

## EDITORIAL

# World Prematurity Day: improving survival and quality of life for millions of babies born preterm around the world

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### WORLD PREMATURETY DAY

The World Prematurity Day, on 17th November, is the annual celebration to give a voice to millions of preterm babies and their families all over the world. It represents a key moment to focus global attention on the leading cause of death in children under 5 years of age, complications from preterm birth, and the impact preterm birth has on individuals, families, and society. The 2020 World Prematurity Day happens at a time of unprecedented challenges for socio-economic and health systems due to the coronavirus 2019 (COVID-19) pandemic. While COVID-19 has limited direct impact on maternal and neonatal health, country data and modeling indicate that the pandemic threatens to reverse the recent gains in reproductive, maternal, newborn, and child health outcomes in the poorest countries due to indirect effects (8), thus making reaching the Sustainable Development Goals (SDGs), and especially fulfilling the pledges on improving universal health coverage, quality, and equity, particularly challenging.

Preterm birth is a childbirth occurring at less than 37 completed weeks (3). Every year, an estimated 15 million babies are born preterm (3, 4). That is more than 1 in 10 live births (4). Approximately 1 million children die each year due to complications of preterm birth (18). Many survivors face a lifetime of ill-health including disability, learning difficulties, visual and hearing problems, and noncommunicable diseases in later life.

Globally, prematurity is the leading cause of death in children under the age of 5 years and is a risk factor in more than half of all neonatal deaths (2). The number of deaths include ~909,000 in the neonatal period and more than 100,000 after the neonatal period, often after long hospital stays (25). In addition to direct complications of prematurity, such as respiratory and nutrition complications, preterm newborns are at higher risk of death due to other causes, especially infections.

Inequalities in survival rates around the world are significant. In low-income settings, half of the babies born at or below 32 weeks (2 months early) die due to a lack of feasible, cost-effective care, such as warmth, breastfeeding support, and basic care for infections and breathing difficulties. In high-income countries, almost all these babies survive. Suboptimal use of technology in middle-income settings is causing an increased burden of disability among preterm babies who survive the neonatal period.

Initiated in 2008 by the European Foundation for the Care of Newborn Infants (EFCNI) and partnering European parent organizations, to improve the situation of preterm babies in Europe, the

World Prematurity Day in few years, with the contribution of international cofounders LittleBigSouls (Africa), March of Dimes (United States), and National Preemie Foundation (Australia) became a global movement. The year 2012 was critical to bring attention to preterm birth. In the same year, the first World Health Organization (WHO) national estimates of preterm birth were published in *Lancet* (3); WHO and partners—the Partnership for Maternal, Newborn & Child Health, Save the Children, and the March of Dimes—published *Born Too Soon: The Global Action Report on Preterm Birth* that included strategies for addressing the burden in low-income settings (2); and the World Prematurity Day mobilized parents and media attention in over 60 countries (5). The following year the World Prematurity Day reached an estimated 1.5 billion people with events, messages, and stories shared by parents and stakeholders through Facebook, Twitter, and blogs (11). All of these efforts led to the development of the *Every Newborn: An Action Plan to End Preventable Deaths* (ENAP), endorsed in 2014 by WHO Member States at the World Health Assembly (23).

ENAP aligns with the Sustainable Development Goals target 3.2 and the *Every Woman, Every Child Global Strategy for Women's, Children's and Adolescents' Health 2016–2030* (15). It provides coordination and strategic directions to end preventable newborn mortality and stillbirths catalyzing efforts of global and national partners in key global goods. For example, in 2019, WHO and UNICEF published *Survive and Thrive: Transforming Care for Every Small and Sick Newborn*. This report highlights how countries can strengthen care to support babies born too small or too soon, including through increased investment, round the clock care for newborns, and better partnership with families (25). The Every Newborn Tracking Tool, initially applied to the 20 countries having highest neonatal mortality rates, was used in 90 countries in 2019 providing relevant monitoring information for the annual Every Newborn Action Plan Progress Report (22). Since the adoption of the World Health Assembly resolution, 84 countries have developed national newborn action plans or strengthened the relevant components within existing plans for reproductive, maternal, and child health and are scaling-up health policies and services to increase survival and reduce disability among the newborns, including those born too soon (22).

