

**37th CONFERENCE ON PRIORITIES IN PERINATAL CARE IN SOUTHERN
AFRICA
CHAMPAGNE SPORTS RESORT, 13-16 MARCH 2018**

The 37th Conference on Priorities in Perinatal Care in Southern Africa is convened by the Priorities in Perinatal Care Association and sponsored by Abbvie (Pty) Ltd.

SCIENTIFIC PROGRAMME

TUESDAY 13 March 2018

14h00–17h00 Registration: (Ithaba)
Check-in time: 14h00
Delegates to check-in and get their keys from Reception

16h00-16h30 **Afternoon Tea (Patio)**

| | | |
|--------------------|---|--------------------------------|
| 16h30-18h30 | Session 1: Monitoring, management and morbidity in neonates | Chair: Peter Cooper |
| | (Monks Cowl) | |
| | Keynote: Parenteral nutrition and its complications in neonatal care | Dr Kenny McCormick |

Papers

| | | |
|----|--|---------------|
| Pg | | |
| 1 | Association of fetal heart rate patterns with neonatal EEG | Bill Fifer |
| 2 | Intravenous Paracetamol vs Oral Ibuprofen in the treatment of haemodynamically significant PDA | James Smit |
| 3 | Characteristics and outcomes of neonates with blood stream infection due to <i>Listeria monocytogenes</i> . | Nandi Ntuli |
| 4 | Predictors of neurological sequelae at 1 year of age in infants diagnosed with invasive Group B Streptococcal disease in infancy | Firdose Nakwa |
| 5 | The lived experiences of HIV infected mothers regarding infant-feeding in a selected clinic in Tshwane, Gauteng Province | Joyce Mahunsi |

Posters

| | | |
|---|--|--------------------------|
| 6 | Evaluation of the implementation of Isoniazid prevention therapy among HIV-infected pregnant women in the Eastern Cape, South Africa | Nonkosi Selanto-Chairman |
| 7 | Lessons learnt from incorporating ESMOE into the obstetric units of a private healthcare group | Aliné Hall |

18h30-19h00 Priorities in Perinatal Care Association Executive Committee Meeting (in Monks Cowl)

19h00-20h00 **Dinner (Restaurant)**

| | | |
|--|---|--|
| 11h00-13h10 | Session 3: Delivery, immediate care and feeding of neonates | Chair: Pascalina Mphakoba |
| | (Monks Cowl) | |
| | Keynote: Nutritional requirements and enteral feeding of preterm and term infants | Dr Kenny McCormick |
| Papers | | |
| 17 | Timing of caesarean deliveries in the South African private sector and neonatal outcome | Suzanne Delport |
| 18 | Time from birth to first spontaneous breath and clamping of the umbilical cord in a setting where training in Helping Babies Breathe Program has been implemented | Nomvuyo Xhinti |
| 19 | Developing resilience: a grounded theory analysis of the influence of feeding buddies on mothers within a PMTCT programme in KwaZulu Natal | Penny Reimers |
| 20 | Breastfeeding educational needs of first time mothers during puerperium | Ansie du Plooy |
| 21 | Tube-to-oral transition pathway to guide feeding advancement in moderate to late preterm neonates: A systematic review | Sonja Nel |
| 22 | Investment in human milk banking | T Hadebe |
| Posters | | |
| 24 | Perinatal outcomes among patients with maternal Near Miss from severe hypertensive disorders at Frere and CMH both tertiary hospital in EC South Africa | Sibongile Mandondo |
| 25 | Incidental findings in a prospective perinatal research project | Mandy Potter |
| 26 | Factors influencing the uptake of hormonal contraceptives | Manala Makua |
| 13h10-14h00 | Lunch (Restaurant) | |
| Workshops in parallel sessions (workshop programmes at the end of the Scientific Programme) | | |
| 14h00-16h00 | Workshops 1: WHO-BOLD Workshop: Adapting the South African intrapartum care guidelines to current knowledge | Chairperson: Eckhart Buchmann |
| | (Monks Cowl) | |
| 14h00-16h00 | Workshops 2: Helping Babies Breathe | Chairperson: Sithembiso Velaphi |
| | (Summit) | |
| 16h00-16h30 | Afternoon tea (Patio) | |
| 16h30-18h30 | Workshops 3: Hypertensive Disorders in Pregnancy | Chairperson: Jack Moodley |
| | (Monks Cowl) | |
| 16h30-18h30 | Workshops 4: Neonatal Resuscitation | Chairperson: Vic Davies |
| | (Summit) | |
| 18h30-19h00 | Priorities in Perinatal Care Association Annual General Meeting (Monks Cowl) | |
| 19h00-20h00 | Dinner (Restaurant) | |

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|----------------------------|---|---|
| 11h00-13h00 | Session 5: Auditing births, neonatal deaths and newborn care (Monks Cowl) Keynote: Prematurity and adult cardiovascular health | Chair: Ruth Davidge Dr Kenny McCormick |
| Papers | | |
| 38 | Planning and Monitoring newborn care services in South Africa | Shuaib Kauchali |
| 39 | Development of South African neonatal skin care guidelines | Welma Lubbe |
| 40 | Prevalence, types and outcomes of major congenital anomalies in neonates born at a public tertiary hospital | Martha Mayer |
| 41 | Barriers to solutions approach for implementing perinatal death reviews in LMIC countries in South East Asia and sub-Saharan Africa | Tedbabe Hailegebriel |
| Posters | STARFISH Project | Tinda Rabie |
| 42 | The new road to health booklet and U5 side-by-side campaign | Lesley Bamford |
| 43 | Do no harm: The safe and effective use of interventions for small/sick newborns | Judith Robb-McCord |
| 44 | Maternal and neonatal factors associated with perinatal deaths in a district hospital in the Free State Province | Tinda Rabie |
| 45 | | |
| 13h00-14h00 | Lunch (Restaurant) | |
| 14h00-16h00 | Women's Health and Human Rights Workshop (Prof S Munjanja) (Monks Cowl) | |
| 16h00-19h00 | Free Afternoon – no tea | |
| <u>Activities on-site:</u> | Spa and all trips (delegate's own account), resort activities, etc | |
| 19h00-21h00 | Braai (Patio) (weather permitting) | |

12h30 Lunch (Restaurant) – please allow bus delegates to eat first or to take take-aways

13h00 Airport buses depart from outside reception

14h00 All delegates depart

Workshop Programmes

14 March 2018

14h00-16h00 Workshops 1: WHO-BOLD Workshop: Adapting the South African intrapartum care guidelines to current knowledge (Monks Cowl) **Chairperson: Eckhart Buchmann**

Introduction: Valerie Vannevel (10 minutes)
Guidelines accepted: Valerie Vannevel (20 minutes)
Discussion: (10 minutes)
Guidelines not accepted and proposals: Sue Fawcus (20 minutes)
Discussion: (20 minutes)
Consensus on current guidelines and remaining areas of debate (10 minutes)
Comments: Femi Oladapo (15 minutes)
Way forward: Eckhart Buchmann (15 minutes)

14h00-16h00 Workshops 2: Helping Babies Breathe (Breakaway Room) **Chairperson: Sithembiso Velaphi**

Presentations and practical demonstrations practised by attendees, presented by: Prof S Velaphi, Dr M Mayer, Ms N Xhinti, Mrs T Matshoba, Dr F Nakwa

Max 48 people

16h30-18h30 Workshops 3: Hypertensive Disorders in Pregnancy (HDP) (Monks Cowl) **Chairperson: Jack Moodley**

Major causes of Deaths from HDP/Challenges and Solutions
Discussion and summary of Main points (30 min) - Jack Moodley (NCCEMD- NDOH)
HDP: Bleeding demonstration of the NASG - Neil Moran (NCCEMD - KZN Health) (30 min)
HDP: deaths in young women and contraception demonstration - Manala Makua and Zozo Nene (NDOH) (30 min)
Summary and Action Points – Jack Moodley (30 min)

16h30-18h30 Workshops 4: Neonatal Resuscitation (Breakaway Room) **Chairperson: Vic Davies**

Presentations and practical demonstrations practised by attendees, presented by: Prof V Davies, Prof S Velaphi, Dr F Nakwa, Dr M Mayer

Max 48 people

15 March 2018

**14h00-
16h00**

**Workshops 5: Women's Health and Human Rights
(Monks Cowl)**

**Chairperson:
Stephen Munjanja**

1. Introduction: Understanding Women's Health and Human Rights -Prof S Munjanja (20 min)
2. Group work (45 minutes)
3. Group presentations
 1. The right to life-Facilitator 1 (5 minutes)
 2. The right to health-Facilitator 2 (5 minutes)
 3. The right to confidentiality –Facilitator 3 (5 minutes)
 4. The right to free from torture and inhuman treatment-Facilitator 4 (5minutes)
 5. The right to privacy-Facilitator 5 (5 minutes)

Max 30 people

Feedback and closure-Prof Munjanja (10 minutes)

APPENDICES

Pg

63 AGM Agenda

64 AGM Minutes

Contact details:

On-site paramedic: Fanie Lister

Cell: 0721468324

For conference-related matters, please contact the organisers at the Registration Desk in Ithaba opposite Monks Cowl (the conference venue) during operating hours.

Operating Hours:

Tuesday: 14h00-17h00

Wednesday: 07h30-18h30

Thursday: 07h30-13h00

Friday: 07h30-13h30

Please contact Hotel Reception for any other matters especially after-hours and they will contact the relevant person.

SESSION 1: PAPER 1

ASSOCIATION OF FETAL HEART RATE PATTERNS WITH NEONATAL EEG

Fifer WP^{1,3}, Du Plessis CA¹, Brito NH³, Lucchini M^{2,3}, Myers MM^{1,3}, Odendaal HJ¹

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2. Dipartimento di Elettronica, Informazione e Bioingegneria, Politecnico di Milano, Milano, Italy;

3. Department of Psychiatry and Pediatrics, Columbia University Medical Center, NY, NY, USA

Introduction

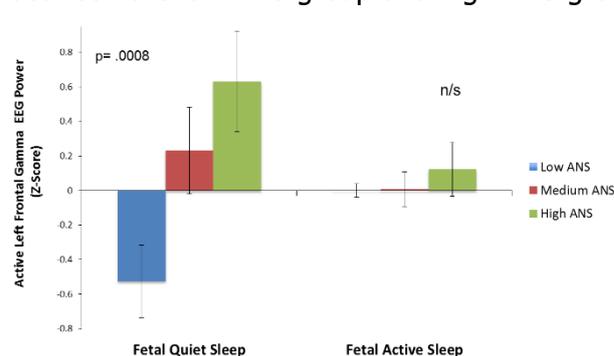
Currently, there is no method for assessing fetal brain function during pregnancy that could warn of emerging brain abnormalities and that is practical for widespread use. During gestation, the fetal brain becomes wired to control many critical physiological functions, including resting heart rate (HR) and HR responses to stressors in the intrauterine environment, such as maternal hypoxia, cigarette smoke, alcohol, nutritional deficiencies, infection and stress. Thus, measurements of fetal HR and patterns of heart rate variability (HRV) provide a practical approach to assess fetal brain function with non-invasive tools.

Methods

The participants were SPS (www.safepassagestudy.org) participants from singleton pregnancies, who delivered between 37 and 41 weeks postmenstrual age (PMA) with birth weights ≥ 2500 g. Fetal ECG collection was attempted within three gestational age ranges: Fetal Age 1 (20–24 weeks), in a smaller subset at Fetal Age 2 (28–32 weeks) and Fetal Age 3 (34–38 weeks). Prenatal recordings utilized an easily applied, low cost trans-abdominal electro-cardiogram (fECG) monitor to acquire fetal heart rate with near millisecond accuracy (previously only obtainable during labour with scalp electrodes). To examine associations between fetal autonomic regulation and later brain development (neonatal EEG during sleep), we created a composite measure of autonomic regulation in fetal active and quiet sleep using established methods based on patterns of accelerations and decelerations in FHR. We summed the z-scores of 4 standard measures of fetal HR and HRV: mean R-wave to R-wave intervals (**RRi**), the standard deviations, the interquartile range and the square root of the mean of the squared successive differences in RRis.

Results

We found significant associations between newborn brain activity and fetal ANS in quiet sleep and neonatal EEG shown in the figure to the right, with robust differences in EEG power between the low ANS group and high ANS group ($F(2,36) = 5.51, p < .001$).



Conclusions

To our knowledge, we have documented for the first time significant associations of ANS markers measured prior to birth with EEG measures of newborn brain function.

This research was funded by the following grants from the National Institute on Alcohol Abuse and Alcoholism and the Eunice Kennedy Shriver National Institute of Child

Health and Human Development: U01 HD055154, U01 HD045935, U01 HD055155, U01 HD045991, and U01 AA016501 and the Bill and Melinda Gates Foundation.

SESSION 1: PAPER 2

INTRAVENOUS PARACETAMOL VERSUS ORAL IBUPROFEN IN THE TREATMENT OF HAEMODYNAMICALLY SIGNIFICANT PATENT DUCTUS ARTERIOSUS IN PRETERM INFANTS – A SOUTH AFRICAN PERSPECTIVE

Dr James Smit - Dora Nginza Hospital, Walter Sisulu University

Prof Lungile Pepeta - Nelson Mandela University (Supervisor)

Dr Cheryl Mackay - Head of Neonatology, Dora Nginza Hospital (Co Supervisor)

Background:

Patent ductus arteriosus (PDA), and especially haemodynamically significant PDA (hsPDA), plays a significant role in the morbidity and mortality of the very low birth weight (VLBW), and extremely low birth weight (ELBW) neonate (Mezu-Ndubuisi et al. 2012). Ibuprofen has been shown to be efficacious in achieving ductal closure but is associated with notable side effects, particularly in ELBW newborns (Bagnoli et al. 2013). The reported association of ductal closure during paracetamol exposure has provided a treatment alternative (Allegoert et al 2013).

Methods:

This retrospective study evaluated the data of VLBW and ELBW neonates diagnosed with hemodynamically significant PDA (hsPDA) at Dora Nginza Hospital in Port Elizabeth, South Africa. Efficacy and side effects of newborns treated with oral Ibuprofen were compared to neonates with similar criteria treated with intravenous Paracetamol. Treatment consisted of a maximum of two three-day courses of either oral Ibuprofen or intravenous Paracetamol.

Results:

A total of 60 patients were diagnosed with a hsPDA and 30 infants were treated with oral Ibuprofen and 30, with intravenous Paracetamol. There was a 70% hsPDA closure in the oral Ibuprofen group compared to 80% closure rate in the intravenous Paracetamol.

No new worsening or symptomatic cases of intraventricular hemorrhage (IVH) greater than grade 2 were reported in the intravenous Paracetamol group with one patient in the oral Ibuprofen group progressing to a grade 3 IVH. In the ELBW (<1000g) subgroup of our study, the incidence of chronic lung disease (CLD) was 37.5% and 33.3% in the intravenous Paracetamol and oral Ibuprofen respectively. No new cases of necrotising enterocolitis were reported in either arm of the study. The infants in the intravenous Paracetamol group could however receive treatment for their hsPDA during active NEC, with good resolve of both NEC and the hsPDA. Both groups showed an improvement in renal function with improvement in urea and creatinine values being used as parameters, the intravenous Paracetamol group however showed a statistically significant improvement in the urea level ($p=0.003$) when compared to oral Ibuprofen.

Conclusion:

Our results are comparable with other studies in literature regarding the closure rates of a hsPDA with intravenous Paracetamol. However, South Africa is a resource deplete country and use of more expensive intravenous paracetamol as standard therapy of a hsPDA may not be appropriate. Oral Paracetamol where oral Ibuprofen is contraindicated may be used.

SESSION 1: PAPER 3

CHARACTERISTICS AND OUTCOMES OF NEONATES WITH BLOOD STREAM INFECTION DUE TO *LISTERIA MONOCYTOGENES*

Ntuli¹ N, Wadula² J, Nakwa¹ F, Thomas¹ R, Van Kwawegen¹ A, Sepeng¹ L, Gerin¹ A, Seake¹ K, Kgwadi¹ D, Sono¹ L, Odongo-Ezhet¹ C, Moore¹ D, Velaphi¹ S

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²Department of Microbiology, National Health Laboratory Services, Chris Hani Baragwanath Academic Hospital and School of Pathology, University of the Witwatersrand, Johannesburg

BACKGROUND: Neonatal Listeriosis is a relatively uncommon but serious invasive disease. Recently an outbreak of *Listeria monocytogenes* infection has been reported countrywide, with Gauteng being a leading province. The characteristics and outcome of neonates infected with *Listeria monocytogenes* from developing countries are not well known.

OBJECTIVE: To determine demographic characteristics, clinical and laboratory findings and outcomes of neonates infected with *Listeria monocytogenes*.

METHODS: This is a retrospective descriptive study. Clinical and laboratory records of neonates with positive blood and/or cerebrospinal fluid (CSF) culture admitted at Chris Hani Baragwanath Academic Hospital from January to December 2017 were reviewed for demographic characteristics, clinical presentation, ancillary laboratory test for sepsis and case fatality rate.

RESULTS: There were 34 neonates with positive culture due to *Listeria monocytogenes*. Majority (n = 26, 77%) of neonates were born preterm. Mode of delivery was vaginal in most cases (n = 24, 71%) and eight (24%) were born to HIV-infected mothers. Most patients (n = 31, 91%) presented within the first 3 days of life, thus had an early-onset disease. Common presentations were respiratory distress (n = 19, 56%) and respiratory depression (n = 12, 35%) and 25 (74%) required respiratory support. Abnormal ancillary laboratory tests for sepsis included a high C-reactive protein (CRP), where 21 (62%) of the patients had a CRP > 40 mg/L, thrombocytopenia (n = 12, 35%) and leukopenia (n = 7, 21%). Only one patient (3%) had a positive culture in CSF. There were 7 deaths, giving a case fatality rate of 21%.

CONCLUSIONS: Majority of neonates infected with *Listeria monocytogenes* are born preterm, suggesting that this infection might cause preterm labour. The infection in neonates is maternally acquired as most patients presented within the first 48 hours of life. It is associated with high mortality, therefore a high index of suspicion and early diagnosis with appropriate treatment is required to decrease mortality rate associated with this infection.

