It is with great honor and profound pleasure that I extend my warmest greetings and heartfelt congratulations to all distinguished delegates, speakers, and colleagues participating in the 24th Congress of the Federation of Asia and Oceania Perinatal Societies (FAOPS), held in the historic and culturally rich city of Kathmandu, Nepal.

The FAOPS Congress has long stood as a cornerstone of scientific advancement and regional collaboration in perinatal and neonatal medicine. Each gathering provides a precious opportunity to reaffirm our shared commitment to the health and well-being of mothers and newborns across Asia and Oceania. In an era marked by rapid medical progress and evolving healthcare challenges, our unity and collective wisdom remain the greatest strengths that sustain our mission.

I wish to express my sincere appreciation to the Nepal Perinatal Society and the Organizing Committee for their exemplary dedication, vision, and perseverance in preparing this Congress. Their tireless efforts, undertaken with grace and determination, have made it possible for us to come together once again to share knowledge, strengthen friendships, and chart new directions for the future of perinatal care.

May FAOPS 2025 in Kathmandu serve as a meaningful milestone in our continuing journey to promote excellence, equity, and compassion in perinatal medicine throughout our region. I am confident that the ideas and collaborations born here will resonate far beyond this meeting, contributing to a brighter and healthier future for all mothers and infants.

With my deepest respect and best wishes for a most successful and memorable Congress,

Prof Han-Suk Kim, MD, PhD
President, Federation of Asia and
Oceania Perinatal Societies (FAOPS)

Dear Esteemed Delegates,

A warm welcome to you all in the 24 the congress of Federation of Asia and Oceania Perinatal Societies being held for the first time in Kathmandu, Nepal. We begin by thanking FAOPS, our former President Prof Satoshi Kusuda from Japan and our immediate past President Prof Samuel Rajaduri of Singapore and the current President Kim Han Suk. We are also thankful to all the council members for providing such a huge opportunity to Perinatal Society of Nepal announced during Covid Pandemic.
Hope this conference will be of benefit to all of us learning from each other through paper presentation and exchange of dialogue in between sessions.

We are very thankful to you all for being a part of this conference and we hope you will excuse any shortcomings we may have. We would like to wish each and every one of you a pleasant stay in the pleasing weather of Kathmandu this November.

Warmest regards,
Organizing Committee.
24th Congress of FAOPS.

Prof. Dr. Ashma Rana
Organizing Chairperson

Prof. Dr. Sunil R. Manandhar
Organizing Co-Chairperson,

Dr. Bina Basnyat
Organizing Secretary

Dr. Kalpana Upadhyay Subedi
Scientific Committee
Chairperson

Dr. Shailendra Bir Karmacharya
Souvenir Ccommittee
Chairperson

Please accept Season's Greetings!

At the onset I must congratulate entire team of FAOPS 2025 from PESON Perinatal association of Nepal for their untiring efforts for organizing this event of "FAOPS 2025" in spite of this turmoil in the country.

The enormous work done by organizing Chairperson Prof. Dr. Ashma Rana, Co-Chairperson Prof. Dr. Sunil Raja Manandhar, organizing secretary Prof. Dr. Bina Basnyat & Scientific Chair Prof. Dr. Kalpana Subedi is praiseworthy. I am sure support by Dr. Sushila Shrestha, Dr. Heera Tuladhar, Dr. Shailendra Bir Karmacharya & Dr. Jyoti Ratna Dhakwa is going to make this conference one of its own kind.

I must appreciate Scientific program roped on catchy theme.

I also know zeal towards FAOPS by our President Prof. Dr. Han-Suk Kim and entire council. I can see entire organizing team of conference and body of FAOPS is working hard to make this event memorable.

Theme chosen is really very practical "Innovation and Integration: Shaping the future of Perinatal Care in Asia and Oceania. We have realized so much about it over last few decades and still learning till to date. There are certain gray areas and that is the reason it's essential to discuss and exchange ideas. It is also essential to see that recent advances related to this topics percolate at grass root level. I am sure this praiseworthy contribution towards scientific growth of academics will have a long way. FAOPS always appreciates such good work done by our member countries for this noble cause. I am happy to see the scientific content of this congress which will be useful to all practicing gynecologist, teachers as well as postgraduates.

I wish every success and all the best for this conference.

With Regards & Best Wishes,

Dr. Milind Shah
Hon. Secretary General (FAOPS)
Past National President ISOPARB

Welcome Message for the 24th FAOPS Congress 2025

It is an honor and pleasure to welcome you to the 24th Congress of the Federation of Asian and Oceania Perinatal Societies (FAOPS) at Kathmandu, Nepal. This prestigious event will be held from November 14-16, 2025, at the Radisson Hotel at Kathmandu. Under FAOPS 18 countries are represented, and the annual congress is always well attended by specialists, post-graduate trainees, nurses, and health-care workers from the fields of Obstetrics, Maternal fetal Medicine, Neonatology, Paediatrics, and those interested in improving the health and long-term outcomes of mothers and their babies. This diverse participation will foster rich discussions, cross-border collaborations, and the sharing of best practices to address the unique healthcare needs of our communities.

The theme of this year's Congress is "Innovation and Integration: Shaping the Future of Perinatal Care in Asia and Oceania". FAOPS 2025 promises to be a landmark event, offering a platform for meaningful dialogue, collaboration, and learning. The Scientific Committee has planned out a comprehensive program on a wide range of topics addressed by experts from the region and beyond. The congress will explore cutting-edge and innovative practices, emerging trends, and solutions to the pressing issues facing our field. I have no doubt the Congress will help to broaden the perspectives of perinatal – neonatal medicine, to stimulate research activities and to obtain new information on the care of mothers and babies.

Moreover, it is a great opportunity to network and build collaborations with others from the region who may be interested in your niche area. Why not extend your stay after the congress and enjoy a few days in Nepal, a unique tourism destination?
I look forward to your active participation and to seeing you at the Congress of the FAOPS 2025 in Kathmandu.

Prof. V Samuel Rajadurai
Immediate Past-President, FAOPS

Message

I am very much delighted to know that our 24 th, AGM and scientific session will be held in Nepal on 14-26 th November 2025. I must congratulate FAOPS President Prof Han Suk and secretary general Prof Milind Shah for arranging the program with the collaboration of Prof Ashma Rana and her team in this beautiful country. Our FAOPS is progressing day by day to achieve new friendship with surrounding countries to exchange the modern technology. This time also there will be organized scientific program and successful AGM.
I hope all the success of this meeting. Greeti

Prof Laila Arjumand Banu
President Elect FAOPS

Message

Warmest congratulations on the hosting of FAOPS 2025 to Prof. Dr. Ashma Rana, Prof. Dr. Sunil Raja Manandhar, Prof. Dr. Bina Basnyat, and all organizing committee members.

I would like to extend my heartfelt congratulations on the successful opening of FAOPS 2025. I can only imagine the tremendous amount of effort that has gone into this event, and I am deeply impressed by the extraordinary actions of all those involved in bringing it to fruition.

Though the congress spans only three days, its program is rich in content and promises to contribute significantly to the continued advancement of FAOPS. I would like to express my sincere appreciation for the wisdom and dedication of everyone who helped shape this meaningful program.

Kathmandu, situated near the heart of the FAOPS member countries, serves as an ideal venue for this occasion. The convergence of FAOPS members and aspiring young leaders from across the region to engage in scientific discussion and foster mutual understanding will undoubtedly make a lasting impact—not only on Nepal and the FAOPS countries, but also on the global development of perinatal medicine. I have every confidence that this congress will conclude with great success.

In closing, particularly I wish to express my deep gratitude to all those who have supported the organization of FAOPS 2025, including governmental bodies and professional societies.

Satoshi Kusuda, MD, PhD
Auditor, FAOPS

Organizing Committee Chairperson		Prof. Dr. Ashma Rana
Organizing Committee Co-Chairperson		Prof. Dr. Suni Raja Manandhar
Organizing Secretary		Dr. Bina Basnyat
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Souvenir Committee	**Chairperson**	Dr Shailendra Bir Karmacharya
	Members	Dr Prajwal Poudel
		Dr Anjila Ghimere
		Dr Anuja Oli

Invited Speakers

Prof Adrienne Gordon
Neonatologist, President PSANZ

Prof. Sanjay Patole
MD, FRACP, Subiaco, Perth

Prof. Laila Arjumand Banu
ObGyn, Dhaka

Prof. Mohammod Shahidullah
Neonatologist, Dhaka

Prof. Md Abdul Mannan
Neonatologist, Dhaka

Prof. Dr. Milind Shah
ObGyn, India

Prof. Dr. Ranjan Kumar Pejaver
Neonatologist, India

Shashi N Vani
Neonatologist, India

Prof. Satoshi Kusuda
Neonatologist, Japan

Prof. Mamoru Tanaka
ObGyn, Japan

Dr. Tetsuya Isayama
Neonatologist, Tokyo

Prof. Shinji Tanigaki
ObGyn, Japan

Prof. Shinji Tanigaki
ObGyn, Japan

Assoc. Prof. Dr. Azanna Ahmad Kamar
Neonatal, Kuala Lumpur

Dr. Socorro De Leon-Mendoza
Neonatologist, Philippines

Dr. Diosdado Mariano
ObGyn, Philippines

Dr. Maria Conchitina T. Bandong
Pediatrician Neonatologist, Philippines

Prof. Boris W Kramer
Neonatology, Poland

Prof. Victor Samuel Rajadurai
Neonatologist, Singapore

Prof. Tan Kok Hian
Maternal Fetal Medicine, Singapore

Dr. Vijayendra Ranjan Baral
Neonatologist, Singapore

Dr. R M Surantha Perera
Paediatrician & Neonatologist, Sri Lanka

Prof. Ganesh Acharya
Obs and Fetal Medicine, Stockholm

Assoc. Prof. Jin Chung Shih
ObGyn, Taiwan

Prof. Dr. Anthony Costello
International Child Health, London

Prof. Bo Jacobsson
Expert FIGO Maternal Health, USA

JOSE B. SALAZAR
Phillipines

Prof Dr Shigeharu Hosono
Neonatologist and Director of Pediatrics

Prof. Dr Abha Shrestha
Nepal

Prof Ganesh Dangal
Nepal

Prof. Gyanendra Karki
Nepal

Prof Heera Tuladhar
Nepal

Prof Junu Shrestha
Nepal

Prof. Nira Singh Shrestha
Nepal

Prof Suman R. Tamrakar
Nepal

Dr Swaraj Rajbhandari
Nepal

Maj. Gen (Retd) Dr Arun Neupane
Nepal

Prof Dr Sunil Raja Manandhar
Nepal

Prof Dr Sudha Basnet
Nepal

Prof Dr Ashma Rana
Nepal

Dr Kulesh Thapa
Nepal

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From Secretary General's Desk…

Dr. Milind R. Shah
MD, DGO, DFP, FICOG, FIAOG
Prof. & HOD, Dept. of OBGY, Gandhi Natha Medical College, Solapur
Hon. Secretary General FAOPS

In the realm of maternal and child healthcare, FAOPS stands as a testament to the shared commitment to improving perinatal health outcomes across Asia and Oceania.

There are many activities conducted in all four zones of region by all council members which are academic, related to research, social and humanitarian. There is annual conference every year.

Initiating Collaboration

The collaboration between FAOPS and various countries stems from a shared mission to advance the field of perinatology, particularly in the dynamic and diverse region of Asia and Oceania. Recognizing the unique challenges and opportunities presented by this region, both organizations came together to pool their expertise, resources, and networks for the greater good of maternal and child health.

A Multifaceted Approach

The association is characterized by a multifaceted approach that encompasses research, education, advocacy, and capacity building. By combining their strengths, they aim to address the complex array of factors influencing perinatal health outcomes, including maternal health, neonatal care, reproductive biology, and socio-economic determinants.

Research and Knowledge Exchange

One of the central pillars of the FAOPS is research and knowledge exchange. Through joint research projects, collaborative studies, and scientific symposiums, they facilitate the sharing of best practices, latest advancements, and evidence-based interventions in perinatal and reproductive health. This cross-pollination of ideas fosters innovation and drives continuous improvement in

clinical practice and healthcare policies. In last year, we had such activities at Mongolia & Brunei.

Training and Capacity Building

FAOPS is committed to enhancing the skills and knowledge of healthcare professionals working in the field of perinatology and reproductive biology. Through training programs, workshops, and conferences, they provide opportunities for professional development, knowledge transfer, and networking. By empowering healthcare providers with the necessary tools and expertise, they aim to improve the quality of care delivered to mothers and newborns across the region.

Few examples are…

REPORT

"PRETERM BIRTH: PREVENTION AND BEST PRACTICES IN NEONATAL MANAGEMENT"

FAOPS Eastern Regional Workshop, Ulaanbaatar, Mongolia

9-10 June, 2025

Foreign guest lecturers invited to the International Conference, from right to left:

- Professor Kim Han-Suk, President of the Federation of Asian and Pacific Perinatological Societies
- Professor Milind Shah, Head of the Department of Obstetrics and Gynecology, Gandhi University, India, and Secretary General of the Federation of Asian and Pacific Perinatological Societies
- Professor Socorro De Leon-Mendoza, President of the Asia Pacific KMC Network

The directors of the all Maternal and Newborn Health facilitations in UB attended the conference. In this picture:

- Ts. Batbold, director of the Amgalan Maternity Hospital of the capital city;
- Sh. Altantuya, director of the Khuree Maternity Hospital of the capital city;
- Z.Gerelmaa, President of the MPA, PhD, Professor, Pediatric Consultant, Honored doctor of Mongolia.

2025 Brunei Perinatal Symposium

Advocacy and Policy Influence

As advocates for maternal and child health, FAOPS leverage its collective voice to influence policy-making and promote evidence-based practices. By engaging with policymakers, government agencies, and healthcare institutions, they advocate for policies and programs that prioritize maternal health, promote safe childbirth practices, and ensure access to quality reproductive healthcare services for all.

Few publications are….

Community Engagement and Outreach

Recognizing the importance of community engagement in improving perinatal health outcomes, FAOPS is actively involved in outreach programs and public awareness campaigns. Through partnerships with local communities, NGOs, and grassroots organizations, they seek to raise awareness about maternal and child health issues, promote healthy behaviours, and empower women and families to make informed choices about their reproductive health.

PESON ORATION
OVERVIEW OF INFANTS OF DIABETIC MOTHERS (IDM)

Dr Ranjan Kumar Pejaver
Professor of Neonatology
Chief Neonatologist, People tree at Meenakshi Hospital Bangalore, India
Past President and currently advisor FAOPS

The global burden of diabetes and obesity is rapidly increasing, with significant implications for maternal and neonatal health. Approximately 10% of all pregnancies are complicated by diabetes—either pre-existing or gestational—resulting in a growing population of Infants of Diabetic Mothers (IDMs). These infants face heightened risks of macrosomia, congenital anomalies, respiratory distress, hypoglycemia, polycythemia, cardiomyopathy, and long-term metabolic complications.

The interplay between maternal hyperglycemia and fetal hyperinsulinemia, as described in the modified Pedersen hypothesis, underpins many of these outcomes. Effective antenatal screening, glycemic control, and multidisciplinary team management are essential to optimize perinatal outcomes. Postnatally, vigilant monitoring, early feeding support, and long-term follow-up are critical to mitigate adverse effects.

Beyond the clinical realm, IDMs represent a growing public health challenge, especially in low- and middle-income countries where gestational diabetes screening and postpartum follow-up are often inadequate. Interventions such as universal GDM screening, breastfeeding promotion, and family-centered lifestyle programs can disrupt the intergenerational cycle of obesity and diabetes. With timely, comprehensive care, many of the neonatal and long-term complications associated with IDMs are both predictable and preventable. IDMs are a public health problem because they reflect a growing epidemic of metabolic disease that starts before birth, affects maternal and child health in the short and long term.

Places a large economic and social burden on health systems and Communities.

MIRA ORATION
"PERINATAL HEALTH AND THE FUTURE FOR OUR CHILDREN IN AN ERA OF CLIMATE CHANGE".

Prof. Anthony Costello
International Child Health London

Focus on three aspects:

1.The latest climate science findings and ways in which climate change can affect the health of mothers, newborns and infants

2. The findings of the 2025 Lancet Countdown Report for Climate Action and Health: I shall present some key findings from the 56 indicators monitored on climate change and health, and what it means for our children's future.

3. Actions we can take as perinatal health professionals and health planners

Community-Based Life-Saving Innovation: The Female Community Health Volunteers -From Vision to National Program

Prof. Dr. Rita Thapa,
Founding Chairperson and Pro Bono Executive Director,
Bhaskar-Tejshree Memorial Foundation|
Former Pioneering Chief of Nepal's FP-MCH:
and PHC Project, Government of Nepal |
Former Director, Department of Health Systems and
Community Health, WHO SEARO.
Email: bheribas@gmail.com

Abstract
Though the Female Community Health Volunteer program was created out of desperate necessity five decades ago as part of Nepal's Primary Health Care initiative, FCHVs are celebrated today as WHO SEARO Public Health Champions 2025.
They represent a community-based and impactful means of saving the lives of mothers and children. In the 1970s, Nepal's perinatal health was extremely grim, with the maternal mortality ratio (MMR) at natural level ranging from 1800-1500, with universal unattended births, with a high total fertility rate of 6, and with one of the world's highest child mortality rates. At the time, the country also faced a malaria resurgence after investing heavily in eradication efforts. Yet Nepal lacked a basic health system to sustain gains. This crisis prompted a paradigm shift from vertical disease programs to an integrated community health services approach.
During this transformation, a "Eureka moment" arrived with the realization of the untapped potential of mothers as frontline health providers if equipped with simple, proven tools. Nepal went through several pilot tests of the concept of FCHVs before its official acceptance. Despite political and social resistance, the concept of training local mothers as frontline care givers proved effective and was later renamed Female Community Health Volunteers (FCHVs) to align with national context.

With evidence, persistence, and strong political and donor support, the FCHV program became a nationwide initiative in 1988, targeting one volunteer per ward. Today, over 50,000 FCHVs link communities with the formal health care system, providing essential maternal, child, and family planning services.
A host of studies on the FCHV program have consistently demonstrated their steady and remarkable contributions to the dramatic decline in maternal, child mortality and fertility, even during the decade-long internal conflict.
Over five decades, the contribution of FCHVs has been profound - helping Nepal to achieve dramatic reductions in maternal mortality ratio from 1800-1500 to 151, and to meet MDG 4 child mortality earlier than any South Asian country. The reduction in total fertility from 6 to 2.1 is dramatic as well. The FCHVs continue to be indispensable in crises such as COVID-19 and are now extending their reach to prevent non-communicable diseases.

SLEEP POSITION AND STILLBIRTH

Adrienne Gordon
Clinical Professor of Obstetrics, Gynaecology and Neonatology
Faculty of Medicine and Health, University of Sydney

Globally, a baby dies before or during birth every 16 seconds representing 2 million deaths annually. Stillbirth in late pregnancy (>28 weeks) are often considered the most preventable. The global burden of stillbirth is disproportionately shouldered by lowand middle income countries however in high-income countries (HICs), up to 1 in 3 stillbirths remain preventable Accumulating evidence has shown an association between maternal supine sleep position, fetal growth (SGA) and stillbirth in the last 3 months of pregnancy. Our individual participant data meta-analysis confirmed women who report going-to-sleep on their back after 28-weeks' gestation have 2.5 times the risk of stillbirth (OR a2·63, 95% CI 1·72–4·04) and a 3-fold increase in having an SGA baby (aOR, 3.23; 95%CI, 1.37-7.59).

Prevention programs in the UK, Australia and New Zealand now include advice to avoid supine going-to-sleep position to prevent stillbirth. Surveys in Australia and NZ report that women have modified their going-to-sleep position when/if recommended. It is however, still unknown whether advice alone is effective. Several position aid devices to support side sleep in late pregnancy are available however their effectiveness is unclear. There are concerns around increased anxiety with sleep position information. This talk will summarise the current available evidence around sleep position and adverse pregnancy and will present the results of a recently completed "advice" versus "device" trial to try and answer the question regarding how modifiable is sleep position in our quest to empower health behaviours, improve pregnancy outcome and reduce stillbirth.

PROBIOTICS FOR PRETERM INFANTS IN RESOURCE LIMITED NATIONS – WHAT LIES AHEAD?

Prof Sanjay Patole, FRACP, MSc, DrPH
School of Medicine, University of Western Australia,
Neonatal Directorate, King Edward Memorial Hospital for Women, Perth
E-mail: sanjay.patole@health.wa.gov.au

Worldwide, 15 million preterm births occur every year. Infants born <32 weeks of gestation are at the highest risk of mortality and morbidity. Complications of preterm birth account for 35% of the world's 3.1 million neonatal deaths per year. Preterm birth and neonatal infections are amongst leading causes of neonatal deaths.

Annually 2.5 million neonatal deaths occur in low- and middle-income countries (LMICs). Improving neonatal survival in LMICs is hence a priority. Considering that the first month of life is the most vulnerable period for child survival, interventions providing survival benefit in the neonatal period are important.

Systematic reviews and meta-analyses of randomised controlled trials (RCTs) and observational studies have shown that prophylactic probiotic supplementation in early postnatal life significantly reduces all-cause mortality and morbidities such as necrotizing enterocolitis (NEC≥ Stage II), late onset sepsis, and feeding intolerance in very preterm infants in the neonatal intensive care setting. These benefits have been noted in both high-income nations as well as LMICs. The new recommendations from the World health organization include consideration of probiotic supplementation in the care of preterm and low birth weight infants.

Guidance for probiotic supplementation in preterm and low birth weight infants is provided. The potential reasons for the conflicting results of probiotic RCTs in LMIC settings and strategies for overcoming barriers in conducting further research in such settings are discussed.

PLACENTA ACCRETA SPECTRUM – A NIGHTMARE FOR OBSTETRICIANS

Prof. Laila Arjumand Banu
Dhaka, Bangladesh
laila04@gmail.com

Placenta Accreta Spectrum (PAS) is one of the biggest challenges in modern obstetrics and can rightly be called a "nightmare" for obstetricians due to the potential life-threatening complications and management difficulties. PAS is defined by abnormal trophoblastic invasion of the myometrium and beyond. It includes placenta accreta, increta and percreta. The rapidly increasing numbers of cesarean deliveries has greatly increased the incidence of PAS and creates an international maternal health issue.

