Published November 2013

Factsheet on Preterm Birth

Photo: Gates Foundation

The scale of the problem

Preterm birth is a significant global burden with 15.1 million babies born before 37 weeks of pregnancy every year across the world, which represents one in ten babies [1]. Of these, 790,400 are born extremely preterm, that is before 28 weeks of pregnancy are completed [2].

Globally, 1.1 million babies die from preterm birth complications every year (2012 estimate) [3]. Babies born too soon are between 6 and 26 times more likely to die during the first four weeks of their lives than babies born at term [4]. Preterm birth complications account for a third (34%) of all the world's 2.9 million newborn deaths worldwide, which makes prematurity the leading direct cause of newborn mortality [5].

Despite declining global rates, newborn deaths represent a growing proportion of all under-five deaths [5]. This highlights that progress has been slower in tackling mortality in the first four weeks of life (neonatal period) as opposed to mortality in babies and children over one-month old.

In addition, preterm survivors often suffer from lifelong disabilities, such as visual and hearing impairments, chronic lung disease, long term cardiovascular ill-health, learning and behavioural impairments[1]. Prematurity therefore has a far-reaching impact on their development and on their health as children and adults.

Recent research has also revealed that boys are 14% more likely to be born preterm than girls, and at any specified gestational age, boys are more likely to experience death or disability than a girl of the same gestation [6]. However, after the first month of life, in some societies where girls receive less nutrition and medical care, the girls are more likely to die than boys, despite this biological survival advantage for girls [6].

A survival gap

Although prematurity is a global burden, there are significant disparities between regions and countries. Babies 28-32 weeks of gestation are twice more likely to grow-up disabled in middle-income countries than in high-income countries. The risk of dying from preterm birth complications is 10 times greater for babies born too soon in low-income countries than for those born in high income countries [6].

Together with South Asia, the sub-Saharan African region accounts for over 80% of all deaths caused by premature birth complications (2010 estimate) [1].

Mortality rates for babies born too soon are improving by only 1% per year in Africa [1]. This means that there is significant scope for improving preterm babies' survival chances in the region.

Published November 2013

Why are babies born too soon?

Most preterm births occur spontaneously, although in few cases preterm delivery can be initiated by the health provider if the mother or baby's condition requires this (for example, poorly controlled hypertension in pregnancy). Spontaneous preterm birth can be related to multiple causes and risk factors which include (adapted from [1]):

- Pregnancy in women who are younger than 19 years or older than 35 years
- Insufficient spacing between pregnancies (less than six months of being pregnant or having a live birth)
- Nutritional factors in pregnancy (obesity, undernutrition or malnutrition)
- Maternal infections (including HIV and malaria)
- Chronic maternal conditions (such as diabetes, anaemia, high blood pressure, uncontrolled diabetes)
- Genetic factors and a maternal history of preterm birth
- Multiple pregnancy (expecting twins or triplets)
- Maternal psychological health (including as a result of domestic and gender-based violence)
- Lifestyle factors (e.g. smoking, excess of alcohol)
- Sometimes, no reasons are apparent

Why do babies born too soon die?

Babies born too soon are likely to die for three main reasons (adapted from [1]):

- They are more vulnerable to severe infections and more likely to die if they contract an infection.
- They are more likely to have difficulties feeding because the suck and swallow reflex is not developed until 34 weeks of gestation, and often need help to feed. They are also at risk of aspiration before they are 34 weeks old, as well as being at risk of low blood sugars which increases their risk of death.
- They are more likely to have difficulties breathing – respiratory distress syndrome, RDS - as their lungs are not fully developed, and often need help breathing. Most babies born before 32 weeks gestation will develop RDS.
- Additionally, preterm babies have trouble keeping warm and they are at higher risk of developing life-threatening complications such as infections or breathing difficulties.

What can be done?

Seventy-five countries account for 95% of all maternal and child deaths [7]. There are low-tech interventions that can save the lives of babies born too early if delivered by a **skilled health worker**, as shown in the table below [1]. If these interventions were made universally accessible (where 95% of all people who needed the interventions could access them), in these countries, more than 8 of every 10 babies (84%) of babies could be saved by 2025 [8].