SESSION 1: PAPER 4

PREDICTORS OF NEUROLOGICAL SEQUELAE AT 1 YEAR OF AGE IN INFANTS DIAGNOSED WITH INVASIVE GROUP B STREPTOCOCCAL DISEASE IN INFANCY.

Firdose Nakwa¹, Sanjay G Lala¹, Shabir A. Madhi^{2,3} and Ziyaad Dangor^{1,2,3}

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Introduction: Invasive group B Streptococcal (GBS) disease is associated with significant morbidity and mortality in young infants. Although about 18% of all meningitis survivors will have moderate to severe neurodevelopmental impairment, factors predicting poor neurological outcomes in survivors has not been investigated.

Methods: A case-control study was undertaken in infants at three secondary-tertiary hospitals in Johannesburg, South Africa. Neurodevelopmental assessments were done at one-year of age using the Denver Developmental screening tool.

Results: Of the 122 GBS cases, 87 (71.3%) had sepsis and 35 (28.7%) meningitis. Twenty-two (18%) infants demised in hospital (5 with meningitis), and two (1.6%) demised before one-year of age; five (1.1%) of the 449 controls demised before one-year of age. There was a 17% attrition rate in the entire cohort (15.6% cases vs. 17.6% controls). Of the 67 (54.9%) GBS cases and 262 (58.4%) controls that completed one-year follow up, 16 (23.9%) cases (13 sepsis and 3 meningitis) and 17 (6.5%) controls had an abnormal Denver score; OR: 3.68; 95%CI: 1.97-6.90; $p < 0.001$. Among GBS cases, gestational age < 34 weeks (OR: 9.40; 95%CI: 1.08-81.50) and seizures during illness (OR: 16.51; 95%CI: 1.98-137.61) were predictors of poor neurological outcome at one year of age in the multivariate analysis.

Conclusion: This study demonstrated a high proportion of cases with neurological sequelae at one year of age, further corroborating the need for alternative strategies to invasive GBS disease prevention in low-resourced settings. Neurological rehabilitation should be implemented early in infants with invasive GBS disease especially in those with predictors of poor neurological outcomes.

SESSION 1: PAPER 5

THE LIVED EXPERIENCES OF HIV INFECTED MOTHERS REGARDIING INFANT-FEEDING IN A SELECTED CLINIC IN TSHWANE, GAUTENG PROVINCE

JOYCE R. MAHUNTSI, PROF DORRICA M. PEU AND DR REBECCA PHALADI-DIGAMELA,
Department of Nursing Science, Faculty of Health Sciences,
University of Pretoria, Pretoria, South Africa

Aims and objective: The objective of this study was to explore and describe the experiences of HIV-infected mothers with regard to infant-feeding decisions and how they practice their chosen infant feeding method.

Design and method: A qualitative research design, following phenomenological methods was utilized to collect data. Individual interviews were conducted on ten HIV-infected mothers who were purposively selected. Collaizi's method was utilized for data analysis.

Results: Five main categories emerged, namely the knowledge that participants had of infant feeding methods and mother-to-child-transmission (MTCT); their experience of making a decision on infant feeding, and its practice and rationale; the influence of cultural practices on infant feeding; infants' health outcomes of chosen infant feeding methods; and the challenges experienced by HIV-infected mothers during infant feeding.

Discussion: Our findings suggest that despite the mothers' knowledge of breastfeeding as best and the benefits of exclusive breastfeeding (EBF), financial difficulties, sociocultural practices and fear of infecting their infants were experienced as barriers to good infant feeding practices. With social and financial support, they would choose alternative infant feeding methods than to breastfeed.

Recommendations: Engaging mothers on their personal circumstances such as social circumstances, preferences, beliefs and motivations by health providers during infant-feeding counselling sessions would empower them to make positive safe infant-feeding decisions and practices within the recommended policies.

SESSION 1: POSTER 1

EVALUATION OF THE IMPLEMENTATION OF ISONIAZID PREVENTION THERAPY AMONG HIV-INFECTED PREGNANT WOMEN IN THE EASTERN CAPE, SOUTH AFRICA

Oladele Vincent Adeniyi¹, Nonkosi Selanto-Chairman², Eytayo Omolara Owolabi³, Anthony Idowu Ajayi⁴, Daniel Ter Goon⁶,

Background: HIV-associated tuberculosis (TB) continues to kill pregnant women in sub-Saharan Africa and especially in South Africa, the country with the highest global burden of HIV and TB syndemic. Isoniazid prevention therapy (IPT) strategy was implemented in South Africa concurrently with life-long antiretroviral therapy to reduce the TB-associated morbidity and mortality in individuals living with HIV. This study assessed the extent of the implementation of IPT and performance of Mantoux test by geographic settings of health facilities and residences of pregnant women living with HIV in the Eastern Cape, South Africa.

Methods: We conducted data analysis of 1709 pregnant women enrolled in the new electronic database of the prevention of mother-to-child transmission programme of the East London Prospective Cohort Study. Relevant data on items of; place of residence and antenatal care, performance of Mantoux test and subsequent initiation of IPT were interrogated. Descriptive statistics were employed to analyse the geographical variations in access to Mantoux test and IPT.

Results: The mean age of participants was 29.63 (± 6.2) years. The majority were single (69.5%), had grade 12 education (86.5%), unemployed (74.7%), aware of their HIV status at the time of booking (80.1%); and of those who knew their serostatus (n=1844), 71.9% were already on antiretroviral therapy. Of the total participants (n=1709), the rate of uptake of IPT was 79% with significant geographic variations. Participants were more likely to receive IPT if they accessed urban and semi-urban health facilities; 81% and 83.9%, respectively in comparison to rural health facilities 65.4%. Pregnant women living in rural communities (74.6%) were the least likely to be commenced on IPT in comparison to those living in semi-urban (81.8%) and urban centres (81.2%). Mantoux test was performed in 803 pregnant women (47%). Rural health facilities performed fewer Mantoux test (10%) in comparison to semi-urban (53.3%) or urban health facilities (59.7%).

Conclusions: High uptake rate of isoniazid prevention therapy in pregnant women living with HIV in the region is commendable however, concerted efforts are needed to address the inequality gaps in the roll-out of IPT. Poor performance of Mantoux test is a serious concern and requires the attention of TB programme managers and other relevant authorities.

SESSION 1: POSTER 2

LESSONS LEARNT FROM INCORPORATING ESMOE INTO THE OBSTETRIC UNITS OF A PRIVATE HEALTHCARE GROUP

Hall AP

Mediclinic Southern Africa

Context:

Mediclinic Southern Africa (MCSA) is a private hospital group with 52 hospitals, including 45 obstetric units across South Africa and Namibia. Obstetrics in the private sector remains extremely challenging with high insurance premiums for the obstetricians and is compounded by a shortage of skilled midwives. The caesarean section rate exacerbates the skills challenge, with only 1 in 4 deliveries being a vaginal delivery. In 2016 MCSA decided to introduce ESMOE - Essential Steps in the Management of Obstetric Emergencies, due to ESMOE being South African based and supported by SASOG (South African Association of Obstetricians and Gynaecologists).

Problem:

ESMOE has been designed as a 'train the trainer' course, however, historically in Mediclinic, this has not been a successful method of training. Believing this was a very important step in managing some of the risk in obstetrics; a corporate decision was taken to fund a two-day workshop using two ESMOE master trainers only, and name the project MMSET – Mediclinic Midwifery Skills Enhancement Training. MMSET would include ESMOE and then some additional Mediclinic modules covering litigation, documentation and soft skills.

Aim statement

The aim was to provide the MMSET training to all midwives, registered nurses and enrolled nurses, with them returning to their own units and doing the emergency obstetric drills with their whole team.

Intervention

Two experienced midwives were identified and trained as master trainers by Professor Peter McDonald and team, and a corporate directive made it compulsory for all staff to attend. As drills are important to the success of ESMOE, hospitals were encouraged to purchase a 'Mama Natalie'.

Measurement of Improvement and Results:

To date over 500 RM's, RN's and EN's have been trained, and all staff - which will total just over 600 - will have completed the two-day course by end of March 2018. An unexpected advantage was that, with the combining of the hospitals, a network was created and many of the identified challenges were discussed and best practices shared. In 2016 an obstetric dashboard was created and a Weighted Adverse Outcome Score measured. This has been retrospectively populated from January 2010. The combined score for MCSA has shown a steady increase year on year from 2010 and peaked in 2016. These results will be discussed and maternal and term neonatal deaths analysed.

Challenges & Lessons Learned:

The high caesarean section rate has turned private obstetric units into surgical units, often with the obstetric aspects of mother, baby, breastfeeding and bonding being lost in post-operative observations, pain management and drowsy mothers incapable of looking after their newborns. ESMOE training has highlighted depth of the lack of skills, and the inability of staff to recognize a deteriorating mother and baby, and the lack of team work between obstetrician and midwife. In conclusion ESMOE has been well received and the midwives have been enthusiastic, the enrolled nurses have felt empowered and have been receptive to the training. Initial anecdotal feedback has been positive with many near misses and patient rescues being attributed to ESMOE training. However, if the drills are not done and maintained, the momentum will be lost.

SESSION 2: PAPER 1

A MULTICENTRE, THREE-ARM, RANDOMIZED, OPEN-LABEL CLINICAL TRIAL OF GENTLE ASSISTED PUSHING IN THE UPRIGHT POSITION, UPRIGHT POSITION ALONE OR ROUTINE PRACTICE TO REDUCE PROLONGED SECOND STAGE OF LABOUR

G. Justus Hofmeyr¹, Joshua P. Vogel², Mandisa Singata¹, Ndema Abu Habib², Sihem Landoulsi², ^A. Metin Gülmezoglu²

¹Effective Care Research Unit (ECRU), Depof O&G at East London Hospital Complex (ELHC), University of the Witwatersrand, University of Fort Hare, Walter Sisulu University and ECDoH.

²UNDP/UNFPA/UNICEF/WHO/World Bank Special Programme of Research, Development and Research Training in Human Reproduction (HRP), Department of Reproductive Health and Research, World Health Organization.

Background

Fundal pressure is frequently used by birth assistants to assist expulsion of the baby. Gentle Assisted Pushing (GAP) is an innovative method of applying gentle but steady pressure to the uterine fundus with the woman in an upright position. The recumbent/supine position for the second stage of labour has become routine in low-resource settings; there is some evidence that upright position may have advantages for mother and baby. We aimed to evaluate the use of GAP in an upright position, compared to upright position alone or routine practice (recumbent posture).

Methods

We conducted an open-label randomized trial with three parallel arms at four sites in South Africa. Participants were healthy nulliparous women with an uncomplicated singleton pregnancy in cephalic presentation, in whom vaginal birth was anticipated. Participants were randomized following at least 15 minutes in the second stage of labour. Participants were randomly assigned (1:1:1) using computer-generated block randomization of variable size, with concealment by use of opaque, sequentially numbered, sealed envelopes. The primary outcome was mean time from randomization to birth. Blinding of participants and staff was not possible. The primary analysis was by intention-to-treat.

Results

In total, 1,158 participants were randomly allocated to GAP (n=388), upright position (n=386) and routine practice (n=384). There was no loss to follow up, and baseline characteristics were similar across groups. The median duration from randomization to birth was 14 minutes in all three arms, with no statistical differences between arms. There were no differences in secondary outcomes, except that at two sites maternal discomfort was recorded as greater for both GAP and upright position compared to routine practice; at the other two sites there was no difference.

Conclusions

We have not found evidence of benefit from a new technique of controlled fundal pressure in the second stage of labour. This does not exclude the possibility of effectiveness of more robust forms of fundal pressure. Its use should be limited to further research to determine whether there are techniques or settings in which it can safely assist vaginal birth. Our study did not show any benefit of upright position, and some women found the position uncomfortable. Women should be encouraged to assume the position they find most comfortable.

SESSION 2: PAPER 2

STUDY INTO THE FOETAL KICK CHART TO IDENTIFY POSSIBLE TARGET AREAS FOR IMPROVEMENT

Dr LN Monageng, Dr N. Mayat

Queen Nandi Hospital (previously Lower Umfolozi War Memorial Regional Hospital)

Introduction

A Fetal Kick Count Chart (FKC) is a simple, cost effective means of assessing fetal well-being. Despite international studies which have not proven their efficacy, the use of FKC is still advocated in low and middle-income countries.

Aim of the Study

The aim of the study is to evaluate the use of FKC as an effective screening tool.

Objectives

1. To determine if women in the study were given a FKC during antenatal care
2. To determine if those women who were given a FKC were educated on use of the FKC
3. To identify the possible targets for non-use of the chart despite appropriate patient education

Methods

This was a retrospective study from 1st January to 31 November 2017 conducted in the antenatal clinic of LUWMRH. Patients presenting with an unexplained IUD were selected at random as they presented to a specific medical officer and their antenatal records analyzed to determine use of the FKC. Patients were questioned regarding reasons for not using the FKC or if there was an inappropriate response to decreased fetal movements. Descriptive analysis was performed.

Results

The sample size of 52 patients. Of these 25(48%) were given FKC and 18(72%) of those given FKC were educated on how to use the chart and what to do if fetal movements were reduced or absent. Amongst patients who were given FKC, the most common reasons cited for incorrect use were not being taught on how to use the chart, a lack of time and forgetfulness. 40(79.9%) of patients identified that fetal movements were reduced where 14 (35%) of them presented timeously to a health facility. In the age group 15-20 years 21(11%), all of these 21 patients did not present to a health facility timeously.

Conclusions

FKC should be issued to all antenatal patients from 28 weeks gestation as per our National Maternity Guidelines. Patients need to be educated on how to use FKC and actions to be taken if fetal movements are reduced. The FKC should be reviewed at each antenatal visit and ongoing counselling should be done for patients who have failed to comply with FKC use. Teenagers should be considered as a special target group for education and training.

SESSION 2: PAPER 3

SCREENING AND MANAGING LOW RISK PREGNANT POPULATION USING CONTINUOUS WAVE DOPPLER ULTRASOUND IN A LOW-INCOME POPULATION

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Aim: To determine the prevalence of raised resistance indices (RI) of the umbilical artery in a low risk low income population and to ascertain if the deaths of foetuses can be prevented by actively managing the group with raised RIs.

Setting: Mamelodi Township on the eastern side of Pretoria, South Africa. It is a low income area with approximately a third of the population are unemployed and twenty percent food insecure.

Method: Pregnant women classified as having low risk pregnancies at two community health centres (Stanza Bopape and Dark City) were screened for placental insufficiency between 28 and 32 weeks' gestation. The screening was performed by research nurses using a continuous wave Doppler ultrasound apparatus (Umbiflow™). Women having a raised Umbiflow resistance index (RI) (defined as $\geq 75^{\text{th}}$ Centile) were referred to a special high risk clinic at Mamelodi Hospital where they were managed according to a standard protocol. The outcome of all the deliveries in Mamelodi Hospital, and Stanza Bopape and Dark City community health centres was recorded. The control group consisted of those women who attended antenatal care but did not have an Umbiflow™ test and delivered a baby ≥ 28 weeks gestation or who delivered a baby of ≥ 1000 g.

Results: There were 21,942 births during the period of babies ≥ 28 weeks or ≥ 1000 g and who attended antenatal clinic in Mamelodi Township. An Umbiflow™ RI was performed in 2,868 women; of these the pregnancy outcome is available in 2,539 foetuses (88.5%); 297 (11.7%) women were regarded as high risk and 2,242 women as low risk according to the RI. Absent end diastolic flow (AEDF) was found in 1.5%. The high risk group had significantly more small for gestational age (SGA) babies than the low risk group. There were 29 perinatal deaths in the Umbiflow™ group for a perinatal mortality rate (PNMR) 11.4/1000 births which includes five stillbirths and one neonatal death in women in the high risk group (total 11) who declined treatment. The control group consisted of 19,403 women where there were 388 perinatal deaths (PNMR 20.0/1000). The PNMR was significantly lower ($p=0.009$) in the Umbiflow group. This was mainly due the reduction in deaths due to macerated stillbirths (macerated stillbirth rate Umbiflow™ group 4.3/1000 births compared with 10.2/1000 births in the control group, $p=0.006$). There was no difference between the groups with respect to obstetric interventions.

Conclusion: The prevalence of AEDF in this low risk group of pregnant women screened using Umbiflow™ of the umbilical artery was 1.5%; this is about ten times that recorded in low risk pregnant women in high income countries. These foetuses would not have been detected by conventional means available to women in LMICs. Use of the information prevented a number of perinatal deaths.

SESSION 2: PAPER 4

PRE-PREGNANCY AND EARLY PREGNANCY CALCIUM SUPPLEMENTATION IN WOMEN AT HIGH RISK OF PRE-ECLAMPSIA: A RANDOMIZED, PLACEBO CONTROLLED TRIAL

GJ Hofmeyr, AP Betrán, M Singata-Madliki, G Cormick, SP Munjanja, S Fawcus, S Mose, D Hall, A Ciganda, A Seuc, E Bergel, J Roberts, TA Lawrie, J Belizan, On behalf of the Calcium and Pre-eclampsia Study Group

Background: Reducing the death toll from hypertensive disorders of pregnancy is a global priority. Low dietary calcium may account for the high prevalence of pre-eclampsia/eclampsia in low-income countries. Calcium supplementation in the second half of pregnancy reduces the severe consequences of pre-eclampsia but the effect of calcium supplementation before and in early pregnancy, when pre-eclampsia is thought to evolve, has not been assessed.

Methods: We conducted a multi-country randomised, double-blinded placebo-controlled trial to determine the effect of calcium supplementation before and in early pregnancy in sites in South Africa, Zimbabwe and Argentina over a six-year period. Participants with previous pre-eclampsia or eclampsia received 500 mg elemental calcium or placebo daily from enrolment before pregnancy until 20 weeks' gestation. All participants received unblinded calcium 1.5g daily after 20 weeks' gestation.

