 2022

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Introduction: le petit poids de naissance (PPN) est un indicateur clé de la santé du nouveau-né et un problème de santé publique dans le monde. L'objectif était d'étudier l'évolution de la croissance staturo-pondérale des nouveau-nés de PNN au CHUMEFJE de Libreville.
Patients et méthodes: étude de cohorte menéede Janvier 2019-juillet 2022 au CHUMEFJE. Tous les nouveau-nés ayant un poids de naissance (PN) <2500g étaient inclus. Les données anthropométriques (Poids/Age, Taille/Age, IMC/Age, PC/Age) étaient étudiées chez l'enfant.
Résultats: 1260/9035 naissances étaient de PPN (14,0%), 300 parmi eux étaient inclus. Le PN moyen de 1908,6±483,3g, dont 79,3% de faible PN (1500≤ P<2500). L'AG moyen était de 34±12SA (75,3% de prématurités). A 1 mois, une dénutrition aigue modérée était observée (moyenne Z-score : -2,2±0,9, médiane à -2,3, un Q1 à -2,8 et Q3 à -1,8) de même qu'un risque de retard de croissance (moyenne Z-score : -1,96±1,42, médiane de -1,82 ; un Q1 de -3,1 et un Q3 de -1,08) et un retard de croissance du périmètre crânien (moyenne Z-score:-2,7±1,3, médiane de -2,2 ; un Q1 à -3,05 et un Q3 à -1,35). A 12 mois, ils avaient un PC normal (moyenne Z-score : -0,29±0,82 ; médiane à -0,3 ; un Q1 à -0,84 et un Q3 à 0,07) et un risque de surpoids (moyenne Z-score :1,05±1,17 ; pour une médiane à 1,05 ; un Q1 à 0,48 et un Q3 à 1,17).
Conclusion: la croissance des PPN n'est pas optimale dans notre contexte, beaucoup d'efforts restent à faire pour réduire le risque de morbidité.

Mots clés: Hypotrophie, croissance, CHUMEFJE, Libreville-Gabon.

A40

Statut en vitamine D dans le couple mère-enfant à Libreville en 2024

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Objectif : évaluerle statut en vitamine D dans le couple mère-enfant à Libreville en 2024
Patientes et méthodes: étude multicentrique, prospective, transversale et analytique sur une période de 6 mois (1er octobre 2023 au 31 mars 2024). La population d'étude était constituée du couple mère-enfant en salle de naissance dans 5 structures publiques de la capitale Libreville. Les caractéristiques sociodémographiques, cliniques etle dosage de la 25-OHD plasmatiqueétaient étudiéschez la mère et son nouveau-né. L'analyse statistique s'est faite par le logiciel SPSS version 26.Les testsde Khi2 et de corrélation linéaire de Pearson ont été utilisés.
Résultats: 280 couples mère-nouveau-nésétaient inclus. L'âge moyen des mères était de 28,1±6,8 ans. La grossesse était bien suivie (74,3%) avec en moyenne 5,0±2,0 contacts prénataux. Les mères avaient une supplémentation vitaminique dans 27,5%. L'hypovitaminose D était observée dans 57,9% des mères. Parmi elles, 20,8% présentaient une carence. Chez le nouveau-né, l'âge gestationnel moyen était de 38,6±1,7 SA. Le sex-ratio était de 1,2. Le poids moyen était de 3096,3±516,4g. Tousles nouveau-nés ont eu unebonne adaptation à la vie extra utérine. L'hypovitaminose D était retrouvé chez 78,2% des nouveau-nés. Parmi eux, 44,3% avaient une carenceen vitamine D. L'hypovitaminose D du nouveau-né avait un lien significatif avec la trophicité (*p=0,005*). Il y'avait une forte corrélation entre l'hypovitaminose de la mère et celle du nouveau-né (*r=0,784*).
Conclusion: Bien que la supplémentation en vitamine D chez le nouveau-né reste d'actualité, celle de la femme enceinte n'en demeure pas moins.