### UNDERSTANDING THE BURDEN FOR BETTER ACTION

While preterm birth is a worldwide problem, the burden of preterm birth, death, and disability is concentrated in low- and middle-income countries. Latest estimates show that preterm births during 2014 ranged from 8.7% in the European region to 13.4%

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in North Africa, with a variation between 5% and 18% across 184 countries (4). Asian and sub-Saharan African countries accounted for 78.9% of livebirths and 81.1% of global preterm births in 2014 (4). Countries with the largest numbers of preterm births include India, China, Nigeria, Pakistan, and United States, demonstrating that preterm birth is a problem in all settings. However, highest rates of preterm birth are found in less developed countries and within countries, poorer families are at higher risk.

Of 65 countries with reliable trend data, all but three show an increase in preterm birth rates over the past 20 years (4). This may be due to better measurement, higher maternal age, and underlying conditions such as diabetes and high blood pressure, greater use of infertility treatments leading to increased rates of multiple pregnancies, and changes in obstetric practices.

Most preterm births happen spontaneously, but some are due to early induction of labor or caesarean birth, whether for medical or nonmedical reasons. Common causes of preterm birth include multiple pregnancies, infections, and chronic conditions such as diabetes and high blood pressure; however, often no cause is identified. Adolescent pregnancy, poor social and nutrition conditions, and domestic violence are also associated with higher risk of preterm birth. There could also be a genetic influence. Better understanding of the causes and mechanisms will advance the development of solutions to prevent preterm birth.

There are subcategories of preterm birth, based on gestational age, with risk of death, morbidity, and disability proportionate to the level of prematurity: moderate to late preterm (32 to 37 weeks), very preterm (28 to 32 weeks), and extremely preterm (less than 28 weeks). But survival of premature babies depends heavily on where they are born and the capacity of the health system to respond to their needs. For example, more than 90% of extremely preterm babies (less than 28 weeks) born in low-income countries die within the first few days of life; yet less than 10% of extremely preterm babies die in high-income settings.

Similar to survival, there are important differences in impairment by prematurity level that depend on health system capacity in different countries. In high-income countries, only extremely preterm babies may have some forms of impairment, while in low- and middle-income countries a large number of moderately preterm newborns survive with disability due to suboptimal quality of care and challenges in access and use of technology for care, rehabilitation, and support (7). This has an important impact not only on the individuals born preterm all along their lives, but also on their families and the society.

Prevention of preterm birth is a global research priority, but limited success has been achieved to date. Research is ongoing to find genomic, transcriptomic, proteomic, immunologic, and metabolomic markers of preterm birth early in pregnancy, and to improve gestational age assessment. Research is also ongoing to improve and scale up interventions like antenatal corticosteroids for early and late preterm birth, Kangaroo Mother Care (KMC) including KMC initiated soon after birth even for unstable babies and community-initiated KMC for bigger, stable babies, continuous positive airway pressure (CPAP), and low-cost and easy to use lung surfactant in low- and middle-income countries.

#### **ACCESS TO QUALITY MATERNAL AND NEWBORN CARE BRINGS HOPE TO MILLIONS OF PRETERM BABIES**

Infant mortality, morbidity, and future disability due to preterm birth can be reduced through interventions delivered to the

mother before and during pregnancy, or to the preterm infant after birth. There are opportunities to prevent preterm birth, especially in low-income settings through family planning (especially by delaying first pregnancy beyond 18 years or avoiding pregnancy after 35 years), and better pregnancy care. Key interventions to help prevent preterm birth include: counseling on healthy diet and optimal nutrition, and tobacco and substance use; fetal measurements including use of ultrasound to help determine gestational age and detect multiple pregnancies; and a minimum of eight contacts with health professionals throughout pregnancy to identify and manage risk factors, like infection in pregnancy (19). Continuity of midwifery-led care in settings where there are effective midwifery services has been shown to reduce the risk of prematurity by around 24% (9).