Findings: Baseline data were well matched. Almost half the women became pregnant. Pre-eclampsia was reduced by 20% with calcium (not statistically significant). Pregnancy loss and/or pre-eclampsia was reduced by 18% (borderline significance). Diastolic blood pressure was significantly reduced at both 20 and 32 weeks' gestation. There were no other statistically significant differences.

Interpretation: Reduced pregnancy loss and/or pre-eclampsia, and persistently lower diastolic blood pressure at 32 weeks despite high dose calcium supplementation to all participants from 20 weeks' gestation suggests a persistent effect of calcium supplementation before and in early pregnancy on the genesis of pre-eclampsia. Public health strategies to promote adequate calcium intake may reduce pregnancy loss and/or pre-eclampsia, among many other general health benefits.

Funding: University of British Columbia PRE-EMPT initiative supported by the Bill & Melinda Gates Foundation; UNDP/UNFPA/UNICEF/WHO/World Bank HRP at the WHO; the Argentina Fund for Horizontal Cooperation of the Argentinean Ministry of Foreign Affairs; CISMAC.

SESSION 2: PAPER 5

ASSOCIATION OF MATERNAL HEART RATE DURING PREGNANCY WITH BIRTH WEIGHT

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Introduction

Recordings of maternal and fetal ECG data from the Monica AN24™ device, which was used for physiological assessments in the Safe Passage Study (www.safepassagestudy.org), provided an opportunity to look at maternal heart rate (MHR) and its relationship to birth weight. At the 2015 Conference on Priorities in Perinatal Care we first reported on the association between high MHR (>100 bpm) under resting conditions at 34-38 weeks gestation and increased birth weight. We extended the study to include data from 1) the full range of MHR, and 2) fECG collections made at 20-24 weeks and 28-32 weeks gestation.

Methods

As part of the physiological assessment in the Safe Passage Study, the fetal and maternal ECGs were recorded noninvasively from the maternal abdominal wall for at least 30 minutes in the three GA groups described above (the 28-32 week recordings were done in a subgroup only). Using a programme based on the Dawes and Redman criteria for the interpretation of non-stress tests the MHR was extracted from the raw data and used for comparison to birth weight. Information from the Intergrowth21 study was used to determine the Z-scores of birth weight. STATISTICA version 13 was used for the statistical analyses. Ethical approval was obtained from the Health Research Ethics Committee of the Faculty of Medicine and Health Sciences of Stellenbosch University.

Results

The raw data of 503 participants were initially selected but the information required to determine birthweight Z-scores was only available in 485 new-borns. There were 337 participants at 20-24 weeks, 140 at 28-32 weeks and 458 at 34-48 weeks. For this cohort the mean birth weight was 3,039.3 g and the mean Z-score -0.33. There were large increases in birth weight as the MHR increased (Table I).

Table 1. Effect of maternal heart rate as recorded at 20-24 weeks on birth weight.

| Maternal heart rate (bpm) | N (%) | Birth weight (g) |
|---------------------------|------------|------------------|
| <70 | 24 (7.1) | 2862.3 * |
| 70-79 | 89 (26.4) | 2997.5 # |
| 80-89 | 125 (38.0) | 3016.5 |
| 90-99 | 83 (24.6) | 3146.8 # |
| 100-109 | 14 (4.2) | 3179.6 |
| >110 | 2 (0.6) | 3645.0* |

*782.7gram difference; #148.3gram difference.

Similar findings were also seen when the Z-scores were compared at the 20-24- week recordings. There were also significant correlations between the maternal heart rate and Z-scores of the birth weight at 34-38 weeks.

Conclusions

Maternal heart rate at 20-24 weeks gives a good indication of expected birth weight and Z-scores of the birth weight. This information could be used in addition to Doppler studies to identify high risk pregnancies.

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SESSION 2: PAPER 6

FETAL MAGNETIC RESONANCE IMAGING: A CLINICAL ROLE IN SOUTH AFRICA?

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Magnetic resonance imaging (MRI) is playing an increasingly important role in fetal medicine with numerous published studies showing its complimentary role as an adjunct to antenatal ultrasound. The most frequent indication for a fetal MRI is for abnormality in the fetal brain but good quality imaging may also assist in the clinical management of both lung, renal and cardiac pathologies. MRI may improve the detection of new anomalies and /or further characterise ultrasound anomalies improving the information on anomaly site, size and potentially aetiology. Improving the fetal phenotype informs on-going clinical management targeting appropriate further investigations and ensuring that both clinicians and parents are given sufficient information to assist in the management of the pregnancy and plans for delivery and postnatal care. For instance, the detection of undiagnosed haemorrhage in a fetus with US detected ventriculomegaly will focus investigations to exclude alloimmune thrombocytopenia and may subsequently dictate the safest form of delivery for the fetus. Fetal MR Imaging is a safe technique when used according to national radiological guidelines. It does not involve radiation and is usually well tolerated even by heavily pregnant mothers. Most commercial scanners will have the appropriate hard and software to obtain good quality images of the fetus. The quality of the examination will improve with increasing experience of the radiographer and responsible radiologist.

We will illustrate this presentation with examples of fetal imaging acquired within our practice and how the results influenced ongoing management of the pregnancy. The biggest challenge in successful fetal imaging is motion but advances in imaging research now allow us to obtain detailed information about the fetal brain, including regional volumetry and measures of connectivity, cortical maturation and function in the presence of motion. Increasing clinical demand will ensure that expertise grows, image quality improves and costs decrease further establishing MRI as a core technique within obstetric practice and fetal medicine.

SESSION 2: POSTER 1

ABSENT END DIASTOLIC FLOW IN CLINICALLY HEALTHY WOMEN IN A LOW MIDDLE INCOME COUNTRY: DESCRIPTIVE STUDY

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Aim: To describe the characteristics and outcomes of pregnant women and their foetuses that have absent end diastolic flow(AEDF) from 28 weeks of gestation in Mamelodi township

Setting: Mamelodi township is a large urban township next to Pretoria, South Africa, and majority of the population are in low income bracket. About 20% of the population has food insecurity.

Methods: Pregnant women between 28- 32 weeks gestation were screened using an Umbiflow apparatus to identify foetuses with umbilical artery resistance index (RI) greater than the 75th centile. Those foetuses with a high risk Umbiflow were referred to high risk clinic in a referral hospital where a detailed ultrasound examination of pregnancy was performed. Women with absent end diastolic flow were managed according to set protocol. Results: 2868 pregnant women were screened, 297 (10.35%) had a RI greater than the 75th centile and were referred to high risk clinic. At the clinic 38 (12.79%) had or subsequently developed AEDF, 24 foetuses had developed AEDF at first examination. 5 foetuses developed it towards the end of pregnancy (above 34 weeks gestation). 9 foetuses developed AEDF at subsequent follow up visits at different gestations. The foetuses that developed AEDF at first visit were all admitted given steroids, 8 still had persistent AEDF on next visit, 3 developed foetal distress within the admission week, 3 declined further treatment (2 of these mothers had stillbirths). 10 patients had positive end diastolic flow, with 3 foetuses reaching term (38) without further complications. 5 patients developed AEDF at gestation more than 34 weeks, delivered and no steroids given. 9 cases had developed AEDF on subsequent visits, 2 delivered immediately after diagnosis. 7 patients received steroids with patient delivered after persistent AEDF, 4 developing complications of foetal distress and two developing positive flow (delivered at 34 and 38 weeks). The average age of these mothers was 26,8 and median parity of 1 and gravid 2. The average age of gestation at delivery was 32,94 and weight of 1830g. 4 patients delivered normally, 1 missing and 33 delivered by Caesarean section. 27 emergency caesarean cases and 6 electives. 5 mothers developed hypertension and its complications. Only 3 mothers (7,8%) were HIV positive and were on anti- retroviral treatment. 19 (50%) were SGA. 16 babies were admitted to neonatal intensive care unit (42,4%), only 1 baby had Apgars of less than 7 at 5th minute. There were two stillbirths, both mothers declined further treatment. Two neonatal deaths due to complications of infective process.

Conclusion

The prevalence of AEDF found in this population is tenfold higher than reported in literature. At the time of screening the women were clinically healthy and developed AEDF and only 14% developed hypertension. The prevalence of HIV infection in this group was significantly lower (7%) than the rest of population (22%). The mortality of foetuses was low in comparison to studies of AEDF.

SESSION 2: POSTER 2

AUDIT OF TEENAGERS DELIVERED AT PHOLOSONG HOSPITAL

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Background

The fertility rate (measure of live births) among teenagers in South Africa is around 30%. Majority of these pregnancies are unplanned.

Objectives

- 1) To determine the characteristics of teenagers delivering at Pholosong hospital
- 2) To describe factors related to deliveries and complications

Methods

This was a retrospective descriptive audit of teenagers who delivered at Pholosong hospital, between 1st January 2017 to 31st December 2017. It was a periodic sampling and data collection was by maternal case record reviews

Results

During the period of study, total number of deliveries at Pholosong hospital was 5577. There were 744 (13%) teenage mothers who delivered during that period. Their ages range between 13 and 19 years. Median age is 18, IQR 17-19. 66 (9%) were between ages of 13 – 15 and 678 (91%) were 16 to 19 years old. Majority of these teenagers 714 (96%) were booked and 310 (42%) booked before 20 weeks of gestation. 86 (12%) of these young mothers were HIV positive and 61 (71%) were taking anti-retroviral drugs already. Mode of delivery among these mothers was: 409 (55%) normal vaginal deliveries vs 335 (45%) caesarean deliveries. The median birth weight was 3000g with IQR of 2700-3320g. Their babies were general in good health (APGAR score at 5 minutes of 9 with IQR 8-9). Only 41 (6%) were admitted to neonatal ward. 18 (2%) were recorded as stillbirths babies. 1 (17%) of 6 maternal deaths recorded during the period of study, was of a teenager who died from postpartum haemorrhage.

Conclusion

Among pregnant teenagers who live in Tsakane, Duduza, Geluksdal, Kwa Thema and surrounding areas, who opted to continue with their pregnancies in 2017 and deliver at Pholosong hospital; majority of them had booked. These young mothers had good perinatal outcomes overall.

SESSION 3: PAPER 1

TIMING OF CAESAREAN DELIVERIES IN THE SOUTH AFRICAN PRIVATE SECTOR AND NEONATAL OUTCOME

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Introduction

A caesarean delivery (CD) rate $\geq 75\%$ and the scheduling of deliveries facilitated by non-indicated provider-initiated/influenced deliveries in the South African private sector increase the risk of late preterm (34-36 weeks) and early term (37-38 weeks) deliveries with no associated improvement in the maternal and neonatal outcome. Of concern is that mistimed late preterm (LPT) deliveries may fuel the overall preterm rate and its associated perinatal morbidity and mortality rates. A descriptive cohort study was undertaken to determine the short-term outcome of appropriately grown LPT infants of low risk pregnancies born by CD in the South African private sector and admitted to a neonatal intensive care unit (NICU).

Patients and Methods

After the protocol's ethical clearance, private groups were approached for access to Vermont-Oxford Network (VON) data collected prospectively in NICUs. Normotensive women without chorioamnionitis and with a single, anatomically normal, appropriately grown fetus were categorised as having a low risk pregnancy. Their infants were included in the final analysis if a CD was performed during the LPT period. Relevant variables pertaining to the short-term outcome were analysed.

Results

VON data of 4679 NICU admissions (1/1/2016-31/12/2016) from 26 obstetric units (26124 deliveries) were analysed. The overall CD rate was 81% with 73% (17108/23363) for term (≥ 37 weeks) infants and 90% (2484/2761) for preterm (< 37 weeks) infants. Of all preterm infants ($n=2761$), LPT (34-36 weeks) infants comprised 1552/2761 (56%) of whom 740/1552 (48%) were born after low risk pregnancies. A CD was performed in 653/740 (88%) women and their infants comprised the study sample ($n=653$). Antenatal steroids were administered to 277/652 (43%) women and 170/653 (26%) infants received surfactant. In the delivery room endotracheal intubation and continuous positive airway pressure (CPAP) were required in 19/653 (3%) and 173/652 (27%) infants respectively. Hypothermia ($< 36.5^{\circ}\text{C}$) was present on admission to the NICU in 281/653 (45%) infants and 449/653 (69%) infants required supplemental oxygen. Invasive respiratory support was required in 513/653 (79%) infants. A pneumothorax developed in 5/653 (0.8%) infants and 3/653 (0.5%) infants developed necrotising enterocolitis. At discharge 3/653 (0.5%) infants required domiciliary oxygen and 318/632 (50%) were unable to breastfeed exclusively. This group of LPT infants comprised 14% (653/4679) of NICU admissions translating into one of every seven admissions.

Conclusions

The majority of LPT infants born by CD after low risk pregnancies need invasive respiratory support in a NICU. They may develop serious iatrogenic complications such as pneumothorax, necrotising enterocolitis, oxygen dependence and an inability to exclusively breast feed - which may have permanent negative consequences to their health. CDs in low risk pregnancies during the late preterm period in the private sector need further investigation to determine the indications for CDs and whether non-adherence to evidence-based guidelines prevails.

SESSION 3: PAPER 2

TIME FROM BIRTH TO FIRST SPONTANEOUS BREATH AND CLAMPING OF THE UMBILICAL CORD IN A SETTING WHERE TRAINING IN HELPING BABIES BREATHE PROGRAM HAS BEEN IMPLEMENTED

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BACKGROUND: Helping Babies Breathe (HBB) program is a simulation-based curriculum that focuses on training healthcare providers on immediate care of the neonate at birth, which includes stimulation and initiating bag mask ventilation if neonate is not breathing by one minute of life. It also recommends delayed clamping of the umbilical cord. Data on time to first breath after birth, and when umbilical cord is clamped in settings where HBB training has been implemented is limited.

OBJECTIVE: To determine time from birth to first spontaneous breath, and clamping of the cord in neonates not requiring resuscitation at birth, in a setting where majority of healthcare providers have been trained in HBB

METHODS: A research nurse observed deliveries conducted in two referral hospitals (regional and tertiary hospitals) where majority of healthcare providers had been trained in HBB. The nurses timed the onset of first spontaneous breath and clamping of the cord from the time of complete delivery of the body using a stopwatch. Deliveries were grouped according to mode of delivery.

RESULTS: A total of 497 neonates were observed during delivery, of which 410 did not require resuscitation that is bag mask ventilation. Majority of neonates were delivered by caesarean section (258/410; 62.9%). The average time from birth to first spontaneous breath in neonates not requiring resuscitation was 17.8 ± 16.5 seconds. Neonates delivered by caesarean section took longer to initiate their first breath compared to those delivered vaginally (19.6 ± 19.2 vs 14.7 ± 9.6 seconds; $p = 0.003$). Umbilical cord was clamped at an average time of 90.7 ± 48.2 seconds with those neonates delivered by caesarean section having their umbilical cords clamped earlier than those delivered vaginally (64.3 ± 33.4 vs 135.6 ± 34 seconds; $p < 0.001$).

CONCLUSION: Neonates in this study took longer to breath than what has been reported from other studies possible because of high rate of caesarean sections. It is encouraging that the average time to clamping of the cord is within the recommended range for delayed clamping of the cord, suggesting that majority healthcare providers are implementing what they have been taught in HBB.

SESSION 3: PAPER 3

DEVELOPING RESILIENCE: A GROUNDED THEORY ANALYSIS OF THE INFLUENCE OF FEEDING BUDDIES ON MOTHERS WITHIN A PMTCT PROGRAMME IN KWAZULU NATAL

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Introduction

Progress in making antiretroviral therapy available to pregnant women in prevention of mother-to-child transmission programmes is commendable. The challenge remains of finding innovative ways to support women to adhere to suggested guidelines. A plethora of barriers to adherence have been identified. Positive effects of assigning treatment buddies to support adherence have been reported.

Methods

A cluster randomised control trial was conducted to determine the efficacy of a Feeding Buddy programme in improving adherence to prevention recommendations. This qualitative study was embedded within the randomised trial and was conducted between August-November in 2014. Semi-structured in-depth interviews which were recorded and transcribed were conducted on mothers (n=16) Feeding Buddies (n=16), community care givers (n=10) and nurses.

Results

Women described the relationship with their Buddies as one that brought hope into what were often bleak circumstances. Hope enabled them to rise above despair, restored their sense of connectedness and purpose, knowing they had support from trusted confidants. A grounded theory analysis was used and the development of resilience emerged as the central concept which contributed to adherence to the prevention of mother-to-child guidelines. Feeding Buddies contributed to this development of resilience through providing both psychosocial and practical support helping mothers develop self-efficacy, to strengthen their relationships, clarify their values and find a freedom of spirit, all of which contributed to developing this conceptual model of resilience.

Conclusion

Advances made in the treatment of HIV have been slow to address the social acceptance of the disease and improve adherence to the PMTCT guidelines by providing the community-based support. In resource constrained settings HIV-positive mothers need a safe environment, acceptance within their communities, food security and psychosocial support through close family members or FBs in order to successfully negotiate their way. Having a FB provided a base for support which enabled mothers to develop resilience to overcome the many challenges they faced dealing with HIV and adhering to PMTCT guidelines.

SESSION 3: PAPER 4

BREASTFEEDING EDUCATIONAL NEEDS OF FIRST TIME MOTHERS DURING THE PUERPERIUM

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Associate Professor Welma Lubbe, North West University

Introduction

In South Africa it is common practice for a mother to be discharged from hospital within the first few hours after normal delivery. It is usually only after five to seven days when breastfeeding challenges emerge, when mothers might realise that they need help with their infant. It is therefore necessary to determine what challenges mothers experience during the puerperium, and exactly when these problems occur, to be able to help them to breastfeed their infants exclusively to the age of at least six months as suggested by the World Health Organization.

Research aim and objective

The aim of this study was to identify the breastfeeding educational needs of first time mothers during the puerperium.

To achieve this aim, the following objectives were set and reached.

To identify what specific breastfeeding information should be provided to first time mothers during each week of the puerperium to support breastfeeding success.

To develop concise, focussed breastfeeding information which can be shared with mothers on a weekly schedule during the puerperium by making use of a text message system.

Research design

This study employed a qualitative, longitudinal descriptive design.

Research method

In this study, data were collected using structured questions delivered to the participants by means of a text messaging system.

