Perinatal Society of Sri Lanka

FOUNDED 2001

Towards healthier
mothers and newborns

SRI LANKA JOURNAL OF PERINATAL MEDICINE

HIGHLIGHTS OF THE ISSUE

PSSL Oration 2025
Understanding Low Birth Weight and
Beyond: Insights from the Sri Lanka Low
Birth Weight Study

Invited Article
Bereavement care: its importance and
evidence

Perinatal Society of Sri Lanka
FOUNDED 2001
Towards healthier mothers and newborns

Dr. Nalin Gamaathige
MBBS, DCH, MD
Consultant Neonatologist
De Soyza Maternity Hospital, Colombo, Sri Lanka
nalinnicu@gmail.com

Dr. L.P.C. Saman Kumara
MBBS, DCH, MD(Paediatrics)
Consultant Neonatologist
Castle Street Teaching Hospital, Colombo, Sri Lanka.
drsamankumara@yahoo.com

Dr. Nishani Lucas
MBBS, MD, MRCPCH(UK), IBCLC
Senior Lecturer, Department of Paediatrics,
Faculty of Medicine, University of Colombo, Sri Lanka
nishani@pdt.cmb.ac,lk

Prof. Shyamalee Samaranayaka
MBBS, DFM, DCH, MD(Fam Med), MRCGP, FRCP(UK), FCGP(SL)
Chair Professor of Family Medicine
University of Sri Jayawardenepura, Sri Lanka
shyamalee@sjp.ac.lk

Dr. Janaki Karunasinghe
MBBS, MS(Obs & Gyn), FSLCOG
Consultant Obstetrician
Castle Street Hospital for Women, Colombo Sri Lanka
janakie@live.com

Dr. Asiri Hewamalage
MBBS, MSc, MD(Com med)
Consultant Community Physician
Family Health Bureau, Ministry of Health, Sri Lanka
asiri11@yahoo.com

International members

Prof. Sabaratnam Arulkumaran
MBBS(Cey), DCH(Cey), FRCS(Edin), LRCP & MRCS (London), FRCOG (Gt. Brit), FAMS, MD(Singapore), PhD(Singapore), Hon. DSc(London), Hon. DSc (Colombo), Hon. DSc(Athens), Hon., FACOG, FSOGC, FRANZCOG, FSLCOG, FICOG, FSOGP, FSASOG, FSACOG, FOGSM, FGPS, FSSOG, FISOG, FJCOG, FSLCCP
Emeritus Professor of Obstetrics and Gynaecology
St George's University of London, United Kingdom.
sarulkum@sgul.ac.uk

Dr. Amit Gupta
MBBS, DCH, MD, FRCPCH, FSLCP
Clinical Director, Neonatal Services, Oxford, United Kingdom
Senior Lecturer, University of Oxford, UK
amit.gupta@ouh.nhs.uk

CONTENTS	PAGE

Understanding Low Birth Weight and Beyond: Insights from the Sri Lanka Low Birth Weight Study

Sachith Mettananda[1,2]

Introduction

Low birth weight (LBW), defined as birth weight less than 2500g, continues to pose significant challenges to healthcare systems worldwide1. It is estimated that nearly 20 million babies are born annually with LBW worldwide2. The global prevalence of LBW is reported as 15% with relatively lower prevalence in developed European and North American countries and higher prevalence in developing low and middle-income countries (LMICs) in South and Southeast Asia3.

The prevalence of LBW is one of the core health indicators of the World Health Organisation (WHO) as it reflects the long-term maternal nutritional status and health care during pregnancy. Reduction in the prevalence of LBW is an indicator of improvement in maternal health and nutritional status in a country. In 2012, the WHO and UNICEF jointly set a target to reduce the global prevalence of LBW by 30% between 2012 and 2025[4]. However, many countries, especially LMICs in Asia, struggle to achieve this target and are expected to fall far behind the goal5.

LBW is further classified into three categories based on severity. Newborns with a birth weight between 1500-2499g are termed 'Low birth weight'; those with a birth weight between 1000-1499g are termed 'very LBW'; and those with a birth weight less than 1000g are referred to as 'extremely LBW'.

Irrespective of the severity, LBW in neonates results from two main causes. They

are prematurity and small for gestational age (SGA6. Prematurity is defined as neonates born before 37 completed weeks of gestation, whereas SGA is defined based on the birth weight in relation to the gestational age and sex at birth. Newborns whose birth weight lies below the 10th percentile for the gestational age based on sex-specific growth charts are defined as SGA7. In many countries, including Sri Lanka, the relative contribution of prematurity and SGA to the prevalence of LBW is not known8.

Sri Lanka is a unique country in South Asia with a well-developed healthcare structure and improved health indices compared to many other LMICs9. Over 99% of deliveries occur in hospitals with trained medical and nursing staff, and birth weights are measured accurately immediately after birth in every hospital[10]. This contrasts with other South Asian countries, such as Bangladesh, Nepal, and Pakistan, where only 40-70% of deliveries are reported to be institutional11-13. However, similar to other LMICs, the LBW prevalence has not decreased significantly over the last decade in Sri Lanka. The reasons behind this stagnant rate of LBW are unexplained and understudied.

One major obstacle in reducing the prevalence of LBW to achieve the WHO-UNICEF target for Sri Lanka is the limited understanding and lack of accurate data on the composition and risk factors of LBW. There are no published data from Sri Lanka regarding the relative contribution of prematurity and SGA to the LBW.

Similarly, only a few studies have examined the risk factors associated with LBW in Sri Lanka. Most of these studies are either conducted through secondary analysis of Demographic and Health Survey (DHS) data or done in small, selected areas. There were no prospective island wide studies evaluating the risk factors and determinants of LBW in Sri Lanka.

To address this knowledge gap, the Perinatal Society of Sri Lanka initiated a comprehensive study on low birth weight in Sri Lanka in 2023. Under the guidance of Dr Susie Perera, then President of the PSSL, and co-leadership of Dr Himali Hearath and myself, a subcommittee was appointed to design and conduct an islandwide multicenter study - the Sri Lanka Low Birth Weight Study - to address the outstanding issues related to LBW.

In this oration, I aim to present the results of the primary and subsequent secondary analysis of data from the Sri Lanka Low Birth Weight Study. Firstly, as primary analysis, I present the composition, determinants, and risk factors of LBW in Sri Lanka. Then, as secondary analysis, I present two studies conducted to understand the two factors directly relevant to perinatal outcomes. I.e. the pregnancy and neonatal outcomes of deliveries at different gestations within 'term' and the pregnancy and neonatal outcomes of assisted pregnancies in Sri Lanka.

Methodology of the Sri Lanka Low Birth Weight Study

The Sri Lanka Low Birth Weight Study was a countrywide, multicentre study conducted from 1st August to 30th September 2023. Thirteen hospitals were purposively selected to represent all nine provinces and all tiers of specialist hospitals in Sri Lanka. The selection was made to cover 20% of all neonates born in the country during the study period. One or more hospitals from each province were selected, as shown in

this map, to represent at least 15% of births in each province. Additionally, the selection was made to represent different tiers of hospitals where deliveries are carried out. We included Teaching Hospitals, Provincial General Hospitals, District General Hospitals, and Base Hospitals to capture the varied contexts of healthcare delivery within the country.

All live-born neonates born at the thirteen study sites during the study period were recruited. Stillbirths and neonates transferred after birth from other hospitals were excluded. Data were collected by trained medical graduate research assistants using an interviewer-administered questionnaire, which involved interviewing mothers and reviewing patient records.

Birth weights were measured immediately after birth by trained healthcare personnel attending the delivery. The measurements were taken to the nearest 5g. Prematurity was defined as birth before 37 completed weeks of gestation. SGA was defined as a birth weight below the 10th percentile for the sex- and gestational age-specific international growth standards developed in the INTERGROWTH-21 study[18, 19].

The distribution of birth weight

A total of 9130 live births were recorded from 13 study sites over the two months. The median birth weight of the cohort was 2860g, and the birth weight ranged from 410g to 4820g. The mean birth weight of male neonates was higher than that of female neonates.

Overall, 1865 babies in our cohort had birth weight below 2500g, giving a LBW prevalence of 20.4%. This was considerably higher than the LBW rates reported in Sri Lanka between 2020 and 2022, which were around 15%. Our study was the first study to indicate that the prevalence of LBW was rising in Sri Lanka after the COVID-19 and economic crisis. The prevalence of very

LBW in our cohort was 1.1% and that of extremely LBW was 0.8%.

