

Global Nutrition Targets 2025

Low Birth Weight Policy Brief**TARGET:**

**30% reduction in
low birth weight**



Gates/Frederic Coubert

WHAT'S AT STAKE

In 2012, the World Health Assembly Resolution 65.6 endorsed a *Comprehensive implementation plan on maternal, infant and young child nutrition* (1), which specified six global nutrition targets for 2025 (2). This policy brief covers the third target: **a 30% reduction in low birth weight**. The purpose of this policy brief is to increase attention to, investment in, and action for a set of cost-effective interventions and policies that can help Member States and their partners in reducing rates of low birth weight.

Low birth weight is defined by the World Health Organization (WHO) as weight at birth less than 2500 g (5.5 lb). Low birth weight continues to be a significant public health problem globally and is associated with a range of both short- and long-term consequences. Overall, it is estimated that 15% to 20% of all births worldwide are low birth weight, representing more than 20 million births a year. The goal is to achieve a 30% reduction in the number of infants born with a weight lower than 2500 g by the year 2025 (1). This would translate into a 3% relative reduction per year between 2012 and 2025 and a reduction from approximately 20 million to about 14 million infants with low weight at birth.

Preterm birth is the most common direct cause of neonatal mortality (3). Every year, 1.1 million babies die from complications of preterm birth. Low birth weight is not only a major predictor of prenatal mortality and

morbidity, but recent studies have found that low birth weight also increases the risk for noncommunicable diseases such as diabetes and cardiovascular disease later in life (4, 5).

There is considerable variation in the prevalence of low birth weight across regions and within countries; however, the great majority of low-birth-weight births occur in low- and middle-income countries and especially in the most vulnerable populations (6, 7). Regional estimates of low birth weight include 28% in south Asia, 13% in sub-Saharan Africa and 9% in Latin America (see Table 1). It is worth noting that these rates are high, in spite of the fact that the data on low birth weight remain limited or unreliable, as many deliveries occur in homes or small health clinics and are not reported in official figures, which may result in an underestimation of the prevalence of low birth weight.

TABLE 1. DATA FOR LOW BIRTH WEIGHT^{a, b}

Region ^a	% of infants with low birth weight ^b	% of infants not weighed at birth ^b
Sub-Saharan Africa	13	54
Eastern and southern Africa	11	46
West and central Africa	14	60
Middle East and north Africa	—	—
South Asia	28	66
East Asia and Pacific	6	22
Latin America and Caribbean	9	10
Least developed countries	13	46
World	15	48^c

^aClassification of countries according to the United Nations Statistical Division (8).

^bRegional aggregates are presented where adequate population coverage is present, based on available data 2008–2012.

^cExcludes China (United Nations Children's Fund [UNICEF] estimate, as of February 2014) (9).

Source: UNICEF data (2014). Nutrition: low birth weight (9).

Nevertheless, low birth weight is a global concern, as some high-income countries are also faced with high rates for their contexts (e.g. Spain, the United Kingdom of Great Britain and Northern Ireland [UK] and the United States of America [USA]) (3). Currently, a high percentage of infants are not weighed at birth, especially in low-income countries, presenting a significant policy challenge (see Table 1). There is also substantial intra-country variation. Population groups in the highest socioeconomic positions are more likely to receive adequate health care with care standards similar to those in high-income countries. Therefore, identifying populations at greatest risk of low birth weight, as well as those that are most likely to face barriers in access to health and nutrition interventions, is a global priority and fundamental for the success of large-scale programmes.

There are multiple causes of low birth weight, including early induction of labour or caesarean birth (for medical or non-medical reasons), multiple pregnancies, infections and chronic conditions such as diabetes and high blood

pressure (5). The consequences of low birth weight include fetal and neonatal mortality and morbidity, poor cognitive development and an increased risk of chronic diseases later in life (4). This policy brief aims to highlight effective actions to reduce the incidence of low birth weight.

THE MULTIFACTORIAL NATURE OF LOW BIRTH WEIGHT AND ITS IMPLICATIONS

Low birth weight is complex and includes preterm neonates (born before 37 weeks of gestation), small for gestational age neonates at term and the overlap between these two situations – preterm, small for gestational age neonates, who typically have the worst outcomes. These three groups have their own subgroups, with individual components linked to different causative factors and long-term effects, and distributions across populations that depend on the prevalence of the underlying causal factors (4, 10, 11). Understanding and differentiating the various categories and their subgroups is an essential first step in preventing these conditions (12–14).