No transcribing was necessary as all messages received from the participants were original and already in electronic format. After data collection all received messages were imported into an MS Excel spread sheet. To ensure anonymity, numeric codes were allocated to each participant's telephone number. The researcher used Tesch's eight step approach to analyse the data and also used an independent co-coder to verify the data analysis.

Results

The analysis of the current study's qualitative findings, regarding mothers' experiences with breastfeeding challenges during the puerperium, produced different themes showing when during the puerperium the mothers encountered those specific challenges.

Thirty-three first time mothers participated and eight reported challenges from week one after the baby's birth. Twenty-two messages regarding challenges were received from these eight participants. Challenges included nipple problems, fear of insufficient milk production, breast problems, challenges regarding returning to work as well as maternal or child illness. Participants who had experienced breastfeeding-related challenges during the first week of the puerperium, tended to experience challenges again later during the puerperium. Mothers who did not struggle with breastfeeding-related challenges during the first week of the puerperium did not encounter such problems later on. Support provided through text messages appeared to address challenges, although they did not prevent the recurrence of other problems.

Disclosure: The authors have no relationship or financial interest in any companies pertaining to this study. The authors declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

SESSION 3: PAPER 5

TUBE-TO-ORAL TRANSITION PATHWAY TO GUIDE FEEDING ADVANCEMENT IN MODERATE TO LATE PRETERM NEONATES: A SYSTEMATIC REVIEW

Sonja Nel

NWU: School of Nursing Science

Oral feeding for the preterm neonate is a complex process and a delay in attaining full oral feedings can delay hospital discharge, considerably increase the cost of care, and lead to unnecessary hospital readmissions (Gennattasio et al., 2015). The aim of this study is to explore the literature to develop a pathway which healthcare professionals can use to guide their clinical decision-making when supporting moderate to late preterm neonates to transition from tube-to-oral feeding.

Premature birth could lead to severe complications and as part of the premature neonate's essential medical management, they are exposed to a range of invasive procedures influencing their breathing and swallowing mechanisms, such as tube feeding, intubation, and suctioning. These interventions might further impede feeding development in these high-risk neonates (Geddes et al., 2013).

Oral feeding for the preterm neonate is a complex physiological process that depends primarily on the coordination of sucking, swallowing and respiration. Attempting to determine the golden moment to initiate oral feeding in preterm neonates is a challenging task. Parameters such as correct gestational age and clinical conditions should be considered. Nevertheless, these parameters alone are not sufficient to safely initiate oral feeding and resultant assessment failures necessitate the use of several protocols for assessing the oral feeding skills of preterm neonates (Bolzan et al., 2016).

Most of the neonatal nutrition literature has focused on the management of very low birth weight infants, a group of infants usually less than 33 weeks gestation (Adamkin, 2006). Much less attention has been paid to nutritional management issues in the moderate to late preterm neonate. In this study more attention will be given to this preterm category (moderate to late) as they present a nutritional challenge to health care providers (Adamkin, 2006).

The establishment of successful feeding in moderate to late preterm neonates are usually problematic, as they have less muscular strength and more difficulty with latch, suck and swallow than term infants. For this reason, healthcare providers should pay more attention to manage feeding problems than the moderate to late preterm neonate can experience (Corvaglia and Aceti, 2014).

The research question is emerged: What should the clinical pathway consist of to support the successful tube-to-oral transition process for moderate to late preterm neonates? The objectives of this study are to: Explore the best available evidence by means of a systematic review to determine the factors to be considered when facilitating the transition process of tube-to-oral feeding in a moderate to late preterm neonate that is admitted to the neonatal wards. Furthermore, to draft a pathway for healthcare professionals that guides clinical decision-making during the tube-to-oral feeding transition process of the moderate to late preterm neonate.

The six phases of a systematic review (De Souza et al., 2010) is explained as PIOTS to be the most appropriate format for the review question, the search will be guided and more detailed and appropriate data will be extracted from the studies identified during the research process. The EPPI Reviewer Program will be used to ensure a clear record of the studies included and excluded from this study.

SESSION 3: PAPER 6

INVESTMENT IN HUMAN MILK BANKING

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INTRODUCTION

The Human Milk Bank at Mahatma Gandhi Memorial Hospital (MGMH) was established in 2013 and is a low-cost human milk bank, using cell phone technology, serving the 35-bed neonatal unit and 54 bed postnatal unit. MGMH Milk Bank was established in 2013-as a quality improvement project and established as part of the 'breastfeeding package' in order to promote breastfeeding. The hospital had previously lost its MBFHI status and replacement feeding was common following a prolonged duration of promotion and distribution of an acidified formula to HIV exposed infants. Breastfeeding was further promoted with attempting re- accreditation of the institution as a Mother –Baby Friendly Institution, intensifying antenatal counselling to promote breastfeeding, and also postnatal counselling of mothers who chose formula feeding. The pasteurised human breast milk was aimed to be given to vulnerable babies, including premature babies, low birth-weight babies and abandoned/orphaned babies

Aims:

To evaluate the progress of milk banking at MGMH over 4 years (2013-2017) and evaluate breastfeeding rates at the institution.

Objectives:

- Evaluate recruitment of donors over the years
- Evaluate volume of milk collected and pasteurized
- Breastfeeding rates in the hospital
- Other: volume of milk transferred out to other institutions
- Evaluate audit data collected on feeding choice amongst HIV positive patients
- Evaluate breastfeeding rates on discharge from the postnatal ward

Method:

Audit data from the neonatal and postnatal unit was reviewed.

RESULTS:

The results showed an increasing trend in the volume of milk pasteurised at the milk bank. Initially large amounts of term milk were pasteurised due to a single donor who supplied milk from home. Thereafter preterm milk predominated.

| | 2013-2014 | 2014-2015 | 2015-2016 | 2016-2017 March |
|------------------------------------|-----------|-----------|-----------|-----------------|
| No. of screened donors | 13 | 14 | 36 | 20 |
| No. of donors | 13 | 11 | 32 | 17 |
| No. of ml pasteurised | 2250ml | 3625ml | 10395ml | 39119ml |
| Prem. Milk | 14240 | 2166ml | 1625ml | |
| Term milk | 15500 | 750ml | 1625ml | |
| Percentage of contaminated samples | ---- | ---- | 28.37% | 8% |

Breastfeeding rates in MGMH: Breastfeeding rates on discharge from the postnatal ward increased from 85% to 94 %. Breastfeeding rates amongst HIV positive neonates admitted to the neonatal unit rose from 52% to 72 %.

Discussion:

Overall trend:

- Decreasing number of mothers choosing formula feeding over the years irrespective of HIV status
- Increased number of human milk donors with resultant increase in the amount of donor milk availability
- Decreased number of contaminated milk samples within the HMB

All this has taken place in a background of achieving Mother Baby Friendly Hospital Initiative Status and improving utilisation of KMC.

Conclusion:

HMB is part of the breastfeeding package which includes adherence to the Mother Baby Friendly Hospital Initiative and Kangaroo Mother Care. We have shown improvement in breastfeeding with compliance and championing of these initiatives.

SESSION 3: POSTER 1

PERINATAL OUTCOMES AMONG PATIENTS WITH MATERNAL NEAR-MISS FROM SEVERE HYPERTENSIVE DISORDERS AT FRERE AND CECILIA MAKIWANE BOTH TERTIARY HOSPITAL IN EASTERN CAPE, SOUTH AFRICA

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Background South Africa is still challenged with high numbers of maternal deaths due to hypertension, nationally 14% of total deaths, with no change in last triennium according to Saving Mothers report. It is the 3rd most common cause of death. In EC, it is second leading cause of maternal deaths also the primary obstetric cause of death responsible for 27% of perinatal deaths. Patients with severe hypertensive disorders namely eclampsia and severe pre-eclampsia in pregnancy are screened at primary health centres where they attend Basic antenatal care (BANC) and referred to Tertiary hospitals for admission till delivery. BANC Plus with 8 VISITS has been adopted in April 2017 increasing visits from 4 as informed by Cochrane review of WHO Trial.

Objectives

1. Describe profile of patients with maternal near-miss from severe hypertensive disorders namely eclampsia and severe pre-eclampsia with or without complications organ dysfunction renal failure, DIC at East London tertiary and regional hospitals.
2. Audit quality of care for patients with Maternal near-miss severe hypertensive disorders using Mortality index, SMOR.
3. Describe the perinatal and delivery outcomes of patients with maternal near-miss from hypertension.

Results: There were 213 maternal near-miss cases with 57 neonatal deaths showing a high perinatal mortality. Hundred (100) cases had eclampsia with 9 perinatal deaths compared to, 94 patients with severe pre-eclampsia with 42 perinatal deaths and 20 cases with help syndrome with 6 perinatal deaths. There was good quality of care with a mortality index of 5 and a severe maternal outcome rate (SMOR) rate of 12,7. Eclampsia was more common among patients with less 20 years whereas severe pre- eclampsia was among older more than 34 years. Severe preeclampsia was associated with smaller babies with lower Apgar scores and more perinatal deaths. Both these were statistically significant. Ninety percent of patient with eclampsia vs 80% severe pre-eclampsia were delivered by caesarean section. Medical abortions before 26 weeks were done in 18.4 percent of patients. Only 30% of patients were of normal birthweight with majority preterm. Weight distribution was 4.2% with extremely low birthweights 500-999 grams, 18.5 with LBW 1500 TO 1999 grams and another 18% with weight 2000 to 2500 grams. Gestational age at delivery varied from 28 weeks to 41 weeks with highest number deliveries namely 28 deliveries at 36 weeks and 22 patients at 28 weeks and 20 patients at 33 weeks.

Conclusion

Routine near miss audit will assist to improve quality of care and identify gaps for timely intervention and feedback to ensure early and appropriate referrals to tertiary, monitor implementing BANC +, tracing defaulter, adherence to guidelines for managing hypertension.

SESSION 3: POSTER 2

INCIDENTAL FINDINGS IN A PROSPECTIVE PERINATAL RESEARCH PROJECT

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Introduction

The Prospective Study on the role of Prenatal Alcohol and Smoking Exposure in SIDS and Stillbirth, The Safe Passage Study, recruited 7,060 pregnant women from Bishop Lavis and Belhar in the Western Cape. The pregnant women were followed up over 7 years during pregnancy, delivery and until the infant reached 1 year of age. The support from this community was exceptional and helped us achieve more than a 90% follow up rate.

Methods

At recruitment, informed consent was obtained and the gestational age from ultrasound was used to schedule research assessment visits for 20-24 weeks; 28-32 weeks and 34-38 weeks. Participants were randomised into the embedded part of the study if they enrolled before 24 weeks. This subgroup had ultrasound examinations at each visit for fetal biometry, Doppler and dysmorphology. Physiological assessments such as raw signals of the fetal and maternal ECGs were collected at each antenatal visit. At delivery the placenta, cord blood and meconium stool were collected and processed by the research staff for further analyses. The infant visits were schedule according to the gestational age at birth. As part of the infant physiology assessments, the following data were collected: baby metrics, ECG, respiration rate, blood pressure and EEG during quiet and sleep state. ABR and OAE were also collected. Another infant visit was scheduled at one month. Anthropometry, facial dysmorphology and Mullen tests (only in the embedded part) were collected at one year.

Results

During the course of conducting these assessments (Table 1), severe fetal, neonatal or infant morbidity were occasionally incidentally encountered. Immediate referral to the appropriate emergency sections was essential, according to the guidelines of the study protocol. The referral criteria regarding unanticipated events were considered and adhered to for the foetal, infant and ultrasound assessments. Referred cases included poor fetal growth, oligohydramnios and reduced fetal movements. There were also several infant referrals which will be listed. There were four emergency referrals: fetal bradycardia (3) and respiratory arrest in an infant (1). Prompt action in these cases prevented mortality or severe morbidity. These scenarios will be discussed in detail.

Table 1: Scheduled visits

| Period | Physiology assessments | Ultrasound examinations |
|---------------|------------------------|-------------------------|
| 20 – 24 weeks | 4 389 | 1 604 |
| 28 – 32 weeks | 1 789 | 238 |
| 34 – 38 weeks | 6 147 | 1583 |
| New-born | 5 233 | N/A |
| One month | 6 163 | N/A |

Conclusion

Any clinical research study should have clear criteria for referral. Research personnel should know where to refer to in the case of an emergency.

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SESSION 3: POSTER 3

FACTORS INFLUENCING THE CHOICE AND UPTAKE OF HORMONAL CONTRACEPTIVES

Dr Manala Makua; Prof Thuledi Makua

Introduction: DHS 2016 indicated the decline in fertility preferences and fertility amongst women at the reproductive age irrespective of marital status. The contraceptive prevalence rate remains constant between the DHS 1998 and DHS 2016 reports. Most women (98%) indicated that they do have knowledge about the contraceptive methods but also confirmed that they are not using any of the methods.

Problem statement: High unmet need for women at the reproductive age despite the high knowledge levels across all age groups.

Method: Qualitative study conducted at Elias Motsoaledi municipality, Sekhukhune district in Limpopo 2014. Focus group discussions were conducted with women at the reproductive age, their partners, community health care workers and local traditional leaders.

Results:

- Fear of infertility later in life was the common reason cited for not using the contraceptives.
- Inability to manage side effects irrespective of the counselling provided.
- Inadequate counselling provided during the initial visit for contraceptive services.
- Impact of side effects on their social life i.e. spotting or nuisance bleeding especially amongst the young people.
- Lack of access to contraceptive services (operating times of the clinics, need to request a leave to access the contraceptives. Not including contraceptives as part of wellness services at the workplaces.
- Lack of approval from the male partners on the use of contraceptives.

Conclusions:

Inability to involve men as partners in the campaign to improve contraceptive uptake will not yield any positive results.

SESSION 4: PAPER 1

THE EFFECTS OF IMPLEMENTING BASIC ANTENATAL CARE (BANC) PLUS ON WORKLOAD, DETECTING HYPERTENSION AND PERINATAL MORTALITY

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Background: The WHO antenatal care guidelines of 2016 revised the previous guidelines and intervention in antenatal care was evidence based, focused on specific visits and the number of visits was increased from 5 to 8 visits. The basic antenatal care (BANC) guidelines were based on the previous WHO guidelines and were adjusted as *BANC Plus* to the new WHO Guidelines. It was hypothesised that following the introduction of *BANC Plus* on 1st April 2017 that the number of antenatal visits and the proportion of women detected with hypertension will increase. Over time it is expected that the stillbirth rate would decline.

Aim: To ascertain whether there has been a change in the number of visits, detection of antenatal hypertension and number of stillbirths since the implementation of BANC Plus.

Setting: Four circumscribed catchment areas were used; 1 urban, 2 pre-urban and 1 rural sub-districts in South Africa were used.

Method: All catchment areas had BANC Plus training before the 1st April. Fifty consecutive maternity case records per catchment area were collected in March, July, September and November to assess trends. Data was extracted for the number of visits, detection antenatal hypertension and mortality by two researchers. The number of births, stillbirths and neonatal deaths for the sites over the period were also recorded.

Results: There is overall increase in all catchment areas in the number of visits with the mean visits being 4.6, 4.7, 5.3 and 5.4 for March, July, September and November respectively. Seven point three percent of women and 30% had 8 and 6 visits or more in March and 19.5% and 53% having more respectively in November. There was an improvement in the recording and detection of antenatal hypertension with 10.3%, 13.0%, 11.0% and 16.5% of women being diagnosed with hypertension in March, July, September and November respectively. This equates to a 60% increase in hypertension detection from the baseline in March to November. The stillbirth rate was unchanged at 27.6/1000 births in the March and 27.6/1000 births in November.

Conclusion: The change in antenatal policy has been implemented in each catchment area as evidenced by the associated overall increased number of antenatal visits. As hypothesised there has been an increased detection of antenatal hypertension and but no improvement in the stillbirth rate yet.

Implications: The workload at both the primary health care clinic and the referral hospital has increased. The question remains as to how the increased numbers especially in referral will be dealt with.

SESSION 4: PAPER 2

CHRONIC HYPERTENSION IN PREGNANCY: LESSONS FROM MATERNAL DEATHS: BE MINDFUL

J Moodley

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Hypertensive disorders of pregnancy (HDP) are the commonest direct cause of maternal deaths in South Africa. Amongst the various categories of HDP (gestational hypertension, chronic hypertension, pre-eclampsia, severe pre-eclampsia, eclampsia, HELLP, and postpartum hypertension), most reports are on deaths from eclampsia. This is not surprising since eclampsia accounts for over 50% of all deaths due to HDP. However, deaths from chronic hypertension during pregnancy may provide important lessons to learn in clinical management of this category of HDP. In the Saving Mothers Report 2014-2016, 631 (14.8%) deaths were due to HDP. Of these 14, were thought by independent assessors, to be due to chronic hypertension.

The age range of these 14 deaths due to chronic hypertension was 28-24 (mean 35.9 years), and mean parity 3 (range 0-6). 5 of the 14 started antenatal care, at 15 weeks or earlier with a range of 8-15 weeks gestational age. All 14 were thought to have chronic hypertension but none who attended for antenatal care were admitted for investigation or examined by an experienced medical doctor. There were avoidable factors – both patient and health professional related. Some case scenarios will be presented and lessons learnt illustrated. The main causes of death were cerebral haemorrhage and pulmonary oedema. Three deaths were due to pulmonary oedema, 1 to peripartum cardiomyopathy and 10 to massive cerebral haemorrhage. Six patients either died at home, or returned following discharge in extremis. The main cause of death, namely cerebral haemorrhage, points to poor control of blood pressure, failure of complete investigation of patients with severe hypertension, viz. X-Ray chest, ECG, cardiograph and early discharge home.

Pregnant women with chronic hypertension should have a complete examination of the respiratory and CVS systems and all should be examined by an experienced health professional, a specialist experienced in care of pregnancy hypertension. Because 30% will go onto to develop superimposed pre-eclampsia, such patients must be managed under a specialist or under their supervision. All must be provided with contraception.

