EVERY NEWBORN: An action plan to end preventable deaths

In the last 1000 days before the deadline to achieve the Millennium Development Goals, urgent progress is needed to improve newborn survival. We have made incredible inroads eliminating maternal mortality and preventable deaths of children under-five after the neonatal period, reducing these mortality rates by 3.2% per year and 3.0% in the past two decades, respectively, but newborn survival has lagged behind at a yearly reduction rate of 1.8%. The number of children dying each year before the age of five has dropped from 12 million to fewer than seven million, but newborns now account for more than 40% of these deaths. That means nearly 3 million newborns are dying each year, and an additional 2.6 million babies are stillborn. We now have the knowledge and tools to reduce at least two thirds of these deaths. Acting on that knowledge, some countries have shown that rapid progress is possible, especially when applying strategies for prevention and care that integrate the delivery of key interventions along the life cycle, from pre-pregnancy through to the post-partum period, underlining the inherent connections between reproductive, maternal and child health. [http://www.everynewborn.org](http://www.everynewborn.org)

This Month's Headlines

- Patterns in coverage of maternal, newborn, and child health interventions: projections of neonatal and under-5 mortality to 2035
- Text messages as a learning tool for midwives
- Admission Hypothermia among VLBW Infants in Malaysian NICUs
- Breech presentation at delivery: a marker for congenital anomaly?
- Urgent global opportunities to prevent birth defects.
- Neural tube defects: recent advances, unsolved questions, and controversies
Patterns in coverage of maternal, newborn, and child health interventions: projections of neonatal and under-5 mortality to 2035
Neff Walker, Gayane Yenokyan, Ingrid K Friberg, Jennifer Bryce.

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Urgent calls have been made for improved understanding of changes in coverage of maternal, newborn, and child health interventions, and their country-level determinants. This study examined the historical trends in coverage of interventions with proven effectiveness, and used them to project rates of child and neonatal mortality in 2035 in 74 Countdown to 2015 priority countries. The authors investigated coverage of all interventions for which evidence was available to suggest effective reductions in maternal and child mortality, for which indicators have been defined, and data have been obtained through household surveys. They reanalysed coverage data from 312 nationally-representative household surveys done between 1990 and 2011 in 69 countries, including 58 Countdown countries and developed logistic regression models for patterns of coverage change for each intervention, and used k-means cluster analysis to divide interventions into three groups with different historical patterns of coverage change. Within each intervention group, the performance of each country in achieving coverage gains was examined. Models that included baseline coverage, region, gross domestic product, conflict, and governance to examine country-specific annual percentage coverage change for each group of indicators were developed. Odds of coverage of three interventions (antimalarial treatment, skilled attendant at birth, and use of improved sanitation facilities) decreased since 1990, with a mean annual decrease of 5.5% (SD 2.7%). Odds of coverage of four interventions—all related to the prevention of malaria—have increased rapidly, with a mean annual increase of 27.9% (7.3%). Odds of coverage of other interventions have slowly increased, with a mean annual increase of 5.3% (3.5%). Rates of coverage change varied widely across countries: we could not explain the differences by measures of gross domestic product, conflict, or governance. The number of countries with neonatal mortality rates of fewer than 11 per 1000 live births per year would increase from three (4%) in 2010, to ten (14%) by 2035 under the historical trends scenario, and 67 (91%) under the best performer scenario. The number of under-5 deaths per year would decrease from an estimated 7.6 million in 2010, to 5.4 million (28% decrease) if historical trends continue, and to 2.3 million (71% decrease) under the best performer scenario. The authors thus concluded that substantial reductions in child deaths are possible, but only if intensified efforts to achieve intervention coverage are implemented successfully within each of the Countdown countries. Read full text

Text messages as a learning tool for midwives

The use of cell phone text messaging to improve access to continuing healthcare education in under-resourced settings is not well documented. We aimed to assess whether this method of education is acceptable to South African midwives in both the public and private sectors. Essential healthcare lessons from the Maternal Care book of the Perinatal Education Programme (PEP) were delivered via text message to more than 2 500 midwives each week for a period of 6 months. Each message concluded with a link to a website, where additional information about each lesson could be accessed. Results of a survey, conducted with 50 of the message recipients, demonstrated that the text messages were well received by the midwives; the information was widely shared with colleagues and was believed to improve learning and patient care. Lack of access to the internet, or failure to utilise this facility to obtain additional information, indicated that limitations still exist in internet-based distance education, especially in the public sector. The use of text messaging promises to provide cost-effective learning opportunities, and improve a wide range of clinical services, such as the management of HIV-infected children and adults. Read full text