It has been reported that preterm small for gestational age birth is associated with medical conditions related to chronic hypertension and pre-eclampsia/eclampsia (15). The presentation of pre-eclampsia highlights the complex interactions that exist between nutrition, preterm birth and small for gestational age. Pre-eclampsia, which only occurs in pregnancy, is associated with both preterm birth (spontaneous or induced due to severe disease) and small for gestational age, owing to reduced placental function, which includes poorer transfer of nutrients to the fetus. The mother's nutritional status also alters her risk of pre-eclampsia. Based on the results of a large trial conducted by the WHO, which has been confirmed by several systematic reviews, calcium supplementation during pregnancy for women with low calcium intake has been identified as one of the effective nutritional interventions because it reduces the incidence of pre-eclampsia and may also reduce the rate of preterm births (16,17).

Large-scale implementation of calcium supplementation during pregnancy is an example of the type of effective nutritional intervention that needs to be introduced immediately in populations with low calcium intakes (16). Reducing the incidence of low birth weight requires a comprehensive global strategy, which must include multiple elements: improving maternal nutritional status; treating pregnancy-associated conditions such as pre-eclampsia; and providing adequate maternal care, perinatal clinical services and social support.

ACTIONS TO DRIVE PROGRESS IN REDUCING LOW BIRTH WEIGHT

Affordable, accessible and appropriate health care is critical for preventing and treating low birth weight. Reductions in neonatal morbidity and mortality will only be achieved if pregnancy care is fully integrated with appropriate neonatal and post-neonatal medical and nutritional care for preterm and small for gestational age infants. Evidence is growing on recommendations for nutritional and medical care for high-risk infants (see Box 1) (18, 19).

Besides improved access to and quality of care, other determinants of low birth weight have to be addressed (28, 29). Culturally appropriate care and gender-sensitive interventions are essential to reach women who face greater barriers in access to health care. The implementation of evidence-informed interventions to tackle low birth weight will be more effective and have a greater impact on health equity if implementation is fuelled by collaboration among programmes and sectors. All programmes should be cognisant of the beliefs and preferences of women with respect to their health, the unbalanced gender relations and power distribution between women and men, and the inequalities between groups of women with respect to race, ethnicity and residential segregation (28–32).

The scale-up of interventions should be a rigorous and evidence-based process, whether it is the expansion of a pilot or small project, or the intensification and enlargement of a major programme. Scaling up should imply deliberate efforts to increase the impact of successfully tested innovations (33), so that more populations can benefit from these impacts.



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Box 1: Evidence-informed interventions to prevent low birth weight, its components (preterm birth and small for gestational age) and their associated morbidity and mortality, with emphasis on community settings (22–25)

Interventions at country/regional level

- Support for women’s empowerment and educational attainment
- Social protection systems (e.g. cash-transfer programmes) for improving health-care visits
- Food-distribution systems for subpopulations at risk of food insecurity
- Improvement of clean and adequate water, sanitation and hygiene
- Support for national salt-iodization programmes, to ensure that salt consumed by households is adequately iodized (for which there are new guidelines harmonizing iodine levels with reductions in salt consumption (26))
- Improvement in facility-based perinatal care in regions with low coverage
- Universal simplified perinatal data-collection system with electronic feedback systems

Interventions at community level

- Adequate nutrition for adolescent girls
- Promotion of smoking cessation during and after pregnancy
- Community-based packages of care, to improve linkage and referral for facility births
- Intermittent iron and folic acid supplements for women of reproductive age and adolescent girls, in settings where the prevalence of anaemia is 20% or higher
- Prevention of malaria during pregnancy

Pre-pregnancy interventions

- Birth spacing
- Peri-conceptional daily folic acid supplementation for reduction of congenital anomalies
- Promotion of smoking cessation

Antenatal care interventions for all women

- Fetal growth monitoring and neonatal size evaluation at all levels of care, integrated into the WHO new antenatal care model (27)
- Daily iron and folic acid supplements for women during pregnancy
- Decrease in non-medically indicated caesarean delivery and induction
- Promotion of smoking cessation

Antenatal care interventions to selected women

- Balanced protein–energy supplementation
- Daily calcium supplementation for women in settings with low calcium intake
- Uterine cervical cerclage (or cervical stitch) in women with previous preterm birth and short cervix
- Antiplatelet agents before 16 weeks for women at risk of pre-eclampsia
- Progesterone therapy for women at risk of preterm birth
- Antenatal single-dose corticosteroids for accelerating fetal lung maturity in women in early initiation of labour
- Antibiotic treatment for women with bacterial vaginosis and asymptomatic bacteriuria
- Interventionist care in severe pre-eclampsia before term

WORLD HEALTH ORGANIZATION NUTRITION TRACKING TOOL

To assist countries in setting national targets to achieve the global goals – and tracking their progress toward them – WHO's Department of Nutrition for Health and Development and partners have developed a web-based tracking tool that allows users to explore different scenarios to achieve the rates of progress required to meet the 2025 targets. The tool can be accessed at www.who.int/nutrition/trackingtool (34).