SESSION 4: PAPER 3

THE DEVELOPMENT OF A BRIEF SCREENING TOOL FOR COMMON PERINATAL MENTAL DISORDERS IN SOUTH AFRICA

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Background: Common perinatal mental disorders (CPMDs): depression and anxiety, directly impact about one third of South African mothers, which results in significant, intergenerational effects on the health of both women and their children.

Screening for CPMDs in antenatal settings is an essential first step in meaningfully addressing this health burden. However, commonly used screening tools have associated problems including being too long, psychometrically invalid or culturally inappropriate for use in busy real-world clinical settings.

Objective: To develop a brief mental health screening tool for common mental disorders, for use in low resource, primary-level maternity care, settings in South Africa, by non-specialist health workers.

Method: In a socio-economically disadvantaged setting within Cape Town, 376 women attending their initial antenatal visit at a Midwife Obstetric Unit were recruited through purposive sampling. Five depression and anxiety symptom-screening questionnaires and eight psychosocial risk screening questionnaires were administered. All participants were interviewed with a structured diagnostic interview, the MINI Neuropsychiatric Interview (MINI Plus). Screening tools and individual items from the screening tools were analysed against the MINI using multiple logistic regression and ROC analysis.

Results: The mean age of participants was 27 years, and the overall prevalence of MINI-defined depression was 22% and anxiety disorders was 23%. Multiple logistic regression identified four symptom items that were predictive of CPMD. ROC curve analysis for the symptom items combined yielded an acceptable area under the curve of 0.83. The most 'clinically' useful cut off on the new screening tool was a score of 2 or more, with a sensitivity of 78% and specificity of 82%. Asking about psychosocial risk factors did not significantly enhance the predictability of the tool.

A follow-up construct validation study included formal translation, back translation (from English to isiXhosa and Afrikaans), field testing and psychometric evaluation against the Edinburgh Postnatal Depression Scale. This yielded a refined tool of three binarised items with an AUC of 0.93, and with a cut-point of 2/3, has a sensitivity of 86%, a specificity of 93%. The percentage correctly classified was 92%.

Conclusion: This screening tool is the first measure of antenatal depression and anxiety developed in sub-Saharan Africa to include depressed mood and anxiety symptoms. It may be a useful instrument for clinical application as a screening intervention aimed at the early identification of mental health risk and morbidity in the perinatal period.

SESSION 4: PAPER 4

COMPARING INTERGROWTH-21ST WITH THERON FETAL GROWTH STANDARDS FOR IDENTIFICATION OF SGA IN STILLBIRTHS

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Background

Recently global growth and size standards for fetuses were developed (INTERGROWTH-21st). The INTERGROWTH-21st charts are international population standards for fetal growth and are intended for global use for comparison between countries. It has been advocated that these new standards should be adopted by professional bodies. The ability of INTERGROWTH-21st to identify small-for-gestational-age (SGA) fetuses in stillbirth cases compared to local standards (Theron) in the South African setting has never been assessed.

Methods

Secondary analysis of the South African Perinatal Problems Identification Program (PPIP) database was used to investigate all stillbirths (>500g and >28 weeks) between October 2013 to December 2016 across South Africa. The study applied the Intergrowth 21st standards to classify perinatal deaths as <10th centile (SGA) or >10th centile (AGA) for stillbirths in South Africa as compared to Theron growth charts. This was assessed overall across pregnancy and also at specific gestational ages (28-40 weeks).

Results

There were 14,776 stillbirths during the study period. The 3-year cumulative incidence of SGA was 32.2% and 31.1% by INTERGROWTH-21st and Theron growth charts, respectively. However, when considering each gestational age separately there were differences in the proportion of fetuses classified as SGA between INTERGROWTH-21st and Theron. The INTERGROWTH-21st standards captured 41.5% more stillbirths as SGA in the earlier gestations (28-30 weeks) but 23.0% fewer in the later gestations (33-38 weeks) compared to Theron growth curves. This trend was observed for both macerated and fresh stillbirths.

Conclusion

Our findings show that there are differences in the proportion of stillbirths considered SGA at each gestational age which has not been previously considered by other studies. This highlights the importance of future research to consider SGA at each gestational age and not simply compare proportions across the entire pregnancy period when considering adopting INTERGROWTH-21st.

SESSION 4: PAPER 5

THE EFFECT OF MATERNAL WEIGHT ON OBSTETRIC OUTCOME

M Nchinyani, C Cutland, Y Adam

Background

In a demographic health survey done in South Africa (2008), 25% of adults were classified as overweight and 20% were obese. Maternal obesity has been recognized as a risk factor for poor outcomes in mothers and their babies, including gestational diabetes mellitus (GDM), fetal macrosomia, pre-eclampsia, stillbirth and postterm pregnancy. The main objective of this study was to find the proportion of women with different BMI and obesity classes and the associated outcomes in pregnant women in Soweto between March 2011 to August 2012.

Methods

This was a cross-sectional study using secondary data collected between (March and June) 2011 and (March and August) 2012 in two randomised controlled trials assessing the efficacy of trivalent inactivated influenza vaccine. Pregnant women were recruited at Chris Hani Baragwanath Academic hospital and at midwife obstetric units in Soweto and mothers and babies were followed up for 24 weeks postpartum.

For this study we used data collected at the baseline and delivery visits. The inclusion criterion was women aged between 18 and 39 years. Ethics approval for this study and both previous studies was obtained from Human Research Ethics Committee (M101106, M101107 and M151033)

Results

Of the 2310 women recruited between 20 and 36 weeks gestation, 488 were excluded from the study (no heights/weights recorded). The median maternal age was 25.4[IQR 22-30; range 18.2- 38.3] years. The median parity was 1[IQR 0-1; range 0- 4] and median gravidity was 2[IQR 1-2; range 1- 5]. HIV infection was present in 172(9.6%) women. The proportion of women in different BMI categories is as follows; underweight - 18(1%), normal weight- 516(28.3%) overweight- 649(35.6%) and obese - 639(35.1%). The median gestational age at birth was 38.7[IQR 37.1- 40.0; range 28.3- 42.7] weeks. Women in the obese group had had more miscarriages 93(14.6%) compared to women of normal weight at 52(10.1%) $p=0.09$. There were 55 (3.0%) patients with previous neonatal death and 37 (2.0%) with previous stillbirth, with no difference between women in different categories of BMI $p=0.55$. Obese women (468; 38.2 %) were most likely to be referred to hospital for delivery compared with women of normal weight (325; 26.5%), $p=0.00$.

There was an increasing trend in the proportion of caesarean sections in women with increased BMI category (a p -value =0.00); underweight 4(22.1%), normal weight 112(21.7%), overweight 187(28.8%), obese 232 (36.3%). The mean birth weight in the different BMI categories was; underweight 2.7(\pm 0.3), normal weight 2.9(\pm 0.5), overweight 3.0(\pm 0.5) and in obese group 3.1(\pm 0.5), with a p -value=0.00. The mean birth length in the different BMI categories was; underweight 48.1(\pm 3.0), normal weight 49.3(\pm 3.7), overweight 49.6(\pm 4.0) and in the obese group 50.0(\pm 4.1), with a p value of 0.01. The mean one-minute Apgar scores 8.6(\pm 1.2) and five-minute 9.8(\pm 0.9) and there was no difference in APGAR scores with different BMI categories. Women in obesity Class III tends to be older and had more ultrasound examinations $n= 39(55\%)$.

Conclusion

Obese women were more likely to be delivered by caesarean section and had a history of poor obstetric outcome. Obese women were more likely to be having a hospital delivery compared to women delivering at MOUs.

SESSION 4: PAPER 6

THE CLINICAL SIGNIFICANCE OF MULTIPLE ENROLMENTS (SHORT INTER-PREGNANCY INTERVALS)

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Introduction

The Safe Passage Study (SPS) is an international, prospective study of approximately 12 000 pregnancies to determine the effects of prenatal alcohol exposure upon stillbirth and the sudden infant death syndrome. For the South African cohort of the SPS, a total of 7060 participants were recruited at the Tygerberg site over a period of 7 years. After exclusions (twin pregnancies, lost to follow up, withdrawals) there were 4975 participants who enrolled once (group 1), 831 twice (group 2) and 78 three times (group 3).

Methods

Gestational age was determined by ultrasound. Alcohol, methamphetamine and marijuana use and cigarette smoking data was obtained at 1 to 4 occasions during pregnancy. Socio-economic data was collected at recruitment at which time anthropometric measurements and nutrition screeners were also done. Information on the outcome of pregnancy was obtained from chart abstractions after delivery. Information from the Intergrowth21st study was used to determine the Z-scores of birthweight for gestational age. STATISTICA version 13 was used for the statistical analyses and to compare the three groups. Ethical approval was obtained from the Health Research Ethics Committee of the Faculty of Medicine and Health Sciences of Stellenbosch University.

Results

The mean interval between births in group 2 was 1251 days and in group 3 the mean intervals between 1st -2nd and 2nd – 3rd births were 932 days and 899 days respectively.

| Variable | 1 Enrolment Mean value N=4975 | 2 Enrolments Mean value N=831 | 3 Enrolments Mean value N=78 | Test | P value |
|-----------------------------------|-------------------------------------|-------------------------------------|------------------------------------|------|-----------|
| Maternal age (years) | 24.8 | 22.9 | 22.8 | KW | < 0.01 |
| Maternal weight (kg) | 64.9 | 61.3 | 62.6 | KW | < 0.01 |
| Maternal BMI (kg/m ²) | 25.7 | 24.2 | 24.9 | KW | < 0.01 |
| Monthly income (R) | 908.3 | 666.8 | 503.0 | AOV | < 0.0001 |
| Infant birth weight (g) | 2990.6 | 2932.4 | 2917.1 | AOV | < 0.05 |
| Gestational age at birth (days) | 271.0 | 268.9 | 266.2 | AOV | < 0.01 |
| Birth weight Z-score | -0.36 | -0.46 | -0.34 | AOV | < 0.05 |
| Variable (%) | 1 Enrolment | 2 Enrolments | 3 Enrolments | Test | P value |
| Edinburgh depression score >18 | 28.8 | 41.0 | 50.7 | CS | < 0.00001 |
| Employed | 35.1 | 25.0 | 21.1 | CS | < 0.00001 |
| <i>Drinking</i> | 38.6 | 42.5 | 44.2 | CS | > 0.05 |
| Smoking | 54.6 | 58.9 | 68.8 | CS | < 0.005 |
| Marijuana Use | 9.9 | 14.6 | 18.6 | CS | < 0.0001 |
| Methamphetamine Use | 4.8 | 9.2 | 18.6 | CS | < 0.00001 |
| Education: Grade 12 | 23.7 | 14.6 | 7.8 | CS | < 0.00001 |
| Tertiary Education | 4.2 | 1.3 | 0.0 | CS | < 0.00001 |
| Diabetes | 0.7 | 0.1 | 0.0 | CS | < 0.05 |
| Hypertension | 13.1 | 7.1 | 4.0 | CS | < 0.00001 |
| <i>Preterm Delivery</i> | 13.6 | 15.3 | 19.5 | CS | > 0.05 |
| Infant Demise | 0.9 | 2.2 | 1.3 | CS | < 0.05 |
| Stillbirth | 1.2 | 2.3 | 3.9 | CS | < 0.05 |

Tests: Kruskal-Wallis (KW), Analysis of variance (AOV), Chi-square (CS); all variables not available in all participants.

Conclusions

A shorter interval between births was associated with poor income and education, more depression, less employment and higher use of nicotine, alcohol and drugs when compared to women who had only one birth during seven-year study period. A shorter interval was also associated with more stillbirths, growth restriction shorter duration of pregnancy and more infant demises.

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SESSION 4: POSTER 1

AUDIT INTO SFH PLOTTING IN LOW RESOURCE AREAS, AND ITS EFFICACY

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Introduction:

Symphysis Fundal Height (SFH) measurement is a means to assess fetal growth during the antenatal period. SFH measurements are then plotted on fetal growth charts. This tool is especially important in a resource constrained environment where there is limited use of ultrasound facilities. A previous audit at Queen Nandi Hospital (QNH) on unexplained still births found that missed intrauterine growth restriction (IUGR) was a significant avoidable factor amongst health care workers where the SFH was either not plotted or plotted incorrectly on the antenatal growth chart.

Methodology

Aim:

To evaluate the use of SFH measurement and fetal growth charts amongst a cohort of antenatal patients at QNH

Objectives:

1. To determine if patients were plotted correctly on the antenatal growth chart
2. To identify possible problems with use of the growth chart

Study Design:

This was a prospective chart review conducted at QNH from 10-27 November 2017. Files were randomly selected and a simple descriptive analysis was performed.

Results:

The files of 100 patients were analysed during the study period. These patients had a total of 590 antenatal visits. Only 38% of patients seen were plotted on the growth chart and 14% of these patients were plotted incorrectly. A significant factor identified amongst those plotted incorrectly, was a failure to correctly plot fetal growth at follow up visits. There was a discrepancy in plotting fetal growth amongst QNH and referral clinics with clinics plotting fetal growth during 47% of visits and the high risk clinic plotting during 11% of visits. Within this cohort 27 antenatal problems that could have been identified earlier, with proper use of the fetal growth chart, were missed. This included failure to detect and appropriately refer patients with polyhydramnios, IUGR, IUD and multiple pregnancy. The most important problem identified was a failure to correctly calculate gestational age and plot patients accurately at the first antenatal visit. Another problem was patients who booked late and only had a single SFH measurement plotted on the growth chart.

Conclusion:

SFH measurement and fetal growth charts are a valuable means of assessing fetal growth in a low resource setting. However, this is only beneficial if the patient's gestational age is accurately established and if the SFH measurement is done correctly and accurately plotted on the growth chart. All antenatal patients need to be encouraged to initiate antenatal care as early as possible. Health care workers need ongoing training on how to assess antenatal fetal growth and appropriate actions to be taken once a problem is identified.

SESSION 4: POSTER 2

DO 5-6 YEARS OLD CHILDREN FROM LOW SOCIO-ECONOMIC COMMUNITIES HAVE AN INCREASED RISK FOR CHRONIC DISEASES DUE TO IN-UTERO EXPOSURE TO ALCOHOL AND NICOTINE?

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Introduction

The increase in cardiovascular disease and the predisposing risk factors in younger individuals is of public health concern. It sets the scene for an even higher prevalence of chronic disease in adults than is currently the case. The cause of this increase in risk in younger adults and even in children is worrying. Apart from the important role that life style plays in the development of chronic disease risk, it is well known that both the prenatal as well as the postnatal environment play a significant role in risk development. In particular, the contribution of the intrauterine environment has been researched to find factors and mechanisms, which may predispose young children to the development of risk factors for chronic disease at an early age. This prospective study was aimed at identifying the associations between environmental influences, in particular alcohol and nicotine consumption during pregnancy, on birth and health outcomes at 5-6 years of age. The hypothesis for this study was that maternal lifestyle choices such as smoking and alcohol consumption during pregnancy have adverse effects on the development of the kidney, pancreas and vascular system and hence, the increased risk for developing chronic disease later in life. Even during early childhood.

Methods

Data were collected from 500 pregnant women at recruitment, and from their children at birth and at the age of 5-6 years within the Tygerberg Academic Hospital catchment area in Bellville, South Africa. Data from the Safe Passage Study included maternal, birth and current data. Maternal weight, height, BMI and mid-upper arm circumference were collected at the antenatal visit at recruitment. Birth weight, length, head circumference and placental weight were collected at birth. At age one month, one and four years, weight, height and mid-upper-arm circumference were collected. At age 5-6 years' anthropometric measurements (weight, height, skinfold thickness and waist circumference), clinical measurements (blood pressure, mean arterial pressure and heart rate) and ultrasound measurements of the kidney, pancreas, aorta, carotid arteries and visceral fat were collected. For the purpose of this abstract we will report only on the vascular parameters and the kidney outcomes.

Results

Using multiple regression models, maternal BMI at recruitment, maternal weight and maternal mid-upper arm circumference had a significant predictive potential on the weight, subscapular skinfold thickness and waist circumference of their children at 5-6 years but not maternal age. This was independent of their in-utero exposure to alcohol, nicotine or both. Using generalized linear regression models, left carotid IMT was increased in boys but not girls (boys had a mean left carotid IMT of 0.359 mm and girls 0.343 mm with $p=0.008$) whereas for the right carotid IMT, gender seemed to play a less significant role. However, the right carotid IMT was increased in the children of the dual exposed (alcohol and nicotine) group, in both the boys and in the girls (0.358 mm versus 0.338 mm with $p=0.002$). Left kidney length was significantly reduced in the nicotine and dual exposed groups ($p=0.007$ and $p=0.049$), whereas right kidney volume was significantly reduced in the nicotine group

($p=0.027$).

Conclusion

These results show that in these low socio-economic communities, the maternal weight and adipose distribution have a stronger prediction on the weight, skinfold thickness, waist circumference and kidney volumes of their 5-6-year-old children than the age of the mother. Effects of maternal exposure to alcohol and nicotine during pregnancy on birth outcome as well as on organ development had significant consequences for chronic disease risk in later life. Gender differences are prominent in the vascular parameters measured. These observations were already visible at 5-6 years which make early prediction and intervention possible.

SESSION 5: PAPER 1

PLANNING AND MONITORING NEWBORN CARE SERVICES: HOW SHOULD A NEWBORN CARE SERVICE IN SOUTH AFRICA LOOK LIKE?

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Introduction: The current newborn mortality rate (NMR) of 12 per 1000 live births in South Africa is unacceptably high. In order for South Africa to reach the under-5 child mortality SDG target of less than 25 per 1000 live births by 2030, efforts must be directed at reducing NMR by at least 50%.

Methods: This paper will review the current status of NMR in South Africa, discuss the challenges in the health care system that pose barriers to successful implementation of the national newborn care strategy, and will propose some radical health systems transformation in order to significantly half the current NMR.

Results: Given the current hierarchical design of the health care system, there were distinct district and provincial differences in the NMR in South Africa—with large numbers of newborn deaths clustering around referral centres; most disadvantaged provinces observing the highest burden of newborn deaths. Clinical and systems related challenges were identified during recent rapid assessment of the facilities caring for newborns among the high burden provinces. Carefully planned and monitored newborn care services and clinical units have the potential to significantly change the NMR—we describe the various initiatives to achieving this goal.