The reported catastrophic maternal morbidity and mortality associated with PAS is largely due to massive obstetric hemorrhage, need for blood transfusion, emergency hysterectomy, injury to adjacent organs and admission to high dependency. Antenatal diagnosis of PAS via ultrasonography and magnetic resonance imaging is critical for planning multidisciplinary management to minimize risks to the patients. Adverse outcomes from the condition are worsened in low and middle-income countries due to limited resources and lack of reliable referral systems.

Effective management of PAS requires a multidisciplinary team of obstetricians, anesthetists, urologists, interventional radiologists and neonatologist along with a tertiary care facility with capacity and resources. Management may involve planned cesarean hysterectomy, conservative management in selected cases, or have a plan to utilise interventional radiology procedures tailored to each patient's unique circumstances. Despite advances, the unpredictability of intraoperative findings and the magnitude of blood loss remain major challenges.

Awareness creation, promotion of evidence-based practice, and improvement in access to specialist care are imperative to prevent PAS-associated maternal morbidity and mortality. Besides, preventive practices such as the prevention of unnecessary primary cesarean sections and adequate counseling of risk women are important in addressing the root cause of this growing epidemic.

LOW-COST EFFECTIVE INTERVENTIONS - A GAME CHANGER IN NEONATAL SURVIVAL IN LMIC

Prof. Mohammod Shahidullah
Ex-Chairman
Department of Neonatology, Bangladesh Medical University
Mobile: +8801713003110
Email: shahidullahdr@gmail.com

Neonatal mortality is one of the major contributors of under-five children's deaths globally. Premature birth, birth complications (birth asphyxia/trauma), neonatal infections and congenital anomalies remain the leading causes of neonatal deaths. Evidence has been generated from LMICs for the reduction of neonatal mortality. Implementation research on the evidence has generated insight for real life programmatic setting which has facilitated translating research into program and national scale up. Some of the milestone research to mention are Chlorhexidine for newborn cord care, Home based newborn care with community health workers, AFRINEST Trials (African Neonatal Sepsis Trials), SATT Trial, ACTION I Trial, iKMC trial, Vayu Bubble CPAP effectiveness study, PSBI trial, BARNARDS study, discovery research (AMANHI) etc.

In order to improve neonatal survival, small interferences are required to address these conditions especially in low- and middle-income countries. Among these, low-cost interventions in neonatal care focus on simple, affordable practices that significantly reduce neonatal mortality and morbidity. These interventions include the use of antenatal corticosteroids and magnesium sulfate in routine obstetric practice, promoting exclusive breastfeeding, ensuring newborn warmth through techniques like Kangaroo Mother Care, and providing essential newborn care practices like early initiation of breastfeeding and newborn resuscitation etc. Use of bubble Continuous Positive Airway Pressure (CPAP) is another way of supporting newborns having respiratory distress. With the growing interest in global health in recent years, health technologies for resource-poor environments have received much attention at the research and development stage. These studies have shown significant changes in the level of care including thermal care, providing appropriate respiratory support, breast feeding and infection prevention. Early use of bubble CPAP is another game changer that has improved newborn survival over the year and has limited the overuse of oxygen.

Finally, we all know the evidence is necessary but not sufficient; we need favorable policies for large-scale implementation. It is critical to maintain and sustain research excellence in all areas, including discovery, development, and delivery, discover cutting-edge tools and technologies, and at the same time continue to support countries to implement evidence-based intervention at a scale with high coverage and quality.

FROM DETECTION TO PRECISION CARE: THE EVOLVING LANDSCAPE OF RETINOPATHY OF PREMATURITY IN BANGLADESH.

Dr. Md. Abdul Mannan
Professor & Chairman, Department of Neonatology,
Bangladesh Medical University
drmannan64@gmail.com

Abstract

Retinopathy of prematurity (ROP) is a major cause of preventable childhood blindness worldwide, especially in low- and middle-income countries (LMICs). With improvements in neonatal care in Bangladesh, more preterm infants are surviving, leading to a rising burden of ROP. This paper reviews the current landscape of ROP in Bangladesh, from screening and detection to evolving trends in precision care, highlighting the achievements, challenges, and future priorities. A narrative review of literature, local neonatal data, national programmatic reports, and global ROP management guidelines was conducted. The manuscript is structured around three core pillars: detection, management, and precision care. While ROP awareness and screening have improved in tertiary centers, there remains a significant urban-rural disparity in detection and management. Interventions like laser therapy and anti-VEGF treatments are becoming more accessible. However, precision care—including risk stratification, genetic profiling, and individualized follow-up—is still nascent in Bangladesh. The landscape of ROP care in Bangladesh is evolving, with growing awareness, increasing screening coverage, and emerging technologies. To move toward more precise neonatal care, we need to invest in trained staff, better facilities, and include it in national health policies.

Keywords: Retinopathy of prematurity, screening, precision care, anti-VEGF.

THE SCIENCE AND ART OF PRACTICE OF ZERO SEPARATION AND KANGAROO MOTHER CARE AND THE ROLE OF OBSTETRICIANS AND PERINATOLOGISTS

Prof Shahi Vani,
MD, D. Ped., FIAP, FNNF
Emeritus Prof. Of Paediatrics-Neonatology, P S Medical College, Gujarat
Retd. Senior Prof. and HOD Paediatrics and Neonatal division, B. J. Medical College, Ahmedabad & PSMC, Karamsad
Pioneer of Kangaroo Mother Care in India

Maternal neonatal separation soon after birth, particularly of the small and sick babies, has become a standardized practice in the modern days. Very often this separation is unnecessary. Zero separation of mother and her baby is strongly recommended.

The term zero separation has been originally coined by Dr Nils Bergman, referring to minimizing or eliminating any unnecessary separation between mother and her baby immediately after birth and as long as possible, even in case of preterm and very preterm babies. Due to mother baby separation, there is a higher risk of neonatal mortality and infections, problems of breast milk feeding and risk of developing toxic stress which has significant lifelong effects, both physically and psychologically. Recently in 2022, WHO has strongly, recommended immediate Kangaroo Mother Care to be practiced for all babies including even sick and very small neonates. excepting in those mothers or neonates who are very critically ill and need immediate lifesaving interventions, based on scientific review and their recent experience of multi country study.

Here we plan to increase awareness about the overwhelming scientific justifications and the art of practicing zero separation through Immediate direct skin to skin contact on mother's chest, immediate KMC and the role of continued KMC and creation of mother and newborn care units allowing mother and alternate KMC providers from the family have an independent bed in the NICU/SNCU itself so that mother can practice zero separation even for sick and very small babies without waiting for stabilization, as far as possible with the support of her family members who can be the alternate KMC providers/surrogates.
This practice aims to bring about paradigm shift in the approach to newborn care in many ways. There is a shift in the place of care of the neonate, but not in the care of the baby. Kangaroo care including IKMC offers the best opportunity to offer zero separation and avoids unnecessary use of warmers and incubators.
Mother assumes the role of prime care giver rather than a silent passive visitor to the SNCU for a

short time. To enable this biologically appropriate situation of newborn care of keeping the mother with her baby together, the obstetricians and perinatologists are expected to take a proactive role along with neonatologists / paediatricians and nurses and other health care team members in SNCUs/NICUs in promotion of KMC. Role of an obstetrician starts right from the antenatal period and extends to the immediate direct skin to skin contact of the baby on mother's chest and I KMC for even sick and small babies including very preterm and very low birth weight babies without waiting for stabilization and promote breast milk feeding as early and exclusive as much as possible in an environment of family centered, developmentally supportive and nurturing care of the newborn which mothers can learn under the guidance and supervision of Health care providers during their hospital stay and confidently continue at home after discharge. Increasing awareness and conviction about the science and art of practicing "Zero separation" should help save many more otherwise highly vulnerable babies globally and particularly in South East Asia-Oceania region which has probably the highest burden of sick and small babies.

INFANT OF HYPERTENSIVE MOTHERS

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Abstract

Hypertensive disorders of pregnancy (HDP) are among the leading causes of maternal and perinatal morbidity and mortality worldwide, affecting approximately 8–10% of pregnancies. In India, the prevalence of gestational hypertension is estimated to be around 11%, posing significant challenges to maternal and neonatal health.

Infants born to hypertensive mothers are at increased risk of preterm delivery, intrauterine growth restriction, and low birth weight due to impaired placental perfusion and reduced oxygen and nutrient supply. These infants frequently experience neonatal complications such as respiratory distress, hypoglycemia, hypocalcemia, thrombocytopenia, neutropenia, and necrotizing enterocolitis. Cardiovascular alterations, including thickened ventricular walls and reduced end-diastolic volumes, have been noted, potentially predisposing these individuals to early-onset hypertension and ischemic heart disease in later life. Neurodevelopmental impairments and lower academic performance in childhood have also been observed, particularly among those born preterm.

The severity and timing of maternal hypertension, especially early-onset preeclampsia, correlate with higher risks of congenital anomalies such as cardiac and central nervous system defects. In low- and middle-income countries, limited resources and inequities in prenatal care exacerbate these risks. Early screening, optimal prenatal management, and long-term follow-up are crucial to improve neonatal outcomes and reduce the intergenerational burden of hypertensive disorders in pregnancy.

HYPOXIC-ISCHEMIC ENCEPHALOPATHY (HIE) AND THE ROLE OF OBSTETRICIANS

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Background

Hypoxic-Ischemic Encephalopathy (HIE) remains one of the most devastating neonatal complications, contributing significantly to neonatal mortality, long-term neurodevelopmental disability, and cerebral palsy worldwide. A sentinel event reflects both intrapartum hypoxia and deficiencies in perinatal care. The burden is disproportionately high in low- and middle-income countries, where delayed recognition and suboptimal intrapartum monitoring remain key challenges. Obstetricians, as frontline leaders in perinatal care, play a pivotal role in preventing, recognizing, and mitigating the sequelae of HIE through timely interventions, evidence-based practices, and coordinated team management.

Pathophysiology and Risk Factors

HIE results from impaired cerebral blood flow and oxygen deprivation during labor, delivery, or immediately after birth. Common antecedents include prolonged or obstructed labor, cord prolapse, placental abruption, uterine rupture, and maternal hypotension. Antenatal contributors such as intrauterine growth restriction, preeclampsia, and fetal anemia increase vulnerability. The ensuing cascade involves cellular hypoxia, energy failure, oxidative stress, and neuronal apoptosis—processes that underscore the importance of intrapartum vigilance and early intervention.

Role of Obstetricians in Prevention

Obstetricians are central to the prevention of HIE through meticulous antenatal risk assessment, judicious timing of delivery, and effective intrapartum fetal surveillance. Utilization of partographs, continuous cardiotocography, and Doppler studies aid in early detection of fetal compromise. Prompt decision-making regarding instrumental or cesarean delivery in response to non-reassuring fetal heart patterns remains critical. Furthermore, ensuring availability of skilled birth attendants,

functional referral systems, and preparedness for emergency obstetric care are essential systemic responsibilities.

Intrapartum and Immediate Postnatal Responsibilities

During labor, obstetricians must ensure optimal maternal oxygenation, hydration, and hemodynamic stability while minimizing unnecessary uterine hyperstimulation. Early identification and management of sentinel events—such as cord prolapse or uterine rupture—are life-saving. Coordination with neonatologists for immediate resuscitation and timely initiation of therapeutic hypothermia in eligible newborns is vital to reduce neurological injury.

Post-event Analysis and Quality Improvement

Beyond clinical management, obstetricians contribute to reducing HIE incidence through perinatal audits, root-cause analyses, and simulation-based training for obstetric emergencies. Regular multidisciplinary reviews of HIE cases help identify systemic gaps and strengthen labor room protocols. Continuous medical education on fetal monitoring interpretation, respectful maternity care, and adherence to standardized labor guidelines further enhance outcomes.

Conclusion

HIE epitomizes a preventable tragedy when robust obstetric systems are in place. Obstetricians hold the dual responsibility of ensuring safe delivery and fostering institutional quality culture. Through early recognition of high-risk situations, timely obstetric interventions, and active participation in perinatal governance, the burden of HIE can be significantly reduced. Preventing one case of HIE not only saves a newborn's brain but transforms the future of an entire family—underscoring that vigilant, compassionate obstetric practice remains the cornerstone of perinatal neuroprotection.

DISPARITIES IN NEONATAL CARE ACROSS COUNTRIES AND REGIONS: ADVANCING RESEARCH AND DEVELOPMENT

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In recent years, advancements in medical technology—particularly in neonatal care—have been remarkable. Neonatal intensive care in developed countries has made significant progress, with some regions successfully discharging more than half of infants born at just 22 weeks of gestation, often considered the limit of viability. Despite these breakthroughs, over 2 million newborns die each year worldwide, accounting for nearly half of all deaths among children under five. This stark reality highlights that the neonatal period remains the highest-risk time for mortality, underscoring the urgent need for further improvements in care. Many of these deaths are preventable, making it essential to establish care facilities tailored to the specific conditions of each country and region. Additionally, investing in the training of neonatal healthcare professionals and advancing research and development in neonatal medicine—adapted to the unique needs of diverse populations—is crucial. Currently, many neonatal medical drugs, devices, and technologies are developed in only a few regions, limiting their availability and implementation elsewhere. To ensure standardized, high-quality neonatal care worldwide, research and innovation must align with the varied medical landscapes of different countries and regions.

ANEMIA IN PREGNANCY

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Department of Obstetrics and Gynecology, Keio University School of Medicine Maternal anemia during pregnancy is a major public health issue with well-documented consequences for both maternal and neonatal outcomes. Iron deficiency anemia (IDA), which accounts for the majority of cases, has been associated in multiple randomized controlled trials and meta-analyses with an elevated risk of preterm birth, intrauterine growth restriction, low birthweight, and maternal morbidity and mortality. Beyond its clinical burden, anemia exerts substantial economic and societal costs across healthcare systems and communities.

Recognizing the need for region-specific guidance, experts from Hong Kong, Malaysia, the Philippines, Taiwan, Thailand, and Vietnam convened to systematically review current practices and appraise the latest clinical evidence. Particular attention was given to diagnostic accuracy, thresholds, and the comparative effectiveness of therapeutic options.

- Diagnostic threshold: Hemoglobin < 11.0 g/dL (WHO criteria)
- First-line therapy: Oral iron supplementation, supported by robust trial evidence demonstrating reductions in maternal anemia and improvements in perinatal outcomes
- Alternative approaches: Intravenous iron preparations have shown efficacy in cases of intolerance, poor adherence, or insufficient response to oral therapy, with emerging data supporting their safety and effectiveness during pregnancy

The integration of high-quality evidence into clinical practice underscores the importance of early detection and timely intervention. Optimizing anemia management in pregnancy is crucial not only to safeguard maternal health and reduce perinatal complications, but also to improve the long-term developmental trajectories of offspring.

OUTCOMES AND UNIQUE CLINICAL MANAGEMENT OF EXTREMELY PRETERM INFANTS IN JAPAN: PRACTICAL STRATEGIES FOR IMPROVING OUTCOMES

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Abstract

Japan has one of the highest survival rates of extremely preterm infants born at < 28 weeks gestation in the world. Although the reasons for the better survival in Japan have not been clear, unique clinical managements in Japan might contribute the improvement of the outcomes. The unique managements of these peri-viable infants include the use of cut-umbilical-cord milking, active resuscitation of periviable preterm infants, circulatory management tailored by echocardiography frequently performed by neonatologists, rather invasive ventilation strategies, use of sedation for infants on mechanical ventilation, routine glycerin enema to promote meconium passage, gentle skin care, and so on. This presentation will show the outcomes and unique clinical management for extremely preterm infants in Japan. Many of these unique management do not have sufficient supporting evidence and therefore future studies are needed.

CERVICAL CERCLAGE, ONCE AGAIN INTRODUCTION OF ABDOMINAL SURGERY AND ABSORBABLE SUTURES, EDUCATION USING ULTRASONOGRAPHY

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Cervical cerclage is performed to prevent preterm labor in cases of cervical incompetence. In Japan, only the transvaginal approach is covered by insurance. Recently, the efficacy of transabdominal cervical cerclage (TAC) has been demonstrated. TAC sutures the cervical canal at a higher position in the uterine isthmus under laparotomy. TAC is indicated when the transvaginal approach failed to prevent preterm birth in a previous pregnancy or when the transvaginal cerclage is anatomically difficult due to a history of cervical surgery.

Society is applying for insurance coverage.

We use transvaginal ultrasound examination (TV-US) to determine the surgical technique for cervical cerclage. TV-US is also highly helpful, such as bladder elevation which may cause complications during the Shirodkar procedure. Furthermore, it is used for educating by evaluating and reviewing the cerclage procedure. The thread used for suturing is selected based on the height of the suture, the timing of the surgery, and the mode of delivery (Emergency suture removal should be avoided as it can sometimes be difficult.).

In recent years, absorbable monofilament sutures are sometimes used for suturing. Because absorbable sutures do not need to be removed, they reduce the burden on patients and medical stuff. With the increasing adoption of fertility-sparing surgery for cervical tumors, the importance of cervical cerclage increase. In this presentation, we will introduce transabdominal cervical cerclage, the practical application and educational value of evaluation using transvaginal ultrasound examination, and present the outcomes of cerclage using absorbable sutures, aiming to provide a new perspective on cervical cerclage.

Pulmonary Vascular Disease in Preterm Infants

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Pulmonary vascular disease (PVD) represents a major contributor to morbidity and mortality in preterm infants, particularly those with bronchopulmonary dysplasia (BPD). The pathophysiology of PVD in this population is complex, involving disrupted vascular growth, altered vasoreactivity, and impaired angiogenic signaling resulting from premature birth, oxygen toxicity, and mechanical ventilation. These processes lead to abnormal pulmonary vascular remodeling and increased pulmonary vascular resistance, predisposing infants to pulmonary hypertension (PH).

Recent advances in echocardiographic and biomarker-based screening have improved early detection of PVD associated with BPD. However, the clinical course remains heterogeneous, and the optimal timing and modality of intervention are still under debate. Therapeutic strategies focus on minimizing lung injury, optimizing oxygenation, and supporting right ventricular function. The use of pulmonary vasodilators such as sildenafil and inhaled nitric oxide has shown potential benefit in selected cases, but robust evidence from randomized controlled trials in preterm populations is still limited.

Emerging research highlights the importance of early preventive approaches—such as gentle ventilation, targeted oxygen therapy, and promotion of normal vascular growth through adequate nutrition and avoidance of inflammatory stimuli. In addition, translational studies investigating angiogenic and anti-inflammatory pathways may pave the way for novel therapeutic targets to prevent or ameliorate PVD in preterm infants.

In this presentation, the pathophysiologic mechanisms, diagnostic approaches, and evolving therapeutic strategies for pulmonary vascular disease in preterm infants will be discussed, emphasizing recent advances and remaining challenges in clinical management and research.

Keywords: Pulmonary hypertension, bronchopulmonary dysplasia, preterm infant, pulmonary vascular disease, neonatal cardiopulmonary development

ENHANCING PREDICTION OF SMALL FOR GESTATIONAL AGE (SGA) BABIES WHY, HOW AND THE FUTURE

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Small-for-gestational age (SGA) commonly refers to newborns with birthweight and 10 th centile, its proportion estimated at almost 20% of all livebirths. It is associated with fetal growth restriction (FGR) and has a risk of lifetime morbidities such as metabolic syndrome and cardiovascular disease. A fundamental challenge with the SGA definition is that growth charts may not accurately depict the population's actual growth trajectory. Hence, constitutionally small infants may receive unnecessary intervention with parental anxiety, whilst pathologically growth-restricted fetuses who fail to reach their genetic growth potential despite achievement of "appropriate for gestational age/AGA" status, may be missed. We constructed a national fetal growth chart for SGA prediction using retrospective data with the Lambda-Mu-Sigma analytic method and compared its diagnostic accuracy with existing international growth charts (WHO, Hadlock, and INTERGROWTH-21st charts). Biometric growth charts with five variables (abdominal circumference, femur length, nuchal thickness, maternal age, and ultrasound-confirmed gestational age) were constructed from an initial 68,897 collected scan images, where 5519 images underwent validation. Known growth charts such as the Hadlock, or INTERGROWTH-21 st chart in the Malaysian population may result in SGA misdiagnosis, whilst the WHO chart demonstrated similar SGA diagnostic performance as our national fetal growth chart. All growth charts plotted in the second trimester poorly predicted SGA, suggesting the need to improve early detection of SGA to improve fetal outcomes. A critical research gap lies in the difficulty in ensuring accurate SGA/growth problem prediction during the early, or second trimester, as well as the lack of accepted pre- and postnatal growth trajectories which transcend beyond ethnicity or geographic variations for infants at risk of FGR, SGA, or for subsequent postnatal growth faltering. Our research team at UM proceeded to create and investigate "Neo Guard" (https://neoguard.site/), a tool which combines ultrasound biometry, Doppler blood flow, and maternal serum biomarkers to deliver a high level of accuracy in SGA prediction, ensuring early detection and intervention via machine learning methods. The talk aims to provide an overview of babies born SGA, its short and long-term effects/ complications, limitations of pre- and post-natal growth charts, and highlight the work done in this area. In future, addressing the gaps for effective and early diagnosis of SGA/growth faltering via developing telemedicine and use of an integrated artificial intelligence (AI)predictive growth velocity for antenatal, neonatal and pediatric follow-up systems may potentially allow timely interventions to prevent both short- and long-term complications related to FGR and SGA.

Keywords Small-for-gestational-age (SGA), fetal ultrasound biometry, fetal growthrestriction (FGR), fetal growth chart, artificial intelligence (AI).