The highest prevalence of LBW, at 27%, was observed at DGH Nuwara Eliya, while TH Jaffna reported the lowest prevalence at 15%. Overall, a higher prevalence of LBW was observed in study sites in the Central, Sabaragamuwa and Western provinces of Sri Lanka. In comparison, a lower prevalence of LBW was reported from study sites in the Northern, North-Western, and North-Central provinces of the country, showing a geographical segregation of LBW neonates.

In our study population, 10.9% of neonates were born preterm. A majority of premature neonates were born between 34 and 36 weeks and were late preterm. 1.2% each were moderate and very preterm, and 0.6% of this cohort were born extremely preterm before 28 weeks of gestation. The prevalence of prematurity was relatively similar across all geographical areas of the country.

Overall, 1819 babies, i.e., 20% of the study population, were born SGA. The highest prevalence of SGA, at 34%, was reported from DGH Nuwara Eliya, while the lowest prevalence, at 16%, was observed in TH Jaffna. Overall, a higher prevalence of SGA was observed in study sites in the Central, Uva, and Eastern Provinces, while a relatively lower prevalence was reported in study sites in the Northern and North Central provinces.

Composition of low birth weight

Next, we evaluated the composition of LBW. I.e. what proportion of LBW is due to prematurity and what proportion is due to SGA. Out of all LBW babies, 63% were SGA, and 37% were premature. 11.5% of neonates were both SGA and premature. Notably, there were 200 neonates, i.e. 10.7% of LBW babies, who were neither premature nor SGA. All these babies were born at 37 weeks of gestation.

The reason for this is that the 10th percentile cut-off value for SGA at 37 weeks is 2380g for males and 2330g for females, which are lower than the 2500g cut-off for LBW. Thus, a baby born at 37 weeks with a birth weight of 2400g would not be small for gestational age nor premature despite having LBW.

A very recent commissioned series published in *The Lancet* introduced the concept of Small Vulnerable Newborns[5]. Here, the three groups of high-risk neonates, i.e. LBW, premature and SGA, were collectively referred to as 'Small vulnerable newborns' as they have increased risk of morbidity and mortality. In our cohort, 214 of the premature neonates were SGA. Notably, 304 premature neonates, i.e., 30.5% of the total, had a normal birth weight. Similarly, a large proportion, i.e., 637 or 35% of SGA newborns, had a normal birth weight of more than 2500g. Overall, only 69% of the neonates were born at term with a normal birth weight for the gestational age and did not belong to any of the risk groups. Thus, 31% of neonates of our cohort were small vulnerable newborns with one or more risk factors of prematurity, LBW or SGA.

Next, we examined the birth weight distribution of neonates born at each gestation in our cohort. The median birth weight increased by approximately 150g for each week of gestation after 37 weeks until 40 weeks. This clearly shows that significant fetal weight gain is achieved during the last few weeks of gestation, even after reaching term. Therefore, continuing pregnancies beyond 37 weeks of gestation when the fetus is healthy would significantly increase the birth weight and reduce the prevalence of LBW in Sri Lankan newborns.

Risk factors for LBW

Our next objective was to identify the risk factors for different components of LBW. Thus, using multivariable logistic regression analysis, we examined the risk factors for SGA and prematurity separately.

We examined several socio-demographic and clinical factors of mothers to identify modifiable and non-modifiable independent risk factors for SGA. Multiple pregnancy and teenage pregnancy were significant risk factors for SGA. Importantly, mothers of the Indian Tamil Ethnicity had a higher risk of delivering babies with SGA. This could at least partly explain the high prevalence of SGA observed in Central and Uva Provinces. Also, maternal underweight with pre-pregnancy BMI <18.5kg/m^2, maternal short stature, inadequate weight gain during pregnancy, and anaemia at delivery were all independent risk factors for SGA. This indicates the importance of pre-pregnancy and intra-pregnancy nutritional status of the mother for the birth weight of their offspring.

Finally, we assessed the risk factors associated with prematurity. Our analysis confirmed several traditional risk factors, including multiple pregnancy, chronic diabetes, chronic hypertension, and pregnancy-induced hypertension, as risk factors for prematurity. In addition, as with SGA, many nutritional factors that include maternal underweight, maternal short stature, and inadequate weight gain during pregnancy were risk factors for prematurity. This again emphasises the impact of female and maternal nutrition on the birth weights of their babies.

Based on the findings of our study, we recommend improving pre- and intra-pregnancy nutritional indicators, minimising teenage and elderly pregnancies, and preventing chronic diabetes, hypertension, and anaemia during pregnancy as evidence-based targeted interventions to reduce LBW prevalence in Sri Lanka. In addition, continuing pregnancies beyond 37 weeks when the foetus is healthy would significantly improve the birth weight and reduce the prevalence of LBW. These findings were published in our paper in *Plos One* 20.

Perinatal outcomes of deliveries at different gestations at term

Our primary analysis of the Sri Lanka Low Birth Weight Study revealed that the birth weight of newborns increased significantly with increasing gestation, even after reaching term. Therefore, we were curious to find out about other significant differences in the outcome of neonates born at different gestations at 'term'.

The period between 37 and 41 weeks of gestation, conventionally classified as the 'term', is often perceived as a low-risk phase for both the mother and the neonate. The outcomes of newborns born at any gestation within 'term' are perceived not to be significantly different. However, the 'term' period spans a full five weeks. Therefore, we hypothesised that there could be significant differences in the characteristics and outcome of neonates born at different gestations within 'term'.

Previous studies that compared pregnancy and neonatal outcomes of deliveries at different gestations at 'term' in developing countries are rare. Our search did not reveal a single study from Sri Lanka that compared the outcomes of neonates born at different 'term' gestations. Therefore, we performed a secondary analysis of the data from the Sri Lanka Low Birth Weight Study to evaluate the perinatal outcomes of births at different gestational ages within the 'term' range. Only data of singleton pregnancies were included to minimise confounders.

There were 8053 'term' singleton deliveries in our birth cohort. 22% of them were delivered at 37 weeks, 29% at 38 weeks,

26% at 39 weeks, 22% at 40 weeks and 0.4% at 41 weeks. 61% of neonates born at 37 weeks were delivered by Caesarean section (CS), which was significantly higher than the CS rates of later gestations. Notably, the elective CS rate at 37 weeks was 43%, which was significantly higher compared to 31% at 38 weeks, 6% at 39 weeks, and 4% at 40 weeks. In fact, 46% of all elective CSs done at term were performed at 37 weeks.

Then we analysed the modes of delivery of pregnancies without medical or obstetric complications. Among uncomplicated pregnancies, 44% of neonates born at 37 weeks were delivered by elective CS. Even among uncomplicated pregnancies, 40% of elective CSs performed at term were done at 37 weeks.

The prevalence of LBW was significantly higher among neonates born at 37 weeks compared to later gestations. 29% of neonates born at 37 weeks had LBW compared to 15% babies born at 38 weeks or 7% born at 39 weeks. Nearly half of the 'term' LBW babies were delivered at 37 weeks.

Neonates born at 38 weeks of gestation showed the best immediate neonatal outcome among all 'term' neonates, with lower proportions of them having perinatal asphyxia, requiring resuscitation at birth and needing neonatal intensive care unit (NICU) admission. Delivery at 37 weeks was associated with a significantly higher risk of having perinatal asphyxia, requiring resuscitation at birth and admission to the NICU, compared to birth at 38 weeks of gestation. There was no significant difference in adverse neonatal outcomes between neonates born at 38 and 39 weeks of gestation.

These findings suggest that when elective delivery is necessary, planning it at 38 weeks, rather than 37 weeks, would have a significant positive impact on neonatal outcomes with lower risk of LBW, perinatal asphyxia, needing resuscitation at birth and admitting to the NICU. A manuscript describing these findings was published in *Lancet Regional Health - Southeast Asia* 21.

Perinatal outcomes of assisted pregnancies

Next, using the data of the Sri Lanka Low Birth Weight Study, we examined another understudied area of perinatal medicine in Sri Lanka, the outcomes of assisted pregnancies and assisted reproductive techniques.

Assisted reproductive techniques that include intra-uterine insemination (IUI) and *in-vitro fertilisation* (IVF) are increasingly used to achieve fertility in developing countries like Sri Lanka. However, the data on the outcome of assisted pregnancies in LMIC like Sri Lanka are sparse. Therefore, we performed a secondary analysis of the Sri Lanka Low Birth Weight Study to evaluate the obstetric and neonatal outcomes of assisted pregnancies.