Conclusion: Although the South African health care system poses challenges in delivering effective newborn care services, a number of game changing initiatives, if implemented successfully and to scale, could help reduce NMR significantly.

SESSION 5: PAPER 2

DEVELOPMENT OF SOUTH AFRICAN NEONATAL SKIN CARE GUIDELINES

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Introduction

Neonatal skincare is an important topic and no current national guidelines are available. A South African Core group of experts comprising of representatives from three associations (NNASA, NEA & SOMSA) and a dermatologist participated in developing such guidelines. It is the first time in the country that there is such a collective process amongst the participating groups to further health care of neonates, in this case determining the evidence base for neonatal skin care guidelines and adapting guidelines for the South African context. Guidelines were developed for use by health care professionals and lay persons alike.

Method

The 'Neonatal skin care evidence-based clinical practice guideline' (3rd edition) published by the Association of Women's Health, Obstetric and Neonatal Nurses (AWHONN) were used as departure point for this review, and the methodology was based on the ANA Manual to Develop Guidelines (Marek, 1995). This South African team followed the same systematic review process as used in the original guidelines to ensure that new evidence with similar strength could be added and to ensure future updates can be done. Various databases were searched using key words, including disinfectant, medical adhesives, circumcision, diaper rash, touch, extravasation, short term, skin prick, bathing, cord care, vernix caseosa, emollient and newborn skin care. The quality of evidence was rated with the same method as in the development of the AWHONN skin care guidelines. Literature published from 2012-2017 was reviewed. The draft document is currently available for consultation, after which the guidelines will be validated using the Delphi technique.

Results

Based on the results of the review additional evidence could be added to the AWHONN guidelines. No contradicting evidence were found while additional topics such as harmful cultural practices in the context of South Africa were identified for inclusion in the guidelines. In addition, the use of breastmilk for wound care in circumcision and the use of chlorhexidine gel for cord care were identified as important clinical considerations. The National Department of Health has already been consulted in October 2017 on how the newly identified evidence could be used to improve outcomes in neonatal care. The response of NDoH was positive. A parental brochure will also be developed to disseminate the evidence on neonatal skincare.

Conclusions

Neonatal skin care is very delicate and need to be protected as care at this stage may influence skin care later in life. The South African Neonatal skin care evidence-based clinical practice guidelines can be value to improve outcomes.

SESSION 5: PAPER 3

PREVALENCE, TYPES AND OUTCOMES OF MAJOR CONGENITAL ANOMALIES IN BABIES BORN TO A PUBLIC TERTIARY HOSPITAL

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BACKGROUND: Congenital anomalies are the 4th leading cause of neonatal deaths in South Africa. Congenital anomalies can be life threatening, result in long-term disability and negatively affect the individual, families, and society at large. The prevalence of congenital anomalies from developing countries including our region, sub-Saharan Africa is scarce and not well described in literature. Chris Hani Baragwanath Academic Hospital (CHBAH) is the largest public hospital in the country, with a large drainage area and hence the interest to assess the prevalence of congenital anomalies seen at this hospital.

OBJECTIVES: To determine the proportion and types of congenital anomalies among live babies born at CHBAH and to describe both the maternal and infant characteristics and the outcomes of these babies to hospital discharge.

METHODS: Retrospective, descriptive study. Birth and neonatal admission registers were reviewed for the period 1st January 2012 to 31 December 2013. All Live born babies at CHBAH with major congenital anomalies were included in the study.

RESULTS: The total live births during the study were 43876 of which 114 had major congenital anomalies, with a prevalence of 2.60 per 1000 live births. The common organ system affected was the cardiovascular accounting for 30.7% of anomalies, followed by the gastrointestinal 17.5% and musculoskeletal 13.2% and central nervous system 12.3%. Majority of women who gave birth to these infants were of age group 20-35 years (61.7%), multigravida (57%) and 26% were HIV positive. About a third of the abnormalities (34%) required surgical intervention before hospital discharge. Survival to hospital discharge in neonates with major congenital anomalies was 72%.

CONCLUSION: The prevalence of congenital abnormalities is lower than that reported from developed countries but similar to developing countries. Congenital abnormalities were associated with high mortality rate. More emphasis should be placed on prevention and early detection of congenital abnormalities.

SESSION 5: PAPER 4

BARRIERS TO SOLUTIONS APPROACH FOR IMPLEMENTING PERINATAL DEATH REVIEWS IN LMIC COUNTRIES IN SOUTH EAST ASIA AND SUB-SAHARAN AFRICA

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Background: More than 5 million perinatal deaths occur globally each year. Ending preventable stillbirths and neonatal deaths is one of the key priorities of Every Newborn Action Plan. In the regions with the highest mortality burden, perinatal deaths are poorly recorded and are therefore most likely to be unaccounted for. The first step in targeting programmes that address perinatal mortality is the accurate capture and classification of the causes of those deaths across all settings, using a globally applicable and comparable system.

Objective: To identify major barriers and solutions for implementation of perinatal death review and response in public health facilities where maternal death review and response is already being implemented.

Methods: Rapid qualitative review of policy and implementation barriers and suggested actions by country teams in Bangladesh, Ghana Myanmar and Tanzania.

Results: The major barriers fall under five areas. 1) lack of prioritization of perinatal death review in national policy documents; 2) Lack of funding; 3) lack of human resource as well as technical capacity; 4) limited linkage with routine monitoring system; 5) capturing deaths occurring at home and 6) limited capacity for reporting and response mechanism. The country teams developed action plans to address these barriers. Suggested solutions included 1) Developing national and subnational plans to implement perinatal death reviews and response and guidelines and tools for capacity building, recording and reporting including introduction of ICD-10PM and near-miss reviews; 2) creating specific budget codes in government allocation for review and response activities at district and facility level; 3) linkage of district hospitals with teaching tertiary hospitals for mentoring, developing inter-disciplinary hospital teams for implementation implementing perinatal death review programme and forming hospital collaboratives for cross-learning and peer support; 4) improving medical records and registers for data capturing and promoting DHIS2 based reporting 5) using social autopsy and community engagement to identify and address patient/community related factors; 6) including perinatal death reviews as a priority module to existing pre-service and in-service training programmes and research funding for building human resource capacity.

Conclusions: A planning approach that builds on understanding of context specific barriers is important for successful uptake of global guidance on perinatal death reviews. The national planning and financing decisions should cover the whole spectrum of issues for successful implementation.

Acknowledgement: UNICEF and MoH country teams from Bangladesh, Ghana, Myanmar and Tanzania

SESSION 5: POSTER 1

STARFISH PROJECT

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In the North West Province of South Africa, the majority of the population of 3.7 million people are of child bearing age. The birth rate in this province is 50,051 births per annum for a geographical area of 104,822 km². The mortality rate of children under five is contributed to HIV/AIDS, followed by childhood illnesses, such as infection and nutritional deficiency (Bradshaw *et al*, 2000).

The STARFISH project aims to improve neonatal, infant and child care in the North West province by means of collaborative initiatives. The objectives of this project focus on improvements for the neonate, infant and under-five child and their families, as well as for the healthcare professionals working with these children as well as holding benefits for the participating institutions. The project is supported by the Chief Director of Health of the Dr Kenneth Kaunda district, as well as the Directorate of Research, Planning and Development in the Department of Health (North West Province)

Project participants were invited to apply to participate through the Mother Child and Women's Health (MCWH) coordinators of the Dr Kenneth Kaunda District. Twenty-five healthcare professionals and 25 healthcare workers were selected for the first cohort that to participate in the 2018 pilot project and they should have the written support of the direct managers. Participants are required to attend 11 contact sessions. The first and last sessions are the opening and closing ceremonies and the other nine are covering content such as 1) pregnancy, fetal development and normal adaptation to the extra-uterine environment, 2) the 4th stage of labour, 3) assessment of the neonate, 3) newborn care during the 4th trimester, 5) puerperium, 6) child illness, 7) emergency child care, 8) infant and child nutrition and 9) normal infant and child development.

In addition, participants are required to compile a portfolio of evidence of assignments that may take up to the equivalent of two work days. This will be off-duty time. Participants also have the opportunity to develop life skills and leadership through the portfolio activities and should be prepared to act as mentors for new participants in 2019, which is part of the capacity building and sustainable nature of this project. Other outcomes that will be measured include improvement in knowledge on neonatal, infant and child care and development, as well as the morbidity and mortality indicators as identified by the provincial programme managers.

SESSION 5: POSTER 2

THE NEW ROAD TO HEALTH BOOKLET AND THE U5 SIDE-BY-SIDE CAMPAIGN

Dr LJ Bamford

National Department of Health

Although U5 mortality rates in South Africa have fallen, many children fail to reach their full potential as evidenced by high levels of stunting and poor educational outcomes. In line with the Global Strategy for Women's, Children's and Adolescents' Health, there is a need to shift from focusing on ensuring that children *survive* to ensuring that they also *thrive*¹.

Recent research stresses the importance of young children establishing secure and loving relationships with parents and other caregivers², whilst the First 1000 day concept highlights the linkages between the well-being of mothers and their infants. Although the National Early Childhood Development (ECD) Policy of 2015 assigns responsibility for provision of a comprehensive package of ECD services for children 0 – 2 years to the Department of Health, a single unified approach to providing these services has been lacking.

To address this, the National Department of Health has revised the Road to Health booklet (RtHB) with a view to making it more user-friendly and to leverage its potential as a communication and behaviour change tool. The content in the new RtHB is organised around five knowledge pillars, signposted with icons. These are:

- Nutrition for Health Growth
- Love, Play and Talk for Healthy Development
- Protection from childhood illnesses and injuries
- Health Care when sick
- Extra care when needed

The RTHB forms the centerpiece of an U5 child health campaign (known as Side-by-Side). The central message of the campaign is "You are central to your child's nurturing, care, and protection – and their lifelong health outcomes. Your health worker is there to support you."

In addition to the revised RTHB and accompanying materials, the Side-by-Side campaign will include:

- Radio-shows which will be broadcast weekly on 11 SABC radio stations
- An eRTHB app which will deliver current MomConnect child messages (extended to 0 – 5 years).
- Community activations.

Conclusion

Long term health and development outcomes in children are influenced by the care that they receive before birth and during early childhood. The new RTHB and Side-by-Side aim to support caregivers and other role-players (including health care workers) to provide young children with comprehensive ECD services.

SESSION 5: POSTER 3

DO NO HARM: THE SAFE AND EFFECTIVE USE OF INTERVENTIONS FOR SMALL/SICK NEWBORNS

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Each year approximately 15 million newborns are born too soon (less than 37 weeks gestation) representing one in every ten births. Complications due to preterm birth are currently the leading cause of child death globally. While 90 percent of extremely small newborns survive in high-resource settings, only ten percent survive in low-resource settings.

The complexity of care, inappropriate use of technology, limitations of staff and inadequate infrastructure, compounded by the underlying vulnerability of sick and preterm newborns, can result in unintentional harm. Highlighting the need for a focus on safe and effective inpatient care in low-resource settings is an important step to avoid harm and improve health outcomes for newborns.

In November 2016, the USAID/Washington funded-Every Premie—SCALE project (Every Premie) convened an interagency meeting in Washington, DC, to discuss the safe and effective use of key clinical interventions used to improve preterm birth outcomes. These interventions are also relevant to sick newborn care in general. Meeting participants called for developing a series of technical briefs under the banner of *Do No Harm*.

The [Do No Harm Technical Briefs](#) focus on the safe and effective use of oxygen, infection prevention, thermal protection, human milk feeding and lactation support, and the prevention and screening of retinopathy of prematurity (ROP) for inpatient care of small and sick newborns. Briefs on oxygen, infection prevention, thermal protection and human milk feeding highlight how unsafe use of the intervention can cause harm, the current WHO recommendations, current evidence-based best practices and what actions can be taken to improve their use and health outcomes. The ROP brief emphasizes the optimization of oxygen management and ROP screening and treatment based on clinical protocols. Actions for each area of care are highlighted across policy makers, program planners and implementers, facility managers and administrators, and health care providers.

The briefs were drafted by senior medical professionals from around the world and benefitted from extensive expert review.

The presentation will highlight each of the technical briefs and will emphasize the critical importance of the safe and effective use of interventions in low resource settings given the disproportionate mortality suffered by small/sick newborns in these settings. Hard copies of the briefs will be available to meeting participants.

SESSION 5: POSTER 4

MATERNAL AND NEONATAL FACTORS ASSOCIATED WITH PERINATAL DEATHS IN A DISTRICT HOSPITAL IN THE FREE STATE PROVINCE

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Perinatal mortality refers to the stillbirth of baby and a baby's death up to one week after birth. The purpose of the current study was to identify maternal and neonatal factors associated with perinatal deaths in one selected district hospital in the Free State Province of South Africa.

Most births and neonatal deaths occur in district hospitals, explaining the rationale for selecting a district hospital as the study site. A quantitative retrospective descriptive design was utilised. Ex post facto data were collected from the Perinatal Problem Identification Programme's (PPIP's) data collection tool. An additional MS Excel data collection instrument was developed to transfer specific data elements from the PIPP data base to the MS Excel data instrument to facilitate the data analysis.

At the participating hospital, 2319 neonates were born during 2015 comprising the study's population. A random sample of 384 live neonates and an all-inclusive sample of 43 dead neonates were included in the current study's data collection procedures. Descriptive statistics were calculated and Cohen's effect sizes-d (for continuous variables) as well as phi-coefficients (for categorical variables) were calculated to determine practically significant differences between the variables for neonates in the alive and dead groups respectively. A logistical regression analysis, to determine the major factors associated with neonatal deaths, was also compiled. The SAS (2016) statistical program was used to analyse the data.

These analyses indicated that the neonates' Apgar scores 10 minutes after birth, gestational age, weight at birth and the parity of the mother were the most practically significant indicators of neonates' chances to live or die. The study's findings supported the assumption that practically significant factors are associated with maternal and neonatal factors that contribute to perinatal deaths.

SESSION 6: PAPER 1

ARE THERE DIFFERENCES BETWEEN WHAT CARE WOMEN WANT TO RECEIVE FOR BIRTH IN URBAN AND RURAL HEALTH CARE FACILITIES?

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Background

There is a recognised need for effective measures of women's experience of care during facility-based birth as an integral component of improving care quality. The complexity of devising standardised measures is compounded by the dichotomy of measuring experience versus satisfaction. Care satisfaction is a complex interaction of experience, expectations, hopes and demands that impact on the postnatal health of the mother and baby. Without understanding if what women want from care varies in urban or rural settings in South Africa, we run the risk of measuring experience and developing interventions against broad standards rather than prioritising those most culturally relevant to women. This could result in expected outcome improvement not being realised. It is also necessary to know if the barriers to improvement are consistent in urban and rural facilities or if different approaches are required.

Methods

A qualitative descriptive study was conducted in the urban Tshwane District in Gauteng Province and the rural Waterberg District in Limpopo Province in South Africa. In-depth interviews and focus group discussions were used. The main group of participants included women of all risk levels and modes of delivery who had given birth in a public health facility in the 12 weeks preceding the interviews. Excluded from the study were women under 18 years, women who either did not wish to or were unable to consent or who appeared too ill or unwell. Other participant groups were healthcare providers working in a labour ward (nurse-midwives, advanced midwives and medical doctors and students) and influential key informants (healthcare managers and policy makers, clinical leads). Data were analysed using a framework analysis approach.

Results

Women in both urban and rural settings valued caring behaviours, the difference was in level of expectation. Distrust and wariness was less in the rural facilities. Urban women were more likely to want a known companion and to be unhappy that this was not available, rural women did not expect to have this option but wanted someone to be there (not partner). While appearing different, barriers to care were primarily due to communication, leadership challenges and systems problems and as such would require similar approaches regardless of urban or rural settings.

Conclusion

Caring behaviours would provide a woman-centred measure of care quality. Raising expectations increases distrust and wariness if they cannot be met. Candour around standards relating to health system influences facilitates a focus on caring behaviours.

SESSION 6: PAPER 2

WORKING 'CLEVER' IN MIDWIFE OBSTETRIC UNITS: ADDRESSING PREVENTABLE STILLBIRTHS AND SUSTAINING QUALITY INTRAPARTUM CARE DURING CHILDBIRTH AND THE EARLY NEONATAL PERIOD

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INTRODUCTION: South Africa was one of the countries that did not meet their Millennium Development targets, with a national stillbirth rate of 20.7 per 1000 total births and an early neonatal death rate of 10.1 per 1000 live births during 2014/15. Tshwane recorded an early neonatal death rate of 11.1 per 1000 live births during the same period. The implementation of the CLEVER package involved the micro-, meso- and macro-levels of the district health system, addressing poor clinical governance and supervision to promote sustainability of improved obstetric care practices in midwife-led obstetric units. The aim of this paper is to report on improved intrapartum care for birthing mothers, key perinatal outcomes and the sustainability of the intervention after one year.

METHODS: A three-phased, mixed method interventional study consisted of a quantitative and qualitative baseline measurement during phase one, while phase three used the same perinatal outcome indicators. The CLEVER interventional package was implemented during phase two and combined health-systems strengthening with an intensive 3-month engagement phase. Quality care support visits followed for 6 months after the intervention. The implementation end line perinatal outcome indicators were measured at the end of 2016, while a follow up measurement took place at the end of 2017.

RESULTS: The health-systems strengthening and the activities during the intensive engagement sessions changed disorganised midwife units to motivated units delivering safe, timely and efficient obstetric care. An assessment of end-point perinatal indicators perinatal outcomes compared data of 2016 for intervention and control MOUs to data for these two groups in 2015. Significant improvements for in-facility fresh stillbirths ($p=0.005$) and meconium aspiration ($p=0.023$) in the intervention MOUs were measured in 2016. The intervention and control MOUs were again assessed and compared data at the end of 2017 for both groups & outcomes sustained, while stillbirth rate improved further.