Mots clés: vitamine D, supplémentation, couple mère-enfant, Gabon.

A41

Survie des prématurés de moins de 1000g au centre hospitalier universitaire de la mère et de l'enfant de Ndjamena

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Introduction: La prématurité est la principale cause de mortalité néonatale à travers le monde. Cette étude au CHU de N'Djamena visait à identifier les facteurs maternels et néonatals influençant la survie des nouveau-nés de moins de 1000g, afin de déterminer les risques de décès dans ce contexte.
Méthodologie: Il s'agissait d'une étude prospective, descriptive et analytique, menée du 1er octobre 2022 au 30 septembre 2023, incluant 161 prématurés de moins de 1000 g hospitalisés en néonatologie. Les données ont été recueillies via dossiers médicaux et questionnaires maternels, puis analysées avec le logiciel SPSS version 23.
Résultats: les prématurés de <1000g représentaient 22,2 % des hospitalisations des nouveau-nés. L'infection néonatale (62,1 %) et la détresse respiratoire (51,6 %) étaient fréquentes. Les décès étaient enregistrés dans 65% des cas. Les prématurés dont les mères avaient fait plus de 3 CPN survivaient plus (OR = 2,28 ; p = 0,029). La grande prématurité (prématurés de 28 SA à 32 SA + 6J par opposition aux extrêmesprématurés de 22 SA à 31SA +6J selon la classification de l'OMS) augmentait les chances de survie (OR = 2,56 ; p = 0,011). Les antécédents de décès néonatal (OR = 2,5 ; p < 0,01) et de prématurité étaient associés à une mortalité néonatale significative (p = 0,029).
Conclusion: La mortalité des prématurés de moins de 1000g reste élevée au CHU-ME de N'Djamena. Le suivi prénatal insuffisant et l'extrême prématurité étaient les principaux facteurs. Des efforts sont nécessaires pour renforcer prévention et prise en charge néonatale.

Mots clés: Grande prématuré, moins de 1000grammes, mortalité.

A42

Evaluating early life antibiotic use and subsequent infection-associated adverse events in very low birth weight neonates at two South African neonatal units

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Background: Preterm neonates frequently receive empiric antibiotic therapy, but the associated short and long -term risks of early life antibiotic exposure remain unclear.
Methods: We conducted a retrospective cross-sectional study of neonates<1500g admitted to two neonatal units in Cape Town, South Africa (January–December 2024). Early antibiotic use (day 1–7) was described, and associations with adverse outcomes were assessed using univariate logistic regression.
Results: Among 1028 infants, 529 (51.5%) were female. Median gestational age was 29 weeks (IQR 28–31) and birth weight 1165g (IQR 960–1330). Early antibiotic exposure was frequent (482, 57.1%), typically 2 days (IQR 2–5), with frequent subsequent antibiotic therapy episodes (196; 43.9%) within 60 days. Antibiotic-exposed neonates were of lower gestation, more often male, and from multiple pregnancies, with no differences in birthweight, HIV exposure, or congenital anomalies.

Table 1*:* Univariate regression analysis of early antibiotic exposures and selected adverse health outcomes*

Adverse health outcomes	Odds ratio	95% CI	p-value
Necrotizing enterocolitis	1.70	1.03 - 2.82	0.04
Periventricular leukomalacia	1.14	0.71 - 1.81	0.60
Retinopathy of prematurity	1.56	0.16 -15.22	0.70
Bronchopulmonary dysplasia	1.42	0.81–2.51	0.22
Mortality	2.33	1.08 - 5.01	0.03
Length of stay	1.01	1.00 - 1.01	<0.01

**Preliminary analysis- results may be attenuated when adjusted for confounding*

Conclusion: Early life antibiotic use is common and linked to necrotizing enterocolitis, mortality, and prolonged hospitalization in unadjusted analyses. These findings highlight the importance of further research to clarify causality and guide antimicrobial stewardship in neonatal care.