Of the 8,992 pregnancies in our cohort, 92 were assisted pregnancies, resulting in an assisted pregnancy rate of 1.0%. Fifty-two pregnancies were following IUI, and 40 were following IVF. The prevalence of gestational diabetes and urinary tract infection was significantly higher among mothers who had assisted pregnancies compared to spontaneous conceptions. When considering IUI and IVF separately, gestational diabetes was higher in IVF pregnancies, and urinary tract infections were higher in IUI pregnancies.

As expected, multiple births were higher following assisted reproductive methods. 1.9% IUI pregnancies and 5.0% IVF pregnancies were twin pregnancies, compared to 1.2% spontaneous conceptions that end up having twins. Neonates born following assisted pregnancies reported significantly higher adverse outcomes. The prevalence of prematurity and LBW were

significantly higher in assisted pregnancies. Also, a significantly higher proportion of neonates born following assisted pregnancies were admitted to the NICU and died within the first day of life.

Based on the above findings, we recommended that assisted pregnancies should be considered a high-risk group to provide more intense antenatal follow-up and be delivered at specialised centres with adequate neonatal facilities. These findings were published in our paper in *BMC Pregnancy and Childbirth*22.

Conclusions and Recommendations

Here, I presented the results of one of the most extensive countrywide studies evaluating LBW in Sri Lanka. This study was conducted through the prospective collection of data from 13 hospitals across Sri Lanka, covering all nine provinces and various tiers of hospitals, which represent over 20% of births in the country during the study period.

We derived the following conclusions and recommendations based on the findings of our study.

- The prevalence of LBW in our cohort was 20.4% showing an increase in the LBW rates in Sri Lanka.

- The prevalence of prematurity and SGA were 10.9% and 20.0% respectively.

- SGA accounts for approximately two-thirds, while prematurity accounts for one-third of the LBW burden in Sri Lanka.

- 31% of neonates born in our birth cohort had LBW, prematurity, or SGA, making them small vulnerable newborns

- Several modifiable risk factors were identified for SGA and prematurity. Poor pre- and intra-pregnancy nutritional indicators, namely maternal undernutrition and inadequate pregnancy weight gain, were risk factors for both prematurity and SGA.

- Teenage pregnancy and maternal anaemia at delivery were risk factors for SGA, and elderly pregnancy, chronic diabetes and chronic hypertension were modifiable risk factors for prematurity.

- Therefore, improving pre- and intra-pregnancy nutritional indicators, minimising teenage and elderly pregnancies, and preventing chronic diabetes, hypertension and anaemia during pregnancy are evidence-based targeted interventions to reduce LBW prevalence in Sri Lanka.

- From the secondary analysis, we concluded that the assisted pregnancy rate in our cohort is 1%.

- Assisted pregnancies were significantly associated with adverse neonatal outcomes of prematurity, LBW, admission to NICU and death within the first day of life.

- Therefore, assisted pregnancies should be identified as a high-risk group to provide more intense antenatal follow-up and arrange delivery at specialised centres with adequate neonatal facilities.

- Further, we conclude that over one-fifth of term neonates were delivered at 37 weeks, and over 40% of them were delivered by elective CS. Nearly half of the elective CS done at term were performed at 37 weeks.

- The mean birth weight of neonates steadily increased even after reaching term from 37 to 41 weeks.

- The LBW prevalence was significantly higher among neonates born at 37 weeks compared to later gestations.

- Neonates born at 38 weeks of gestation showed the best immediate neonatal outcome among all 'term' neonates.

- Delivery at 37 weeks was associated with a significantly higher risk of having

perinatal asphyxia, requiring resuscitation at birth and admission to the NICU, compared to birth at 38 weeks of gestation.

- There was no difference in adverse outcomes between neonates born at 38 and 39 weeks.

- Therefore, when elective delivery is indeed necessary, performing it at or after 38 weeks, rather than at 37 weeks, would have a significant positive impact on birth weights and outcomes of newborns.

References

1. Doherty, T. and M. Kinney, *Low birthweight: will new estimates accelerate progress?* The Lancet Global Health, 2019. **7**(7): p. e809–e810.

2. World Health Organisation, *UNICEF-WHO low birthweight estimates: levels and trends 2000-2015*. 2019, World Health Organization.

3. Lawn, J.E., et al., *Small babies, big risks: global estimates of prevalence and mortality for vulnerable newborns to accelerate change and improve counting.* The Lancet, 2023. **401**(10389): p. 1707–1719.

4. World Health Organization, *Global Nutrition Targets 2025: Low birth weight policy brief. 2014.* World Health Organization, Geneva, Switzerland, 2015.

5. Ashorn, P., et al., *Small vulnerable newborns;big potential for impact.* The Lancet, 2023. **401**(10389): p. 1692–1706.

6. Hunter, P.J., et al., *Biological and pathological mechanisms leading to the birth of a small vulnerable newborn.* The Lancet, 2023. **401**(10389): p. 1720–1732.

7. de Mendonça, E.L.S.S., et al., *Premature birth, low birth weight, small for gestational age and chronic non-communicable diseases in adult life: A systematic review with meta-analysis.* Early Human Development, 2020. **149**: p. 105154.

8. Mettananda, S. and e. al., *Composition, determinants, and risk factors of low birth weight in Sri Lanka.* Plos One, 2025. **In press**.

9. Rajapaksa, L., et al., *Sri Lanka health system review.* 2021.

10. Senanayake, H., et al., *Achieving Millennium Development Goals 4 and 5 in Sri Lanka.* BJOG: An International Journal of Obstetrics & Gynaecology, 2011. **118**(s2): p. 78–87.

11. Jafree, S.R., et al., *Factors Affecting Delivery Health Service Satisfaction of Women and Fear of COVID- 19: Implications for Maternal and Child Health in Pakistan.* Matern Child Health J, 2021. **25**(6): p. 881–891.

12. Thapa, B., et al., *Determinants of institutional delivery service utilization in Nepal.* PLoS One, 2023. **18**(9): p. e0292054.

13. Afaya, A., et al., *Institutional delivery rate and associated factors among women in rural communities: analysis of the 2017-2018 Bangladesh Demographic and Health Survey.* BMJ Open, 2024. **14**(3): p. e079851.

14. Abeywickrama, G., S.P. S, and A. Hinde, *Social inequalities in low birthweight outcomes in Sri Lanka: evidence from the Demographic and Health Survey 2016.* BMJ Open, 2020. **10**(5): p. e037223.

15. Anuranga, C., et al., *Trends, inequalities and determinants of low birth weight in Sri Lanka.* Ceylon Med J, 2012. **57**(2): p. 61–9.

16. Abeywickrama, G. and C. Anuranga, *A decomposition analysis of inequalities in Low birth weight in Sri Lanka: findings from the Demographic and Health survey- 2016.* Ceylon Med J, 2020. **65**(1&2): p. 15–22.

17. Banda, P., G.S. Amarasinghe, and S.B. Agampodi, *Determinants of birthweight in rural Sri Lanka; a cohort study.* BMC Pediatr, 2023. **23**(1): p. 40.

18. Villar, J., et al., *INTERGROWTH-21st very preterm size at birth reference charts.* Lancet, 2016. **387**(10021): p. 844–5.

19. Villar, J., et al., *International standards for newborn weight, length, and head circumference by gestational age and sex: the Newborn Cross-Sectional Study of the INTERGROWTH-21st Project.* Lancet, 2014. **384**(9946): p. 857–68.

20. Mettananda, S., et al., *Composition, determinants, and risk factors of low birth weight in Sri Lanka.* PLoS One, 2025. **20**(2): p. e0318554.

21. Mettananda, S., et al., *Pregnancy and neonatal outcomes of term deliveries of singleton pregnancies at different gestations in Sri Lanka: a multicentre prospective study.* The Lancet Regional Health-Southeast Asia, 2025. **42**.

22. Mettananda, S., et al., *Pregnancy and neonatal outcomes of assisted pregnancies in a low-middle income country in South Asia.* BMC Pregnancy Childbirth, 2025. **25**(1): p. 516.