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1. Resolution WHA65.6. Comprehensive implementation plan on maternal, infant and young child nutrition. In: Sixty-fifth World Health Assembly Geneva, 21–26 May 2012. Resolutions and decisions, annexes. Geneva: World Health Organization; 2012:12–13 (http://www.who.int/nutrition/topics/WHA65.6_resolution_en.pdf?ua=1, accessed 17 October 2014).
2. World Health Organization. Global targets 2025. To improve maternal, infant and young child nutrition (www.who.int/nutrition/topics/nutrition_globaltargets2025/en/, accessed 17 October 2014).
3. March of Dimes, The Partnership for Maternal, Newborn & Child Health, Save the Children, WHO. Born too soon: the global action report on preterm birth. Geneva: World Health Organization; 2012 (http://whqlibdoc.who.int/publications/2012/9789241503433_eng.pdf, accessed 13 October 2014).
4. Risnes KR, Vatten LJ, Baker JL, Jameson K, Sovio U, Kajantie E et al. Birthweight and mortality in adulthood: a systematic review and meta-analysis. *Int J Epidemiol*. 2011;40:647–61. doi:10.1093/ije/dyq267.
5. Larroque B, Bertrais S, Czernichow P, Leger J. School difficulties in 20-year-olds who were born small for gestational age at term in a regional cohort study. *Pediatrics*. 2001;108:111–15.
6. Kim D, Saada A. The social determinants of infant mortality and birth outcomes in western developed nations: a cross-country systematic review. *Int J Environ Res Public Health*. 2013;10(6):2296–335. doi:10.3390/ijerph10062296.
7. Muglia LJ, Katz M. The enigma of spontaneous preterm birth. *N Engl J Med*. 2010;362(6):529–35.
8. United Nations Statistical Division. Composition of macro geographical (continental) regions, geographical sub-regions, and selected economic and other groupings. New York: United Nations; 2013 (<http://unstats.un.org/unsd/methods/m49/m49regin.htm#developed>, accessed 13 October 2014).
9. Undernourishment in the womb can lead to diminished potential and predisposes infants to early death. New York: United Nations Children's Fund; 2014 (<http://data.unicef.org/nutrition/low-birthweight>, accessed 13 October 2014).
10. Goldenberg RL, Culhane JF, Iams JD, Romero R. Epidemiology and causes of preterm birth. *Lancet*. 2008;371(9606):75–84. doi:10.1016/S0140-6736(08)60074-4.
11. Villar J, Abalos E, Carroli G, Giordano D, Wojdyla D, Piaggio G et al.; WHO Antenatal Care Trial Research Group. Heterogeneity of perinatal outcomes in the preterm delivery syndrome. *Obstet Gynecol*. 2004;104(1):78–87.
12. Kramer MS, Papageorghiou A, Culhane J, Bhutta Z, Goldenberg RL, Gravett M et al. Challenges in defining and classifying the preterm birth syndrome. *Am J Obstet Gynecol*. 2012;206(2):108–12. doi:10.1016/j.ajog.2011.10.864.
13. Goldenberg RL, Gravett MG, Iams J, Papageorghiou AT, Waller SA, Kramer M et al. The preterm birth syndrome: issues to consider in creating a classification system. *Am J Obstet Gynecol*. 2012;206(2):113–18. doi:10.1016/j.ajog.2011.10.865.
14. Villar J, Papageorghiou AT, Knight HE, Gravett MG, Iams J, Waller SA et al. The preterm birth syndrome: a prototype phenotypic classification. *Am J Obstet Gynecol*. 2011;206(2):119–23. doi:10.1016/j.ajog.2011.10.866.
15. Ota E, Ganchimeg T, Morisaki N, Vogel JP, Pileggi C, Ortiz-Panozo E et al. Risk factors and adverse perinatal outcomes among term and preterm infants born small-for-gestational-age: secondary analyses of the WHO Multi-Country Survey on Maternal and Newborn Health. *PLoS One*. 2014;9(8):e105155. doi:10.1371/journal.pone.0105155.
16. Bhutta ZA, Das JK, Rizvi A, Gaffey MF, Walker N, Horton S et al. Evidence-based interventions for improvement of maternal and child nutrition: what can be done and at what cost? *Lancet*. 2013;382 (9890):452–77. doi:10.1016/S0140-6736(13)60996-4.
17. Villar J, Abdel-Aleem H, Merialdi M, Mathai M, Ali MM, Zavaleta N et al.; World Health Organization Calcium Supplementation for the Prevention of Preeclampsia Trial Group. World Health Organization randomized trial of calcium supplementation among low calcium intake pregnant women. *Am J Obstet Gynecol*. 2006;194(3):639–49.