ADVANCING NEONATAL CARE IN THE REGION THROUGH MORBIDITY-SPECIFIC INTERVENTIONS

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The Asia-Oceania region (also known as Asia-Pacific region) is composed of 45 countries (36“always- listed” and 9 “usually-listed”), among which are 18 FAOPS member countries (40%). Among the member countries, belong that having the lowest and one having the highest neonatal mortality rate in the world. It is in this spirit of collaboration that FAOPS continue to strive to disseminate the latest information that hopes to advance neonatal care in the region. This short lecture will address pressing concerns on selected neonatal morbidities that impact on neonatal outcomes.AS the majority of neonatal morbidities and mortality occur within the first few days of life, interventions will focus on those that can be implemented within 7-14 days pre-and post-birth, including both preventive and curative measures. Anticipatory management of the five leading conditions that lead to NICU or hospital admissions, i.e., 1) respiratory distress 2) prematurity and/or low birth weight, 3) birth-related conditions 4) jaundice & 5) sepsis unrelated to previous conditions, will be outlined. Preventive, targeted management will include antenatal steroids, magnesium sulfate, antibiotics, antenatal screening for congenital anomalies, hematologic & immune-related conditions, and monitoring of fetal condition especially within the 7 days of expected delivery.

At delivery, acute neonatal management will focus on recommendations for immediate care for both term and preterm/small babies, interventions for respiratory distress &/or depression, urgent care for life-threatening congenital anomalies, early jaundice and close monitoring of physiologic adaptation or destabilization that suggests sepsis/infection. Over and above these targeted interventions are healthcare policies that should include systems and pathways on service delivery, quality assurance measures, health financing, and infrastructure that will allow the listed interventions to reach the mother and baby. More often than not, it is this last recommendation that will make advancements in clinical management possible.

PERINATAL FACTORS IN FETAL BRAIN DEVELOPMENT AND INTERVENTIONS

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The formation of the fetal brain is a marvel of biological engineering that starts at the 5th week of gestation and continues in the adulthood. However, the developing brain is vulnerable to intrinsic hazards and external insults resulting from nutrient deficiencies, infection, neurotoxins, stress and contributions from environment.

Starting from birth, the brain begins building neural connections (synapses), in response to experiences and interactions of the child. But not all connections are meant to last; as childrengrow, the brain “prunes” connections that are not used, making essential pathways stronger and more efficient. These early connections are crucial, as they form the basis in the performance of the executive functions. Executive functions are a set of cognitive processes that support goal-directed behavior, by regulating thoughts and actions through cognitive control, selecting and successfully monitoring actions that facilitate the attainment of chosen objectives.

Different stressors will impact on the neurodevelopment depending on the time they occur (intrauterine/extrauterine). These include maternal undernutrition and overnutrition, micronutrient deficiencies, low birthweight, prematurity, metabolic disorders of pregnancy, maternal stress and environmental toxins. These factors should be considered during pregnancy and beyond for the promotion of a healthy brain of the infant.

EXPLORING FETAL ALCOHOL SYNDROME IN THE PHILIPPINES: HISTORY, IMPACT AND CONTROVERSIES

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In the Philippines, a significant concern arises from consumption of locally brewed unregulated alcoholic beverages like "tuba," a palm wine, particularly among women in resource-limited settings such as Leyte. Many pregnant women may unknowingly consume alcohol through these beverages, not fully aware of the risks to the fetus. Studies point to low awareness about prenatal alcohol exposure and its consequences, contributing to a risk of alcohol spectrum disorders (FASD) in children born in the region. There is a gap in preventive education and routine screening for alcohol use during pregnancy in the region,

The impact of fetal alcohol exposure is lifelong and can manifest as a spectrum of disorders collectively known as fetal alcohol spectrum disorder (FASD). These include physical malformations, impaired brain development, cognitive deficits, learning disabilities, emotional and behavioral difficulties, poor social skills, and organ dysfunction. The severity depends on the amount and frequency of alcohol consumption during pregnancy. Early diagnosis and support can help mitigate some effects but damage is often permanent.

FAS and DASD are associated with stigma and ethical controversies. While much focus is on maternal alcohol use, emerging research suggests paternal drinking before conception may also influence fetal alcohol outcomes a factor less emphasized in public health strategies.

In summary, FAS in the Philippines presents a critical public health challenge influenced by local alcohol consumption practices, limited awareness and cultural factors. Its lifelong impacts on affected individuals and families call for improved education, screening, supportive care and carefully designed public health interventions that avoid stigma while emphasizing prevention.

ARTIFICIAL PLACENTA AND ARTIFICIAL WOMB - THE NEXT BIG THING IN PERINATOLOGY?

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Abstract

Advances in neonatal and fetal medicine have markedly improved the survival rates of preterm infants; however, extreme prematurity—particularly before 22-24 weeks of gestation—remains associated with high morbidity and mortality due to anatomical /physiological limitations. Traditional neonatal intensive care, primarily involving ventilatory support, surfactant therapy, and nutritional management, often falls short in supporting organ development in such fragile fetuses. As a result, research is increasingly focused on developing innovative solutions that can emulate intrauterine conditions outside the maternal body—most notably, artificial placenta and artificial womb technologies. These systems aim to create a bioengineered environment that supports fetal growth, organ maturation, and homeostasis, potentially transforming the landscape of perinatology but outside the maternal environment.

Recent technological progress in bioengineering—incorporating microfluidic systems, biocompatible materials, and tissue engineering—has enabled the development of prototypes that can sustain extremely premature animal models, including lambs and piglets. These models have demonstrated that artificial placentas can facilitate gas exchange, nutrient delivery, and waste removal comparable to natural placental functions, supporting fetal growth and enabling organ development over extended periods. The goal is to replicate a nearly identical intrauterine environment, providing a continuous and physiologically appropriate interface that could delay or prevent the complications associated with preterm birth. The artificial womb technology could extend gestation, allowing crucial lung, brain, and other organ development, significantly improving neurodevelopmental and health outcomes.

Despite promising early results, significant challenges persist. These include ensuring long-term system stability, preventing immune rejection, managing ethical considerations, and establishing safe protocols for clinical translation. Nonetheless, the artificial placenta and artificial womb represent a transformative leap towards personalized, physiology-based prenatal care. If successfully translated into human applications, these innovations could mark a paradigm shift in perinatology, offering a new frontier in the management of extreme prematurity and fetal support.

WEARABLES IN PREGNANCY FOR ADVANCING PERINATAL CARE

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Wearable technologies are transforming maternal and perinatal healthcare through continuous, non-invasive monitoring. Smartwatches, biosensors, and continuous glucose monitoring (CGM) devices enable early detection of hypertension, gestational diabetes mellitus (GDM), and preterm labour, supporting more timely and personalized interventions.

Findings from our studies in Singapore highlight CGM's superiority over self-monitoring of blood glucose (SMBG) in capturing glycaemic variability and dysglycaemia, with potential benefits for maternal and neonatal outcomes. Early pregnancy glycaemic variability predicted subsequent GDM, while first-trimester mean glucose levels were strongly associated with higher infant birthweight, outperforming mid-pregnancy OGTT. However, CGM feedback alone did not lower GDM incidence without structured education, and systematic discrepancies between devices underscore the need for calibration and standardization.

Integrating CGM and other wearable-derived data with structured education, artificial intelligence, and digital biomarkers offers a predictive, preventive, and participatory model of perinatal care. By bridging technology, clinical practice, and patient empowerment, wearables can enhance safety, reduce disparities, and improve outcomes for mothers andnewborns.

UMBILICAL CORD MANAGEMENT STRATEGIES- A PERINATAL COLLABORATIVE

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Abstract

Delayed clamping of the umbilical cord till facilitates placental transfusion and augments neonatal blood volumes by 25% or more. This boost in circulation leads to a better physiological cardiorespiratory transition from fetal to neonatal circulation. To the preterm neonate, the resultant hemodynamic stability ensures better perfusion to vital organs and reduced risk of intraventricular hemorrhage and necrotizing enterocolitis. Increased blood volumes reduce the need for blood transfusion. In the term newborn, improved iron stores support the development of myelin and better neurodevelopment in the medium to long term. There are several options at delivery including a time-based waiting for 90-180 sec before clamping the umbilical cord Delayed cord clamping DCC). Where this is not possible (i.e., a depressed baby needing immediate resuscitation, slow milking of the intact or cut umbilical cord an option (Cord Milking). This might be feasible in the more mature neonates above 28 weeks gestation but there are safety concerns of excessive placental transfusion in the most preterm neonates.

There is increasing interest and ongoing research in a more physiological approach to cord clamping whereby a delay of up to 9 minutes is permitted till the neonate demonstrates a consistent heart rate and oxygen saturation. During this period of waiting, the neonate might need resuscitation with bag and mask ventilation before the heart rate and saturations pick up (intact cord resuscitation or physiological based cord clamping). The current evidence for various strategies of cord management along with benefits and potential risks will be shared during the talk. Experience developing a delayed cord clamping program at Singapore General Hospital and the need for collaborative working between Obstetrician, Neonatologist and Nursing teams will also be emphasized.

Overview of the talk

- Physiological basis
- Different approaches
- Benefits and potential Harm
- Recommendations (ILCOR and others)
- Research gaps

ESSENTIAL NEWBORN CARE AND PREVENTING NEWBORN DEATHS: SRI LANKAN ACHIEVEMENTS AND REGIONAL OPPORTUNITIES FOR ACTION

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Sri Lanka has demonstrated that sustained investments in maternal and newborn health can produce exceptional outcomes, even in a lower-middle-income setting. With institutional deliveries and skilled birth attendance surpassing 99.9%, the country has achieved near-universal coverage of essential newborn interventions. Neonatal mortality has fallen to 5 per 1,000 live births (2019, Registrar General's Department), positioning Sri Lanka among the lowest in South Asia. This progress reflects decades of dedication to achieving equitable health access, integrating newborn care into national policies, and the systematic adoption of evidence-based practices.

A significant milestone was the introduction of the Essential Newborn Care Course (ENCC) in 2006, adapted from WHO/UNICEF guidelines to fit the Sri Lankan context. Local experts tailored the modules, included breastfeeding promotion, focused on infection prevention, and aligned training with existing national programmes in neonatal resuscitation and maternal care. The programme was rolled out through a structured national training plan, supported by professional organisations, the WHO, and UNICEF. ENCC training is now compulsory for postgraduate pediatrics trainees and incorporated into undergraduate medical, nursing, and midwifery curricula. These steps have created a strong foundation for delivering high-quality newborn care across all levels of healthcare facilities.

Despite these successes, challenges persist: low birth weight and preterm births are increasing (20% and 10.9%, respectively, in recent studies), and regional disparities in outcomes continue. The next step is to ensure the quality of care through robust monitoring, clinical audits, and digital health systems for tracking newborn interventions.

Sri Lanka's experience demonstrates that context-specific adaptation, strong leadership, and ongoing policy integration can speed up reductions in neonatal mortality. For the Asia-Pacific region, the opportunity lies in sharing these lessons, encouraging South-South cooperation, and collectively working towards the SDG goal of reducing neonatal mortality to below 12 per 1,000 live births by 2030.

IMPROVING DIAGNOSIS AND MANAGEMENT OF FETAL HYPOXIA – CHALLENGES OF TRANSLATING EXPERIMENTAL FINDINGS INTO CLINICAL PRACTICE

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Background: Intrauterine hypoxia and birth asphyxia are much feared complications of pregnancy and childbirth. Despite a good understanding of physiological adaptive responses to fetal hypoxia and pathomechanisms associated with adverse perinatal outcome from experimental studies, its reliable diagnosis and timely management still remain challenging. Moreover, there is a significant gap in effective adoption of experimental findings into clinical practice.

Objective: The aim of this presentation is to discuss limitations and highlight recent advances in monitoring techniques for the diagnosis of fetal hypoxemia/metabolic acidemia as well as explore new approches and posibilities to prevent or ameliorate perinatal brain injury.

Results: Findings from experimental studies performed on sheep fetuses by our research team over the last two decades to validate noninvasive tools (e.g. Doppler echocardiography, myocardial tissue velocity imaging) for assessing fetal cardiovascular function and responses to hypoxemia induced by different interventions under normal and altered cardiac loading conditions will be presented. Limitations of current clinical fetal monitoring practicies and role of high-resolution fetal ECG for identifying fetal arrythmias associated with hypoxemia/metabolic acidemia as well as possible role EEG in fetal monitoring in labor will be discussed.

Conclusion: There is a need for developing and validating reliable and objective methods for detecting fetal hypoxia to overcome practical barriers in translating findings of experimental research in humans and implementing new effective interventions in clinical practice.

PRETERM PREVENTION – AN UPDATE

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Preterm birth remains a leading cause of neonatal morbidity and mortality worldwide, emphasizing the critical need for effective prevention strategies. This update reviews recent advancements in understanding risk factors, and interventions aimed at reducing preterm birth rates. Key developments include the role of cervical length screening, biomarkers, and genetic predispositions in risk assessment, alongside emerging therapies such as progesterone supplementation and cervical cerclage.

Advances in lifestyle modification programs and infection management further enhance preventative measures. Despite progress, significant challenges persist, highlighting the need for interdisciplinary collaboration and tailored interventions to address global disparities in preterm birth outcomes. The talk will focus on simple low hanging fruits in preterm birth prevention and issues to improve outcome of babies born preterm.

ADHERING TO THE MIDDLE WAY – CONTEMPORARY MANAGEMENT OF PLACENTA ACCRETA SPECTRUM

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Placenta accreta spectrum (PAS) disorders represent a serious obstetric complication. With the global rise in cesarean delivery rates, the incidence of PAS has increased significantly. When not diagnosed antenatally, PAS often leads to uncontrollable hemorrhage during delivery. Even with a prenatal diagnosis, if not managed by an experienced multidisciplinary team, patients remain at high risk for severe maternal morbidity and even mortality.

Traditionally, PAS management has followed two primary approaches. The first is expectant management, in which the placenta is left in situ after fetal delivery and the uterus is sutured without placental removal. Patients usually undergo uterine artery embolization and require a four- to six-month period for spontaneous placental resorption. This method may prevent immediate massive hemorrhage and reduce the risk of injury to adjacent pelvic organs, such as bladder rupture or ureteral transection. However, approximately 10% of patients experience acute hemorrhage necessitating reoperation, while another 10% develop delayed bleeding requiring hysterectomy. In cases without hemorrhagic complications, retained placental tissue may lead to intrauterine infection, sepsis, disseminated intravascular coagulation (DIC), or pulmonary embolism. Even in uncomplicated cases, full recovery typically takes four to six months. The second mainstream approach is immediate cesarean hysterectomy, performed at the time of delivery without attempting placental removal. This method avoids the complications associated with expectant management but requires a highly skilled surgical team. It may result in significant blood loss and permanent loss of fertility.

A third surgical option, uterine-conserving surgery, includes techniques such as triple-P surgery and one-step conservative surgery. These involve resecting the myometrial tissue invaded by the placenta and repair the uterus during delivery. This approach aims to mitigate the risks associated with both expectant management and hysterectomy. However, it is technically complex and demands substantial surgical expertise.
Since 2019, our team has exclusively adopted an innovative technique known as the Nausicaa suturing method. This approach is simple and can be independently performed even by surgeons with limited experience in PAS surgery. To date, we have successfully completed over 200 cases, including more than 150 with varying degrees of placental invasion.

The Nausicaa technique offers a balanced alternative, avoiding the complications associated with both expectant management and cesarean hysterectomy. Moreover, it is significantly less complex than other uterus-preserving procedures currently in practice. In this presentation, we will provide a detailed overview of the Nausicaa method and its clinical outcomes.

TOWARDS SAFER MOTHERHOOD: ADDRESSING HIGH-RISK PREGNANCY IN NEPAL

Abha Shrestha
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Dhulikhel Hospital, Nepal

While Nepal has made meaningful progress in improving maternal health, high-risk pregnancies continue to put the lives of mothers and babies at risk—especially in remote and underserved communities. This presentation shares insights from ongoing efforts to better identify and manage high-risk pregnancies, and to ensure that every woman—regardless of where she lives—has access to safe, respectful, and timely maternal care.

Using a mix of hospital data, community feedback, and field experience, we explore the most common risk factors faced by pregnant women in Nepal today, including anemia, high blood pressure, teenage and late-age pregnancies, and poor access to antenatal services. We highlight the promising impact of initiatives such as mobile ANC clinics, digital tools used by Female Community Health Volunteers (FCHVs), and strengthened referral systems connecting local health posts to district and provincial hospitals.

Importantly, we focus on the people behind the progress: the midwives, FCHVs, and local health workers who are on the frontlines, often working in challenging conditions to ensure no mother is left behind. Their stories, along with data and lessons learned, point the way toward a more equitable and responsive maternal health system.

As Nepal moves forward with its Safe Motherhood goals and Sustainable Development commitments, addressing high-risk pregnancy must remain a national priority. This work offers practical recommendations for scaling up community-based interventions, improving early risk detection, and strengthening maternal care pathways—from home to hospital.

Keywords
Community health, FCHVs, Health equity, high-risk pregnancy, maternal care, Nepal, Safer motherhood

AVERTING UTERINE INVERSION FROM FEW TO FEWER - RARE TO RAREST

Pro. Dr. Ashma Rana

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Background. Uterine inversion (UI), an unrewarding advancement of atonic /flaccid everted fundus of uterus into its endometrial cavity, further down to cervix, below to vagina or out of it up to grade/degrees 1-4 associated with shock arising from pain/ PPH or both, in reference to the timing of occurrence labelled as acute, subacute or chronic: within 24 hr, >24 hr - 1 month or beyond. And though stated rare, must be nullified or prevented bringing it to rarest by having trained man power equipped by knowledge and skills of AMTSL (active management of third stage of labor) conduct-ing placental delivery until the return of uterine tone, without exerting fundal pressure, uncontrolled cord traction and a hasty placental delivery in atonic uterus and above all being consciously vigilant to avoid or precipitate UI. Method. Analyzing published articles and memorizing learning experiences of both un/documented few cases of UI through involvement working in various educational set up in India and Nepal within the frame work of educational maturity.Results.

In the six cases that came across, five were acute UI (ACUI) and one was chronic UI (CUI), latter affixed as abortal. Third degree UI in five case (4 AUI + 1 CUI) except for a case that slipped out of vagina carrying an adhered placenta accreta, that attributed to 4th degree acute UI (AUI). In the management, CUI following abortion was planned for laparotomy later date while immediate manual replacement was successfully carried out in three of the five case AUI, along with one of them being first reverted to normalization thereby undergoing manual removal placenta (MRP) under GA. Two of the referred cases AUI were taken for surgical management, laparotomy with division of anterior constriction ring (Dobbin's operation) and the next subjected to abdominal hysterectomy for severe, latter could not be salvaged from rapid deterioration PPH - DIC and death. Conclusion. Successful outcome after immediate replacement of acute uterine inversion and failure to revert after considerable amount of time has already elapsed with formation resistant constriction ring mandating surgical procedures linked with morbidity and mortality alerts to orient all the SBA about this life-threatening condition.

POSTPARTUM HEMORRHAGE AS OBSTETRIC EMERGENCY

Prof. Dr. Ganesh Dangal
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FICS (USA), FRCOG (UK),
Kathmandu Model Hospital

Postpartum hemorrhage (PPH) remains one of the leading causes of maternal morbidity and mortality worldwide, particularly in low-resource settings. It is a blood loss exceeding 500 mL after vaginal delivery or 1000 mL after cesarean section Postpartum hemorrhage (PPH) remains one of the leading causes of maternal morbidity and mortality worldwide, particularly in low-resource settings. It is defined as blood loss exceeding 500 mL after vaginal delivery or 1000 mL after cesarean section within 24 hours of birth. The major causes are summarized by the "4 Ts": Tone (uterine atony), Tissue (retained placental tissue), Trauma (genital tract injury), and Thrombin (coagulation disorders). Early recognition and prompt management are critical to prevent maternal shock and death. Initial management includes uterine massage, administration of uterotonic drugs, and identification of the underlying cause. If bleeding persists, interventions such as balloon tamponade, surgical procedures, or hysterectomy may be necessary. Active management of the third stage of labor (AMTSL) and proper training of birth attendants are key preventive measures. Strengthening healthcare systems and ensuring timely referral can significantly reduce PPH-related complications and deaths. within 24 hours of birth. The major causes are summarized by the "4 Ts": Tone (uterine atony), Tissue (retained placental tissue), Trauma (genital tract injury), and Thrombin (coagulation disorders). Early recognition and prompt management are critical to prevent maternal shock and death. Initial management includes uterine massage, administration of uterotonic drugs, and identification of the underlying cause. If bleeding persists, interventions such as balloon tamponade, surgical procedures, or hysterectomy may be necessary. Active management of the third stage of labor (AMTSL) and proper training of birth attendants are key preventive measures. Strengthening healthcare systems and ensuring timely referral can significantly reduce PPH-related complications and deaths.

LAPAROSCOPIC CERVICAL CERCLAGE: A FEASIBLE APPROACH IN PREGNANT AND NON-PREGNANT WOMEN – OUR EXPERIENCE OF 16 CASES

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Background

Cervical cerclage is a well-established procedure for the prevention of mid-trimester pregnancy loss due to cervical insufficiency. Traditionally, high cervical suturing is possible only through the open abdominal route, as the vaginal approach allows placement only at the lower or mid-cervical level. However, with the advancement of minimally invasive techniques, laparoscopic cervical cerclage (LCC) has emerged as a viable alternative that allows precise placement of the suture at a higher level with minimal morbidity.

Methods

We present a series of 16 cases of LCC, including 10 pregnant and 6 non-pregnant women. Among the pregnant group, 7 procedures were performed before 12–14 weeks, and 3 were emergency cerclages at 22, 24, and 26 weeks, including two with bulging membranes. Four patients had prior cesarean deliveries, and two had a history of abortion.

Results

The procedure was completed successfully in all cases without major intraoperative complications. Three women are continuing pregnancy with normal progression at the time of reporting.

Conclusion

Laparoscopic cervical cerclage is a technically demanding but feasible procedure, requiring surgical expertise and appropriate case selection. It offers the advantage of high suture placement comparable to open abdominal cerclage while avoiding the morbidity of laparotomy. Our series demonstrates that both pregnant and non-pregnant women can benefit from this approach, establishing its role as a safe and effective minimally invasive alternative.