Survival and health outcomes of preterm newborns can be enhanced by increasing access to interventions provided to the mother shortly before or during birth—for example steroid injections before birth, antibiotics when her water breaks before the onset of labor, and magnesium sulfate to prevent future neurological impairment of the child—as well as interventions for the newborn baby—for example thermal care, feeding support, Kangaroo Mother Care and if required respiratory support (20). These newborn interventions complemented by infection prevention and treatment could avert up to half of preterm deaths and reduce disability. More than 90% of preterm deaths would be avoided with special and intensive newborn care, including respiratory support such as CPAP (2).

Organization of care is equally important, not only for saving lives but especially for achieving better quality of survival and better experience of care for the infants and their families. The quality of care, including providing a development supportive caring environment and ensuring participation of parents in the care of their preterm infant as early as possible, has long-life impact on infant health and development, on family experience of care, and infant parent attachment. Person-centered models of care, such as nonseparation immediately after birth and during the care process [e.g., Mother-neonatal intensive care units (NICU), family-integrated care, and Kangaroo Mother Care], are very promising and can address the complex needs of the preterm newborn, family, and health system (25).

#### **CHALLENGES TO REACH UNIVERSAL HEALTH COVERAGE WITH QUALITY EQUITY AND DIGNITY WITHIN A DECADE**

Despite global progress, in some countries there is still limited understanding of the burden of preterm birth and how to tackle it. While the coverage of antenatal care and skilled care at birth have increased, the quality of essential newborn care is often suboptimal and a considerable proportion of preterm newborns requiring inpatient care receive poor quality of care or no care at all (20). Poor-quality care is now a bigger barrier to reducing mortality than insufficient access (6); it impacts on mortality, morbidity, growth and brain development; and affects parents' experience of care for themselves and their baby. Common challenges to ensure quality of neonatal services in low- and middle-income countries include lack of infrastructure, medicines and supplies, insufficient number of skilled health providers, and limited family involvement in the care of the baby (25).

The importance of effective interaction with preterm newborns and their families, including dignity and respect during contact care, and the value of parental participation for better

outcomes is often not recognized. In addition, health systems in low- and middle-income countries are poorly prepared to provide emotional and psychological support to the parents of preterm infants. Finally, cultural beliefs and cost of care contribute to limited demand for better services in less developed countries.

#### PREMATURITY AND THE CORONAVIRUS DISEASE 2019 PANDEMIC

The coronavirus disease pandemic represents an additional challenge to address the needs of preterm newborns and their families. So far there is uncertainty on possible increased risk of negative maternal or neonatal outcomes, with some cases of pre-labor rupture of membranes, fetal distress, and preterm birth reported and there is no clear evidence of risk of vertical transmission and no evidence of transmission through breastfeeding (14). The few cases of newborns confirmed COVID-19 positive all had mild or no symptoms (14). However, the pandemic is creating significant disruption of supply and demand of maternal and neonatal health services and economic barriers for families to access the available services.

In addition, concerns about the potential infection risk to patients and health care providers, and the exacerbation due to substandard availability of tests and personal protective equipment has led to measures that are in contradiction with the recommended standards of care for preterm newborns (1). These measures have included discouraging skin-to-skin contact and breastfeeding for all mothers and separating newborn infants from their mothers or other family members immediately after childbirth and during inpatient care.

WHO is responding by coordinating a COVID-19 research network to better understand transmission and clinical characterization of the disease in pregnant women, newborns, and children, preparing situation reports, developing risk benefit models on strategies to mitigate disruption of services, reviewing the evidence, and providing guidance and support to countries to put in place mitigation strategies and maintain essential services for pregnant women and newborns, with the principle that every newborn deserves evidence-based care in a nurturing environment, to be protected from the risk of COVID-19 and to be cared for in a hygienic and well-staffed facility (14, 16). From the available evidence, the benefits of breastfeeding substantially outweigh the potential risks of COVID-19 transmission. Therefore all mothers, including those with suspected or confirmed COVID-19, should be encouraged to initiate or continue to breastfeed, and should not be separated from their infants unless the mother is too sick to care for her baby; they should be allowed to practice skin-to-skin care and Kangaroo Mother Care and have free access to the neonatal unit if the newborn is preterm and hospitalized, while recommended infection prevention and control measures should be put in place to protect families and health care workers (14). Hospital adaptations to facilitate a reduction of COVID-19 transmission without compromising the quality of neonatal care include ensuring parents are screened for COVID-19 before entering the neonatal unit, limiting the number of caregivers providing Kangaroo Mother Care support to 1–2 persons trained in infection prevention and control with personal protective equipment, developing strategies to enable support to continue KMC at home, and considering early discharge with follow-up of stable preterm and low birth weight infants (16).