18. Lapillonne A, O'Connor DL, Wang D, Rigo J. Nutritional recommendations for the late-preterm infant and the preterm infant after hospital discharge. *J Pediatr*. 2013;162:S90–S100. doi:10.1016/j.jpeds.2012.11.058.
19. Tudehope D, Vento M, Bhutta ZA, Pachi P. Nutritional requirements and feeding recommendations for small for gestational age infants. *J Pediatr*. 2013;162: S81–S89. doi:10.1016/j.jpeds.2012.11.057.
20. Rahman MM, Abe SK, Rahman MS, Kanda M, Narita S, Ota E et al. Maternal anaemia and risk of adverse birth and health outcomes: systematic review and meta-analysis. Poster presentation. Twenty-second Cochrane colloquium, Hyderabad India, 26 September 2014 (<https://colloquium.cochrane.org/abstracts/maternal-anaemia-and-risk-adverse-birth-and-health-outcomes-low-and-middle-income>, accessed 13 October 2014).
21. Imdad A, Bhutta ZA. Nutritional management of the low birth weight/preterm infant in community settings: a perspective from the developing world. *J Pediatr*. 2013;162(3 Suppl. 1):S107–S114. doi:10.1016/j.jpeds.2012.11.060.
22. Morris RK, Oliver EA, Malin G, Khan KS, Meads C. Effectiveness of interventions for the prevention of small-for-gestational age fetuses and perinatal mortality: a review of systematic reviews. *Acta Obstet Gynecol Scand*. 2013;92(2):143–51. doi:10.1111/aogs.12029.
23. Rubens CE, Gravett MG, Victora CG, Nunes TM; GAPPs Review Group. Global report on preterm birth and stillbirth: the foundation for innovative solutions and improved outcomes. *BMC Pregnancy Childbirth*. 2013;10 (Suppl. 1): S1–S7. doi:10.1186/1471-2393-10-S1-S7.
24. Zeitlin J, Szamatulska K, Drewniak N, Mohangoo AD, Chalmers J, Sakkeus L et al. Preterm birth time trends in Europe: a study of 19 countries. *BJOG*. 2013;120(11):1356–65. doi:10.1111/1471-0528.12281.
25. Chang HH, Larson J, Blencowe H, Spong CY, Howson CP, Cairns-Smith S et al.; Born Too Soon preterm prevention analysis group. Preventing preterm births: analysis of trends and potential reductions with interventions in 39 countries with very high human development index. *Lancet*. 2013;381(9862):223–34. doi: 10.1016/S0140-6736(12)61856-X.
26. Guideline: fortification of food-grade salt with iodine for the prevention and control of iodine deficiency disorders. Geneva: World Health Organization; 2014.
27. Provision of effective antenatal care. Standards for maternal neonatal care. Geneva: World Health Organization; 2006. (http://www.who.int/reproductivehealth/publications/maternal_perinatal_health/effective_antenatal_care.pdf, accessed October 22, 2014).
28. Brown SJ, Yelland JS, Sutherland GA, Baghurst PA, Robinson JS. Stressful life events, social health issues and low birthweight in an Australian population-based birth cohort: challenges and opportunities in antenatal care. *BMC Public Health*. 2011;11(1):196. doi:10.1186/1471-2458-11-196.
29. Blumenshine P, Egerter S, Barclay CJ, Cubbin C, Braveman PA. Socioeconomic disparities in adverse birth outcomes: a systematic review. *Am J Prev Med*. 2010 Sep;39(3):263–72. doi:10.1016/j.amepre.2010.05.012.

30. Vettore MV, Gama SGN da, Lamarca G de A, Schilithz AOC, Leal M do C. Housing conditions as a social determinant of low birthweight and preterm low birthweight. *Rev Saúde Pública*. 2010;44(6):1021–31.
31. Women and health: today's evidence tomorrow's agenda. Geneva: World Health Organization; 2009 (http://whqlibdoc.who.int/publications/2009/9789241563857_eng.pdf?ua=1, accessed 13 October 2014).
32. Azenha GS, Parsons-Perez C, Goltz S, Bhadelia A, Durstine A, Knaul F et al. Recommendations towards an integrated, life-course approach to women's health in the post-2015 agenda. *Bull World Health Organ*. 2013 Sep 1;91(9):704–6. doi:10.2471/BLT.13.117622.
33. WHO, ExpandNet. Nine steps for developing a scaling-up strategy. Geneva: World Health Organization; 2010 (http://whqlibdoc.who.int/publications/2010/9789241500319_eng.pdf, accessed 13 October 2014).
34. World Health Organization. Global targets tracking tool (<http://www.who.int/nutrition/trackingtool>, accessed 6 October 2014).



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