Analysis 2017:

| 2017 | Fresh Stillborns n (rate/1000 births) | Birth Asphyxia n (rate/1000 live births) | Meconium Aspiration n (rate/1000 live births) | Total deliveries | Live births | Stillbirth rate/1000 |
|--------------------|---|--|---|------------------|-------------|----------------------|
| Intervention units | 2 | 24 | 18 | 3348 | 3346 | 0.05/1000 |
| | (0.5) | (5.95) | (4.46) | | | |
| Control units | 9 | 37 | 10 | 3210 | 3199 | 2.35/1000 |
| | (2.35) | (9.7) | (2.62) | | | |

CONCLUSION: 'Working CLEVER', a clinically-focused intervention package can improve key perinatal mortality and morbidity rates in midwife-led units and continue to sustain the gains in quality intrapartum care practices.

SESSION 6: PAPER 3

IMPROVING STILLBIRTHS AND QUALITY OF NEONATAL CARE AT BUTTERWORTH HOSPITAL WITH MIDWIFE LED HIGH RISK ANTENATAL CLINIC

SD Mandondo DCST O&G, Dr Nash, Mrs Didiza, Amathole EC

Introduction: Butterworth Hospital is a medium to large district hospital located in Amathole Health District, Eastern Cape, with 260 beds. The hospital services a population of approximately 300 000 people, conducts an average of 3000 deliveries per annum & 17 000 emergency headcount per annum and OPD headcount of 59 000. The perinatal mortality remained high at 32 per 1000 despite improvement in neonatal death rate to 11 per 1000. A 12-bedded nursery with 4 x standard and 4 x high care bed with CPAP was added to the maternity units with 4 additional KMC beds. PPIP audit showed that 21% of the stillbirths were unexplained. The Amathole district had a stillbirth rate of 14.1 being second lowest in the country according to District health barometer 2014/15. The antenatal high-risk clinic is done in Main OPD due to high volumes of patients seen. Initially it was manned by a professional nurse and Staff nurse. Doctors arrived late from maternity to start this clinic due to high workload so there was a high defaulter rate and other patients left without being seen. Butterworth Hospital is a referral hospital for 3 Community Health Centres (CHCs) namely, Nqamakwe, Dutywa and Willowvale and a centre for 24-hour Comprehensive Emergency Obstetric Care receiving patients from Tafalofefe Hospital together with the mentioned CHCs and a 24-hour Casualty department. The hospital experiences a challenge of inadequacy of human resources for health with the number of fulltime Medical Officers ranging from 7–9 at any given time and balancing with 2–4 Community Service Medical Officers.

Aim: Improve stillbirth rates to closer to national targets of 15% and the quality of care for low high risk in 2017.

Intervention/Method:

1. An advanced midwife was placed to run clinic and screen and manage patients. She took bloods as per protocol and ordered test on discussion with doctors. She kept records of patients using hypertension form and traced defaulters.
2. Shifted the task of doing dating scan to advanced midwives
3. DCST specialist support and mentoring of doctors was strengthened with regular audit and feedback to clinics
4. Placental histology was sent for all stillbirths and results discussed at 6 weeks.

Results: 1. Perinatal Outcomes:

| | 2014 | 2015 | 2016 | 2017 April-Sept |
|------------------|------------------|-----------------|----------------|------------------------|
| Total Deliveries | 3782 | 3481 | 2747 | 1581 |
| PNMR | 34.9/1000 | 29.7/1000 | 32.7/1000 | 21.3/1000 |
| ENND Rate | 18.0/1000 (68) | 15.2/1000 (47) | 11.1/1000 (28) | 11.4/1000 (18) |
| LNND Rate | 0.5/1000 (1) | 1.7/1000 (6) | 2.5/1000 (5) | 2.5/1000 (5) |
| Stillbirth Date | 18.6/1000 | 18.9/1000 | 16.0/1000 | 10 /1000 |
| FSB | 15 | 10 | 7 | 4 |
| MSB | 58 | 58 | 60 | 12 |
| Maternal Death | 77.96/100000 (2) | 58.6/100000 (2) | 69.0/100000 | 0/100000 (0) |
| No of C/S | 614 | 908 | 777 | 398 |
| C/S Rate | 15.7% | 26% | 28.3% | 25.2% |

Conclusion: The stillbirth rates have reduced to 10% in Q2. The patient profile of mothers who had stillbirths was studied, HIV status of all stillbirth was reviewed and found that a lot of patients were HIV positive and young attending local FET and WSU. This will be presented. This allowed for better collaboration between WBOT team leaders and student health services with improved compliance to follow up. Clinical governance by DCST was strengthened at perinatal meetings with 1 x DCST attending.

SESSION 6: PAPER 4

INTERVENTIONS TO ADDRESS CHALLENGES IN OBSTETRICS IN RURAL KWAZULU NATAL

Dr N Mayat, Dr L Govender, Dr. N. Frank & ClinA P Smit
Queen Nandi Hospital (previously Lower Umfolozi War Memorial Regional Hospital)

Introduction:

Queen Nandi Hospital (QNH) is a regional hospital and is the referral institution for districts of King Castaway, Zululand and UMkhanyakude. We were red flagged by the NCCEMD as an institution with a high maternal mortality rate. A delegation came to QNH on 24 November 2017 to address this issue. Following this discussion, the delegation thought that we should present interventions that we had implemented to address local challenges at the perinatal priorities. Sharing this experience and getting input from other rural centers would be beneficial.

Challenges:

Like other rural centers there is a lack of facilities, equipment, staff and skills. Staff recruitment, retention, inter facility transfer of patients and lack of blood and blood products are problematic. More specific to us we cover 3 districts and have 16 Level 1 hospitals referring to QNH resulting in a large drainage area responsible for 2 500 00 women. There is no level 1 hospital in Umhlatuze sub-district. We have 22 referring clinics. Being a maternity and child hospital interdisciplinary support is poor.

Implementations (Methods)

Training: Midwives saving lives (MSL), ESMOE/EOST, Interns New doctors. Midwives (target 70%/year)

EMRS staff (target 6 per year).

Outreach & In-reach. Bringing in doctors to QNH for clinical and surgical training. -Exchange. Workshops, Ultrasound & Skills laboratory

Staff: Recruitment & retention, Postgraduate training FCOG, Diploma in Obstetrics, Endoscopic Surgery.

Other: Hotline, MOU, Clustering, Down referral, Center for training in rural Obstetrics & neonatology

Funding: National health training grant, US Aid, Rotary Path

Results

Maternal Mortality Ratio (MMR)

This has decreased from 2011 to 2016 from 530 to 248 (53.2% decrease over 6 years).

Applying statistics for Zone 4 shows a similar trend and the MMR is lower than that for KZN and on par with the national average.

Perinatal Mortality Rate (PNMR)

| | 2013 | 2014 | 2015 | 2016 | 2017 |
|-----------|------|------|------|------|------|
| PNMR>500 | 54.5 | 62.7 | 66.4 | 57.6 | |
| PNMR>1000 | | | 41.9 | 38.8 | |

No decrease but are accepting transfers at lower weights. In 2007 was 1.5 kg, then 1000kg or 28 weeks from 2010 and since 2016 800gm.

Conclusions

Rural obstetrics has its peculiar challenges such as lack of resources, skills and huge area coverage. Different areas have their particular challenges e.g. we serve 16 hospitals. There is no district hospital in our sub-district, so we serve 20 clinics resulting in 30% of our work being level 1. There is limited referral to level 3 centers so that we have developed level 3 functions e.g. oncology, materno-fetal medicine and laparoscopic surgery accounting to 30 % of our work. Institutional figures are high but if the denominator used is the area we cover (Zone 4) they give a truer perspective. We have tried various interventions over the years, some have worked, some failed and others that we think would be beneficial if applied properly. By sharing the interventions, we have put into place may be adopted in other areas with similar challenge. We would also benefit from the discussion that will ensue.

SESSION 6: PAPER 5

EXTREMELY LOW BIRTHWEIGHT INFANTS AND DISEASE-SPECIFIC WEIGHT CATEGORISATION AT TYGERBERG HOSPITAL, SOUTH AFRICA: MORTALITY OF INBORN BABIES AT THE LIMITS OF VIABILITY. A CROSS-SECTIONAL STUDY

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Introduction

Extremely low weight at birth (ELBW) is defined as all babies weighing <1000g at delivery. Approximately 4% of babies born at Tygerberg Hospital falls into this weight category. For deliveries of birth weight 500-999g, where the baby was alive at the time of hospital admission, the main primary causes of death is hypertensive conditions of pregnancies and spontaneous preterm labour.

Aim

The aim of this study was to assess the disease-specific clinical outcomes for ELBW infants in 100g increments; starting at 500g and linking this to the corrected gestational age.

Methods

This was an observational cross-sectional study using data from the routinely collected PPIP database, electronic labour ward register and clinical data from patient folders. All inborn infants of 500-999g birthweight who delivered at Tygerberg Hospital between 1 January 2014 and 30 June 2016 were included in the study.

The clinical outcome of mother and infant dyads that delivered during the study period with a birth weight of 500-999g was analysed in the following major disease groups: severe early-onset pre-eclampsia (SEOPE), with delivery indicated for maternal or fetal reasons; spontaneous preterm labour (SPTL), where labour progressed to delivery despite efforts to suppress labour; eclampsia, where delivery was indicated within 24 hours; maternal disease necessitating premature delivery; and intra-uterine growth restriction (IUGR) without underlying hypertension

Ethical approval to conduct the study was obtained from the Stellenbosch University Health and Research Ethics Committee.

Results

Detailed folder review identified 93 additional deaths (up to 28 days after delivery) not included in the PPIP database. Complete maternal and neonatal data was available on 1028 patients. Live babies were tracked for a median of 296 days after birth.

The survival and clinical outcome at 1 year of age for all liveborn babies is shown below:

| | |
|---|-----|
| Born alive | 481 |
| Deaths within 7 days after birth | 111 |
| Death within 7-28 days after birth | 28 |
| Death between 28 days of birth and 1 year | 33 |
| Lost to follow up after discharge from hospital | 163 |
| Alive by 1 year, of which | 146 |
| Minor morbidity at 1 year | 60 |
| Major morbidity at 1 year | 28 |
| No morbidity at 1 year | 58 |

Eighty-two percent of all babies born to mothers with SEOPE and accurate gestation (early ultrasound) had a birthweight below the 10th centile for their gestational age. Overall survival was 50.8%, with 17% showing some form of disability at follow up, mostly related to severely stunted growth. With SPTL, survival into childhood was slightly lower- only n=45 (47%) of infants survived after discharge. The majority died within a few hours or days of birth. Most of the SPTL group delivered vaginally- the CS rate was only 3.3% as compared to a CS rate of 92% in the SEOPE group. Their mean birthweight was between the 10th and 50th centile for their gestational age.

Conclusion

This study categorised women by clinical condition at birth and it showed that the neonatal outcome is different for these groups. The data that can be useful for the counselling of women with imminent delivery at a peri-viable gestation.

SESSION 6: PAPER 6

EFFECTS OF HEAVY CONTINUOUS DRINKING, EXPOSURE TO CIGARETTE SMOKE AND INDICATORS OF NUTRITION ON MATERNAL SERUM ALPHA- FETOPROTEIN VALUES

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Introduction

Maternal serum alpha-fetoprotein (AFP) levels are routinely tested during pregnancy to exclude neural tube and other congenital defects. Unexplained high levels are associated with important pregnancy outcomes such as stillbirth, placental abruption, fetal growth restriction and preterm birth. As correct interpretation of raised levels is essential, the effects of environmental conditions such as drinking alcohol or smoking cigarettes on AFP levels needs further investigation. For this we used data from the Safe Passage Study (www.safepassagestudy.org) as AFP assessments were done in a subset of participants.

Methods

Gestational age was determined by ultrasound. Blood for AFP was taken between 20 and 24 weeks gestation. Standard techniques were used to determine the serum levels. A modified timeline follow back method was used to determine alcohol use at 1 to 4 occasions during pregnancy. Cigarette smoking was determined by the number of cigarettes per day at the same antenatal visits. Trajectories were used to quantify these exposures across the three trimesters. Information on the outcome of pregnancy was obtained from chart abstractions after delivery. Information from the Intergrowth21st study was used to determine the Z-scores of birth weight-for-gestation at delivery. STATISTICA version 13 was used for the statistical analyses and to compare groups. Ethical approval was obtained from the Health Research Ethics Committee of the Faculty of Medicine and Health Sciences of Stellenbosch University.

Results

AFP levels were determined in 1,744 pregnant women of whom 1,679 were between 20-24 weeks pregnant at the time of testing (154 at 20-<21 weeks, 281 at 21-<22 weeks, 502 at 22-<23 weeks and 742 at 23-<24 weeks). AFP levels correlated negatively with maternal age, BMI, gravidity and upper mid-arm circumference. Positive correlations were found with stillbirth, preterm delivery, placental abruption, heavy drinking and high exposure to environmental cigarette smoke.

Conclusions

Poor maternal nutrition, heavy exposure to cigarette smoke and continuous heavy drinking during pregnancy seem to be associated with raised levels of AFP. Unexplained raised levels are associated with poor pregnancy outcome.

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SESSION 7: PAPER 1

POSTPARTUM HAEMORRHAGE MANAGED WITH FREE FLOW PRESSURE CONTROLLED UTERINE BALLOONS (ELLAVI UBT) - A CASE SERIES

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²Sinapi biomedical (Pty) Ltd, Lelie Road, Stellenbosch

Introduction

Uterine balloon tamponade (UBT) is an accepted method in postpartum haemorrhage (PPH) management. Sinapi biomedical (Pty) Ltd took up the challenge to develop a free flow pressure controlled uterine balloon (Ellavi UBT). Intra-uterine balloon pressure is controlled by adjusting the height of the supply bag and water is allowed to be expelled from the balloon when the uterus contracts.

Methods

Workshops were conducted in 3 district and one central hospital in Cape Town on the use of the Ellavi UBT and devices were made available to these hospitals to be used when indicated. The researcher subsequently visited the hospitals to extract all relevant patient information from medical records, according to the patient data sheet, and structured interviews were conducted with the physicians that intended to use or used the Ellavi UBT.

Results

The case series included 19 patients with Ellavi UBT insertions. The insertion of the Ellavi UBT and management of patients following insertion proved to be feasible. Twelve patients were managed in the district hospitals and 7 in the central hospital. Filling the uterine balloon from the supply bag or with intravenous fluid according systolic blood pressure did not pose any problems and the concept was well accepted. The time to reach equilibrium ranged from less than one minute to a maximum of 2 minutes. The Ellavi UBT stopped the bleeding in 15 patients, reduced the volume of bleeding in 1 and had no effect on the bleeding in 3 patients. The overall success rate was 78.9% (15/19). Excluding 2 patients with uterine tears increased the success rate to 88.2% (15/17). No complications resulted from the use of the Ellavi UBT and all patients included in the case series had a good outcome.

Conclusion

Using the Ellavi UBT for treatment of PPH due to uterine atony and placental bed bleeding is feasible and successful. Ellavi UBT used with compression sutures is safe as intra-uterine pressure is controlled and uterine necrosis prevented.

SESSION 7: PAPER 2

NEAR-MISS FROM POST-PARTUM HAEMORRHAGE: A SYSTEMATIC REVIEW

Maswime S, Buchmann E

Introduction

Postpartum hemorrhage is a leading cause of maternal mortality globally. A review of maternal near miss from PPPH could increase understanding of survival among women with life-threatening PPH.

Methods

A prevalence systematic review was conducted to determine the near-miss ratio and the maternal mortality index for PPH globally. Suitable articles published in English published from 1995 to 2014 were identified from the Scopus, PubMed, Embase, and Grey Literature databases. The main search terms used were "maternal near-miss" and "severe acute maternal morbidity". Data were extracted from near-miss audits and eligible publications. Quantitative analysis and narrative synthesis were used.

Results

For 26 included studies, the median near-miss ratio for PPH was 3 per 1000 live births. The mortality index for PPH was 6.6% (range 0.0%–40.7%). The mortality index was highest in low-income countries and lower middle-income countries. Overall, PPH was the most frequent contributor to obstetric hemorrhage, with atonic uterus identified as the main cause.

Conclusions

Women in low-income countries and lower middle-income countries have an increased likelihood of severe PPH and of dying from PPH-related consequences. Global efforts are required to strengthen the management of PPH in less resourced settings.

SESSION 7: PAPER 3

AN INVESTIGATION OF REFERRAL PROBLEMS IN WOMEN WHO DIED FROM OBSTETRIC HAEMORRHAGE IN SOUTH AFRICA (2014-2016)

S Fawcus

CCEMD; University of Cape Town.

Maternity care in South Africa is organised around different levels of care, with most women accessing care at a primary care facility closest to their home, and requiring routine or urgent referral to higher levels of care when complications arise. The Seventh Saving Mothers report (2014-2016) shows that referral problems (delay in decision to refer and inter-facility transport problems) occurred in 32.5% of referrals from CHCs, and 55.2% of referrals from district hospitals. Delay in inter-facility transport occurred in 24% of women who died from obstetric haemorrhage. Obstetric haemorrhage (OH) is a condition which can lead to death in a few hours if prompt resuscitation, management and appropriate emergency referral do not occur.

Study aim

To describe referral processes and related clinical factors in women who died from obstetric haemorrhage during 2014-2016.

Methods

This was a retrospective descriptive study. Subjects were all maternal deaths from obstetric haemorrhage for whom a referral was planned or occurred after the onset of haemorrhage. Subjects were identified from the obstetric haemorrhage maternal death files and forms submitted to the NCCEMD. Data were abstracted from the files related to referral times, planned referral route, transport times, type of obstetric haemorrhage, emergency management prior to referral and whether the death occurred before, during or after the actual referral.