Placental Histopathology - A Key to Understanding Adverse Pregnancy Outcomes

Prof. Dr. Junu Shrestha
HOD OBGYN Dept, Nepal Manipal Teaching HospitalNational Speaker
HOD OBGYN Dept,
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The importance of the good functioning of placenta for the best obstetric outcome is unquestionable. The placenta is a vital organ that forms the interface between the mother and fetus during pregnancy and plays a crucial role in fetal growth, development, and survival by facilitating nutrient transfer, gas exchange, waste elimination and hormonal and immune regulation. Abnormal placental structure or function has been strongly linked to adverse obstetric outcomes such as preeclampsia, intrauterine growth restriction (IUGR), stillbirth, and preterm birth and many more. Histopathological examination of the placenta provides valuable insights into the causes of adverse pregnancy outcomes. Understanding placental pathology helps not just in providing diagnostic clues that explain the adverse events but also aids in counseling patients. Moreover, it helps in planning future pregnancies, and implementing preventive strategies.

Unfortunately, routine examination and evaluation of placenta remains underutilized in many countries especially low and middle income countries. Placental examination is not a routine practice, not only because of lack of resources and trained personnel, but also because of awareness on its clinical value and integration into clinical care. Absence of uniform diagnostic criteria and lack of national protocols for placental examination are other constraints that limit the use of this facility. The recently issued Amsterdam consensus statement provides uniform diagnostic criteria for placental evaluation.

With the growing evidence showing its importance in explaining adverse pregnancy outcomes and preventing recurrence, there is a global movement toward making placental pathology a standard component of perinatal audits and this should be a norm in all countries including Nepal.

HIGH-RISK PREGNANCY IN LOW-RESOURCE SETTINGS: LESSONS FROM NEPAL

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The global burden of high-risk pregnancy disproportionately affects low-resource settings, evidenced by the stark disparity in Maternal Mortality Ratios (MMR). This analysis explores Nepal & targeted interventions and systemic challenges in reducing its MMR from over 800/100,000 live births in the 1990s to 142-151/100,000 live births today. Mortality is often rooted in the Three Delays Model in seeking care, reaching care, and receiving adequate Emergency Obstetric Care (EmOC). While facility-based delivery rates have significantly improved (NDHS 2022: 81%), persistent gaps exist in the quality of care and the functionality of referral systems. Other challenges include high prevalence of severe anemia, Pre-eclampsia and obstructed labor, compounded by malnutrition and limited human resource retention in rural settings.

The key messages include moving beyond clinical walls to address financial and geographical barriers, strengthening the Functional Referral Network via a Hub-and-Spoke model and dedicated emergency transport, Prioritizing Capacity Building for frontline staff through continuous training on Skilled Birth Attendant (SBA). Crucially, future efforts must utilize Maternal Death Surveillance and Response (MDSR) data to ensure data-driven resource allocation and combat social determinants like adolescent pregnancy.

Nepal experience underscores that political will, community engagement through Female Community Health Volunteers (FCHVs), and targeted policy initiatives (like the Maternal Incentive Scheme) essential for achieving equitable maternal health outcomes.

Keywords
Three Delays, high risk pregnancy, maternal mortality, Nepal

IMPACT OF GYNAECOLOGICAL CONDITIONS IN PREGNANCY AND DELIVERY – CLINICAL IMPLICATIONS AND MANAGEMENT STRATEGIES

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Background

Gynaecological conditions such as polycystic ovary syndrome (PCOS), uterine fibroids, endometriosis, adenomyosis, and ovarian cysts are frequently encountered in women of reproductive age. When these conditions coexist with pregnancy, they can influence implantation, placentation, fetal growth, and the course of labour, sometimes leading to complications such as miscarriage, preterm delivery, or increased cesarean rates and adverse perinatal outcomes.

Objectives

To explore the impact of common gynaecological disorders on pregnancy and delivery outcomes, and to discuss practical, evidence-based management strategies that support maternal and fetal well-being.

Methods

This presentation draws upon current literature, clinical evidence, and personal experience to review diagnostic approaches, risk assessment, and management principles for pregnancies complicated by gynaecological disorders. Emphasis is placed on early recognition, multidisciplinary collaboration, and individualized care.

Results

Evidence suggests that appropriate management—including preconception optimization, surgical interventions where appropriate, and close antenatal monitoring with expectant management in selected cases can significantly reduce obstetric and perinatal complications. Clinical experience supports that timely diagnosis, preparedness for acute complications, and patient centered decision-making are crucial for successful outcomes.

Conclusion

Gynaecological disorders can make pregnancy more challenging, but with awareness, anticipation, and coordinated care, most women can achieve safe pregnancies and healthy deliveries. Integrating obstetric and gynaecological expertise remains key to improving reproductive outcomes.

Keywords

Pregnancy, gynaecological disorders, management, multidisciplinary care perinatal outcomes

Use of laparoscopy in Obstetrics: Further Perspective in Nepal

Prof Dr Suman Raj Tamrakar
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Laparoscopy procedure is being used judiciously in the field of Gynecology in Nepal. Lots of complicated gyne cases are being managed laparoscopically in major cities of Nepal. But the scenario of similar procedure in Obstetrics is not so shiny yet. In fact, the scope of use of laparoscopy in Obstetrics is limited in its own, which is applicable to Nepalese perspective as well. Saying that, in recent days, few optimistic reporting are coming up particularly increased use of laparoscopy in Obstetrics. As usual, laparoscopy is being used in case of acute abdomen in pregnancy whenever the hemodynamic condition is permissible. Earlier second trimester is preferred time to perform this procedure, however it is considered safe now throughout the pregnancy. Laparoscopic cystectomy (for ovarian torsion), salpingectomy (for ruptured ectopic) and appendectomy are being frequently performed procedures. Recently laparoscopic suturing for incompetence is coming up. While laparoscopic use in case of surgical management of PPH is still in dilemma.

Key words: Ectopic pregnancy, laparoscopy, ovarian torsion, PPH.

Bridging the Gap: Improving Perinatal Health in Nepal

Swaraj Rajbhandari,
Senior Obstetrician and Gynecologist

Title

Background: Perinatal health in Nepal continues to face significant challenges despite a decline in perinatal mortality from 45 in 2006 to 27 per 1,000 total births in 2021—still above global averages. Neonatal mortality has stagnated since 2016, and stillbirths account for over one-third of perinatal deaths. Key causes include asphyxia, low birth weight, infections, and prematurity. Limited healthcare access, inadequate infrastructure, and socioeconomic disparities—especially in rural areas—have further hindered progress. The COVID-19 pandemic has worsened these issues.

Method: Nepal Demographic Health Surveys (NDHS), documents related to programs - Safe Motherhood and Newborn Care Program, Maternal and Perinatal Death Surveillance and Response (MPDSR) and emergency helplines and other related articles were reviewed to assess the perinatal situation.

Result: Various government interventions and initiatives have been implemented to improve perinatal outcomes in Nepal. However, significant gaps in the quality of care and access to services persist, especially in remote and underserved areas. Neonatal mortality remains stagnant and stillbirths continue to account for a substantial share of perinatal deaths, despite continued governmental efforts.

Conclusion: Achieving Sustainable Development Goal (SDG) targets requires strengthening healthcare infrastructure, increasing skilled birth attendance, enhancing intergovernmental coordination and ensuring quality care. Further, improved antenatal surveillance, early identification of high-risk pregnancies and strengthening neonatal care across all levels of the health system will be essential to reduce perinatal mortality.

Keywords Perinatal, neonatal, mortality, stillbirth, quality of care.

Nepal Neonatal Cardiopulmonary Resuscitation (NNCPR)

Maj. Gen (Retd) Dr Arun Neupane
Chief Consultant Pediatrician,
President,
Nepal Paediatric Society

The NNCPR (Neonatal National Clinical Pathway for Resuscitation) initiative in Nepal is a crucial intervention aimed at reducing neonatal mortality rates through the implementation of standardized resuscitation protocols. This project underscores the significance of simulation-based training for healthcare providers, enabling them to acquire essential skills and knowledge in neonatal resuscitation techniques. With high neonatal mortality stemming from preventable causes, the NNCPR initiative provides a comprehensive framework that not only enhances the competency of health professionals but also fosters a culture of collaborative learning and continuous improvement in clinical practices. By integrating evidence-based guidelines into routine healthcare, the initiative seeks to empower practitioners to effectively respond to neonatal emergencies, ultimately saving lives and improving health outcomes for newborns. This presentation outlines the objectives, methodology, and anticipated impact of the NNCPR initiative, with a focus on how it addresses current gaps in neonatal care in Nepal and contributes to national health goals. Through coordinated efforts and active participation, the NNCPR initiative aspires to create a robust healthcare system capable of delivering timely and effective neonatal resuscitation services across the country.

Neonatal Encephalopathy in Resource limited settings: Challenges and Innovations

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Tribhuvan University Institute of Medicine

Neonatal encephalopathy (NE) is defined as a 'clinical syndrome of disturbed neurologic function in the earliest days after birth in an infant born at or beyond 35 weeks of gestation, manifested by a subnormal level of consciousness or seizures, often accompanied by difficulty with initiating and maintaining respiration, and depression of tone and reflexes'. While the etiology of NE can be complex and multifactorial in many cases, it often results from perinatal asphyxia, infection, or metabolic disorders. It is a major cause of neonatal morbidity and mortality, particularly in low- and middle-income countries such as Nepal. The challenges faced in such settings range from limited diagnostic capacity and treatment options, scarcity of trained personnel, limited capacity for follow up and rehabilitation services to inadequate infrastructure, delayed referrals and lack of awareness regarding perinatal risk factors. While challenges persist, emerging low-cost technologies, development and use of context appropriate guidelines, scaling up of neonatal resuscitation and neuroprotective care training, strengthening referral systems at the community level and fostering collaborations between global health organizations and universities offer hope for improving outcomes and reducing the long-term burden of disability.

Management of Hemodynamically Significant PDA via Echocardiography in Extremely Preterm Neonates: Navigating the Evidence Gap.

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Abstract:
Hemodynamically significant patent ductus arteriosus (hsPDA) poses a major clinical challenge in the care of extremely preterm neonates. Echocardiography (echo) has emerged as the cornerstone of diagnosis and management, enabling detailed assessment of ductal size, shunt direction, flow pattern, and impact on systemic and pulmonary circulation. However, despite widespread use, the interpretation and clinical application of echocardiographic findings remain highly variable.
There is no universally accepted definition or scoring system for hsPDA, and the threshold for intervention varies among centers. Some neonates with large PDA on echo remain clinically stable, while others with moderate findings develop complications. Moreover, the timing of intervention guided by echo remains debated—early targeted treatment may prevent adverse outcomes such as bronchopulmonary dysplasia or intraventricular hemorrhage, yet risks overtreatment and drug-related toxicity.
Conversely, delayed or conservative management risks prolonged exposure to left-to-right shunting. This review highlights the utility and limitations of echocardiography in the diagnosis and management of hsPDA, emphasizing the need for standardized criteria, operator training, and integration of clinical parameters. Bridging the evidence gap requires multicenter collaboration, harmonization of echo protocols, and prospective trials evaluating echo-guided strategies for individualized management of PDA in extremely preterm infants.
The BeNeDuctus Trial, PDA-TOLERATE Trial, Baby-OSCAR Trial and CPU Trial India, 2023 explored hsPDA management in preterm neonates. Results varied: early treatment didn't consistently improve outcomes, and conservative or echo-guided approaches showed potential in reducing overtreatment. The trials highlight uncertainty and stress the need for individualized, evidence-based PDA management strategies.
Key words: Echocardiography, Hs-PDA, Preterm, Recent Trials

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A Cross-sectional Study of Prevalence of Low Birth Weight and Maternal Risk Factors of Low Birth Weight in a Tertiary Hospital in Nepal

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ABSTRACT:

Introduction:
Low birth weight (LBW), defined by WHO as birth weight below 2,500 grams regardless of gestational age, remains a major public health issue and a leading cause of neonatal morbidity and mortality, particularly in low- and middle-income countries. In Nepal, despite improvements in maternal and child health, LBW prevalence remains high. Maternal factors such as inadequate antenatal care, anemia, poor nutrition, tobacco use, and short birth spacing are key contributors.

Aim:
To determine the prevalence of LBW and identify associated maternal risk factors in a tertiary hospital in Nepal.

Methodology:
A hospital-based cross-sectional retrospective study was conducted from August 2024 to August 2025. All live-born neonates with birth weight < 2,500 g were included. Data were analyzed using frequencies and percentages.

Results:
Among 391 deliveries, LBW prevalence was 6.3%. The mean neonatal weight was 2.18 ± 0.35 kg, and mean maternal age was 29.24 ± 4.35 years. LBW was more common among primigravida mothers (52%) and urban residents (52%). Intrauterine Growth Restriction (IUGR) was a major contributing factor, present in 42.9% of cases.

Conclusion:
LBW remains a significant concern. Maternal anemia, inadequate antenatal visits, poor nutrition, and lack of additinal supplementation were strongly associated with LBW. Strengthening antenatal services, improving nutrition, and ensuring supplement compliance are crucial to reduce LBW and improve neonatal outcomes.

Keywords: Antenatal care, Low birth weight, Nutrition, Primigravida, Risk factors

Neurodevelopmental Outcomes following documented Neonatal Sepsis; A Prospective Cohort Study from Nepal

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Background

Neonatal sepsis remains a major public health concern in low- and middle-income countries like Nepal. While survival rates have improved, long-term neurodevelopmental utcomes among survivors are underreported. This study assesses cognitive, motor, and behavioral development in neonates' post-sepsis, emphasizing early intervention and integrated care to reduce long-term impairment.

Objectives

Primary: To estimate the prevalence of neurodevelopmental delay at 6 months in neonates with documented sepsis using the Developmental Assessment Scale for Indian Infants (DASII).

Secondary: To estimate delay prevalence at 1 year and examine associations with demographic, socioeconomic, and clinical factors.

Methods
This ongoing prospective cohort study involves neonates with culture-positive and culture-negative sepsis from two level III NICUs in Nepal. Of 395 enrolled infants, 241 completed the six-month follow-up and 157 completed both follow-ups. Data collected include socio-demographics, maternal education, prenatal conditions (e.g., infections, IUGR, fetal distress), and clinical factors like assisted ventilation. Neurodevelopment is assessed using DASII, validated by the Nepal Health Research Council.

Results
At six months, 16.6% had motor delays, 14% had mental delays, and 30.6% showed overall developmental delay. At one year, these reduced to 13.4% (motor), 5.1% (mental), and 18.5% overall. Protective factors included prenatal vitamin use (AOR: 0.186), culture-negative sepsis (AOR: 0.137), and gestational age ≥37 weeks (AOR: 0.116). Pregnancy-induced hypertension increased the risk of motor delay at one year (AOR: 3.125).

Conclusions
Therefore, a considerable proportion of neonatal sepsis survivors experience early developmental delays, warranting structured screening, early intervention, and follow-up in resource-limited settings.

Keywords
Neonatal Sepsis
Neurodevelopment
Developmental Delay
Infant Health
Low and Middle Income Countries (LMICs)

Tables and Images

Table 1: Predicators of Neurodevelopmental Delay at Six Months and 1 year follow up in Sepsis Survivors:

Factors	Domain	Crude's Odd Ratio	Adjusted Odd's Ratio
Prenatal Vitamins	Mental at 6 months	0.260	0.186
Culture Negative	Mental at 6 months	0.241	0.137
Gestational age >=37 weeks	Motor at 6 months	0.130	0.116
Pregnancy Induced Hypertension	Motor at 1 year	2.037	3.125

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Timing and Mode of Delivery in Intrahepatic Cholestasis of Pregnancy: A Rising Trend of LSCS in a Low-Middle-Income Country

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Abstract

Background

Pruritus and increased liver enzymes are the hallmarks of intrahepatic cholestasis of pregnancy (ICP), a liver condition that typically manifests in the third trimester. Preterm birth, respiratory distress syndrome (RDS), and stillbirth are among the negative maternal and neonatal outcomes that are linked to it. The increasing number of lower segment caesarean sections (LSCS) among ICP pregnancies in low- and middle-income countries (LMICs) is worrying, despite international guidelines for scheduling delivery depending on gestational age and bile acid levels. This study assessed the impact of delivery style and time on fetomaternal outcomes in cases of ICP at a tertiary hospital in Nepal.

Methods:

From January to December 2023, 109 clinically diagnosed cases of ICP were included in a hospital-based cross-sectional study at Tribhuvan University Teaching Hospital. Epi Info software were used to evaluate data on maternal characteristics, risk factors, delivery time and method, and neonatal outcomes.

Results:

ICP was present in 109 (2.99%) of the 3,637 births. 37 weeks was the average gestational age at delivery. Emergency LSCS was prevalent (59.26%), primarily because of fetal distress (15.74%) and unsuccessful induction (26.85%). RDS (10.19%) and IUGR (15.74%) were among the newborn problems. There were no reported stillbirths.

Conclusion:

Early induction raised cesarean rates but decreased the risk of stillbirth, highlighting the necessity of customized delivery planning in settings with limited resources.

Keywords: Cesarean ; Cholestasis; Pregnancy

NEONATAL MENINGITIS

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Baby of Pranisha Thapa, age- 4 days, sex- male, admitted into Samtse General Hospital with a complaint of yellow coloration of skin & pee on April 18, 2025. Antenatal, natal & post-natal history were uneventful with primi with 39 weeks of pregnancy with SVD. O/E- jaundice, weight- 3.4 kg, vacant look and not sucking well. Our clinical dx was late onset sepsis with neonatal jaundice. Blood & CSF sent for investigations. Treatment started with Antibiotic, phototherapy & supportive measures. The investigations report shows: - CBC: neutrophilic leukocytosis (wbc: 20.37- ↑, neutrophil: 63.10%- ↑, lymphocyte: 24- ↓); CRP: 56 (↑↑); Serum bilirubin: T- 18.74 mg/dl, D- 0.81 mg/dl, I- 17.93 mg/dl; CSF Study: cell count- 113 (↑, 0-21 count/mm3; neutrophil- 76%, lymphocyte- 24%), protein- 2.7 gm/L (↑, 0.3-2.0), glucose- 1.3 mmol/L (↓, 1.5-5.5), LDH- 91 IU/L (↑, 8-50). AFB was not seen in CSF; however, Gm staining & C/S were not available in our hospital.
Our final diagnosis was bacterial meningitis, and thiamin*** I.V was added. Finally, 21 days treatment of antibiotics completed and, discharged without any complication with oral thiamin for baby & mother till 6 months of age of the baby.

TAKE HOME MESSAGE: be very careful and alert during the examination of neonates as well as during the round of the neonatology ward.

*** We practice I.V thiamin for infant & mother (oral) who are in convulsion or impending convulsion in BHUTAN.

Primary Thoracoscopic Repair in Patients with Esophageal Atresia and Tracheoesophageal fistula: A Multicenter Study in East Asia

Authors:

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Background: Despite its introduction nearly 25 years ago, thoracoscopic repair for tracheoesophageal fistula (TEF) has not been widely adopted. We reviewed the clinical outcomes of thoracoscopic TEF repair performed at 5 leading East Asian pediatric minimally invasive surgery centers.

Methods: A retrospective review was conducted of patients with TEF (gross type C) who underwent primary thoracoscopic repair between 2008 and 2024. Patients with gross type A, long-gap TEF requiring staged repair, or trisomy 18 were excluded. Collected data included demographics, operative results, complications, and long-term outcomes.

Results: Summary of Results were shown in Table 1. In total, 127 patients underwent thoracoscopic TEF repair during the study period. The mean gestational age, birth weight, and age at surgery were 38 weeks, 2540g, and 3 days after birth. Thirty patients (23.6%) had cardiac anomalies and 52 (40.9%) had other associated anomalies. The mean operative time and intraoperative blood loss

were 191 min and 4.3 ml. Nine patients (7.1%) required open conversion and 10 (7.9%) experienced intraoperative organ injury. The mean length of hospital stay was 74 days. During hospitalization, anastomotic leakage occurred in 8 (6.3%) patients and pneumothorax occurred in 13 (10.2%). The long-term outcomes included anastomotic stenosis requiring dilatation in 52 patients (41.3%) and recurrence of TEF in 3 (2.4%). The long-term mortality rate was 1.6%.

Conclusions: The results of this study indicate low rates of open conversion, morbidity, and mortality in patients who were carefully selected and treated at highly skilled institutions.

Keywords: *Esophageal atresia, Tracheoesophageal fistula, Thoracoscopic repair*

Table 1

Patient demographics	
Sex (male/female), n (%)	72 (57 %) / 55 (43 %)
Birth weight, g ± SD	2540 ± 487
Gestational age, weeks ± SD	38 ± 2.1
Age at surgery, days after birth ± SD	3.0 ± 7.5
Prenatal diagnosis, n (%)	23 (18.1 %)
Cardiac anomalies, n (%)	30 (23.6 %)
Chromosomal anomalies (without trisomy 18), n (%)	8 (6.3 %)
Tracheomalacia, n (%)	27 (21.3 %)
Preoperative pneumonia, n (%)	3 (2.4 %)
Other associated anomalies, n (%)	52 (40.9 %)
Operative results	
Operative time, min ± SD	191 ± 67
Blood loss, ml ± SD	4.3 ± 8.7
Open conversion, n (%)	9 (7.1 %)
Blood transfusion, n (%)	10 (7.9 %)
Recurrent nerve injury, n (%)	1 (0.8 %)
Tracheal injury, n (%)	6 (4.7 %)
Other intraoperative adverse event, n (%)	4 (3.1 %)
Simultaneous procedure, n (%)	24 (18.9 %)
Postoperative complications during hospitalization	
Anastomotic leakage, n (%)	8 (6.3 %)
Pneumothorax, n (%)	13 (10.2 %)
Chylothorax, n (%)	9 (7.1 %)
Atelectasis, n (%)	4 (3.1 %)
Length of hospital stay, days ± SD	74 ± 73
Mortality during hospitalization, n (%)	1 (0.8 %)
Long-term results	
Anastomotic stenosis requiring dilatation, n (%)	52 (41.3 %)
Recurrence of TEF, n (%)	3 (2.4 %)
GER, n (%)	49 (38.9 %)
Fundoplication, n (%)	15 (11.9%)
Tracheostomy, n (%)	10 (7.9 %)
Long-term mortality, n (%)	2 (1.6 %)

Exploratory Two-Step Cluster Analysis of Preterm Babies Admitted at Om Hospital and Research Centre

Astha Singh1, Bipin Jangam2, Rita Singh3, Sunila Maharjan4, Simran Shrestha4,
Gritachi Maskey4, Enuka Limbu4, Rojina Deo4, Shristi Shrestha4, Shobha Aryal4
Department of Neonatology, Om Hospital and research center

Abstract

Background: Preterm birth is a leading cause of neonatal morbidity and mortality globally, with the burden disproportionately high in low-resource settings. In Nepal, preterm complications contribute significantly to neonatal mortality. Understanding clinical patterns among preterm neonates can inform targeted interventions and improve outcomes.