¹Department of Paediatrics, Faculty of Medicine, University of Kelaniya, Sri Lanka

²University Paediatrics Unit, Colombo North Teaching Hospital, Ragama, Sri Lanka

ORCID: 0000-0002-0760-0418

Bereavement care: its importance and evidence

Sampatha Goonewardena[1]

The death of a neonate is an extremely traumatic experience for all concerned, but most especially of course for the par ents. In accordance with its definition as recorded in the Ameri can Psychiatric Association's Diagnostic and Statistical Manual of Mental Disorders (DSM), grieving is a response to the loss of a loved one in which some individuals display symptoms such as sadness, insomnia, anorexia or weight loss which are characteristic of a major depression disorder. According to the latest data by UNICEF, the global stillbirth rate last year was 14.3 stillbirths per 1,000 total births. The aetiology of neonatal mortality is multifactorial[1].

The main direct causes are considered to be preterm birth, serious infections and asphyxia[2].

Grief and bereavement are natural and universal human experiences, which occur before, during, and after a significant person in some one's life dies.[3]. However, just as the circumstances surrounding every death are varied, each individual can experience bereavement in different ways, which may reflect the nature of the death, their relationships, their social supports, and cultural context [4].

Perinatal bereavement care has become a forgotten issue within the health sector. There is little scientific evidence available to guide caregivers with respect to the implementation of effective interventions to better deal and cope with perinatal bereavement. Nurses, in their role as a fundamental pillar in caregiving, are responsible for these interventions - in which the first step is to recognize and fully

explore the best strategies that are available so that they can subsequently be integrated in care processes that avoid complicated grieving.[5] For many years, perinatal bereavement care was beset by controversy until the start of the present century when the topic began to be reconsidered. This scoping review shed light on diverse perinatal bereavement care programmes in NICUs. The authors proposed that active participation of neonatal teams in the design of programmes that offer care and attention in cases of perinatal bereavement and, could help avoid the risk of triggering pathological or complicated grieving.

Parents may experience prolonged grief disorder and post- traumatic stress, particularly when they feel isolated and unsupported. High quality care for bereavement may mitigate some negative short and long term psychosocial consequences. The 2020 RESPECT study used a post- Delphi method to produce eight consensus bereavement care principles, and they were reducing stigma, providing respectful care, shared decision making, investigating and identifying causes of stillbirth, acknowledging and normalising varied grief responses, providing holistic postnatal care, providing information on future reproductive health, and facilitating these through training of healthcare professionals.[6] national and international guidelines are sparse, particularly in low and middle income countries where most stillbirths occur and where parents report lower satisfaction with bereavement care.[7]. Parents may experience prolonged grief disorder and post- traumatic stress, particularly when they feel isolated and unsupported. Therefore, high quality care

for bereavement may mitigate some negative short and long term psychosocial consequences.

Perinatal bereavement care has unique considerations: parental support, communication, clinical decisions, and impact on staff. The Lancet 2016 stillbirth series called for improved bereavement care training[8] which is stated in the UK, Australia and USA national bereavement care guidelines. Many researchers reported a paucity of training as a barrier to provision of high quality bereavement care. Time spent seeing, holding, and saying goodbye to a stillborn baby after birth is cherished by many parents and is well documented in high income countries. If pregnancy following a stillbirth occurs, parents are often anxious, but also very engaged in their care therefore Increased surveillance is required, in addition to support and counselling when needed. Those who seek professional help during their grief process can choose between a wide range of support options; for example, grief counselling, individual or group psychotherapy, bereavement groups guided by professionals of the health system, or self-help bereavement groups. Generally, bereavement groups are one of the most common types of professional grief support[8].

Lancet Public Health 2024 reports that bereaved individuals are at increased risk for numerous adverse outcomes, including prolonged grief disorder, mood and anxiety disorders, existential distress, decreased work productivity, adverse health behaviours, neglect of health care, cancer, heart disease, suicide, and death. Ideally, bereavement care includes pre-death grief education and support, family focused psychosocial and spiritual care during the dying process, bereavement services after the death to nurture and sustain surviving family and community members, and assistance with transitioning to community-based support and psychosocial services for

those who need long-term professional care[10]. It also includes support for the workforce, as professional caregivers are affected by repeated losses. Existing community bereavement supports are often inadequate because of deficits in resources and training in evidence-based grief assessments and interventions. The situation is even more dire in low-income and middle-income countries. Furthermore, support that is available might be problematic because of the pervasive lack of grief literacy in many communities[11]. Thus, community-based supports in their present form are insufficient to effectively manage the sequelae of grief as institution based services taper off.

The Lancet Commission on the value of death advocated for the development of global compassionate communities to support bereaved individuals[12]. These innovative models are inherently cost-effective because they depend primarily on community, rather than institutional support, and given that the majority of bereaved individuals will adapt to their loss without formal or professional intervention. The global access to palliative care and pain relief Commission acknowledged the suffering of bereaved family members as a frequently unmet need requiring ongoing support from palliative care clinicians and community health workers. Furthermore, the global access to palliative care and pain relief Commission called for ensuring social support for family caregivers as a complement to the other components in their essential package of palliative care health interventions.

Several evidence-based interventions could and should be implemented to reduce stillbirth incidence. With evolving evidence of the systematic reviews regarding care after stillbirth, particularly in low healthcare resource settings, it emphasises the importance of parents and providers as partners: parents' choices being heard and recognised while staff provide

compassionate care. Supported and trained staff will in turn be better equipped to provide effective support.

References

1. Khan M. W., Arbab M., Murad M., Khan M. B., et al. Study of factors affecting and causing low birth weight. Journal of Scientific Research 2014, 6 (2), 387–394. https://doi.org/10. 3329/jsr.v6i2.17090

2. Sankar MJ, Natarajan CK, Das RR, Agarwal R et al. When do newborns die? A systematic review of timing of overall and cause-specific neonatal deaths in developing countries. J Perinatol. 2016 May;36 Suppl 1(Suppl 1):S1-S11. doi: 10.1038/jp.2016.27.

3. Ayers, T., Balk, D., Bolle, J., Bonanno, et al. Report on bereavement and grief research 200;. *Death Studies*, *28*(6), 491- 575 https://doi.org/10.1080/0748118049046 1188

4. Christian KM, Aoun SM, Breen LJ. How religious and spiritual beliefs explain prolonged grief disorder symptoms. Death Stud. 2019; 43(5):316-323.

5. Pueyo E.P., Gonzalez Alonso A.V., Botigue T., Masot O., et al. Nursing interventions for perinatal bereavement care in neonatal intensive care units: A scoping review. Int. Nurs. Rev. 2021, 68,122–137

6. Shakespeare C, Merriel A, Bakhbakhi D, Blencowe H, et al. RESPECT (Research of Evidence based Stillbirth care Principles to Establish global Consensus on respectful Treatment) working group. The RESPECT Study for consensus on global bereavement care after stillbirth. Int J Gynaecol Obstet. 2020 May;149(2):137-147. doi: 10.1002/ijgo.13110.

7. Bethany Atkins, Lindsay Kindinger, Muhammad Pradhiki Mahindra, et al. Stillbirth: prevention and supportive bereavement care BMJMED 2023;2. doi:10.1136/ bmjmed-2022-000262

8. Flenady V, Wojcieszek AM, Middleton P, Ellwood D, et al. Ending Preventable Stillbirths study group; Lancet Stillbirths In High-Income Countries Investigator Group. Stillbirths: recall to action in high-income countries. Lancet. 2016 Feb 13;387(10019):691-702. doi: 10.1016/S0140-6736(15)01020-X. Epub 2016 Jan 19. Erratum in: Lancet. 2021 Sep 25;398(10306):1132. doi: 10.1016/S0140-6736(21)02091-2.

9. Field, D., Reid, D., Payne, S., & Relf, M. (2004). Survey of UK hospice and specialist palliative care adult bereave ment services. International Journal of Palliative Nursing, 10(12), 569–576. https://doi.org/10.12968/ijpn.2004.10.1 2. 17280

10. Wendy G Lichtenthal, Kailey E Roberts, Leigh A Donovan, et al. Investing in bereavement care as a public health priority Lancet Public Health 2024; 9: e270–74 Published Online March 13, 2024 https://doi.org/10.1016/ S2468-2667(24)00030-6

11. Breen LJ, Kawashima D, Joy K, Cadell S, et al. Grief literacy: A call to action for compassionate communities. Death Stud. 2022; 46(2):425-433. doi: 10.1080/07481187.2020.1739780

12. Sallnow L, Smith R, Ahmedzai SH, Bhadelia A et al; Report of the Lancet Commission on the Value of Death: bringing death back into life 2022 Feb 26;399(10327):837-884. doi: 10.1016/ S0140-6736(21)02314-X.