Results

There were 120 subjects identified (19.2% of all OH deaths) with the largest numbers (31.7%) from Limpopo and E Cape (19.2%). The cause of OH was: bleeding associated with C section (40.8%), PPH after vaginal delivery (33.3%), abruptio placentae (13.3%) and ruptured uterus (12.5%). Mode of transport was: road ambulance (83.3%), helicopter (14.2%) and private car (2.5%). The referral route was from: home (10%), clinic (14.2%), district hospital (78.3%) and regional hospital (5%); with 6% having more than one journey. There were 20.8% of subjects who died awaiting transport, 14.2% during referral and 65% died after arrival at the receiving facility. Of the latter, 53.8% died within 4 hours of arrival. The mean time interval from decision for referral to arrival at next facility was 3.7 hours (range 1-11hrs). Before referral: 56.7% of subjects had a systolic BP <100, 71.7 % had a shock index > 0.9, 25% had a shock index >1.7; and the mean haemoglobin (where done) was 5.5 gms/dl (range 1.2-8.7). Clinical management before referral was assessed to be insufficient for the level of care in 71.7% of cases.

Discussion

Major problems were identified in resuscitation and treatment prior to referral from district hospitals, and care during referral. There is a need to continue ESMOE training at district hospitals and improve mentorship for staff at this level. Involvements of EMS in devising solutions as well as introducing the non-pneumatic anti-shock garment are potentially important interventions.

SESSION 7: PAPER 4

IS IT SAFE TO HAVE A CAESAREAN SECTION IN KWAZULU-NATAL? BASELINE ASSESSMENT OF HOSPITALS' COMPLIANCE WITH MINIMUM SAFETY STANDARDS FOR CAESAREAN SECTION

Neil F Moran

KZN Department of Health

Introduction

One of the key recommendations of the 2011-13 Saving Mothers report was to “ensure safe caesarean section (CS) sites”. Accordingly, in 2015, the NCCEMD initiated a process of establishing a set of minimum safety standards for CS which would be applicable to all hospitals providing a CS service in South Africa. The objective was to reduce the observed high numbers of maternal deaths related to CS, by ensuring that all CS hospitals comply with the minimum standards. By 2017 the minimum standards had been agreed upon and approved at a national level. This paper describes the system that KZN Province has devised for assessing compliance with the minimum safety standards for CS, and for accrediting hospitals accordingly. The paper also presents preliminary findings of a baseline compliance assessment of KZN hospitals currently providing a CS service.

Methods

A circular signed by the KZN Head of Health was sent out to the CEOs of all hospitals, detailing the minimum safety standards, and recommending that the hospital conduct self-assessment of compliance with the standards, in order to identify and then rectify any areas of non-compliance. A baseline external assessment by the provincial maternal health team of one hospital per District would then be conducted, in the presence of the District Clinical Specialist Team. A standardised tool was used for the assessment. A high level of compliance with the safety standards would result in accreditation of the hospital as safe for CS as follows: compliant with all 12 standards – gold status accreditation; compliant with all but 1 standard – silver status; compliant with all but 2 standards – bronze status. There would be no accreditation if three or more standards were not complied with. The DCST would then be responsible for conducting a baseline assessment of remaining hospitals in the district. A target was set that all CS hospitals would have had at least a baseline assessment by the end of March 2018.

Results

Of the 52 hospitals in KZN conducting CS, baseline assessment results were available from 19 at the time of writing (7 regional hospitals and 12 district). This included at least one hospital from each of the 11 Districts in KZN. None of the hospitals were found to be fully compliant with all 12 criteria assessed. Three achieved silver status accreditation, and 2 bronze status accreditation. The remaining 14 hospitals could not be accredited as safe for CS due to non-compliance with 3 or more of the criteria.

Reassuring findings included the following:

- All hospitals had adequately stocked and controlled emergency blood fridges
- All hospitals had adequate stock of fresh dried plasma (FDP)
- In no hospital did the anaesthetist act as the surgeon's assistant
- There were 2 doctors in theatre for caesarean section in all but 1 hospital

Disappointing findings included the following:

- The doctors performing CS surgery had had their competence with the procedure formally evaluated in only 2 (11%) of the hospitals. The equivalent figure for evaluation of anaesthetic competence was 4 hospitals (21%)

- Post-CS monitoring by doctors and/or nurses was inadequate in 74% of hospitals
- Surgical safety checklist procedure was only performed in 47% of hospitals
- CS audits were only being done in 42% of hospitals

Conclusion

Facility Managers and district managers must take responsibility to ensure that every effort is made to comply with the minimum standards, rather than turn a blind eye to persistent neglect of the standards. Evaluation and accreditation of doctors' competence to perform CS surgery or anaesthetic requires planning, resources and time, but improvement in compliance with some of the other standards can be achieved immediately if there is commitment.

SESSION 7: PAPER 5

A DESCRIPTIVE STUDY OF MATERNAL "NEAR MISSES" AND MATERNAL DEATHS AT THE CHRIS HANI BARAGWANATH ACADEMIC HOSPITAL, SOUTH AFRICA: A RETROSPECTIVE STUDY

Dr R Hlengani, Prof Y Adam

Background: Maternal mortality and morbidity are essential components in monitoring the level of obstetric care within institutions. Since death from childbirth is uncommon, auditing of maternal morbidity (near miss) which occurs more frequently permits for more lessons to be learnt on the pathophysiological process that can lead to mortality. An in-depth understanding of factors that contributes to both maternal near miss and death, permits identification of areas of weaknesses within the system and can assist with the development of policies to improve maternal care.

Objective: To compare causes of maternal deaths and near misses at CHBAH.

Methods: A retrospective study was carried out at CHBAH, including all women who met the criteria for severe maternal outcome between January 2014 and December 2015.

Results: There were 62185 deliveries, and 307 cases of SMO (250 near misses and 57 maternal deaths) during the period of the study. The iMMR was 91.66/100 000 live births and the MNMR was 4.02/1000 live births. The mortality index was 18.57%. Medical disorders, hypertension and obstetric haemorrhage were the main causes of death. The common causes of near miss were obstetric haemorrhage followed by puerperal sepsis. The commonest identification criteria of near miss were massive blood transfusion followed by ventilation not for anaesthetic reasons.

Conclusion:

This study showed that hypertension, haemorrhage in gynaecology, venous-thromboembolism, medical disorders were more likely to be causes of death than near misses. Obstetric haemorrhage and puerperal sepsis were more likely to be causes of near misses than causes of death. Other important factors associated with death was no antenatal care.

SESSION 7: PAPER 6

AUDIT INTO MATERNAL DEATHS AT A SEMI-RURAL REGIONAL HOSPITAL KZN

Ms P. Smit, Dr N. Mayat

Queen Nandi Hospital (previously Lower Umfolozi War Memorial Regional Hospital)

Introduction:

Queen Nandi Hospital (QNH) is a regional hospital, situated in KZN, providing mother and child care services. QNH accepts referrals from Region 4 which has an estimate of 2.5 million women. According to the latest published saving mothers report, the S.A institutional maternal mortality ratio (iMMR) was 158.29 and 243.62 for regional hospitals. The main causes of maternal deaths are Non-Pregnancy Related Infection (NPRI), Obstetric Haemorrhage (OH) and Hypertensive disorders (HPT). KZN was found to have the highest number of maternal deaths in the country. The KZN iMMR of 171.09 is higher than the national figure. QNH was identified by the NCCEMD as an institution with a high maternal mortality.

Methods:

-Aim:

To establish the iMMR at QNH and to identify the most important causes of maternal deaths.

Objective:

- To identify factors contributing to maternal deaths
- To make recommendations to reduce maternal deaths at the institution

Study Design

Retrospective chart review of all maternal deaths at QNH from 01 Jan 2016 – 31 Dec 2017

Data Collection

The files of all maternal deaths during the study period were analysed to determine

- a) The cause of maternal death (as per PPIP coding system)
- b) To identify avoidable and administrative, health worker and patient factors
- c) To identify referral institutions

Results:

iMMR: 2016:248 and 2017:285

- a) The main causes of maternal deaths were NPRI (39%), HPT (26.8%) & OH (12.1%).
Amongst deaths due to NPRI's pneumonia (43.7%) was the most common underlying cause.
Amongst deaths due to HPT, Eclampsia contributed (81%)
Amongst deaths due to OH, it was PPH, with most (80%) following CS delivery
- b) Avoidable factors identified:
 1. Admin; lack of interdisciplinary support (25%).
 2. Health Worker; lack of skill (45%)
 3. Patient Related; the patients delay in seeking care (20%)
- c) The bulk of the referrals were from within the facilities own district, where (83%) of this number were from local sub district clinics.

Conclusions:

The main causes of maternal deaths at QNH are similar to those identified by national Saving Mothers Report. The direct causes of Obstetric Haemorrhage and Hypertension are largely due to sub optimal management at referral centres. These centres face challenges of understaffing, limited resources and a shortage of skilled personnel. Emergency transport of obstetric patients is also a challenge due to long distances and poor quality of roads in this region. There are more deaths prior to transfer in those district hospitals collectively than at QNH. Regarding management at QNH, a lack of interdisciplinary support is a major concern. Various measures have been initiated to overcome these problems. See 'Interventions to Address Challenges in Obstetrics in Rural Kwa-Zulu Natal.

SESSION 7: PAPER 7

A DESCRIPTION OF WOMEN WITH ECLAMPSIA REQUIRING INTENSIVE CARE UNIT ADMISSION AT CHRIS HANI BARAGWANATH ACADEMIC HOSPITAL

Colbert Makheda, Salome Maswime (Chris Hani Baragwanath Academic Hospital, University of the Witwatersrand, South Africa)

Background

Eclampsia is a life-threatening condition and the most widely recognized complication of hypertensive disorders of pregnancy requiring intensive care admission. It is also an important cause of maternal and perinatal morbidity and mortality, and accounted for approximately 63000 maternal deaths every year globally.

Objectives

To determine the incidence, outcomes and complications of women with eclampsia admitted to the intensive care unit at CHBAH.

Methods

This is a retrospective cross-sectional study of all women with eclampsia admitted to the intensive care unit at CHBAH.

Results

There were 57 women with eclampsia admitted to ICU between January 2011 and December 2016. Eclampsia with ICU admissions was most common between the ages of 16-20 years (n=18, 31.5%) and more prevalent in primigravida. There were three maternal deaths from eclampsia. Maternal and fetal complications that developed in ICU were HELLP syndrome (n=15, 26.3%), acute renal failure (n=11, 19.2%), metabolic acidosis (n=9, 15.8%), pulmonary oedema (n=8, 14%), preterm births (n=31, 52.5%), birth asphyxia (52.5%) and low birth weight (45.8%). The reason for ICU admission was haemodynamic monitoring (100%), ventilation (89%), and cardiopulmonary support (45%), renal support (19%) and inotropes (16%).

Conclusion

Eclampsia is a preventable condition affecting women mostly in developing countries. Eclampsia that requires ICU admission is often associated with life-threatening multi-organ system maternal and fetal complications. Measures to prevent eclampsia need to be strengthened.

SESSION 7: PAPER 8

MATERNAL DEATHS AMONG THE HIV POSITIVE AND AIDS PATIENTS IN THE EASTERN CAPE HEALTH CARE FACILITIES:

Dr Yoliswa Pakade
Frere Hospital

One of the critical public health challenges in modern times is the various facets of HIV and AIDS infections, which is further compounded by socio-economic factors such as poverty and access to health care. The demographic impact of HIV and AIDS on women is further exacerbated by their maternal responsibilities of bearing children, with associated complications and consequences. This study sought to determine the causal factors that contribute towards maternal mortality (MM) among HIV positive and AIDS patients. Secondly, to further unpack these causes of maternal deaths to the same target group.

For methodological efficacy, a descriptive quantitative survey was used, which is based on retrospective and historical HIV and AIDS patient data over the period from January 2014 to April 2016. The primary focus of data collection was at the Maternal, Child and Women's Health (MCWH) Unit, which is based in the Eastern Cape Province, South Africa. A periodic sample of 89 maternal deaths was reviewed, and the results were quite astounding. The profile of the sample population was a mean age of 29 and a standard deviation (SD) of $\pm 5,6$, with a median Antenatal Care (ANC) visits of 2 (range 0-15), median gestational age in weeks of 28 (range 2-39), median CD4 count of 142 cells/ml range 2-1555), mean Haemoglobin (HB) of 7, 7 g/dl (SD $\pm 3, 9$). 44, 9% maternal deaths were from advanced HIV and AIDS stage known as (WHO clinical stage 4) and 42% had TB of which 14% were TB suspects. Pneumocystis Carnii pneumonia (PCP) treatment was added to TB treatment for 12% of maternal deaths. 42% of maternal deaths were likely to have suffered Immune Reconstitution Inflammatory Syndrome (IRIS). The uptake of Isoniazid (INH) and Cotrimoxazole prophylaxis therapy (CPT) recorded in the maternal records were too low at 23% and 13% respectively.

The top three (3) districts with high maternal deaths of eight (8) districts were: OR Tambo (29,2%), Buffalo City Municipality (21,4%) and Chris Hani (14,6%). Non-pregnant related infections (NPRI's) were leading cause of maternal deaths at 48% of the sampled cases. Most maternal deaths occurred at Tertiary hospital which accounted for 46%, while district hospitals had unexpected high maternal deaths close to the regional hospitals at 20% and 24% respectively. From the maternal deaths of patients on HAART, who constituted 82%, only 5,6% were on second line regimen, while 35,9% of them were less than six months on HAART. Furthermore, 17,9% had suppressed viral loads (VL), 14,6% had unsuppressed VL, 31,5% had unknown VL. It is also noteworthy that only 32,6% of maternal deaths had autopsy done on them.

It can therefore be concluded that, despite great progress achieved in South Africa with regard to its HIV and AIDS policies, the vast majority MM cases remain inextricably linked to HIV and AIDS. TB remains a major opportunistic infection which leads to AIDS-related maternal deaths. Universal access to HAART alone seems to be insufficient in reducing maternal mortality. Public health programmes targeting communities on health promotion, education, and preventions including targeting behavioural changes are needed for better outcomes.

**ANNUAL GENERAL MEETING OF THE PRIORITIES IN PERINATAL CARE
ASSOCIATION OF SOUTH AFRICA**

Wednesday 14 March 2018

Champagne Sports Resort

1. Welcome
2. Apologies
3. Minutes of the previous AGM held on 8 March 2017 at Mpekweni Beach Resort
4. Matters arising from the previous minutes
5. Chairperson's report
 - 5.1. Thanks
 - 5.2. Finances
6. Next year's venue
7. New matters
 - 7.1. New organisers
 - 7.2. New ExCo Member
 - 7.3
 - 7.4
8. Election of the Executive Committee

**MINUTES OF THE AGM OF THE
37TH CONFERENCE ON PRIORITIES IN PERINATAL CARE
HELD AT MPEKWENI BEACH RESORT
8 MARCH 2017**

Attendance approximately 25 people.

1. **Welcome**
Eckhart welcomed everyone and thanked them for attending.
2. **Apologies**
Lolly Mashao
3. **Minutes of the previous AGM held on 8 March 2017 at Forever Resorts Warmbaths**
Accepted. Bob Pattinson proposed and Cathy Bezuidenhout seconded.
4. **Matters arising from the previous minutes**
Nothing outstanding. All matters resolved.
5. **Chairperson's report**
 - 5.1 Eckhart thanked Abbvie, the other companies assisting with the workshops and everyone who attended. Eckhart thanked Abbvie for their ongoing support. Their current sponsorship is R75 000 and the Priorities Executive Committee is going to ask for an increase for 2018. The following institutions have tables at Priorities 2017: MRC Unit, RCA, Phoenix Neomed and Philips and Eckhart thanked them for their support. Eckhart also thanked Sithembiso for his work on the Executive Committee and for chairing Priorities 2016.
 - 5.2 **Finances**
Roz stated that the conference had made R20 000 this year as the number of delegates was restricted by the size of the venue. This is less than the R50 000 venue deposit required to secure the venue for the following year. Costs are increasing due to exchange rate fluctuations influencing the price of invited guest speakers' flights. Bank charges and various other factors are also adding to costs. The conference budgets for one transaction per delegate in the registration fee. The bank charges become a problem when multiple transactions take place per delegate and this is why there is an administrative fee for refunds.
6. **Next year's venue**
Champagne Sports Resort from 13-16 March 2018.
7. **New Matters**
 - 7.1 Registration Fee
Eckhart stated that the registration fee would increase from R1500 to R1700 for 2018.
 - 7.2 Abbvie Sponsorship
The Executive Committee would apply for R90 000 sponsorship from Abbvie for Priorities 2018.

7.3 Chairperson

Eckhart announced that he would be stepping down as chairperson after Priorities 2017. He has served as chair for 14 years. Prof Velaphi has agreed to chair Priorities and Eckhart thanked him. Eckhart thanked Roz and the Workshops Anonymous team for outstanding organisation. Gerhard Theron thanked Eckhart for his service and said that he had raised the standard of the conference over the years he had served as chair. He stated that Eckhart had made running Priorities look easy and Peter Cooper seconded what Gerhard had said.

7.4 Executive Committee

The Executive Committee is elected by the AGM. The constitution states that the Executive Committee should consist of the chairperson, conference organiser and 3 members (a midwife, a neonatologist and an obstetrician). Current committee consists of Eckhart Buchmann, Sithembiso Velaphi, Lolly Mashao and Roz Prinsloo. Eckhart asked the AGM to elect people to the Executive Committee and apologised for not preparing anyone. Peter Cooper suggested people from District Hospitals. Eckhart asked that whoever is elected should give the assurance that they will attend Priorities 2018. Bob Pattinson proposed Stefan Gebhardt and Gerhard Theron seconded the proposal. Stefan Gebhardt accepted the nomination. Prof Cooper nominated the rest of the Executive Committee for re-election.

7.5 The purpose of Perinatal Priorities

Eckhart reminded the meeting that the Association's function is only to hold the conference, to facilitate sharing of knowledge and practice, and therefore to improve health care. Its function is not to advocate or agitate. Such activities are already covered by the two ministerial committees, and by organisations such as Section 27 and the TAC. That is what they do well. Perinatal Priorities does conferences well, and is unique in its multidisciplinary make-up – midwives, neonatologists, obstetricians, family medicine and many other fields.

7.6 Attendance of the AGM

Ruth Davidge said that Eckhart should inform the conference that everyone is welcome to attend the AGM. Her association had found that scheduling the AGM for the morning ensured better attendance than later in the day.

8. **Closure**

Eckhart thanked everyone for attending the AGM and the meeting adjourned at 19h30.