Intervention reaching universal 95% coverage	Description of intervention delivered by a skilled health worker	Lives saved of preterm babies by 2025	
		%	Number
Kangaroo mother care	Preterm babies are at greater risk of hypothermia which can lead to the complications described above, and for preterm babies of respiratory distress syndrome. Kangaroo mother care is where the baby is put in early, prolonged and continuous direct skin-to-skin contact with her mother or another family member to provide stable warmth and to encourage frequent and exclusive breastfeeding. This is initiated in a facility with support from a skilled health worker and includes early detection and management of complications.	48%	531,000
Antenatal corticosteroids	Administration of antenatal corticosteroids (betamethasone and dexamethasone) to women at risk of preterm birth can reduce the risk of complications associated with preterm birth, including respiratory distress syndrome (by 34%), intraventricular haemorrhage (by 46%) (in the brain) and of death (by 31%).	41%	444,000
Family planning (coverage to 60% or to a level where the total fertility rate is 2.5)	Access to family planning advice (including information on exclusive breastfeeding which can enhance efficacy of modern contraceptives by double) is important to avert preterm births which are more common among: • adolescent women 19 years or younger • women who have very closely spaced pregnancies within six months of a previous pregnancy or live birth - optimum birth spacing is 18 – 24 months apart • women who do not intend to become pregnant	32%	345,000
Thermal care	All babies are at risk of low body temperature (hypothermia) which leads to increased risk of infections, death. Simple methods to maintain a baby's temperature after birth include drying and wrapping, increased environmental temperature, covering the baby's head (e.g., with a knitted cap), skin-to-skin contact with the mother and covering both with a blanket; delayed bathing.	16%	171,000
Antibiotics for premature rupture of the membranes (pROM)	Premature rupture of the membranes is strongly associated with infection of the amniotic membranes contributing to preterm birth and other poor foetal outcomes such as cerebral palsy and chronic lung disease. Antibiotic treatment for pPROM has been shown to delay onset of labour for up to 48 hours and to reduce neonatal infections.	9%	101,000
Immediate assessment and simple care of all babies	Includes delayed cord clamping, clean cord cutting and early breastfeeding of babies, and early detection of problems, referral of complications of prematurity and serious infections.	5%	53,000
Basic neonatal resuscitation	Between 5-10% of all newborns and a greater proportion of preterm babies need support with breathing at birth. Basic resuscitation using a bag-and-mask or mouth-to-mask will save 4 out of 5 babies who need basic resuscitation without intensive care.	7%	77,000
Total if all implemented together		**84%**	**921,000**

Many other interventions reduce the risk of preterm birth and mortality from preterm birth can be administered across the continuum of care, i.e. before and between pregnancies, during pregnancy and childbirth, and after preterm delivery.

Care before and between pregnancy for the prevention of preterm birth	For all women	Prevent pregnancy in adolescence through holistic programmes Family planning to prevent unintended pregnancies and promote optimal birth spacing (see above) Address underweight and overweight in mothers to be Promote nutritional health including through supplementation/fortification of essential foods with micronutrients Promote vaccination of children and adolescents (for e.g. against rubella virus) to prevent transmission to mothers to be
	For at-risk women	Screen for, diagnose and manage mental health disorders and prevent intimate partner violence Prevent and treat sexually transmitted infections including HIV Promote cessation of tobacco use and restrict exposure to second-hand smoke Screen for, diagnose and manage chronic diseases (e.g. diabetes, hypertension, cardiovascular disease)
Care during pregnancy and childbirth for prevention of preterm birth and improvement of health outcomes in the newborn	Antenatal care services for all pregnant women	Basic package of antenatal care services delivered by a skilled birth provider Situational interventions for e.g. identification and treatment of malaria, tuberculosis, HIV Additional behavioural, social support, financial and nutritional interventions as needed
	Management of women at higher risk of preterm birth	Identification and treatment of hypertensive disease in pregnancy Monitoring multiple pregnancies Administration of progesterone to prolong pregnancy Identification and treatment of structural abnormalities for e.g. cervical cerclage, cervical pessary
	Management of women in preterm labour to improve life chances of the baby	Antenatal corticosteroids to reduce mortality in the newborn Tocolytic drugs (such as calcium channel blockers) to slow down labour Antibiotics for premature prolonged rupture of membrane (Pprom) to prevent infections in the baby Administration of magnesium sulphate to protect the baby's brain
	Community interventions	Promote antenatal and skilled delivery care for all women Smoking cessation and reducing exposure to secondhand smoke and other pollutants
	Policy interventions	Policies to support safe motherhood and universal access to antenatal care Workplace policies regulating working hours and strenuous working conditions Professional and hospital policies to regulate infertility treatments and to reduce caesarean birth rates and early induction of labour

Care of the premature baby for improving premature babies' survival chances and health outcomes	Essential and extra newborn care	• Basic thermal care through simple methods • Feeding support through early initiative of breastfeeding, extra support for feeding (e.g. cups, spoons, gastric tubes, etc.) , support to the mother in expressing milk and other simple actions. • Preventing infection in the baby through clean birth practices (e.g. hand cleansing, hand washing, maintaining a clean environment, clean birth kits for use at home), appropriate timing for cord clamping and chlorhexidine for cord care, special skin care.
	Neonatal resuscitation	• This includes basic resuscitation (bag-and-mask, mouth-to-mask) and more complex procedures such as endotracheal intubation
	Kangaroo mother care	• Early, prolonged, skin-to-skin contact with the baby from a health worker and includes early detection and management of complications**.** (see above for more details)
	Special care of premature babies with complications and phased scale up of neonatal intensive care	• This includes caring for babies with signs of infection, jaundice or respiratory distress syndrome (continuous positive air pressure, safe oxygen management)