[1]*Prof in Community Medicine, Faculty of Medical Sciences, University of Sri Jayewardenepura*

SECTION 2

24ᵗʰ Annual Scientific Sessions

Perinatal Society of Sri Lanka

3ʳᵈ October 2025

Published Abstracts

KNOWLEDGE, PERCEPTION AND BARRIERS REGARDING KANGAROO MOTHER CARE AMONG NURSES IN LEVEL III NEONATAL UNITS IN SRI LANKA.

Kumuduni DGK[1], Basnayake S[2], Doluweera S[1], Manori DMS[3]

[1] *Castle Street Hospital for Women, Colombo 08.*
[2] *Lady Ridgeway Hospital for Children, Colombo 08.*
[3] *Department of Community Medicine, Wayamba University of Sri Lanka.*

Introduction

Kangaroo mother care (KMC) is early, continuous and prolonged skin-to-skin contact between mother and the baby, ideally with exclusive breast feeding. It is an evidence-based approach to provide care in premature and low birth weight newborns. Commencing KMC immediately after birth has shown in enhancing the survival in preterm and low birth weight babies.

Hence the concept of mother neonatal care unit (MNCU) is evolving and there is a plan to start a trial in Sri Lanka. The success of KMC is dependent on the knowledge, attitudes and perception among health care workers in neonatal care.

Objectives

To describe the knowledge, perception and barriers regarding kangaroo mother care among nurses in level III neonatal units in Sri Lanka and to assess the associated factors for the level of knowledge.

Methodology

This descriptive cross-sectional study includes 390 nurses who works in level III neonatal units in Sri Lanka. Eleven hospitals were selected by simple random sampling. Data collected by a validated self-administered questionnaire. A voluntary participation was ensured. Descriptive data illustrated as numbers and percentages. Associated factors were analysed with multivariate logistic regression.

Results

The response rate was 99.7%. Among the 390 nurses, only 28.7% had good while 6.7% had poor knowledge regarding KMC. Majority of nurses (54.4%) have identified the fear among parents as a barrier to start KMC. The inadequacy of the time spent by the parents inside the intensive care unit is also identified as a barrier (46.4%). Majority (75.9%) stated that they need further training on KMC. There is a significant association between the hospital (p=0.004), place of work (p=0.03) and the work experience in neonatal care (P=0.04) and the level of knowledge.

Conclusion

Arranging more training programs targeting all nurses involved in newborn care is recommended which will result in enhancement of knowledge regarding KMC. The establishment of MNCU will be helpful to improve the time spent by the parents with their baby to provide KMC.

COMPOSITION AND DETERMINANTS OF BIRTH WEIGHT IN TERM NEWBORNS

Wickramaratne S[1,2], Gunarathna G[1], Ranasinghe E[1], Nimana KVH[2], Kalhara WWLD[2], Sanjeevan K[2], Isanka DWAS[2], Dias T[2,3], Herath R[2,3], Gamaathige N[4], Mettananda S[1,2]

[1] *Department of Paediatrics, University of Kelaniya, Sri Lanka*
[2] *Colombo North Teaching Hospital, Ragama, Sri Lanka*
[3] *Department of Obstetrics and Gynaecology, University of Kelaniya, Sri Lanka*
[4] *De Soyza Hospital for Women, Colombo, Sri Lanka*

Introduction

Birth weight is determined by many factors, and low birth weight (LBW) is an important determinant of short- and long-term outcomes of a newborn.

Objectives

To describe the distribution of birth weight of term newborns and to describe the prevalence, composition and determinants of LBW among term newborns at Colombo North Teaching Hospital (CNTH), Ragama, Sri Lanka.

Methods

A descriptive cross-sectional study was conducted at the University Obstetric and Paediatric Units of CNTH, Sri Lanka. Consecutive term newborns delivered at the unit in June-July 2025 were recruited after obtaining informed consent from mothers 24-48 hours after birth. Stillborn, conjoined twins, premature neonates and newborns with uncertain gestational ages were excluded. Data on socio-demographics, medical details, antenatal ultrasonography (done after 32 weeks), and birth weight were gathered. Multivariable logistic regression was used to test for independent associations. Ethical approval was obtained from the Sri Lanka College of Paediatricians.

Results

A total of 266 term neonates (Males-52.3%) were recruited; 236 (89%) with completed data were included in this analysis. None had congenital abnormalities or features of intrauterine infections. The mean birth weight was 2904±SEM27g (range: 1845-4050g). 37 (15.7%) newborns had LBW (birth weight <2500g), 36 (15.3%) were small for gestational age (SGA, birth weight <10th percentile for gestation) and 40 (16.9%) had fetal growth restriction (FGR, diagnosed by antenatal ultrasonography). Of the LBW neonates, 27/37 (73.0%) were SGA and 18/37 (48.6%) had FGR, whereas 7/37 (18.9%) were neither SGA nor had FGR. Of the 27 neonates who had LBW with SGA, only 15/27 (55.6%) had FGR. Pregnancy-induced hypertension was independently associated with LBW (OR:5.58, 95%CI:1.15-27.0, $p<0.05$) and SGA (OR:4.59, 95%CI:1.06-19.1, $p<0.05$).

Conclusions

Approximately 20% of term LBW neonates were neither SGA nor had evidence of FGR, suggesting normal intrauterine growth. Additionally, nearly 50% of neonates who were both LBW and SGA did not show signs of FGR, indicating that they were likely constitutionally small rather than growth restricted. Therefore, a large proportion of term LBW neonates does not require extensive evaluation to identify a pathological cause.

ASSESSING ADHERENCE TO NEONATAL BASIC AIRWAY MANAGEMENT AND MASK VENTILATION GUIDELINES IN A LEVEL 3 NEONATAL UNIT IN COLOMBO, SRI LANKA – A CLINICAL AUDIT

Dissanayake KC[1], De Silva MLK[1], Safa SM[1], Gamaathige N[1]

[1] *De Soysa Maternity Hospital, Colombo*

Introduction

While most neonates transition smoothly to extra-uterine life, approximately 10% require basic stabilization and 5% need positive pressure ventilation (PPV). Timely initiation of PPV is critical for compromised neonates. However, evidence shows persistent errors, such as airway obstruction and mask leaks, even among experienced providers, emphasizing the need for ongoing skill assessment and reinforcement.

Objectives

To assess adherence to neonatal basic airway and mask ventilation guidelines via simulation, evaluate baseline performance, provide structured feedback, implement targeted education, and measure improvement after six weeks.

Methodology

This prospective clinical audit involved 53 healthcare workers from Labour rooms, Operating theatres, neonatal intensive care unit and special care baby unit at DeSoysa Maternity Hospital. Participants performed simulated neonatal resuscitation scenarios, evaluated by three trained assessors using a standardized checklist covering essential airway and ventilation skills. Following baseline assessment, participants received immediate feedback with demonstration and hands-on correction. A follow-up assessment was conducted six weeks later using the same methodology.

Results

Baseline: Competency was suboptimal across all domains. Neutral head positioning was correctly performed by 50.9%, double-handed jaw thrust by 11.3%, and oral airway insertion by 22.6% (with only 5.7% selecting correct size). Mask size selection was adequate in 75.5%, but correct C&E grip in only 28.3%. For Neopuff use, appropriate oxygen flow was set by 67.9%, setting Peak Inspiratory Pressure (PIP) by 41.5%, and Positive End Expiratory Pressure (PEEP) by 37.7%. Only 11.3% delivered correct inflation breaths and 5.7% performed effective ventilation breaths. No participant demonstrated full competency.

Post-intervention: Of the 45 re-assessed, marked improvements were seen: neutral head position (90%), jaw thrust (54.5%), oral airway insertion (100%), and size selection (72.7%). Mask size selection improved to 100%, C&E grip to 63.6%, and correct oxygen flow settings to 100%. Setting PIP and PEEP reached 81.8%. Correct inflation and ventilation breaths improved to 72.7% and 45.4%, respectively. Full domain competency rose from 0% to 27.2%.

Conclusion

Baseline skills in neonatal airway and ventilation management were inadequate. Targeted simulation-based education with feedback significantly enhanced performance. Regular, structured training and reassessment are essential to maintain competency and improve neonatal outcomes. Future research should examine long-term skill retention and optimal training frequency.