Objective: To explore the demographic and clinical characteristics of preterm neonates admitted to the NICU at Om Hospital and Research Centre, Kathmandu, using two-step cluster analysis to identify distinct subgroups with differing outcomes.

Methods: A retrospective review was conducted on 449 preterm neonates admitted to the NICU over five years. Two-step cluster analysis was performed using SPSS to group neonates based on variables including birth weight, NICU stay, diagnosis, respiratory support, surfactant use, and mortality.

Results: Two distinct clusters emerged. Cluster 1 (77.5%) comprised neonates with higher birth weight, shorter NICU stay, lower mortality, and milder diagnoses such as TTNB. Cluster 2 (22.5%) included neonates with lower birth weight, prolonged NICU stay, more severe conditions like sepsis and complications of prematurity, and a 100% share of NICU deaths. Surfactant use and intubation were predominantly observed in Cluster 2.

Conclusion: Two-step cluster analysis revealed clinically meaningful subgroups among preterm neonates. Identifying such clusters can aid in risk stratification and resource allocation. Further prospective studies are warranted to validate these findings and enhance neonatal care strategies.

Key Words: Preterm, Neonatal morbidity mortality, NICU, cluster analysis

Improving clinical data documentation in a special care newborn unit using a structured clinical form: a quality improvement study

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Total word count: 247/250

Abstract

Background: Inadequate clinical documentation in neonatal units compromises patient safety and care quality, particularly in resource-limited settings. At the Special Care Newborn Unit (SCANU) of Faridpur Medical College Hospital (FMCH), Bangladesh, where clinical documentation relied on unstructured records, we aimed to improve clinical data completeness by introducing a structured clinical form (SCF) within a quality improvement (QI) framework.

Methods:

Between January 2023 and June 2025, we conducted a pre-post QI evaluation of an SCF, codeveloped by FMCH and the Child Health and Mortality Prevention Surveillance (CHAMPS), using iterative plan-do-study-act (PDSA) cycles with staff feedback and training. The primary outcome was overall clinical data completeness, defined as ≥90% completion of 35 critical data fields. We used chi-squared tests and statistical process control (SPC) charts for analyzing 678 randomly sampled records (220 baseline, 458 post-intervention).

Results: Overall completeness increased fivefold, from 12% at baseline to 60% post-intervention ($p<0.001$). The most significant achievements were in documenting maternal complications (from 8% to 72%) and birth history (14% to 66%) (both $p<0.001$). SPC analysis confirmed sustained improvement over time. A single sharp decline in completeness (to 42%) was identified due to an 80% reduction in intern-doctor staffing.

Conclusions: Implementing an SCF through a systematic QI approach significantly improved the completeness of clinical data. This model provides a sustainable and scalable strategy for strengthening data systems in similar neonatal care settings. By enhancing data integrity, this intervention is a critical step towards improving care quality, enabling robust surveillance and ultimately, advancing newborn survival.

Keywords: Structured clinical form, Quality improvement, Special Care Newborn Unit, Neonatal care, CHAMPS network

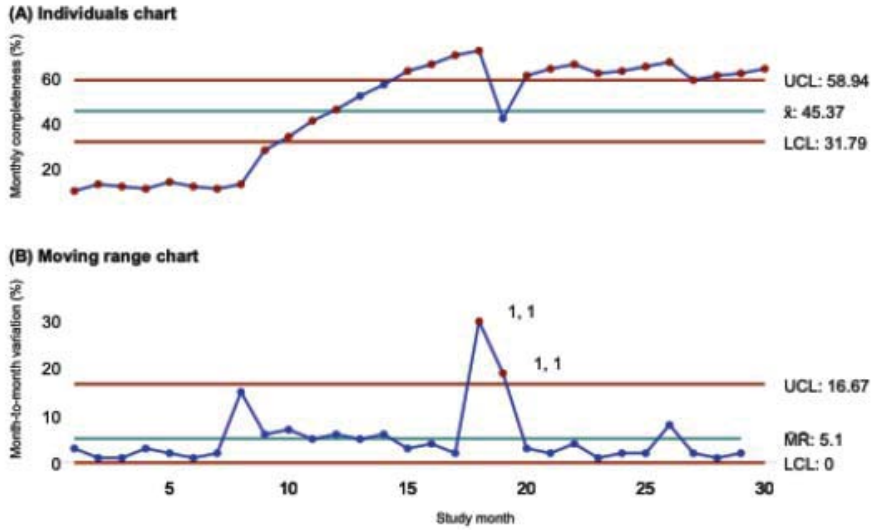

Figure: Individual and moving range control charts of monthly documentation completeness before and after the SCF implementation.

Development of a Culturally Sensitive Psychosocial–Spiritual Support Framework for Parents of Infants in Malaysian NICUs: A Qualitative Research Protocol

Authors: Dr. Aliyyah Binti Mohammad Khuzaini[1]; Prof. Madya Dr. Tengku Amatullah Madeehah T Mohd[1]; Dr. Khadijah Hasanah Binti Abang Abdullah[1]; Dr. Anisah Binti Baharom[2]; Asma' Amatullah Hasanuddin[3]

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Background: Parents of NICU-admitted infants experience substantial psychological distress, often compounded by spiritual uncertainty and disrupted family roles; resilience-promoting factors such as spirituality, social support, and clear communication may buffer these effects, yet most models are based in developed countries and not readily transferable to low and middle-income countries (LMIC) like Malaysia.

Objective: To develop a culturally sensitive, faith-informed psychosocial–spiritual support framework for NICU parents in Malaysia by adapting Walsh's Family Resilience Framework to a non-western, resource-limited context.

Methods: This will be a multisite qualitative case study using purposive maximum-variation sampling of NICU parents, healthcare providers, psychologists/counsellors, peer-support/NGO representatives, and multi-faith chaplains; semi-structured interviews and focus groups (English/Malay), audio-recorded and professionally transcribed; reflexive thematic analysis in NVivo with triangulation, member checking, audit trail, and reflexivity journals to ensure rigour; emergent themes mapped to Walsh's domains to produce an adapted, contextually grounded framework.

Expected Results: A structured framework specifying psychological (e.g., counselling, peer networks), social (e.g., role adaptation, communication tools), and spiritual (e.g., guided reflection, chaplaincy engagement) supports, integrating universal and faith-specific processes for multicultural NICU settings in LMICs.

Conclusion: By integrating culturally and spiritually salient resilience processes into family-centred neonatal care, this protocol aims to guide context-appropriate psychosocial–spiritual interventions for NICUs in Malaysia and comparable LMIC contexts.

Red Cell Distribution Width as a Diagnostic and Prognostic Biomarker in Neonatal Sepsis: A Systematic Review

Authors:

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Background:

Neonatal sepsis remains a major cause of morbidity and mortality, with timely diagnosis hindered by limited access to advanced biomarkers in many settings. Originally used primarily to differentiate types of anaemia, red cell distribution width (RDW) has emerged as a promising sepsis biomarker due to its link with inflammation and adverse outcomes.

Methods:

We systematically reviewed studies evaluating RDW in term and preterm neonates with sepsis. Eligible studies reported RDW at sepsis evaluation and compared septic with non-septic neonates and/or assessed mortality prediction. Key outcomes were between-group differences, diagnostic accuracy, and prognostic associations.

Results:

Eight studies were included in the final analysis. All included studies (n=1,195 neonates) consistently reported higher RDW in sepsis (17.6–21.8%) than in controls (12.5–16.9%, $p<0.001$). Elevated RDW correlated with illness severity (e.g., SNAP-II: $r=0.50$, $p<0.0001$) and with MPV and PDW, but not consistently with CRP. For mortality prediction, RDW ≥18–20% achieved sensitivities up to 86.6% and specificities up to 95%, with AUCs 0.76–0.80, comparable to SNAP-II ≥40. In early-onset sepsis, RDW showed AUC up to 0.967. The RDW-to-platelet ratio improved specificity (>90%) and PPV (>90%) over CRP and procalcitonin. No difference was seen between culture-proven and probable sepsis, suggesting RDW reflects a generalised inflammatory response.

Conclusions:

RDW is a universally accessible biomarker with diagnostic and prognostic potential in neonatal sepsis. Standardised cut-offs and prospective, multi-centre validation could enable RDW to be integrated into sepsis risk algorithms, particularly enhancing early detection in resource-limited NICUs.

Development of an Interactive Quiz Prototype to Enhance Clinical Reasoning in Neonatal Emergencies for Junior Doctors in Limited-Resource Settings

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Background

Junior doctors in paediatrics must make rapid, high-stakes decisions in neonatal emergencies, yet limited clinical supervision and training, especially in resource-constrained hospitals can hinder skill development. Traditional teaching methods are faculty-dependent and labour-intensive, while high-fidelity simulation is often unaffordable. There is a need for accessible, sustainable tools that strengthen clinical reasoning without heavy resource demands.

Objective

To design and develop an interactive branching quiz prototype that enables junior doctors to practice neonatal emergency decision-making in a low-cost and flexible format.

Methods

Interactive quizzes were developed using Canva, focusing on two scenarios: neonatal resuscitation and neonatal hypoglycaemia. Each case was structured with 5–6 decision nodes, where correct responses allowed progression and incorrect answers redirected learners to feedback slides with teaching pearls. The design emphasized accessibility, adaptability, and suitability for integration into onboarding lessons.

Results

The final prototype includes two branching case scenarios, each requiring approximately 15 minutes to complete. Immediate feedback reinforces reasoning steps, while self-directed access allows flexible use by trainees. The tool requires minimal faculty supervision, is reusable without additional labour, and functions in both online and offline formats. Its low-cost and independent learning design makes it particularly suitable for limited-resource hospitals where simulation facilities and teaching manpower are scarce.

Conclusion

We successfully developed an interactive quiz prototype that is sustainable, self-paced, and feasible for incorporation into compulsory onboarding programs for junior doctors. This innovation demonstrates potential to strengthen clinical reasoning in neonatal emergencies within limited-resource settings, with future studies needed to evaluate feasibility and learning outcomes.

Keywords

Clinical reasoning, Neonatal emergencies, Junior doctors, Limited-resource settings

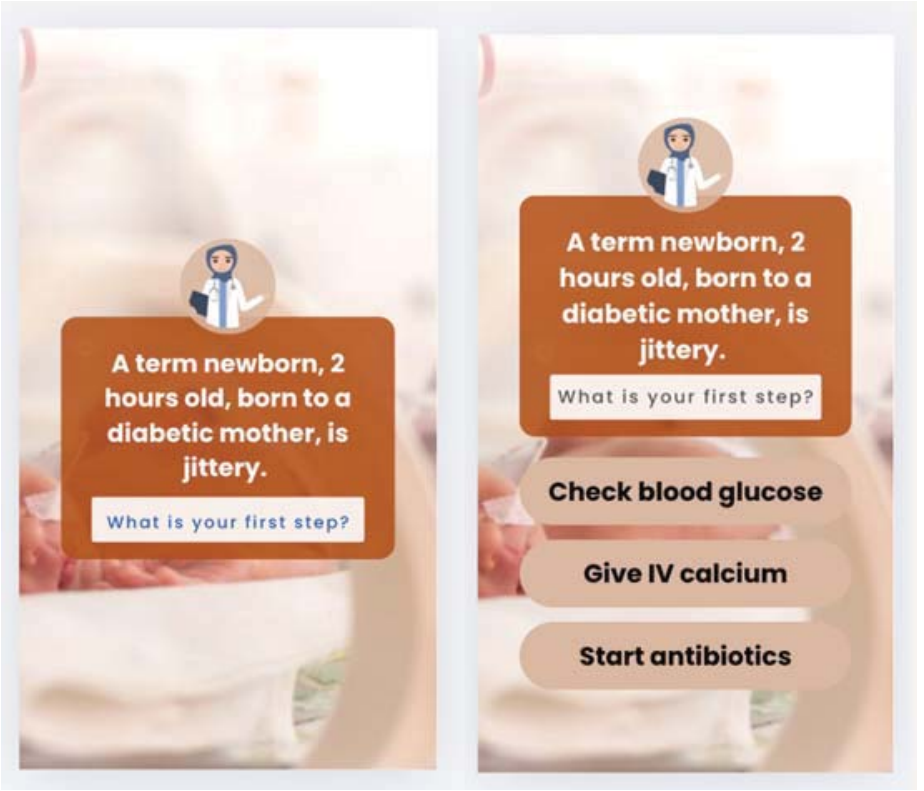

Figure 1: User Interface of Neonatal Hypoglycaemia Quiz

Feasibility and Impact of Simplified Incubators and Flow Generators for Neonates in Low-Resource Settings: Evidence from Laos and Sierra Leone

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Background
Globally, an estimated 2.3 million newborns die each year, and 98% of these deaths occur in low- and middle-income countries (LMICs). Prematurity is the leading cause of neonatal mortality. In many LMIC settings, limited access to advanced thermal care and respiratory support worsens outcomes. Simplified incubators and flow generators may provide effective, scalable solutions.
To evaluate the effect of implementing simplified incubators and flow generators on survival among neonates weighing 1,200–1,799 g.

Methods
We conducted a multi-site, before–after interventional study in four provincial hospitals in Laos and one district hospital in Sierra Leone (2023–2024). Eligible participants were premature infants with a birth weight between 1,200 g and 1,799 g, managed with simplified incubators and flow generators. Primary outcomes were in-hospital and 28-day post-discharge mortality.

Results
A total of 863 neonates (Laos: 664; Sierra Leone: 199) met the inclusion criteria. In the 1,200–1,499 g subgroup, in-hospital mortality decreased from 36.1% to 26.1% ($p = 0.058$), and 28-day post-discharge mortality declined from 53.6% to 41.7% ($p = 0.048$) after the intervention. Staff in both countries described the devices as easy to use and lifesaving.

Conclusions
Implementation of simplified incubators and flow generators was feasible, well-accepted, and associated with improved survival, particularly in neonates weighing 1,200–1,499 g. Simplified incubators appear well-suited for implementation in LMIC health systems and may also serve as a practical means for transporting newborns from rural areas to urban NICUs. Broader implementation, combined with training and technical refinements, may further enhance impact.

Keywords
1.Low- and middle-income countries
2.Prematurity
3.Simplified incubator
4.Flow generator
5.Neonatal mortality

Incidence and Pattern of Congenital Birth Defects among Live-Born Neonates in a Tertiary Level Maternity Hospital of Nepal

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Shailendra Bir Karmacharya1, Megha Mishra1, Shraddha Shrestha1
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Abstract:

Background:

Congenital birth defects (BDs) are major contributors to neonatal morbidity and mortality, arising from genetic, environmental, or multifactorial causes. Determining their incidence and distribution is essential for preventive strategies, therapeutic interventions, and the development of genetic counseling programs.

Methods:

A retrospective analysis study was conducted at Paropakar Maternity and Women's Hospital, Kathmandu, Nepal, from January 1 to December 31, 2024. Data were recorded in the WHO South-East Asia Regional Office Newborn Birth Defect database. All live-born neonates with externally or internally confirmed congenital anomalies within seven days of life were included. Diagnosis was confirmed by radiography, ultrasonography, and echocardiography.

Results:

Among 21,205 total births and 20,900 live births, 90 neonates had birth defects, yielding an incidence of 4.3 per 1,000 live births. Of these, 58.9% were male, 40% female, and 1.1% ambiguous. Most affected neonates were term (78.9%) and of normal birth weight (52.2%). The circulatory system was most commonly affected (50%), followed by musculoskeletal (21.5%), cleft lip and palate (10%), and nervous system (9.2%) anomalies. No mortality was recorded among neonates with birth defects.

Conclusion:

The incidence of congenital birth defects among live-born neonates at this tertiary hospital was 4.3 per 1,000 live births. Cardiovascular anomalies predominated, followed by musculoskeletal malformations. Early detection, prenatal counseling, and preventive public-health interventions are vital to reduce the burden of congenital anomalies in Nepal.

Keywords: Birth defects; Congenital anomalies; Incidence; Neonates; Nepal

Hypercoiling of the Umbilical Cord Leading to Preterm Delivery: A Case Report

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Introduction:
The Umbilical Coiling Index (UCI), defined as the number of complete vascular coils per centimeter of cord length, is a key indicator of fetoplacental hemodynamic function. Both hypo-coiling (UCI < 0.1) and hyper-coiling (UCI > 0.3) are associated with adverse obstetric and perinatal outcomes such as fetal growth restriction, preterm birth, intrapartum fetal distress, and intrauterine demise. Marked hyper-coiling is uncommon and can critically compromise fetoplacental circulation.

Case Presentation:
A 23-year-old gravida 2, para 1, living 0 female at 29 + 6 weeks of gestation presented with decreased fetal movements. She had hypothyroidism and a prior intrauterine fetal demise at 30 weeks. Ultrasound revealed a live fetus with an amniotic fluid index of 6.9 cm and no anomalies. During admission, fetal bradycardia developed, necessitating emergency lower segment cesarean section. Intraoperatively, the cord was markedly hyper-coiled—47 cm long with 27 complete coils (UCI = 0.57 coils/cm). A live male infant weighing 1125 g was delivered by breech presentation with Apgar scores of 5 and 8 at 1 and 5 minutes. The placenta was normal with central cord insertion. The neonate required NICU care for extreme prematurity but recovered well; the maternal postoperative course was uneventful.

Discussion and Conclusion:
Hyper-coiling likely results from excessive fetal motion, abnormal Wharton's jelly composition, or altered cord length. It may increase vascular resistance, leading to fetal hypoxia and distress. This case highlights the importance of antenatal evaluation of cord morphology using ultrasonography and Doppler studies. Prompt recognition and timely delivery are vital to prevent adverse perinatal outcomes.

A Comparative Study of APGAR Score and Cord Blood Analysis in Early Diagnosis and Outcome Prediction of Perinatal Asphyxia, Paropakar Maternity and Women's Hospital, Kathmandu, 2025

Authors:
Shraddha Shrestha[1], Kalpana Upadhyay Subedi[1], Shailendra Bir Karmacharya[1], Prajwal Paudel[1], Needa Shrestha[1], Sabin Rimal[1], and Sudeep Bindu Shrestha[2]

Introduction:
Perinatal asphyxia remains a major cause of neonatal morbidity and mortality worldwide, resulting from impaired gas exchange during the perinatal period1. Early identification is vital to prevent hypoxic-ischemic injury and long-term complications2. The Apgar score provides a rapid bedside assessment of newborns3, whereas umbilical cord blood gas analysis offers an objective biochemical evaluation of oxygenation and acid–base status 4. This study compares the diagnostic and predictive utility of Apgar scores and cord blood gas parameters in identifying neonatal asphyxia.

Methodology:
A cross-sectional study was conducted among 76 newborns admitted to the Neonatal Intensive Care Unit of Paropakar Maternity and Women's Hospital, Kathmandu. Data included Apgar scores at 1 and 5 minutes, cord blood pH, pCO_2, pO_2, bicarbonate, base deficit, lactate, blood glucose, gestational age, and mode of delivery. Statistical analyses were performed using Mann–Whitney U, Fisher's exact test, Spearman's correlation, and logistic regression to identify predictors of asphyxia.

Results:
Among 76 newborns, 39 (51.3%) had clinical asphyxia. Apgar scores correlated positively with cord blood pH and negatively with lactate and base deficit. In multivariable logistic regression, cord blood pH remained the strongest independent predictor of asphyxia (AOR = 0.15; 95% CI 0.04–0.49; p = 0.002), followed by Apgar scores at 1 and 5 minutes.

Conclusion:
Cord blood pH is the most accurate and independent predictor of perinatal asphyxia. While Apgar scoring provides a quick bedside evaluation, combining biochemical parameters with clinical assessment improves early diagnosis and guides timely neonatal intervention.

Encephalocele with Severe Craniofacial Anomalies in a Preterm Stillbirth: Implications of Missed Antenatal Care in Rural Nepal

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Neural tube defects (NTDs), such as encephaloceles, are severe congenital malformations caused by the failure of the neural tube to close in early embryogenesis. Periconceptional folic acid supplementation substantially reduces the risk of NTD. However, in remote regions of Nepal, antenatal care is often limited due to unplanned pregnancy, geographic isolation, and lack of access to health care. Here, we present a case of fetal encephalocele with complex craniofacial malformation in an 18-year-old primigravida from Jumla, Nepal. The patient had not received antenatal care and folic acid supplementation. She was admitted at Karnali Academy of Health Sciences on 7th May, 2025, in spontaneous labor with absent fetal heart sound. She delivered a preterm stillborn male fetus weighing 1000 g at 8:26 pm, local time, on 9th May. Examination revealed a large protruding cranial defect consistent with an encephalocele. Craniofacial abnormalities like cleft lip, absence of the left eye, dysmorphic ears, and deformed craniofacial bones were observed. The placenta was delivered intact with velamentous insertion and an intact connection to neural tissue. Postnatal genetic studies couldn't be done due to the low socioeconomic status of the parents. The mother recovered without complication and was counselled on the finding. She was advised that future pregnancies should include early prenatal care and high-dose folate supplementation and regular antenatal visits.

Fig 1: Encephalocele with complex craniofacial abnormalities

Keywords:Congenital anomaly, Encephalocele, Folic acid deficiency, Neural tube defect

APPROACH TO NEONATAL CARDIAC EMERGENCIES- A REVIEW

Ghimire A1

Dr. Anjila Ghimire, Chief consultant pediatrician, Paropakar Maternity and Women's hospital, Thapathali, Kathmandu, Bagmati Province, Nepal; email: anzeala@gmail.com; Contact: 977-9851197209

Abstract

The incidence of congenital heart diseases is 7-9/1000 live births out of which a quarter comprise the critical congenital heart diseases. However, we have to note that all complex congenital heart diseases are not cardiac emergencies and all cardiac emergencies are not complex congenital heart diseases.