Key policy level recommendations

- Full coverage (95%) of key interventions (family planning; antenatal corticosteroids; antibiotics for pPRoM; immediate assessment and simple care of newborns; neonatal resuscitation; thermal care; KMC) should be achieved in order to save more preterm babies' lives, especially in low-income settings. A Life Saved Tool analysis undertaken showed that universal coverage of these interventions implemented together could save 84% of preterm babies by 2025, which represents above 921,000 lives [1].
- Reducing neonatal deaths, including those resulting from preterm birth complications, relies on skilled human resources more than technology [9]. In this respect, skilled human resources for health at birth are critical to improve preterm babies' survival chances. Efforts to increase coverage of skilled birth attendants should be strengthened in low-income settings, alongside other efforts to invest in care at birth [10]. Training to build health workers' skills in areas critical to preterm babies' survival (e.g. resuscitation, KMC, breastfeeding support) should also be provided [1].
- Country-level data collection on the burden of prematurity and mortality in preterm babies needs to be improved in order to increase visibility of the issue and inform evidence-based interventions.
- Efforts to prevent preterm birth should be strengthened. This involves, for example, scaling up proven and essential interventions (family planning, nutrition, vaccination, STI screening), and developing a checklist of risk factors to identify at-risk pregnant women [1].
- Additional research needs to be undertaken to improve our understanding of the causes of preterm birth and how to prevent it [11].
- Because saving improving survival from preterm births requires support from skilled health providers, we need more systems research as well as research about quality of care. For example, we need to know more about the skills of a *skilled provider*, and we need to know more about the policy environment for health workers, their supervision, remuneration, attrition.
- Addressing the three delays in seeking, reaching and receiving adequate emergency obstetric and newborn care is key in reducing the risk of mortality in preterm babies. Efforts to foster equitable and effective referral should be strengthened, in order to respond adequately and in a timely manner to preterm birth complications which cannot be addressed in the community [12].

- Many countries where neonatal mortality (including in preterm babies) is high do not have a neonatal health strategy; political commitment must be generated and evidence-based policies need to be developed focusing on improving newborn survival [9].

Key Reading – guidance and tools

Click on the links included below to read more guidance on:

- Kangaroo Mother Care – a practical guide World Health Organization (2003)
- Guidelines on basic newborn resuscitation World Health Organization (2012)
- Managing newborn problems: a guide for doctors, nurses and midwives World Health Organization (2003)
- Essential newborn care course World Health Organization (2010)
- New signal functions to measure the ability of health facilities to provide routine and emergency newborn care Dr Sabine Gabrysch et al. (2012)
- Measuring newborn foot length to identify babies in need of extra care Dr Tanya Marchant et al. (2010)

References

[1] March of Dimes, PMNCH, Save the Children, WHO (2012) "Born Too Soon: the global action report on preterm births", Geneva: WHO

[2] Blencowe H, et al. (2012) "National, regional and worldwide estimates of preterm birth in the year 2010 with time trends since 1990 for selected countries: a systematic analysis and implications", The Lancet, 379:9832, pp 2162-72

[3] Calculation based on Liu L, et al 2012) "Global, regional, and national causes of child mortality in 2000–2010: an updated systematic analysis", The Lancet, 379:9832, pp2151-61.

[4] Katz J, et. al (2013) "Mortality risk in preterm and small-for-gestational-age infants in low-income and middle-income countries: a pooled country analysis", Lancet, Vol 382:9890, pp 417-25

[5] UNICEF (2013) "Committing to child survival: a promise renewed", New York: UNICEF

[6] Blencowe H, et al. (2013) "Preterm birth associated neurodevelopmental impairment estimates at regional and global level for 2010", Pediatric Research 2013 (in press). Applied to 2012 livebirths.

[7] Countdown to 2015 is a collaboration that uses country-specific data to measure country progress towards achieving the health-related Millennium Development Goals (MDGs). Countdown tracks progress in the 75 countries where more than 95% of all maternal and child deaths occur, including the 49 lowest-income countries.

[8] LiST: The Lives Saved Tool.(2010) An evidence-based tool for estimating intervention impact.

[9] Knippenberg R et al. (2005) "Systematic scaling up of neonatal care in countries", The Lancet, Vol 365:9464,pp 1087-1098.

[10] Lawn J.E. et al (2010), "3.6 Million Neonatal Deaths – What is progressing and what is not?", The Lancet, Vol 34:6, pp 371-386.

[11] Chang HH, et al. (2012) "Preventing preterm births: analysis of trends and potential reductions with interventions in 39 countries with very high human development index", The Lancet, Vol 381:9862, pp 223-234

[12] George, A. Et al (2011) "Setting implementation research priorities to reduce preterm births and stillbirths at the community level". PLoS medicine, 8(1)