"FROM BLIND RISK TO BRIGHT VISION": A QUALITY IMPROVEMENT INITIATIVE ON OXYGEN TARGETING TO REDUCE TREATMENT-REQUIRING RETINOPATHY OF PREMATURITY (ROP)

Hassan MHSM[1], De Silva BM[1], Pemarathne DV[1], Jayaweera PHS[1], Rathnayake KACJJ[1], Herath HMSY [1], Asrin MMF[2]

[1] *Teaching Hospital (TH) Badulla, Sri Lanka*
[2] *Colombo South Teaching Hospital, Sri Lanka*

Introduction

Retinopathy of Prematurity (ROP) is a leading cause of avoidable blindness in premature infants, with excessive or unregulated oxygen exposure being a key contributing factor. Evidence suggests that maintaining oxygen saturation (SpO_2) between 90–95% can reduce the risk of severe ROP without compromising overall outcomes. This Quality Improvement (QI) project was implemented as part of a 10-part neonatal care bundle at the NICU, Teaching Hospital Badulla, Sri Lanka.

Objective

To reduce the incidence of treatment-requiring ROP among preterm infants less than 32 weeks' gestation and/or under 1500 grams by implementing structured oxygen saturation targeting protocols.

Methods

This mixed-method QI project included retrospective data collection from January 2022 to August 2023 and prospective data collection from January to December 2024. The Plan-Do-Study-Act (PDSA) intervention phase was conducted between September and December 2023. All preterm infants <32 weeks and/or <1500 g admitted to the NICU were included, excluding those with major congenital anomalies, deaths within the first 72 hours, or incomplete ROP follow-up. The QI interventions involved titration of oxygen from birth to maintain SpO_2 between 90–95%, setting alarm limits accordingly, using saturation target charts and stickers, staff training sessions, and weekly monitoring with histogram (generated by the bed side monitors) audits.

ROP screening was performed by a consultant ophthalmologist using indirect ophthalmoscopy beginning at 4 weeks of postnatal age. Treatment-requiring ROP was defined as Stage III or higher, or presence of plus disease. Treatment modalities included laser photocoagulation or intravitreal anti-VEGF injections based on disease severity and zone of involvement.

Results

In 2022, among 128 eligible infants, 18 (14.1%) developed ROP requiring treatment. During 2023 (January to December), 134 infants were assessed and 16 (11.9%) required treatment. Following implementation of the QI intervention, in 2024, only 2 out of 146 infants (1.4%) required treatment. The mean gestational age for infants in the 2024 cohort was 29 weeks, with an average birth weight of 1.1 kg.

Conclusion

Structured oxygen saturation targeting led to a substantial decline in treatment-requiring ROP among high-risk preterm infants. This QI approach is feasible and effective in improving neonatal outcomes in resource-limited NICU settings.

Keywords: Retinopathy of Prematurity, Oxygen Saturation Targeting, Preterm Infants, Quality Improvement

"FROM UNCERTAINTY TO EMPOWERMENT": A QUALITY IMPROVEMENT INITIATIVE TO STRENGTHEN FAMILY-CENTERED NEONATAL CARE AT TH -BADULLA NICU USING THE EMPATHIC-N FRAMEWORK

Hassan MHSM[1], De Silva BM[1], Pemarathne DV[1], Jayaweera PHS[1], Rathnayake KACJJ[1], Herath HMSY [1], Asrin MMF[2]

[1] *Teaching Hospital (TH) Badulla, Sri Lanka*
[2] *Colombo South Teaching Hospital, Sri Lanka*

Introduction

Admission of newborns to the NICU can be an emotionally distressing experience for families, particularly for mothers of preterm or low birth weight infants. Structured parental education, daily communication, and promotion of Kangaroo Mother Care (KMC) have been shown to reduce parental anxiety, foster bonding, and improve care outcomes. However, these strategies were inconsistently practiced. This Quality Improvement (QI) project, conducted at Teaching Hospital Badulla, aimed to enhance parental satisfaction and involvement through a structured education and communication model guided by the EMPATHIC-N framework, as part of a broader 10-part QI bundle to improve care for preterm neonates

Objectives

To improve parental satisfaction and confidence in neonatal care through daily structured education, consistent updates, and promotion of early KMC, measured using a simplified EMPATHIC-N tool.

Methods

A pre-post intervention study was conducted at TH Badulla NICU over six months. In September–October 2023, a baseline assessment was conducted among 85 postnatal mothers with babies admitted to NICU. A structured parental education program was implemented in November–December 2023, including daily teaching sessions on hygiene, danger signs, and newborn care. KMC was promoted as a core component of parental involvement. Staff received communication training and daily parent update charts were introduced. Post-intervention assessment was conducted in January–February 2024 among 80 mothers using a translated 10-item short-form EMPATHIC-N questionnaire.

Results

KMC initiation in stable infants within 48 hours increased from 47% at baseline to 86% post-intervention. Daily updates were documented in 93% of infant records. Mean parental satisfaction scores improved from 3.1 to 4.6 on a 5-point Likert scale, with 95% of mothers reporting feeling more informed, confident, and emotionally connected to their infant's care.

Conclusion

This structured, culturally tailored QI initiative successfully enhanced parental engagement and satisfaction in NICU care. The EMPATHIC-N framework provided a practical, parent-centred measure to guide and assess improvement. This low-cost, replicable model has the potential to be scaled across other regional NICUs to promote safe, family-centred care.

Keywords : Parental Satisfaction, Structured Education, Kangaroo Mother Care, EMPATHIC-N Tool

PREPARE TO PROTECT: A QUALITY IMPROVEMENT PROJECT TO ENHANCE ANTENATAL CORTICOSTEROIDS AND MAGNESIUM SULFATE USE IN PRETERM DELIVERIES

Hassan MHSM[1], De Silva BM[1], Pemarathne DV[1], Jayaweera PHS[1], Rathnayake KACJJ[1], Herath HMSY[1], Asrin MMF[2]

[1] *Teaching Hospital (TH) Badulla, Sri Lanka*
[2] *Colombo South Teaching Hospital, Sri Lanka*

Introduction

Antenatal corticosteroids and magnesium sulfate ($MgSO_4$) are proven to improve outcomes in preterm neonates. Corticosteroids reduce respiratory and neurological complications, while $MgSO_4$ offers neuroprotection and lowers the risk of cerebral palsy when administered prior to early preterm delivery. Despite strong international guidelines, inconsistent administration persists in real-world settings due to logistical and systemic challenges. This project was conducted at Teaching Hospital Badulla as part of a broader 10-part quality improvement (QI) bundle to enhance care for preterm neonates.

Objectives

The objective was to improve the rate of appropriate antenatal corticosteroid and $MgSO_4$ administration in mothers delivering before 34 weeks of gestation. Specifically, the project aimed to increase corticosteroid use from 59.3% to over 80%, and $MgSO_4$ administration (bolus ± Infusion) from 41.6% to over 70%, using a structured intervention strategy.

Methods

A retrospective audit from January to June 2023 revealed that 57 out of 96 eligible mothers (59.3%) received a full course of antenatal corticosteroids, and 40 (41.6%) received a $MgSO_4$ bolus, while only 32 (33.3%) received both bolus and infusion. A QI intervention was implemented from September to December 2023 using PDSA cycles. Key actions included multidisciplinary staff education, protocol development, a bundled checklist for preterm labour management, and SBAR-based communication. Appropriateness was defined as a full course of corticosteroids with the last dose administered within 24 hours before delivery, and $MgSO_4$ administration (bolus ± infusion) within 24 hours of delivery. Prospective data were collected from January to December 2024. Exclusion criteria included stillbirths, major congenital anomalies, and outborn transfers. A total of 180 preterm deliveries were analyzed post-intervention.

Results

Post-intervention, corticosteroid use increased to 88.9% (160/180). $MgSO_4$ administration rose to 84.4% for bolus (152/180) and 77.7% for bolus plus infusion (140/180). Reasons for non-administration included late maternal presentation and rapid labor progression.

Conclusion

The "Prepare to Protect" QI initiative significantly improved timely administration of antenatal corticosteroids and $MgSO_4$. Bundled protocols, staff training, and simplified workflows contributed to sustainable adherence in the care of preterm deliveries within a peripheral tertiary care setting.