The timing of presentation and severity of illness depends upon the nature, severity of defect and alteration in cardiovascular physiology during transitional circulation like fall in pulmonary vascular resistance, closure of ductus arteriosus and foramen ovale. Babies usually present with shock, severe acidosis, deep cyanosis, congestive cardiac failure or arrhythmias.

A detailed history, meticulous clinical examination, systematic approach in investigation is essential; chest X-ray, twelve lead ECG, Echocardiography by pediatric cardiologist, blood gas analysis, cardiac enzymes- NT-pro BNP, CPKMB, Troponin I, and investigations to rule out other systemic complications should be considered.

Management involves stabilization followed by definitive treatment. For ductus dependent lesions Prostaglandin E1 infusion is lifesaving until baby receives cardiac intervention. Knowledge of hemodynamics helps in setting saturation targets and functional echocardiographic assessment guides the choice of inotropes, vasopressors and fluids.

Conclusion

Neonatal cardiac emergencies may present with shock, acidosis, cyanosis, heart failure or arrhythmias. Systematic approach with history, clinical examination and judicious investigations is essential for management of the baby. Knowledge of hemodynamic implications of the lesion is imperative for treatment planning and, stabilization of the baby takes precedence over hurried referral to a cardiac center.

Key words: Cardiac emergency, critical congenital heart diseases, NT-pro BNP, Prostaglandin E1.

Perinatal Outcomes of Breast Cancer Diagnosed During Pregnancy

Dr. Erika Sawamura

Background:
Breast cancer diagnosed during pregnancy (BCDP), defined as breast cancer identified during gestation or within one year postpartum, is rare, with an incidence of approximately 1 in 3,000 pregnancies. With increasing breast cancer incidence and advanced maternal age, BCDP prevalence is expected to rise. This study aimed to evaluate maternal and neonatal outcomes and discuss management strategies.

Methods:
A retrospective review was conducted of patients diagnosed with BCDP at our institution between 2003 and 2024. Maternal characteristics, gestational age at diagnosis, treatments, delivery outcomes, and prognosis were analyzed.

Results:
Ten patients were identified. Median maternal age was 36 years (range, 28–41); four were primiparous. Nine presented with a palpable mass, with median gestational age at diagnosis of 26 weeks (16–33). During pregnancy, three patients received chemotherapy and five underwent mastectomy. Cesarean section was performed in six cases and induction in four. Median gestational age at delivery was 37 weeks (33–38). Five neonates were preterm, but none were small for gestational age. Tumor stage at diagnosis was I (n=3), II (n=4), and III or higher (n=3). All patients received multimodal therapy postpartum. Recurrence occurred in two triple-negative cases. Three patients died (HER2-positive stage II, triple-negative stage III, luminal B stage IV). One HER2-positive stage III patient achieved long-term remission after mastectomy at 26 weeks, cesarean at 33 weeks, and immediate chemotherapy.

Conclusion:
Advanced-stage BCDP is associated with poor prognosis. Early diagnosis, timely treatment, breast awareness promotion, and multidisciplinary collaboration are essential to optimize maternal and neonatal outcomes.

Current status of epidural delivery at our hospital in Japan

Authors and institution: Erika Sudo(Kyorin University School of Medicine, Musashino Redcross Hospital), Shinji Tanigaki (Kyorin University School of Medicine), Ayako Suda (Kyorin University School of Medicine), Chie Kobayashi (Kyorin University School of Medicine), Tomomi Kikuchi (Musashino Redcross Hospital), Atsushi Sugiura (Musashino Redcross Hospital), Orie Kobayashi (Musashino Redcross Hospital), Atsushi Tajima (Kyorin University School of Medicine), Kazuya Tamura(Musashino Redcross Hospital),Yoichi Kobayashi (Kyorin University School of Medicine)

Background: Epidural delivery is still not common in Japan, but the rate among all deliveries including cesarean section (C-section) is increasing: 2.6% in 2007 to 13.8% in 2023. Our hospital started epidural deliveries in 2021. Therefore, we examined the perinatal outcomes of deliveries at our hospital from 2021 to 2024.

Methods: We retrospectively analyzed the delivery records between January 1, 2021 and December 31, 2024.The epidural delivery is based on planned induction, and the epidural induction is performed by only anesthesiologists. The timing of induction is determined by the Bishop score. Epidural induction is not performed on holidays or at night.

Results: 3054 deliveries, of which 1695 (55.5%) were vaginal deliveries and 1359 (44.5%) were C-section. The percentage of epidural deliveries to total vaginal deliveries in each year has increased to reach 17.4% (76/436) in 2024.

240 cases planned epidural delivery. Of these,175 cases (72.9%) was actually performed epidural anesthesia: spontaneous cephalic delivery in 79 (45.1%), suction delivery in 38 (21.7%), forceps delivery in 26 (14.9%), and emergency C-section in 32 (18.3%). 65 cases were not performed epidural anesthesia: 37 (56.9%) on holidays or at night, 6 (9.2%) at the patient's request, 6 (9.2%) for rapid delivery, and 16 (24.6%) having emergency cesarean section before induction.

Conclusions: For meeting patients' request and for avoiding emergency C-section after inducing epidural anesthesia, we need to examine the current planned inducted epidural delivery: the necessity of obstetricians performing epidural anesthesia or of reconsidering the induction timing.
Keyword: epidural delivery, epidural anesthesia

Targeted Fetal NGS Panel Reveals Genetic Conditions in Sonographically Normal Fetuses

Authors
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Abstract
Background and Objectives:
This study aimed to develop a targeted fetal next-generation sequencing (NGS) panel and assess its diagnostic yield in fetuses with normal ultrasound findings, providing insight into the prevalence and spectrum of genetic conditions detectable in this population.

Methods:
A retrospective analysis was conducted on 1,820 sonographically normal fetuses who underwent targeted fetal NGS panel testing at parental request between June 2021 and June 2023. The panel screened for a range of pathogenic variants and carrier statuses across multiple genes associated with inherited disorders.

Results:
Among the 1,820 fetuses analyzed, 45.8% showed no detectable anomalies, 49.1% were identified as carriers of abnormal genetic variants, and 5.2% exhibited pathogenic conditions. The most frequently detected disorder was glucose-6-phosphate dehydrogenase (G6PD) deficiency, with 35 hemizygous mutation cases, followed by 19 cases with homozygous pathogenic variants in the GJB2 gene. Additionally, 83 cases had G6PD gene mutations and 344 were carriers of GJB2 gene variants. Other notable findings included 15 cases of familial hypercholesterolemia, 5 of Noonan syndrome, and 2 of osteogenesis imperfecta, with rare disorders such as Wilson's disease, cystic fibrosis, Cockayne syndrome, and ototoxic hearing loss each identified in a single case.

Conclusions:
The use of targeted fetal NGS panels in sonographically normal fetuses uncovers a broad range of genetic findings, including a substantial proportion of carrier statuses and a smaller but significant percentage of pathogenic conditions. These results highlight the potential of such panels to expand prenatal genetic insights; however, they also emphasize the importance of further research to clarify the clinical significance of these findings and to establish evidence-based guidelines for post-test management and parental counseling.

Clinical Effectiveness and Reproductive Outcomes of a Modified Double Vertical Compression Suture (mDVCS) Technique for Postpartum Hemorrhage

Authors:

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Abstract

Background:

Uterine compression sutures are utilized as surgical treatment for postpartum hemorrhage (PPH) when conservative measures are insufficient. However, their indications, standardization of technique, and long-term impact on reproductive outcomes remain unclear. We conducted a retrospective analysis to evaluate the clinical efficacy and reproductive prognosis of our modified Double Vertical Compression Suture (mDVCS) technique, which had become the standard approach at our institution.

Methods:

Compared to the original DVCS which places two Hayman sutures from below the uterine incision along with two vertical cervical sutures, our mDVCS technique involves placing two or more Hayman sutures from above the incision in combination with two or more vertical cervical sutures. We retrospectively analyzed 32 clinically diagnosed cases of PPH treated with mDVCS technique as a hemostatic surgical intervention between November 2015 and December 2022. Further, 20 patients participated in follow-up interviews regarding menstrual and reproductive outcomes.

Results:

Hysterectomy was avoided in all cases, even when other interventions such as B-Lynch sutures (n=2), balloon tamponade (n=6), or uterine artery embolization (n=1) had shown limited effect. Estimated blood loss before surgery was 2,400 (1,400–5,000) mL, with intraoperative loss of 1,600

limited effect. Estimated blood loss before surgery was 2,400 (1,400–5,000) mL, with intraoperative loss of 1,600 (157–4,590) mL and operative time of 84 (58–177) minutes. All interviewed patients resumed normal menstruation without notable changes in cycle or volume. Of six patients desiring future pregnancy, five achieved term deliveries without adverse perinatal outcomes.

Conclusion:
The mDVCS technique appears to be a highly effective surgical option for managing severe PPH, supporting both uterine preservation and favorable long-term reproductive health.

Keywords:
postpartum hemorrhage; uterine compression suture; surgical hemostasis; fertility; menstrual function
Preferred presentation type: Oral

Simulation-Based Strategies for Maternal Emergency Care in Japan

Authors:

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Abstract:

Japan's maternal mortality rate remains among the lowest in the world, at 4.4 per 100,000 births in 2023. Nationwide maternal death reviews have been conducted since 2010, leading to the launch of the Japan Maternal Emergency Life Support (JMELS) Basic Course in 2015. This simulation-based training equips healthcare providers with essential skills for early recognition and management of obstetric emergencies.

Over time, additional modules, such as scenario-based training for specific obstetric conditions and the Pre-Hospital Course for emergency medical services, have been introduced in response to analysis results and evolving perinatal care needs, and collaboration across professions and sectors has been strengthened.

Recent data show a decline in maternal deaths due to obstetric hemorrhage, suggesting the effectiveness of this educational approach. However, Japan is facing challenges such as maternal aging, declining birth rates, and reduced access to delivery facilities due to consolidation of perinatal services. These changes raise concerns about future maternal mortality, but the JMELS system is adapting flexibly to address emerging issues.

The Basic Course is designed to be adaptable to the needs of any country or region, making it globally applicable. This presentation will introduce Japan's latest maternal mortality data and describe efforts to improve maternal outcomes in rural areas through simulation-based education.

Keywords: maternal mortality, simulation-based training, obstetric emergency, pre-hospital care, rural healthcare

Reported and Unreported Adverse Events of Long-Term Tocolysis with Ritodrine Hydrochloride: A Retrospective Observational Study in a Japanese Hospital

Authors and Institution
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Ayako Imai 1)
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Background
Long-term tocolysis has not been proven effective, and the U.S. Food and Drug Administration does not recommend prolonged use of ritodrine hydrochloride (RT) or other tocolytics. Betamimetics are also discouraged in the U.S. and Europe because of serious maternal risks such as pulmonary edema, granulocytopenia, and rhabdomyolysis. Despite this, long-term intravenous RT remains common in Japan, where the relatively low preterm birth rate compared with Western countries is often cited in support. This study aimed to evaluate the disadvantages of prolonged tocolysis in Japan, with attention to both common adverse events and rare, potentially life-threatening ones.

Methods
We retrospectively reviewed records of patients who received intravenous RT for more than 48 hours at a tertiary hospital in Japan between 2015 and 2025. The study was approved by the Otemachi Hospital Ethics Committee (approval number: 24003).

Results
A total of 278 patients were included. The median gestational age at admission was 31 weeks, and the median hospital stay was 23.5 days. The preterm birth rate before 36 weeks among patients receiving long-term treatment was 11.5%, corresponding to 1.6% of all deliveries. The most frequent maternal complications were elevated liver enzymes (10.4%) and repeated intravenous line replacement (7.5%). Less frequent but serious events included pulmonary edema (0.7%), deep vein thrombosis (0.4%), and catheter-related bloodstream infection (CRBSI, 0.7%). Two CRBSI cases were reported in detail.
Conclusions
Although preterm birth rates and complication incidence were relatively low, some complications were life-threatening. The use of long-term intravenous RT should therefore be carefully balanced against potential benefits.
Keywords adverse event, catheter related blood stream infection, preterm labor, tocolytic agent

Group A Streptococcal Toxic Shock Syndrome in Japan

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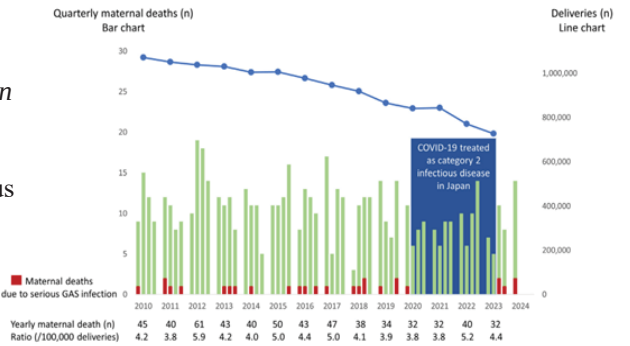
Abstract

Background: To clarify the infection route in maternal death due to invasive group A streptococcal (GAS) infection and toxic shock syndrome (TSS).

Methods: A retrospective study was conducted on maternal deaths due to GAS-TSS in Japan between January 2010 and March 2024. The final causal diagnosis of maternal death and the infection routes of GAS were analysed using medical records, laboratory data and autopsy findings.

Results: Among the 616 maternal deaths during the study period, 48 (8%) involved infectious diseases. The most common infection was invasive GAS (56%, n = 27), 21 (78%) and six cases occurred during the antepartum and puerperium periods, respectively. In the GAS-TSS group, 71% (15/21) infections were originated the upper respiratory tract. However, in the puerperium cases, 67% (4/6) were infected from the genital tract. In addition, no maternal deaths due to GAS-TSS were reported during the COVID-19 pandemic period in Japan from 2020 to 2023.

Conclusion: Most antepartum GAS infections were from the upper respiratory tract. They may be reduced by preventive measures, including frequent disinfection, wearing masks and isolation from persons at high risk of carrying GAS, such as symptomatic children. On the other hand, GAS-TSS during puerperium infection via the genital tract.



Number of deliveries, maternal deaths and maternal death ratio in Japan between 2010 and 2024

Key words Invasive group A streptococcus
Toxic shock syndrome
GAS
Maternal death
Perinatal outcomes

Evaluation of the applicability of freeze-dried human breast milk in neonatal intensive care units (NICUs)

Preferred presentation type: Oral presentation

Authors and Institution: Kana Saito*1, Ryosuke Koizumi*2, Hiroyuki Furuya*1,3, Atsushi Uchiyama*1

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Background and Aims: Although breast milk (BM) has nutritional benefits for neonates, the current method of storing BM in NICUs, freezing, poses a degradation risk to BM benefits if power outages occur. Freeze-drying could alleviate the issue. Previous studies have shown that freeze-drying effectively preserves the BM nutrients. Despite these findings, research on the feasibility of freeze-dried BM in NICUs has not yet been conducted. The purpose of this study was to assess the quality and safety of the freeze-dried BM.

Methods: We evaluated the following aspects of BM: (1) solubility and viscosity, (2) effect on fat content, and (3) microbiological safety, in frozen BM, freeze-dried BM, frozen BM with human milk fortifier (HMF), and freeze-dried BM with HMF. The Ethical Committee of Tokai University approved the collection of BM. Statistical comparisons were performed using paired sample t-tests ($p < 0.05$).

Results: There were no statistical differences in viscosity between frozen BM and freeze-dried BM ($p=0.10$) and between frozen BM with HMF and freeze-dried BM with HMF ($p=0.11$). The difference in viable bacteria count between the initial and 120 minutes later at room temperature when prepared as a liquid form in freeze-dried BM, was significantly lower than in frozen BM ($p<0.001$). No changes in peroxide values were detected in any of the samples.

Conclusions: Our study found that freeze-dried BM has the same quality as frozen BM and offers better bacterial safety compared to frozen BM.

Keywords: Breast milk (BM), Freeze-dried BM, BM storage, BM quality, BM safety

NEONATAL OUTCOME OF IN–VITRO FERTILIZATION (IVF) PREGNANCY

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Abstract: In vitro fertilization (IVF) is the gold standard among all the assisted reproductive technology that has been widely preferred as a therapeutic modality for infertile couples for the last four decades. Conception by IVF has been associated with an increased incidence of several obstetrical and perinatal complications. Neonatal outcome following IVF pregnancy have been the subject of extensive research. Maternal complications including ovarian hyper stimulation syndrome, ectopic pregnancy, hypertensive disorders, pre-eclamsia, often influenced by advanced maternal age and medication used for treatment. While IVF pregnancies generally result in healthy babies, research indicates certain risks are elevated compared to naturally conceived pregnancies. In accordance with reports of success, IVF also poses potential neonatal risks like prematurity(4.73% vs. 1.81%) low birth weight (LBW)(8.1% vs. 4.7%), small for gestational age (SGA), multiple birth(twin, triplet or higher order)(5-10% vs. 1-2%) and congenital malformation(3-5% vs. 2-3%). Prematurity related complications including Respiratory distress syndrome (RDS), Brochopulmonary dysplasia (BPD) and Intra ventricular hemorrhage (IVH) in a IVF born preterm-LBW baby need frequent Neonatal Intensive Unit (NICU) admission and aggressive respiratory and other supportive care compared to naturally conceived babies. IVF babies have a slightly increased risk of early death compared to naturally conceived babies especially in the first week of life. Long term risk includes neurodevelopmental, cardiogenic and metabolic disorders, need regular surveillance and follow up. IVF remains a landmark in reproductive medicine. Advancement of embryo selection, single embryo transfer, prenatal screening, and antenatal personalized care of IVF pregnant mother will improve neonatal outcome. Ethical consideration is essential to reduce risk and ensure safe and effective application of IVF in clinical practice.

Trends of Neonatal Morbidity and Mortality in Preterm Infants (<34 Weeks) Admitted to the NICU of Tribhuvan University Teaching Hospital Over a Decade

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Abstract

Background:

Preterm birth is a major cause of neonatal morbidity and mortality in Nepal. Over the past decade, advances in perinatal and neonatal care have impacted outcomes of very preterm infants. This study compared morbidity patterns and survival among preterm neonates <34 weeks admitted to the NICU at Tribhuvan University Teaching Hospital (TUTH) in 2024 with data from 2011.

Methods:

A retrospective cross-sectional study included all preterm neonates <34 weeks admitted between January–December 2024. Maternal, perinatal, and neonatal data were reviewed for morbidity, interventions, and outcomes and compared with a 2011 cohort (Shrestha L. et al., JNPS 2013).

Results:

Of 820 total admissions, 153 were preterm <34 weeks. Mean gestational age and birth weight were 31 weeks and 1.49 kg (vs. 33 weeks, 1.8 kg in 2011). Survival improved from 80% to 85.6%. Respiratory distress syndrome (RDS) remained the leading morbidity (32%→77%), with greater use of CPAP (53%) and surfactant (54%). Sepsis increased (37%→65%), mainly Klebsiella and MRCONS, while NEC rose (4%→14%) and BPD appeared (5.2%). Jaundice also increased (40% →72%). Mortality predictors included need for positive pressure ventilation and septic shock.

Conclusion:

Survival of very preterm infants improved despite increased illness severity, attributed to enhanced respiratory support. However, rising sepsis and NEC highlight the urgent need to strengthen infection control, early nutrition, and follow-up care for extremely preterm survivors.

Keywords: Preterm <34 weeks, morbidity trend, survival, NICU, Nepal

Neonatal Hypothermia Prevalence in a Tertiary Referral Birthing Center in Nepal

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2. University of Utah, Salt Lake City, UT
3. Kathmandu University, Nepal
4. Global Envirotech Initiative Asia
5. Northeast Ohio Medical University, Rootstown, OH

Background

Neonatal hypothermia is a major global health issue, with incidence rates ranging from 32–85% in hospitals and 11–92% in home births. It is strongly linked to increased neonatal morbidity and mortality. In Nepal, limited data exist on its prevalence, though the cold climate heightens risk. The WHO recommends thermal care practices such as KMC, drying, skin-to-skin and breastfeeding. However, these practices are inconsistently applied, particularly in community settings and understudied in hospital environments.

Purpose

This study aimed to quantify neonatal hypothermia prevalence and assess the impact of standard thermoregulatory practices during the resuscitation period.

Methods

A prospective cohort study was conducted at Dhulikhel Hospital, Nepal. Infants >35 weeks gestation admitted to the nursery between January–June 2023 were enrolled. Thermoregulatory practices were documented, and axillary temperatures were taken at 1 hour of life. Complications and discharge details were recorded. Fischer's Exact Test was used for analysis.

Results

Among 193 infants, 13 (6.7%) were preterm and 21 (10.8%) weighed <2500g. At one hour, 35.8% were normothermic, 57.0% had mild hypothermia, and 7.3% had moderate hypothermia. C-section births had lower hypothermia rates than vaginal births (48.3% vs. 79.8%, $p<0.005$). While all were dried post-delivery, only 50.2% had early skin-to-skin, 21.2% received KMC, and 11.9% were breastfed early. Surprisingly, early skin-to-skin and KMC were linked to higher hypothermia rates.

Conclusion

Neonatal hypothermia remains common in a tertiary Hospital in Nepal. Vaginal delivery, KMC, and early skin-to-skin are all associated with higher rates of hypothermia.

Key words: Neonatal hypothermia, Thermal care practices, Kangaroo Mother Care (KMC) ,Skin-to-skin contact, Nepal

Analysis of National and Local Policies in the Birthing of Primigravid and Grand Multigravid Women in the Philippines

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Background
In response to the elevated risks of maternal and neonatal complications among primigravid and grand multigravid women, the Philippine Department of Health issued Administrative Order No. 2019-0026: "National Policy in the Provision of Birthing Assistance to Primigravid and Grand Multigravid Women." Evaluating this policy is crucial to inform more responsive, context-specific, and equitable maternal health strategies.

Objectives
This study examined the alignment and implementation of relevant national and local policies using the health policy triangle framework.
Methods
A literature review established the health risks associated with first-time and high-parity pregnancies. Document analysis of national and local issuances assessed policy content and processes. Thematic analysis of focus group discussions (FGDs) with 74 healthcare workers and 88 community members captured supply- and demand-side perspectives.