Admission Hypothermia among VLBW Infants in Malaysian NICUs
Nem-Yun Boo, Irene Guat-Sim Cheah, for Malaysian National Neonatal Registry

This study aimed to determine the prevalence of admission hypothermia (AH) among very-low-birth-weight (=1500 g) infants in 32 Malaysian neonatal intensive care units (NICUs). This was a retrospective analysis of prospectively collected data of all very-low-birth-weight infants admitted and a questionnaire survey of the practice of AH prevention. Of the 3768 (99.8%) infants with admission temperature recorded, 64.8% (n = 2440) were hypothermic: 40.3% (n = 983) mildly (36.0-36.4°C), 58.5% (n = 1428) moderately (32.0-35.9°C) and 1.2% (n = 29) severely (<32.0°C). Mean ambient temperature of these NICUs was 22.8°C (SD = 2.7, n = 28) in labour rooms and 20.1°C (SD = 1.6, n = 30) in operation theatres. None of the NICUs practised complete care bundle against AH at birth (i.e. use of pre-warmed radiant warmer and cling wrap, ambient temperature of at least 25°C and use of pre-warmed transport incubator). The authors concluded that care bundle against neonatal hypothermia should be actively promoted in Malaysian labour rooms and operation theatres. Read full text
Breech presentation at delivery: a marker for congenital anomaly?

D Mostello, J J Chang, F Bai, J Wang, C Guild, K Stamps and T L Leet
Journal of Perinatology (2014) 34, 11–15; doi:10.1038/jp.2013.132; published online 24 October 2013

The objective of the study was to determine whether congenital anomalies are associated with breech presentation at the time of birth. This population-based, retrospective cohort study was conducted among 460?147 women with singleton live births using the Missouri Birth Defects Registry, which includes all defects diagnosed during the first year of life. Maternal and obstetric characteristics and outcomes between breech and cephalic presentation groups were compared using ?2-square statistic and Student’s t-test. Multivariable binary logistic regression analysis was used to estimate adjusted odds ratios (aORs) and 95% confidence intervals (CIs). At least one congenital anomaly was more likely present among infants breech at birth (11.7%) than in those with cephalic presentation (5.1%), whether full-term (9.4 vs 4.6%) or preterm (20.1 vs 11.6%). The relationship between breech presentation and congenital anomaly was stronger among full-term births (aOR 2.09, CI 1.96, 2.23, term vs 1.40, CI 1.26, 1.55, preterm), but not in all categories of anomalies. The authors concluded that breech presentation at delivery is a marker for the presence of congenital anomaly. Infants delivered breech deserve special scrutiny for the presence of malformation. Read full text

Urgent global opportunities to prevent birth defects.

Kancherla V, Oakley GP Jr, Brent RL

Birth defects are an urgent global health priority. They affect millions of births worldwide. But their prevalence and impact are largely under-ascertained, particularly in middle- and low-income countries. Fortunately, a large proportion of birth defects can be prevented. This review examines the global prevalence and primary prevention methods for major preventable birth defects: congenital rubella syndrome, folic acid-preventable spina bifida and anencephaly, fetal alcohol syndrome, Down syndrome, rhesus hemolytic disease of the fetus and the newborn; and those associated with maternal diabetes, and maternal exposure to valproic acid or iodine deficiency during pregnancy. Challenges to prevention efforts are reviewed. The aim of this review is to bring to the forefront the urgency of birth defects prevention, surveillance, and prenatal screening and counseling; and to help public health practitioners develop population-based birth defects surveillance and prevention programs, and policy-makers to develop and implement science-based public health policies. Read full text

Neural tube defects: recent advances, unsolved questions, and controversies.

Copp AJ, Stanier P, Greene ND

Neural tube defects are severe congenital malformations affecting around one in every 1000 pregnancies. An innovation in clinical management has come from the finding that closure of open spina bifida lesions in utero can diminish neurological dysfunction in children. Primary prevention with folic acid has been enhanced through introduction of mandatory food fortification in some countries, although not yet in the UK. Genetic predisposition accounts for most of the risk of neural tube defects, and genes that regulate folate one-carbon metabolism and planar cell polarity have been strongly implicated. The sequence of human neural tube closure events remains controversial, but studies of mouse models of neural tube defects show that anencephaly, open spina bifida, and craniorachischisis result from failure of primary neurulation, whereas skin-covered spinal dysraphism results from defective secondary neurulation. Other malformations, such as encephalocele, are likely to be postneurulation disorders. Read full text