Keywords: Antenatal corticosteroids; Magnesium sulfate; Preterm birth; Quality improvement

"WAIT A MINUTE": A FEASIBILITY-BASED QI INITIATIVE TO IMPROVE DELAYED CORD CLAMPING IN PRETERM INFANTS

Hassan MHSM[1], De Silva BM[1], Pemarathne DV[1], Jayaweera PHS[1], Rathnayake KACJJ[1], Herath HMSY[1], Asrin MMF[2]

[1] *Teaching Hospital (TH) Badulla, Sri Lanka*
[2] *Colombo South Teaching Hospital, Sri Lanka*

Introduction

Delayed cord clamping (DCC) in preterm infants is a simple, evidence-based intervention associated with significant improvements in neonatal outcomes. Systematic reviews and meta-analyses show that DCC can reduce hospital mortality and transfusion needs.

Objective

To increase the rate of delayed cord clamping (≥60 seconds) in preterm infants less than 34 weeks gestation at NICU - TH Badulla from a baseline average of 25% (measured between January and June 2023) to at least 75% by the end of the intervention period (September 2023 to December 2024).

Method

A multidisciplinary QI team initiated interventions using Plan–Do–Study–Act (PDSA) cycles. These included staff education sessions, implementation of a standardized delivery room checklist, use of T piece device with PEEP during vaginal deliveries for non-breathing infants, and protocol modifications for caesarean sections to allow safe DCC in stable neonates. Data on DCC timing, mode of delivery, and neonatal characteristics were collected monthly. Infants with contraindications (need for immediate resuscitation of the baby and Unstable mother) were excluded.

Results

Among 284 eligible preterm infants, 34 were excluded due to clinical contraindications. The final analysis included 250 infants, with a median gestational age of 30 weeks and a median birth weight of 1240 g (range: 480–1750 g). By the end of the intervention period in 2024 (January to December), the overall annual rate of delayed cord clamping (≥60 seconds) increased to 80.2%, a substantial improvement from the baseline average of 25% recorded between January and June 2023.

In caesarean section deliveries, the DCC ≥60 seconds rate rose significantly from 13% (Jan–Jun 2023) to 70.1% (Jan–Dec 2024). In vaginal deliveries, it improved from 40% to 94.4% over the same period. Additionally, the proportion of infants receiving DCC for at least 30 seconds reached 85.5% in caesarean sections and 97.2% in vaginal deliveries during 2024. Sterility limitations during caesarean births restricted PEEP delivery; devices like LifeStart™, available in developed settings, may overcome this barrier.

Conclusion

This feasibility-focused QI project significantly improved DCC rates in preterm infants. Even in low-resource settings, simple, structured strategies can make "waiting a minute" a life-saving act.

Keywords: Delayed Cord Clamping, Preterm Infants, Quality Improvement, Neonatal Resuscitation, Low-Resource Settings

PREVALENCE AND PERCEPTION OF PREGNANCY-RELATED LOW BACK AND PELVIC GIRDLE PAIN: IMPACT OF AN EDUCATIONAL INTERVENTION IN SRI LANKA

Atukorale SH[1], Silva D[1], Pathirage R[2], Rannulu P[2]

[1] *Department of Rheumatology, Gampaha District General Hospital*
[2] *Department of Obstetrics and Gynaecology, Gampaha District General Hospital*

Introduction

Pelvic girdle pain(PGP) and low back pain(LBP) affect pregnant women, impacting mobility, quality of life, and mental well-being. Despite their prevalence, awareness and evidence-based self-management remain limited.

Objectives

Evaluate knowledge, prevalence, and the impact of an educational intervention among pregnant mothers on PGP and LBP.

Methodology

A cross-sectional audit was conducted using an interviewer-administered questionnaire among pregnant women attending antenatal clinics at Gampaha hospital. The study involved a pre-audit knowledge and prevalence assessment, followed by a structured educational intervention comprising verbal instruction and a printed handout. One-on-one sessions covered the causes, symptoms, and management of pelvic girdle and low back pain in pregnancy. A post-education audit was conducted to assess changes in knowledge, beliefs, and confidence. Responses were analyzed.

Results

Mean age of the sample was 30 ± 5.7years (range 17-41 years) with the mean gravidity, parity and number of children being 2.52, 2.06 and 1.07.

54 pregnant mothers from 9weeks+4days to 39weeks+5days were assessed with the mean value for period of amenorrhea being 30weeks+3days which comes under the third trimester.

94.4% and 42.6% of participants complained of experiencing lower back pain and pelvic pain respectively during past 1 week with a mean pain score of 4.37, but it only mildly interfered with their daily activities.

Following an educational intervention, knowledge regarding pregnancy-related low back and pelvic pain markedly improved. Mean correct responses for general knowledge increased from 52.6% to 92.2%, while awareness of preventive measures rose from 68.4% to 97.7%.

75.9% of participants identified pelvic girdle pain as the area around the pubic bone, buttocks or lower hips which was 100% after the education session. Only 48.1% of participants identified pelvis being more relaxed and increased in biomechanical stress as the reason for the pelvic girdle pain being often more severe in the third trimester which increased upto 100%. All the participants stated that they're more confident after the session.

Conclusion

Despite high prevalence of PGP and LBP in pregnancy, knowledge gaps remain significant. This audit demonstrates that targeted education substantially improves understanding and confidence, underscoring the need to integrate routine pain education into antenatal care to empower mothers and promote functional well-being.

PREVALANCE OF NEONATAL SAFEGUARDING ISSUES IN A TERTIARY CARE MATERNITY HOSPITAL IN COLOMBO

Liyanage TR[1], Wickramarathne MUD[1], Lucas MN[2]

[1] *University Unit, De Soysa Hospital for Women, Colombo, Sri Lanka*
[2] *Department of Paediatrics, Faculty of Medicine, University of Colombo, Sri Lanka*

Introduction

Safeguarding vulnerable neonates is a critical component of holistic care in neonatal medicine. Safeguarding responsibilities are currently carried out by neonatal medical staff, who arrange case conferences and attend legal proceedings in addition to their other clinical duties. The absence of a dedicated safeguarding team has led to a heavy strain on the neonatal medical team.

Objectives

To describe the prevalence of safeguarding issues in a tertiary care maternity hospital in Sri Lanka.

Method

A retrospective review was conducted in the university neonatal unit at De Soysa Hospital for Women, Colombo from 01.01.25 – 13.08.25. Case conferences were organised for neonates suspected to have safeguarding issues. All neonates born to mothers with illicit substance abuse were monitored for neonatal abstinence syndrome (NAS). All case conferences conducted during the study period were included in this study. All case conference minutes are saved in the unit computer. Data was extracted from these minutes. Descriptive statistics were used via MS Excel.

Results

There were 19 neonates who had safeguarding issues during the study period amongst 1500 births. There were 4 teenage pregnancies, where the youngest mother was 16 years. All mothers except two were unmarried (89%). Multiple partners were seen in 10 mothers (53%). All mothers were from poor socioeconomic backgrounds. Illicit drug use was present in 42% (8) where urine toxicology was positive in 37% (3). (NAS) features were documented in (4/8) 50% of babies. Domestic violence was seen & nearly half (42%) of mothers had a history of imprisonment. While 79% were free of psychiatric illness, 10% had low IQ, 5% history of self-harm, and 5% experienced postpartum depression. Parenting capacity was considered poor in (11) 57% of cases. Antenatal care was poor or absent in 79%, and 58% reported poor family support. Half of these babies were handed over to probation care (53%), whereas the others were handed over to the family under supervision and handover with assistance (47%).

Conclusions

Safeguarding issues were seen in over 1in 100 babies during the past 7.5 months. Safeguarding of neonates is an emerging issue that needs to be addressed urgently.

MATERNAL STRESS, DEPRESSION, ANXIETY, AND PARTICIPATION IN CARE IN NEONATAL SEMI-INTENSIVE AND INTENSIVE CARE UNITS: RESULTS OF A CROSS-SECTIONAL STUDY IN TWO SRI LANKAN HOSPITALS.

Gamhewage NC[1], Rishard M[2,3], Gamaathige N[3], Janet L[2], Ilaria Mariani[4], Senanayake H[2], Marzia Lazzerini[4,5]

[1] *Faculty of Medical Sciences, University of Sri Jayewardenepura, Colombo South Teaching Hospital, Sri Lanka*
[2] *Faculty of Medicine, University of Colombo, Sri Lanka*
[3] *De Soysa Maternity Hospital for Women, Colombo, Sri Lanka*
[4] *Maternal Adolescent Reproductive and Child Health Care Centre, London School of Hygiene & Tropical Medicine, London, UK*
[5] *WHO Collaborating Centre for Maternal and Child Health, Institute for Maternal and Child Health – IRCCS Burlo Garofolo, Trieste, Italy*

Introduction

Mothers of neonates needing admission to neonatal units are at elevated risk for psychological morbidity when their infants require neonatal intensive care. There is a dearth of data regarding the Sri Lankan context.