Results
The study reaffirmed the need for focused care throughout antenatal, intrapartum, and postnatal periods. Supply-side stakeholders raised concerns about the policy's applicability, citing limitations in resources, clarity, and feasibility. The devolved structure of the Philippine health system led to fragmented implementation and inconsistencies across regions. On the demand side, community members described both policy adherence and persistent barriers to care, including logistical challenges and cultural norms affecting health-seeking behavior.
Conclusions
Effective maternal care policies must account for systemic, political, economic, and cultural factors. Harmonizing national and local policies, enhancing stakeholder coordination, and investing in community engagement, monitoring, and primary health care are essential to improve outcomes for high-risk maternal populations.
Keywords: Maternal Health, Health Policy Triangle, Gravidity, Parity

Prevalence of Maternal anaemia and its Impact on Perinatal Outcome

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Abstract

Background: Anaemia remains a significant public health concern, particularly among pregnant women in low-income regions. It is associated with various adverse perinatal outcomes, including low birth weight and preterm births.

Objective: To assess the prevalence of maternal anaemia and evaluate its impact on perinatal outcomes in a rural tertiary care centre in Nepal.

Methods: A population-based observational study was conducted at the Karnali Academy of Health Sciences (KAHS), Jumla from April 2023 to March 2024. All pregnant women delivering at or beyond 28 weeks of gestation were included. Data on maternal haemoglobin, mode of delivery, and neonatal outcomes were extracted from institutional registers. Anaemia was categorized based on WHO criteria. Statistical analysis was performed using SPSS.

Results: Among 654 pregnant women, 13.3% were anaemic, of which 11% had mild anaemia, 1.8% moderate, and 0.5% severe anaemia. Preterm birth occurred in 15 (20.8%) of mildly anaemic, 4 (33.3%) of moderately anaemic, and 2 (66.7%) of severely anaemic mothers, compared to 21 (3.7%) in non-anaemic women. Low birth weight/IUGR was seen in 35 (48.6%) of mild, 6 (50%) of moderate, and 2 (66.7%) of severe anaemia cases, versus 43 (7.6%) in non-anaemic women. Perinatal mortality was 2.8% in mild, 16.7% in moderate anaemia cases and 0.9% in non-anaemic mothers.

Conclusion: Maternal anaemia is significantly associated with increased risk of low birth weight and preterm birth. Early screening and appropriate management of anaemia in pregnancy are vital to improving perinatal outcomes, especially in resource-limited rural settings.

Keywords: anaemia; impact; perinatal outcome

Postpartum Depression and Infant Socioemotional Outcomes in Nepal: The Role of Mother-Infant Bonding
Authors

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Background: Postpartum depression (PPD) is a significant public health concern with long-term consequences for mother and children's health. Although relationships among PPD, bonding, and socioemotional outcomes are well studied in high-income countries, evidence is scarce in lower-middle income countries including Nepal where PPD prevalence is much higher than the global prevalence. Also, the prevalence of low birth weight is higher in Nepal.

Objectives: The main objective of this study was to examine the mediating effects of postpartum bonding in the link between PPD and infant socioemotional development among in Nepal.

Methods: The Cross-sectional multisite mixed-method study used the convenience sampling technique to enroll 200 postpartum women of low birth weight/pre-term and full-term infants aged 6-12 months old from immunization clinics of two hospitals in Kathmandu, Nepal. Data was collected via mothers' self-reports. Survey measures include sociodemographic and/perinatal factors, Edinburgh postnatal depression scale, Postpartum bonding questionnaires, and the Baby Pediatric Symptom Checklist. Descriptive statistics were calculated of all study variables. Structural equation modeling in AMOS was conducted to test the mediation effects of bonding on socioemotional development.

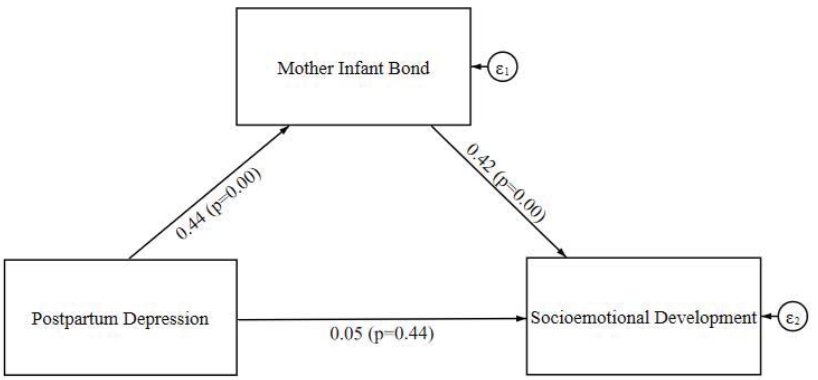
Results: Participants were ethnically and socioeconomically diverse. 28% of women had higher PPD symptoms meeting criteria for referral for further evaluation and monitoring. Results suggest

that PPD and bonding correlated with socioemotional outcomes among infants. The findings also indicated that postpartum bonding fully mediated the associations between PPD and socioemotional outcomes.

Conclusions: PPD prevalence was much higher among Nepali women. Findings indicated that mental health strongly influences socioemotional outcomes among infants primarily by affecting bonding relationships. These findings support the need for identification and tailored evidence-based interventions to enhance maternal mental health and bonding which are foundational for positive socioemotional development during the critical stage of infant development.

Keywords: low birth weight, mother, postpartum bonding, depression, socioemotional outcomes

Figure 1.



Mediation of Postpartum Depression on Socioemotional Development of Infants by Mother Infant Bonding.

Delayed-Interval Delivery in Twin Pregnancies: Two Case Reports

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We present two successful delayed-interval delivery(DID) cases following in vitro fertilization.

Case 1: A 40-year-old woman experienced preterm premature rupture of membranes (PPROM) at 19 weeks and 5 days. Twin A was delivered spontaneously at 20 weeks. Cervical cerclage was performed at 20 weeks and 1 day. Twin B was delivered at 35 weeks and 6 days, weighing 2570g with Apgar scores of 8 and 9. This 111-day interval is the longest DID reported in Taiwan.

Case 2: A 27-year-old woman had PPROM at 23 weeks and 4 days. Twin A was delivered at 24 weeks (539g, Apgar 2 and 6). Cervical cerclage was performed at 25 weeks and 2 days. Twin B was delivered at 31 weeks and 3 days, weighing 1486g with Apgar scores of 6 and 9. Both twins are growing without major complications.

DID has demonstrated potential in improving neonatal outcomes in complex twin pregnancies. With careful case selection and shared decision-making between healthcare providers, patients, and their families, DID can benefit the second twin by prolonging gestation.

Although there are no standardized guidelines for managing these cases, key factors such as timing of cerclage and antibiotic selection based on culture results are essential. Additionally, anti-inflammatory treatment and infection prevention are crucial to achieving better outcomes for both the mother and the babies.

We reviewed previous studies and shared our experience in managing these complex cases, emphasizing the importance of a personalized, multidisciplinary approach to optimize results.

Key words: Twin, Preterm, Cerclage, antibiotic

Postpartum Depression and Social Support as Predictors for Parenting Self-efficacy during Six Month After Childbirth among Women in Nepal

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Abstract

Background

Parenting self-efficacy (PSE) is a parent's ability to be responsive and attentive to their child's needs which may be greatly influenced by perinatal mental health and social factors during postpartum. Limited study to date has examined how maternal mental health status (i.e., postpartum depression) and Social Support (SS) link to PSE among postpartum women during critical stages of infant development in Nepal. Thus, this study aims to examine the postpartum depression (PPD)and perceived SS as the predictors for PSE during six-month postpartum period among women in Nepal.

Methods

A cross-sectional study was conducted among one to six months postpartum women who attended immunization clinics in two hospitals of Kathmandu. Conveniently selected 128 women of both low birth weight and normal birth weight infants were recruited for the study. Standardized measures of Edinburgh Postpartum Depression Survey Scale , Karitane parenting confidence scale, maternal postpartum support scale, and sociodemographic questionnaire were used for semi-structured interview with respondents. Data were analyzed in STATA version 17.0

Results

Respondents were ethnically and socioeconomically diverse. Results indicated that PPD has significant negative association with PSE (β= -.29, p<.001). But perceived SS from husband, family and friends was significantly associated with increased maternal PSE (β= 2.41, p<.001) among women during one to six months of postpartum. The results were significant even after controlling the effects of multiple control variables in the model.

Conclusion

Postpartum depression and SS are significant predictors of PSE during the first six months postpartum among Nepali women. These findings have important implications for evidence-based intervention for early identification of women with PPD and promotion of social support after childbirth to enhance parenting confidence women in parenting for infants.

Key Words: Postpartum depression, women, self-efficacy, social support infants

Maternal blood pressure before the onset of eclampsia and stroke during labor at term

Shunji Suzuki

Objectives: We examined women complicated by stroke or eclampsia occurring in our institute during labor at term, with particular attention to changes in their blood pressure before and after the onset of the complications.

Methods: We identified all pregnant women who were hospitalized for labor and delivery at ≥ 37 weeks of gestation at our institute (one of main perinatal centers in Tokyo, Japan; about 2,000 deliveries/ year). Pregnant women with chronic hypertension whose systolic blood pressure was ≥ 140 at pre-pregnancy were excluded from this study.

Results: During the study period, there were 14 cases of eclampsia and 3 cases of stroke associated with hypertensive disorders of pregnancy. Brain CT or MRI was taken in all cases, and no cases were due to organic brain diseases such as cerebral aneurysms or arteriovenous malformations. In 16 (94%) of these cases, systolic blood pressure was normal (<140 mmHg) at 3–7 days before admission for delivery at term. In 6 of these cases (35%), systolic blood pressure was normal (<140 mmHg) at admission. Severe hypertension (systolic blood pressure ≥160 mmHg) was observed immediately after the onset of eclampsia or stroke in all cases.

Conclusions: In this study, 94% of women who developed eclampsia or stroke at term did not exhibit hypertension before labor. Therefore, the acute increase in blood pressure was likely involved in the development of eclampsia and stroke during labor at term. Regular measurement of blood pressure in all women during labor is important.

Congenital Syphilis: Rejuvenation of a forgotten entity?

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Background: Syphiis has been shown to be on the rise worldwide with 500% increment between 2011 and 2020. According to world health organizarion, 7 in every 1000 pregnant women are infected with syphilis.

Methods: We report 2 cases of congenital syphilis with very different presentations. Neither of the mothers were diagnosed with the disease antenatally.

Results: Case1 was a baby boy born at 30 weeks of gestational age following premature onset of labor. Mother had no documentation of screening test for syphilis during pregnancy. At birth, the baby had sclerematous, bruised, limb contracture, ascites, hepatomegaly, hypertonia and thrombocytopenia. Both mother and baby were confirmed to have high RPR titre sent on the day of birth. He also tested positive for neurosyphilis and died at 25 hours of age.

Case 2 was also a baby boy born prematurely at 31 weeks of gestational age. His mother had tested negative for syphilis in first trimester. At birth, he had generalised oedema, pleural and pericardial effusion, hepatospleenomegaly, anaemia, thrombocytopenia and severe hyperbilirubinaemia. His mother had high RPR titre sent after the birth of the baby. He was successfully discharged home after treatment.

Conclusion: These cases highlight the importance of antenaltal screening and the importance to have a high index of suspicion for diagnosis and treatment of congenital syphilis.

Keywords: Congenital syphilis, hydrops fetalis, hepatomegaly, thrombocytopenia

Bad Obstetric History and Sibling Recurrence: Why Prenatal Diagnosis Matters in Nepal

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Background:

Bad obstetric history (BOH)—including recurrent pregnancy loss, stillbirths, neonatal deaths, and congenital anomalies—is a major challenge in obstetric practice. While maternal, infectious, and anatomical factors are well recognized, genetic causes such as chromosomal abnormalities, single-gene disorders, and hemoglobinopathies remain under-identified. In Nepal, families often present with repeated adverse outcomes or multiple affected children, yet genetic evaluation and prenatal diagnosis are rarely pursued.

Objective:
To highlight the genetic contribution to BOH, demonstrate its overlap with sibling recurrence of genetic disorders, and emphasize the importance of prenatal diagnosis in preventing repeated adverse outcomes.

Methods:
A case-based review was conducted of families presenting to a tertiary pediatric genetics service with BOH and sibling recurrence. Clinical data were analyzed for diagnosis, inheritance pattern, and whether genetic counseling or prenatal testing had been offered in subsequent pregnancies.

Results:
Cases included recurrent pregnancy losses due to unrecognized parental chromosomal translocations, repeated stillbirths and congenital anomalies, and neonatal deaths likely attributable to metabolic disorders. Families with sibling recurrence of autosomal recessive and X-linked recessive conditions were also identified. In nearly all cases, genetic counseling and prenatal diagnostic options had not been offered, leading to preventable recurrence.

Conclusion:
BOH and sibling recurrence are critical red flags for underlying genetic disorders. Gynecologists, as

the first point of contact, are pivotal in identifying at-risk families, initiating genetic evaluation, and offering prenatal diagnostic options. Strengthening awareness and access to genetic services can reduce repeated adverse outcomes and improve maternal and child health in Nepal.

Keywords: Bad obstetric history, Genetic disorders, Prenatal diagnosis, Genetic counseling

and associated with improved survival, particularly in neonates weighing 1,200–1,499 g. Simplified incubators appear well-suited for implementation in LMIC health systems and may also serve as a practical means for transporting newborns from rural areas to urban NICUs. Broader implementation, combined with training and technical refinements, may further enhance impact.

Keywords

1.Low- and middle-income countries
2.Prematurity
3.Simplified incubator
4.Flow generator
5.Neonatal mortality

Fetal outcome of adolescent pregnancy in a tertiary care center in western Nepal: A case control study

Sweta Mahato

Abstract

Background: The incidence of adolescent pregnancy is decreasing in developed countries, whereas developing countries like Nepal still report a high incidence.

Aims: To compare the fetal outcomes of adolescent pregnancies with those of the optimal reproductive age group in a country that accounts for 95% of teenage pregnancies, in contrast to 11% worldwide.

Method: A hospital-based case-control study was conducted with 150 pregnant women with singleton gestation admitted to Kathmandu University Hospital. An adolescent pregnancy (<19 yrs.) was considered a case, and pregnant women of the optimal age group (20-35 yrs.) were considered the control. The data were collected from Jan 5, 2018, to Jan 5, 2019. The control group was selected by matching the parity of the cases in the study groups during the same study period. Respondents were interviewed and examined with a pre-structured tool. Odds Ratio (OR) and 95% Confidence Interval (CI) were calculated using conditional logistic regression (P<0.05 considered significant).

Results: The mean age of adolescent mothers was 17 years, the majority being primigravida. This study identified that fetal complications were higher in adolescent pregnancies (61% vs. 40%). The fetal complications like low birth weight (OR 2.42, 95%CI :1.044-5.43, P=0.03), NICU admission (OR 3.27, 95%CI:1.48-7.25, P=0.003), low APGAR score (OR 2.32, 95%CI:1.05-5.11, P=0.034) and Neonatal Death (OR 3.72, 95%CI:1.15-12.01, P=0.04) were associated with the adolescent pregnancies respectively.

Conclusion: Adolescent pregnancies are at increased risk of fetal complications compared to pregnancies in the optimal reproductive group. Adolescent pregnancies were at increased risk of low birth weight, neonatal death, low APGAR score, and higher admission in NICU. Therefore, an adequate antenatal visiting program for early detection and timely management likely will reduce the fetal complications during adolescent pregnancy.

Keywords: adolescent pregnancy, complications.

Implementing multiple parallel changes on a NICU: can it be done and does it improve outcomes?

Authors and Institution
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Background: Preterm birth affects 15 million infants globally and is the leading cause of death in children under 5. Recently there has been growing interest in the use of preterm care bundles as a way of standardising care to optimise outcomes.

Objectives: To develop and implement a care bundle of evidence-based interventions for neonates born before 32 weeks' gestation to reduce mortality and specific complications including bronchopulmonary dysplasia (BPD), necrotising enterocolitis (NEC), and brain haemorrhage (IVH).

Methods: Driver diagrams and process mapping were used to establish the 10 interventions in the bundle. Using quality improvement methodology we trialled several different approaches to train and engage staff in the Rosie Hospital, Cambridge. Data was collected from the electronic patient records between January 2021 and December 2021. Outcome data was collected from the NNAP database, from 2020 (prior to implementation of the bundle) through to the end of 2024.

Results: Over 12 months, 121 eligible newborns received the bundle, with 70% receiving appropriate interventions. Simple procedures like drug administration were implemented more successfully than complex interventions requiring behavioural changes. The study showed sustained improvements in antenatal steroid use, delayed cord clamping, temperature management, and early breastfeeding.

Conclusion: While the bundle successfully changed clinical practices and these improvements were maintained over time, no reduction in BPD, NEC, or IVH rates was demonstrated. However, poor data quality before 2023 made meaningful comparison difficult. The study highlights the need for robust databases and suggests care bundles require more rigorous scientific evaluation through randomized controlled trials.

Keywords Preterm; *Quality-improvement; Outcome*

Bundle Element	Number of eligible babies	Number of babies receiving intervention (%)
Place of birth	36	29 (80.6%)
Antenatal corticosteroids	91	69 (75.8%)
Magnesium sulphate	72	63 (87.5%)
Delayed cord clamping*	90	47 (52.2%)
Prophylactic hydrocortisone**	19	17 (89.5%)
Normothermia*	91	62 (68.1%)
Caffeine	121	115 (95.0%)
Early PN*	94	83 (88.3%)
Early colostrum*	121	36 (29.8%)
Probiotics**	67	43 (64.2%)
All elements	802	564 (70.3%)

* Existing interventions with updated approach
** New interventions

Table 1: Number of eligible infants receiving bundle interventions

Maternal Fasting Serum M-CSF and Preterm Birth Risk: A Nested Case-control Study Among Chinese Women

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Background: To assess the association between serum macrophage-colony stimulating factor (M-CSF), which is known for its immune-modulating properties and presence at feto-maternal interface, and the risk of preterm birth (PTB) among Chinese women.

Methods: A 1:1 matched nested case–control study was conducted at a Beijing hospital in 2016-2017, involving 166 pairs of women with PTB (case group) and term delivery (control group) during the first trimester and 170 pairs during the second trimester. Fasting serum M-CSF levels were respectively measured using a Luminex bead-based multiplex assay at 10–14 weeks and 15–20 weeks of gestation. Logistic regression analyses were employed, and receiver operating characteristic (ROC) curves were generated to assess the predictive ability of M-CSF for PTB.

Results: Both in the first and second trimester, M-CSF levels were lower in PTB group than in control group (median: 177.30 vs. 220.11 pg/ml, P<0.001; 171.03 vs. 204.97 pg/ml, p<0.001, respectively). For each 1 log pg/ml decrease of serum M-CSF during the first and second trimesters, PTB risk increased by 123%[odds ratio (OR): 2.23, 95% confidence intervals (95%CI): 1.48-3.37] and 109%[OR: 2.09, 95%CI: 1.35-3.25] respectively, after adjustment for age, BMI, parity, fetal sex, ethnicity, education level and gestational weeks. The areas under the corresponding ROC curves for log-transformed M-CSF in the first and second trimesters were 71.4% and 67.5%, respectively.

Conclusion: Our findings revealed a significant correlation between serum M-CSF levels during the first and second trimesters and the risk of PTB, underscoring the potential of M-CSF as a predictor for PTB incidence.

Keywords: Cytokines; Biomarkers; Risk prediction model; Early pregnancy; Mid-trimester

Association of Placental Pathology with Clinical and Histologic Phenotypes of Necrotizing Enterocolitis in Preterm Infants

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Background
Necrotizing enterocolitis (NEC) is a severe complication in preterm infants with heterogeneous mechanisms. Recent evidence suggests placental pathology may influence NEC phenotypes. This study examined whether placental histopathology is associated with NEC types and outcomes in preterm infants.
Method
This retrospective cohort included preterm infants <32 weeks' gestation or <1,500 g birth weight diagnosed with stage ≥2 NEC (2013–2025) and with available placental pathology. Placental lesions were classified using the Amsterdam Consensus into placental hypoperfusion (PH) or placental inflammation (PI), based on dominant histology. Clinical features, NEC onset, pathology, and outcomes were compared.
Results
Among 43 infants, 29 had PH, 12 had PI, one mixed, and one normal placenta. Infants with PH had higher gestational age (27.0 vs. 24.4 weeks, p=0.032). NEC developed earlier in PH than PI infants (8.2 vs. 23.3 days, p=0.004), though postmenstrual age at onset was similar (28.6 vs. 28.9 weeks). ROC analysis identified 11.2 days as the best cutoff distinguishing PH- from PI-associated NEC. Rates of surgical NEC, TPN duration, full feeding, and mortality did not differ. However, ischemic-type intestinal injury was more common in PH-NEC than PI-NEC (81% vs. 16.7%, p=0.008).
Conclusion
Placental pathology was linked to distinct NEC phenotypes in preterm infants. PH was associated with earlier onset and ischemic-type injury, while PI was linked to later onset. These findings suggest divergent NEC pathways and support placental examination for risk stratification and individualized management.

Nationwide Survey on Neonatal Resuscitation Across Delivery Facilities in Japan

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Background

The extent to which the current Neonatal Cardiopulmonary Resuscitation (NCPR) guidelines are implemented across clinical settings in Japan remains unclear. The last nationwide survey was conducted in 2015, and the impact of subsequent revisions released in 2015 and 2020 has not been evaluated.

Methods

A nationwide cross-sectional survey was conducted between August and September 2024, targeting 2,296 delivery facilities in Japan. The questionnaire assessed neonatal resuscitation practices, including equipment availability, provider training, and the use of guideline-recommended devices and techniques.

Results

Among the 1,505 delivery-performing facilities that responded (response rate: 68%), 98% reported availability of pulse oximeters. ECG monitors and oxygen–air blenders were available in 56% and 52% of facilities, respectively. T-piece resuscitators were used in 32% of facilities. A total of 81% of facilities indicated that all or almost all providers had completed NCPR training. Only 11% had clinical experience with supraglottic airway (SGA) devices. SGAs are not explicitly recommended in the current NCPR guidelines but are acknowledged as an alternative when endotracheal intubation is difficult. Among SGA-inexperienced facilities, 18% would consider adopting SGAs if recommended in future guidelines, and 42% expressed willingness to adopt them if sufficient training opportunities were available.