Concerned with the adoption of separation policies limiting or prohibiting access of parents to neonatal care units, the

Global Alliance for Newborn Care and EFCNI launched in August 2020 an international campaign “Zero Separation. Together for better care! Keep preterm and sick infants close to their parents,” to support parents of hospitalized newborns and healthcare professionals in neonatal care units with the aim to enable infant and family-centered developmental care in line with COVID-19-precautions (10).

In response to COVID-19 it is critical to follow the best available evidence and provide safer, more respectful care for all, including the youngest, smallest, and most vulnerable members of our society and the healthcare workers who care for them. As demanded by parents, instead of reducing the standards of care, it is important to build better, more inclusive health systems for families worldwide, during the pandemic and beyond.

#### THE WAY FORWARD TO ACHIEVE THE 2030 TARGETS

While substantial progress has been made in newborn health and survival over the past decade, if current trends persist more than 60 countries will not meet the 2030 sustainable development goal target for reducing neonatal mortality (13). Efforts must continue and be intensified in more affected countries, with priority given to strategies to address high burden conditions such as preterm birth.

New ENAP targets and milestones to 2025 and the *Standards for improving the quality of care for small and sick newborns in health facilities* have been launched in September 2020 to guide and support countries in their efforts to improve newborn survival and health and reduce the burden of preterm birth (17, 21). They complement a range of tools and initiatives promoted between 2018 and 2020 by WHO and ENAP partners to accelerate progress in the provision of quality care for women and newborns, including those born preterm. These comprise: the WHO and UNICEF global report *Survive and Thrive: Transforming Care for Every Small and Sick Newborn*, to increase equitable access to quality newborn care services (25); the revised Baby Friendly Hospital Initiative implementation guidance on protecting, promoting, and supporting breastfeeding in facilities providing maternity and newborn care services to provide appropriate nutrition to hospitalized preterm infants (24); the Respectful Maternity Care Charter developed by the Global Respectful Maternity Care Council to promote the rights of women and newborns while receiving maternity care within a healthcare facility (12); the Zero Separation campaign launched by EFCNI and the Global Alliance for Newborn Care (10); and country projects such as NEST and NEST 360 to ensure that basic infrastructure, equipment, and medicines including oxygen and CPAP are put in place and capacity is built to manage technology effectively. All of these initiatives need to be scaled up in parallel with development of health workforce and health information systems to document progress.

By 2030, in order ensure the provision of cost-effective services with quality to improve the situation of preterm newborns and their families the following investments need to be made:

1. Invest in human resources both in numbers as well as in their skills aiming at having multidisciplinary teams with capacity of providing newborn and family-centered services.
2. Invest in basic infrastructure for special care units and Mother-NICUs, one per district in line with ENAP target, including universal access to water and sanitation in health facilities.



3. Provide basic supplies and build on the COVID-19 pandemic to ensure a sustainable oxygen supply and adequate infection prevention and control practices.
4. Improve collection and use of data on preterm birth, care, and outcomes for action.
5. Involve parents and community in the provision of care for preterm newborns and in the design and implementation of solutions to improve the situation of preterm infants and their families.
6. Develop a legal and policy framework to ensure universal access to quality care, follow-up and support to newborns born preterm and their families.

In conclusion, prematurity is a global problem that not only represents the first cause of death in children under 5 years but impacts on the entire life of millions of children and their families. The burden can be greatly reduced with solutions that are within the reach of most countries. Increased attention and investment are needed in the next decade to ensure universal access to quality maternal and newborn care and participation of families in decision making and care for their newborns and ultimately meet the 2030 SDG and ENAP targets of enabling preterm newborns to survive, thrive and enjoy the best attainable standard of health.

#### DISCLOSURES

No conflicts of interest, financial or otherwise, are declared by the authors.

#### AUTHOR CONTRIBUTIONS

O.L. and A.B. drafted manuscript; edited and revised manuscript; and approved final version of manuscript.

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