Objectives

We assessed the prevalence and factors associated with maternal depression, anxiety and stress when their neonates required admission to neonatal units.

Methods

A cross-sectional study was conducted at two tertiary hospitals in Sri Lanka, from November 2023 to September 2024. Ethical clearance was obtained from Ethics review committee, Faculty of Medicine, Colombo. Mothers of neonates admitted to either NICU or Semi intensive care unit for ≥48 hours were recruited.

Depression was assessed using the Edinburgh Postnatal Depression Scale (EPDS), anxiety via the State-Trait Anxiety Inventory (STAI), and stress using the Parental Stress Scale (PSS-NICU). Maternal engagement was measured with the Index of Parental Participation in NICU (IPP-NICU).

Results

Three hundred mothers participated, with a median age of 30 years. All were married, predominantly Sinhala (66.3%), and had secondary or higher education. Infants had a median birth weight of 2335 g (IQR 1430–2990), 25% were born before 32 weeks, and 78.3% required NICU admission.

94.3% of mothers experienced at least one condition, and 59% experienced depression, anxiety, and stress simultaneously. EPDS ≥9 was observed in 87% (median 15, IQR 11–18), with 17.6% scoring ≥20. State anxiety occurred in 77.7%, while 96.7% displayed trait anxiety, mostly mild. Maternal involvement scores were low (mean IPP-NICU 13.81, SD 4.95), with only 13% scoring ≥20 (maximum mark:30); engagement in "technical tasks" was minimal.

Analyses revealed protective effects of active involvement: mothers with IPP-NICU ≥20 had lower stress (aOR 0.27, 95% CI 0.12–0.59, p=0.001) and lower state anxiety (aOR 0.32, 95% CI 0.14–0.72, p=0.005). Depression was less frequent among mothers whose infants were in semi-intensive care compared to NICU (aOR 0.29, 95% CI 0.12–0.68, p=0.004).

Conclusion

These results highlight the exceptionally high burden of psychological distress in mothers in NICU and underscore the value of promoting active maternal engagement in care. Targeted interventions supporting maternal participation may reduce their psychological burden.

Corresponding author: N C Gamhewage-nimeshagamhewage@sjp.ac.lk

ENHANCING NEONATAL CARE THROUGH MULTISTAKEHOLDER COLLABORATION: INSIGHTS FROM A STAKEHOLDER DRIVEN QUALITY IMPROVEMENT INITIATIVE IN SRI LANKA

Gamhewage NC[1], Rishard M[2,3], Gamaathige N[3], Gunasekara MB[2], Janet L[2], Ilaria Mariani[4], Marzia Lazzerini[4,5], Senanayake H[2]

[1] *Faculty of Medical Sciences, University of Sri Jayewardenepura, Sri Lanka*
[2] *Faculty of Medicine, University of Colombo, Sri Lanka*
[3] *De Soysa Maternity Hospital for Women, Colombo, Sri Lanka*
[4] *Maternal Adolescent Reproductive and Child Health Care Centre, London School of Hygiene & Tropical Medicine, London, UK*
[5] *WHO Collaborating Centre for Maternal and Child Health, Institute for Maternal and Child Health – IRCCS Burlo Garofolo, Trieste, Italy*

Introduction

Parents of neonates admitted to NICUs often experience high levels of stress, anxiety, and depression, which can hinder their involvement in care. The Empowering Parents of Newborns in the NICU (EPiNICU) study is a multinational initiative assessing parental mental health and participation in NICU care across Italy, Brazil, Tanzania, and Sri Lanka. While international data has highlighted the magnitude of this problem, evidence from Sri Lanka has been limited.

Objectives

To evaluate parental mental health and participation in NICU care in Sri Lanka and to identify context-specific interventions through multistakeholder collaboration.

Method

A mixed-method, four-phase study was conducted at De Soysa Maternity Hospital and Colombo South Teaching Hospital.

Phase 1: Baseline survey of 300 mothers using the Parental Stressor Scale: NICU, EPDS, STAI, and IPP-NICU.

Phase 2: International collaboration meetings to review local findings and propose interventions.

Phase 3: Stakeholder workshop with neonatologists, nurses, parents, administrators, and journalists using nominal group technique to generate and prioritize recommendations.

Phase 4: Family Centered Care (FCC) training workshop for NICU staff to enhance skills in parental engagement and communication.

Results

Phase 1 revealed that 94.3% of mothers experienced at least one psychological condition, while 59% reported concurrent stress, anxiety, and depression. Parental involvement was low (mean IPP-NICU score 13/30), with only 13% scoring >20.

Phase 2 grouped interventions under four themes: parental empowerment, caregiver training, policy development, and infrastructure improvements.

Phase 3 stakeholder discussions identified priorities across five domains: parental engagement and communication, psychosocial and emotional support, capacity building of health workers, infrastructure and environment, and policy/governance. Recommendations included daily parental updates, peer support groups, integration of mental health screening, improved waiting facilities, and establishment of breast milk banks.

Phase 4 demonstrated significant improvements ($p<0.05$) in staff perceptions of parental involvement, cultural sensitivity, communication, and staff roles following FCC training.

Conclusions

Maternal psychological distress in Sri Lankan NICUs is alarmingly high, with limited parental involvement in newborn care. Stakeholder-driven, context-specific interventions, combined with health worker training, are urgently needed to transform NICU culture and support both parents and infants.

Corresponding author: N C Gamhewage - nimeshagamhewage@sjp.ac.lk

DEVELOPMENT OF EARLY POSTPARTUM DEPRESSIVE SYMPTOMS AND ITS ASSOCIATION TO NEGATIVE CHILDBIRTH EXPERIENCE AMONG MOTHERS ADMITTED TO A TERTIARY CARE CENTRE IN GALLE.

Karunatilleke AHTTM[1], De Silva WTP[1], Karunasena KRAS[1], Kavindi DNSP[1], Kodippili TKN[1], Keembiyage CN[1], De Silva V[2]

[1] *Faculty of Medicine, University of Ruhuna,*
[2] *Department of Community Medicine, Faculty of Medicine, University of Ruhuna.*

Introduction

Postpartum depression (PPD) is a common, yet underdiagnosed, condition that creates a negative environment for the mother and the child. Early-onset PPD is defined as depression with an onset within four weeks after giving birth. The reported prevalence of early PPD symptoms in Sri Lanka ranges from 7.8% to 15.5%.

Objectives

The study aimed to identify factors which influence early PPD symptoms and ascertain their association with childbirth experience.

Method

A descriptive cross-sectional study was conducted at the postnatal wards of Teaching Hospital Mahamodara from December 2023 to March 2024. A sample of 420 postpartum mothers who had delivered a live baby in the last 72 hours was recruited for the study with systematic random sampling. Mothers with a history of depression/psychological disorder or currently suffering from a psychiatric illness were excluded from the study. A self-administered questionnaire designed by the investigators based on literature and expert opinion was employed to assess factors affecting PPD. Early PPD symptoms and a childbirth experience were assessed with the validated Sinhala versions of the Edinburgh Postnatal Depression Scale and the Childbirth Experience Questionnaire. Data was analyzed with the Statistical Package for Social Sciences version 27.

Results

Early postpartum depressive symptoms were present among 11.7% postpartum mothers and a negative childbirth experience was present among 6.9% mothers. Admission to the Premature Baby Unit (p<0.001), presence of breastfeeding problems (p<0.001), presence of delivery complications (p<0.012), unpleasant memories during the delivery (p=0.010) and living without husband following discharge (p=0.004) were found to be significantly associated with development of early PPD symptoms. A significant weak positive correlation was observed between negative childbirth experience and early PPD symptoms (r=0.245, p <0.001)

Conclusion

One in ten mothers in the early postpartum period is positive for early PPD symptoms. The factors affecting early PPD symptoms were related to complications during the perinatal period, unpleasant childbirth experience, and spousal support. It is recommended to provide a broader education on PPD during the antenatal sessions, to prepare mothers' mental status for the challenges in the delivery and to screen postpartum mothers before discharge following the delivery.

Keywords: Postpartum Depression, Pregnancy, Childbirth Experience, Early postpartum