Conclusions

This survey demonstrates that while core elements of neonatal resuscitation practice are widely established in Japan, implementation of specific devices and techniques remains inconsistent. The upcoming 2025 revision of the NCPR guidelines presents an opportunity to address these gaps and support more standardized clinical practice.

Keywords
Neonatal Resuscitation, Airway Management, Training, Medical Equipment, Surveys
Preferred presentation type: Oral
limited effect. Estimated blood loss before surgery was 2,400 (1,400–5,000) mL, with intraoperative loss of 1,600 (157–4,590) mL and operative time of 84 (58–177) minutes. All interviewed patients resumed normal menstruation without notable changes in cycle or volume. Of six patients desiring future pregnancy, five achieved term deliveries without adverse perinatal outcomes
.
Conclusion:
The mDVCS technique appears to be a highly effective surgical option for managing severe PPH, supporting both uterine preservation and favorable long-term reproductive health.

Keywords:
postpartum hemorrhage; uterine compression suture; surgical hemostasis; fertility; menstrual function
Preferred presentation type: Oral

Immediate outcome of early initiation of Kangaroo mother care (KMC) before stabilization in low birth-weight (LBW) babies.

Professor Maksudur Rahman,
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Abstract

Background: Recent study showed that early initiation of KMC before stabilization is more effective in LBW babies.

Objectives: To assess the effect of early KMC before stabilization of LBW babies as compared with the conventional KMC after stabilization.

Methods: This randomized controlled trial study was conducted in neonatal ward of Bangladesh Shishu Hospital and Institute from December, 2023 to May, 2024. All preterm LBW neonates with birth weight 1000 gm. to 2000 gm., gestational age > 30 weeks to < 35 weeks, were given KMC. Cases were those who got early KMC and control who got conventional KMC. All the babies were monitored and data were collected and analyzed.

Results: In this study a total 40 babies were taken as cases and 40 as control. Apnea occurred less in early KMC group (6% vs. 7%) ($p > 0.05$) and episodes of hypothermia was also recorded less in early KMC group (8% vs. 9 %)) ($p>0.05$). But these are not statistically significant. Comparison of weight showed that rate of weight gain per day in early KMC group was 20.031±7.1 gm. and in control group, it was 17.042 ±6.9 gm. ($p< 0.05$). Culture positive sepsis was 16% in early KMC group and 18% in control group ($p>0.05$). The mean time to achieve full enteral feed in early KMC group was 9.5±4.5 days and 13.3±3.9 days ($p< 0.001$) in control group. Eighty nine percent of early KMC group and 70% of control group babies were discharged with exclusive breast feeding ($p< 0.05$). Mean hospital stay was 17.7 ± 9.6 days vs. 20.2 ± 7.5 days, in early KMC group and control group respectively that was statistically insignificant ($p>0.05$). The mortality was 4(10%) in early KMC group and those was 5(1%) in control group and that was also statistically insignificant ($p>0.05$).

Conclusion: Early KMC is more effective than Conventional KMC for caring of LBW babies and has better effect on weight gaining and establishment of exclusive breast feeding.

Key words: KMC, early,

Maternal Emergency Transport Times in Miyagi Prefecture, Japan: Annual Trends and Comparison by Onset Facility Type

Authors:
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Background:
In Japan's tiered perinatal network, maternal emergencies from all levels are sent to core centers serving as both emergency and perinatal centers. In Miyagi Prefecture, strengthened transport protocols, training, and inter-facility collaboration aim to reduce delays in maternal emergency transfers.
Objectives:
To examine annual trends in emergency transport times for primary postpartum hemorrhage (primary PPH) and compare by onset facility type.
Methods:
We retrospectively analyzed 231 primary PPH cases transported to Tohoku University Hospital (2018–2024). Primary PPH was defined as ≥1,000 mL blood loss or transfusion within 24 hours postpartum. Two intervals were measured: Deliver–call (delivery to transport request) and Call–arrive (request to arrival). Annual trends were estimated using a linear regression model adjusting for maternal and delivery factors; onset facility type was included in the overall model.
Results:
Overall, Deliver–call shortened by 6.5 min/year (169→130 min; −39 min; p for trend=0.018) and Call–arrive by 4.3 min/year (62→36 min; −26 min; p for trend<0.001).
At community-based clinics, Deliver–call decreased by 4.2 min/year (128→103 min; −25 min; p for trend=0.156) and Call–arrive by 4.7 min/year (59→31 min; −28 min; p for trend<0.001).
At higher-level hospitals, Deliver–call decreased by 7.8 min/year (192→145 min; −47 min; p for trend=0.023) and Call–arrive by 3.6 min/year (68→43 min; −25 min; p for trend=0.004).
Conclusions:
Both intervals shortened over time across facility types. This trend may reflect that the perinatal system, with standardized training, protocols, and collaboration, improves maternal emergency transport efficiency.
Keywords: Japan; Maternal emergency transport; Perinatal care system; Postpartum hemorrhage; Transport time trends

I would like to give a poster presentation. I would appreciate your kind consideration.

Simulation-Based Strategies for Maternal Emergency Care in Japan

Authors:

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Abstract:

Japan's maternal mortality rate remains among the lowest in the world, at 4.4 per 100,000 births in 2023. Nationwide maternal death reviews have been conducted since 2010, leading to the launch of the Japan Maternal Emergency Life Support (JMELS) Basic Course in 2015. This simulation-based training equips healthcare providers with essential skills for early recognition and management of obstetric emergencies.

Over time, additional modules, such as scenario-based training for specific obstetric conditions and the Pre-Hospital Course for emergency medical services, have been introduced in response to analysis results and evolving perinatal care needs, and collaboration across professions and sectors has been strengthened.

Recent data show a decline in maternal deaths due to obstetric hemorrhage, suggesting the effectiveness of this educational approach. However, Japan is facing challenges such as maternal aging, declining birth rates, and reduced access to delivery facilities due to consolidation of perinatal services. These changes raise concerns about future maternal mortality, but the JMELS system is adapting flexibly to address emerging issues.

The Basic Course is designed to be adaptable to the needs of any country or region, making it globally applicable. This presentation will introduce Japan's latest maternal mortality data and describe efforts to improve maternal outcomes in rural areas through simulation-based education.

Keywords: maternal mortality, simulation-based training, obstetric emergency, pre-hospital care, rural healthcare

Reported and Unreported Adverse Events of Long-Term Tocolysis with Ritodrine Hydrochloride: A Retrospective Observational Study in a Japanese Hospital

Authors and Institution
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Ayako Imai 1)
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Background
Long-term tocolysis has not been proven effective, and the U.S. Food and Drug Administration does not recommend prolonged use of ritodrine hydrochloride (RT) or other tocolytics. Betamimetics are also discouraged in the U.S. and Europe because of serious maternal risks such as pulmonary edema, granulocytopenia, and rhabdomyolysis. Despite this, long-term intravenous RT remains common in Japan, where the relatively low preterm birth rate compared with Western countries is often cited in support. This study aimed to evaluate the disadvantages of prolonged tocolysis in Japan, with attention to both common adverse events and rare, potentially life-threatening ones.

Methods
We retrospectively reviewed records of patients who received intravenous RT for more than 48 hours at a tertiary hospital in Japan between 2015 and 2025. The study was approved by the Otemachi Hospital Ethics Committee (approval number: 24003).

Results
A total of 278 patients were included. The median gestational age at admission was 31 weeks, and the median hospital stay was 23.5 days. The preterm birth rate before 36 weeks among patients receiving long-term treatment was 11.5%, corresponding to 1.6% of all deliveries. The most frequent maternal complications were elevated liver enzymes (10.4%) and repeated intravenous line replacement (7.5%). Less frequent but serious events included pulmonary edema (0.7%), deep vein thrombosis (0.4%), and catheter-related bloodstream infection (CRBSI, 0.7%). Two CRBSI cases were reported in detail.
Conclusions
Although preterm birth rates and complication incidence were relatively low, some complications were life-threatening. The use of long-term intravenous RT should therefore be carefully balanced against potential benefits.
Keywords adverse event, catheter related blood stream infection, preterm labor, tocolytic agent

Prenatal Screening and Diagnostics as Cornerstones in the Early Detection and Management of Fetal Chromosomal and Structural Anomalies

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Dhulikhel Hospital.

ABSTRACT:

Background: Prenatal Screening plays a critical role in the early detection of fetal chromosomal and structural anomalies. The Dual marker and Quadruple marker test are widely used noninvasive screening tools, while amniocentesis serves as the diagnostic gold standard. Understanding the predictive value of these tests is essential for guiding clinical decisions and counseling pregnant individuals, especially in high risk population.

Methods: This prospective observational study enrolled pregnant individuals undergoing routine prenatal screening. Participants received dual marker or quadruple marker testing followed by amniocentesis when screening indicated high risk. Sensitivity, Specificity, Positive Predictive Value (PPV), and Negative Predictive Value (NPV) were calculated by comparing screening results with findings from amniocentesis.

Result: Among Screened participants, the dual marker test and quadruple test showed a PPV of 20% and 9.1% respectively. Amniocentesis confirmed chromosomal abnormalities in 12.5% of high risk cases flagged by screening.

Conclusion: Dual marker and quadruple tests showed low positive predictive value in this cohort study highlighting limited reliability in detecting true chromosomal abnormalities. Amniocentesis remains essential for confirming screen positive cases and preventing unnecessary interventions. Due to lack of confirmatory testing in screen negative cases, sensitivity and specificity could not be calculated – an important methodological limitation. Future studies should include follow up of negative cases to better assess diagnostic accuracy.

Keywords: Dual Marker, Quadruple Marker, Amniocentesis

CERVICAL CERCLAGE, ONCE AGAIN INTRODUCTION OF ABDOMINAL SURGERY AND ABSORBABLE SUTURES, EDUCATION USING ULTRASONOGRAPHY

Shinji Tanigaki1, Mizuho Takayashiki, Yumi Toda, Kenshiro Kiuchi, Asako Saki,
Aimi Matsuki,
Ayako Suda, Mika Ishikawa, Sumiko Tanikawa, Atsushi Tajima, Yoichi Kobayashi
1.Prof. Department of Obstetrics and Gynecology, Kyorin University School of Medicine

Cervical cerclage is performed to prevent preterm labor in cases of cervical incompetence. In Japan, only the transvaginal approach is covered by insurance. Recently, the efficacy of transabdominal cervical cerclage (TAC) has been demonstrated. TAC sutures the cervical canal at a higher position in the uterine isthmus under laparotomy. TAC is indicated when the transvaginal approach failed to prevent preterm birth in a previous pregnancy or when the transvaginal cerclage is anatomically difficult due to a history of cervical surgery.

Society is applying for insurance coverage.
We use transvaginal ultrasound examination (TV-US) to determine the surgical technique for cervical cerclage. TV-US is also highly helpful, such as bladder elevation which may cause complications during the Shirodkar procedure. Furthermore, it is used for educating by evaluating and reviewing the cerclage procedure. The thread used for suturing is selected based on the height of the suture, the timing of the surgery, and the mode of delivery (Emergency suture removal should be avoided as it can sometimes be difficult.). In recent years, absorbable monofilament sutures are sometimes used for suturing. Because absorbable sutures do not need to be removed, they reduce the burden on patients and medical stuff. With the increasing adoption of fertility-sparing surgery for cervical tumors, the importance of cervical cerclage increase. In this presentation, we will introduce transabdominal cervical cerclage, the practical application and educational value of evaluation using transvaginal ultrasound examination, and present the outcomes of cerclage using absorbable sutures, aiming to provide a new perspective on cervical cerclage.

ENHANCING PREDICTION OF SMALL FOR GESTATIONAL AGE (SGA) BABIES
- WHY, HOW AND THE FUTURE

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Small-for-gestational age (SGA) commonly refers to newborns with birthweight and 10 th centile, its proportion estimated at almost 20% of all livebirths. It is associated with fetal growth restriction (FGR) and has a risk of lifetime morbidities such as metabolic syndrome and cardiovascular disease. A fundamental challenge with the SGA definition is that rowth charts may not accurately depict the population's actual growth trajectory. Hence, constitutionally small infants may receive unnecessary intervention with parental anxiety, whilst pathologically growth-restricted fetuses who fail to reach their genetic growth potential despite achievement of "appropriate for gestational age/AGA" status, may be missed. We constructed a national fetal growth chart for SGA prediction using retrospective data with the Lambda-Mu-Sigma analytic method and compared its diagnostic accuracy with existing international growth charts (WHO, Hadlock, and INTERGROWTH-21st charts).

Biometric growth charts with five variables (abdominal circumference, femur length, nuchal thickness, maternal age, and ultrasound-confirmed gestational age) were constructed from an initial 68,897 collected scan images, where 5519 images underwent validation. Known growth charts such as the Hadlock, or INTERGROWTH-21 st chart in the Malaysian population may result in SGA misdiagnosis, whilst the WHO chart demonstrated similar SGA diagnostic performance as our national fetal growth chart. All growth charts plotted in the second trimester poorly predicted SGA, suggesting the need to improve early detection of SGA to improve fetal outcomes. A critical research gap lies in the difficulty in ensuring accurate SGA/growth problem prediction during the early, or second trimester, as well as the lack of accepted pre- and postnatal growth trajectories which transcend beyond ethnicity or geographic variations for infants at risk of FGR, SGA, or for subsequent postnatal growth

faltering. Our research team at UM proceeded to create and investigate “Neo Guard” (https://neoguard.site/), a tool which combines ultrasound biometry, Doppler blood flow, and maternal serum biomarkers to deliver a high level of accuracy in SGA prediction, ensuring early detection and intervention via machine learning methods. The talkaims to provide an overview of babies born SGA, its short and long-term effects/ complications, limitations of pre- and post-natal growth charts, and highlight the work done in this area. In future, addressing the gaps for effective and early diagnosis of SGA/growth faltering via developing telemedicine and use of an integrated artificial intelligence (AI) predictive growth velocity for antenatal, neonatal and pediatric follow-up systems may potentially allow timely interventions to prevent both short- and long-term complications related to FGR and SGA.

Keywords Small-for-gestational-age (SGA), fetal ultrasound biometry, fetal growthrestriction (FGR), fetal growth chart, artificial intelligence (AI).

PERSPECTIVES ON NEWBORN SCREENING IN FAOPS COUNTRIES

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Newborn Screening (NBS) is vital for early detection of certain neonatal and childhood disorders which may not be apparent by clinical examination. This allows for timely intervention with optimal treatment which has the potential to prevent severe health problems, developmental disabilities, and long-term costs of care. The Federation of Asia and Oceania Perinatal Societies (FAOPS) is a federation of National Societies of Perinatal and/or Neonatal Medicine covering the geographical region of Asia and Oceania. About 18 countries are represented under FAOPS, some are resource rich and others resource restricted low- and middle-income countries (LMIC). There are widespread disparities between maternal and neonatal care in them. The knowledge of NBS as an efficient, cost-effective and effective public health strategy is well known to the healthcare providers but not by policy makers and politicians.

Few countries have a well-established NBS programmes and they screen for congenital hypothyroidism, hearing deficit, metabolic disorders, congenital adrenal hyperplasia, and have expanded to detect mitochondrial disorders, immune deficiency, spinal muscular atrophy and genetic screening. Many of these involve expensive and life-long therapies. On the contrary, many LMIC countries do not have national NBS for common disorders which have been shown to be cost-effective.

Other than blood-spot screening, current neonatal screening also includes simple bedside clinical testing such as pulse oximetry screening for critical congenital heart disease and screening for developmental dysplasia of the hips (DDH). There are challenges in mandating the essential components of the NBS programmes in certain countries. However, FAOPS has a pivotal role as an advocate to the health authorities along with the local Perinatal Society to ensure that this crucial public health initiative is implemented in many LMIC countries.

Comparison Between Caffeine & Aminophylline For The Treatment Of Apnea Of Prematurity; First Randomized Controlled Trial in Bangladesh.

Authors: Dr. Israt Jahan Zerin
Prof. Dr. M Monir Hossain
Prof. Dr. Mahfuza Shirin
Prof. Dr. Mahbubul Hoque

Background: Apnea of prematurity (AOP) is a significant issue in preterm neonates often treated with Methylxanthines like Aminophylline & Caffeine. However, Caffeine's use as a first-line therapy in our country is not yet stablished.

Objective: To evaluate the efficacy of caffeine in comparison with aminophylline in neonates less than 34 weeks of gestational age suffering from apnea of prematurity.

Methods: A randomized controlled trial was conducted at Bangladesh Shishu Hospital & Institute in Dhaka, Bangladesh, involving 35 neonates with apnea of prematurity. After enrollment they were randomly assigned into two groups, each with 35 neonates. Group-A received IV aminophylline and group-B received oral caffeine citrate as per standard dosage protocol.. The study compared the frequency of recurrent apnea, apnea resolution period, duration of xanthine therapy, CPAP requirement, and side effects of drugs between two groups. The results were analyzed using Student t-test and chi square.

Results: The study found that neonates on caffeine citrate had fewer apneic episodes and shorter resolving times ($p<0.05$). The duration of NICU and hospital stay was significantly shorter in the caffeine group ($p<0.05$). However, the aminophylline group had longer total oxygen requirement and CPAP durations. Tachycardia & feeding intolerance were also relatively higher in aminophylline group.

Conclusion: Oral caffeine is more effective than intravenous aminophylline in reducing apnea of prematurity in neonates, with a lower risk of major adverse effects and has a better long-term cost-effectiveness ratio.

Key words- Aminophylline, Caffeine, Apnea of prematurity (AOP)

Circulating circRNA Levels are Associated with Postpartum Depressive Symptoms

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Abstract

Background：The study aimed to investigate the changes in human plasma levels of circular RNA (circRNA) among women with postpartum depressive symptoms (PPDS) and to evaluate its potential as an adjunctive biomarker for the diagnosis of postpartum depression (PPD).

Methods: Women examined 42 days postpartum were recruited from two medical centers from June 2024 to December 2024, Relevant information along with plasma samples were collected. A discovery cohort (n = 3 with PPD, n = 3 controls), established using Structured Clinical Interview, underwent plasma circRNA microarray analysis. A validation cohort (n = 50 with PPDS, n = 50 controls) was subsequently established, in which candidate circRNAs and five major depressive disorder (MDD) - associated circRNAs were quantified using quantitative polymerase chain reaction (qPCR).

Results: Plasma levels of circIFNGR2, circABCC5 and circATF7IP were significantly up-regulated in the PPDS group, circDYM were were significantly down-regulated ($p < 0.05$). The diagnostic performance (The area under the curve (AUC) [sensitivity, specificity]) of the four circRNAs - circIFNGR2, circABCC5, circDYM, and circATF7IP were 0.616 [28%, 96%], 0.646 [36%, 96%], 0.688 [54%, 84%], and 0.651 [62%, 72%], respectively. Logistic regression analysis revealed that circIFNGR2, circABCC5 and circDYM were relative independent fisk factors, and their joint diagnostic ability was 0.771 [88%, 58%].

Conclusion: Changes in circIFNGR2, circABCC5, circDYM, and circATF7IP levels indicate their potential as adjunctive diagnostic biomarkers. It further opens up a new direction for the study of biomolecular mechanisms and innovative treatment of PPD.

Keywords: postpartum depression, postpartum depressive symptoms, circ RNAs, plasma, biomarker

WEARABLES IN PREGNANCY FOR ADVANCING PERINATAL CARE

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Wearable technologies are transforming maternal and perinatal healthcare through continuous, non-invasive monitoring. Smartwatches, biosensors, and continuous glucose monitoring (CGM) devices enable early detection of hypertension, gestational diabetes mellitus (GDM), and preterm labour, supporting more timely and personalized interventions.

Findings from our studies in Singapore highlight CGM's superiority over self-monitoring of blood glucose (SMBG) in capturing glycaemic variability and dysglycaemia, with potential benefits for maternal and neonatal outcomes. Early pregnancy glycaemic variability predicted subsequent GDM, while first-trimester mean glucose levels were strongly associated with higher infant birthweight, outperforming mid-pregnancy OGTT. However, CGM feedback alone did not lower GDM incidence without structured education, and systematic discrepancies between devices underscore the need for calibration and standardization.

Integrating CGM and other wearable-derived data with structured education, artificial intelligence, and digital biomarkers offers a predictive, preventive, and participatory model of perinatal care. By bridging technology, clinical practice, and patient empowerment, wearables can enhance safety, reduce disparities, and improve outcomes for mothers and newborns.

Latent classes and risk factors of postpartum depression symptoms in Chinese women: a cross-sectional study

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Abstract

Background：To explore the latent classes and risk factors for postpartum depression (PPD) symptoms and develop targeted interventions.

Methods: A cross-sectional study conducted among 1323 women at 42 days postpartum. The Edinburgh Postnatal Depression Scale (EPDS), Social Support Rating Scale (SSRS) and Pittsburgh Sleep Quality Index (PSQI) were used to evaluate PPD symptoms, social support and sleep quality. Relevant sociodemographic information and clinical information were also collected. Latent profile analysis (LPA), multinomial logistic regression analysis and structural equation modeling (SEM) were used to data analyses.

Results: Three latent classes (Class 1/2/3) were identified: 'low symptomatic group without self-injury tendency', 'anxiety group without self-injurious tendencies', 'high symptomatic group with self-injury tendency'. Women who experience stressful events during pregnancy, have an average evaluation of their life circumstances and marital status, are not good at confiding in or seeking help, have blood type B ,and poorer social support and sleep quality are more likely to fall into Class 2 and 3. Women who also had thoughts of self-harm, moderate to severe depressive symptoms, a history of anxiety and depression are increased the likelihood of belonging to Class 3. Mediation analysis revealed that sleep quality significantly mediated the relationship between social support and PPD accounting for 46.2% of the total effect.

Conclusion: This study identifies three latent classes of PPD and describes risk factors in detail. Targeted interventions for different risk factors can better reduce the incidence of PPD and safeguard women's mental health.

Keywords: postpartum depression, *latent pr*ofile analysis, risk factors, structural equation model.

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