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## International Journal of Gynecology and Obstetrics

journal homepage: www.elsevier.com/locate/ijgo



## REPRODUCTIVE HEALTH

## Ending preventable newborn deaths in a generation



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## ARTICLE INFO

## Keywords:

Newborn death

Stillbirth

MDGs

Mortality prevention

## ABSTRACT

The end of the Millennium Development Goal (MDG) era was marked in 2015, and while maternal and child mortality have been halved, MDG 4 and MDG 5 are off-track at the global level. Reductions in neonatal death rates (age <1 month) lag behind those for post-neonates (age 1–59 months), and stillbirth rates (omitted from the MDGs) have been virtually unchanged. Hence, almost half of under-five deaths are newborns, yet about 80% of these are preventable using cost-effective interventions. The Every Newborn Action Plan has been endorsed by the World Health Assembly and ratified by many stakeholders and donors to reduce neonatal deaths and stillbirths to 10 per 1000 births by 2035. The plan provides an evidence-based framework for scaling up of essential interventions across the continuum of care with the potential to prevent the deaths of approximately three million newborns, mothers, and stillbirths every year. Two million stillbirths and newborns could be saved by care at birth and care of small and sick newborns, giving a triple return on investment at this key time. Commitment, investment, and intentional leadership from global and national stakeholders, including all healthcare professionals, can make these ambitious goals attainable.

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## 1. Introduction

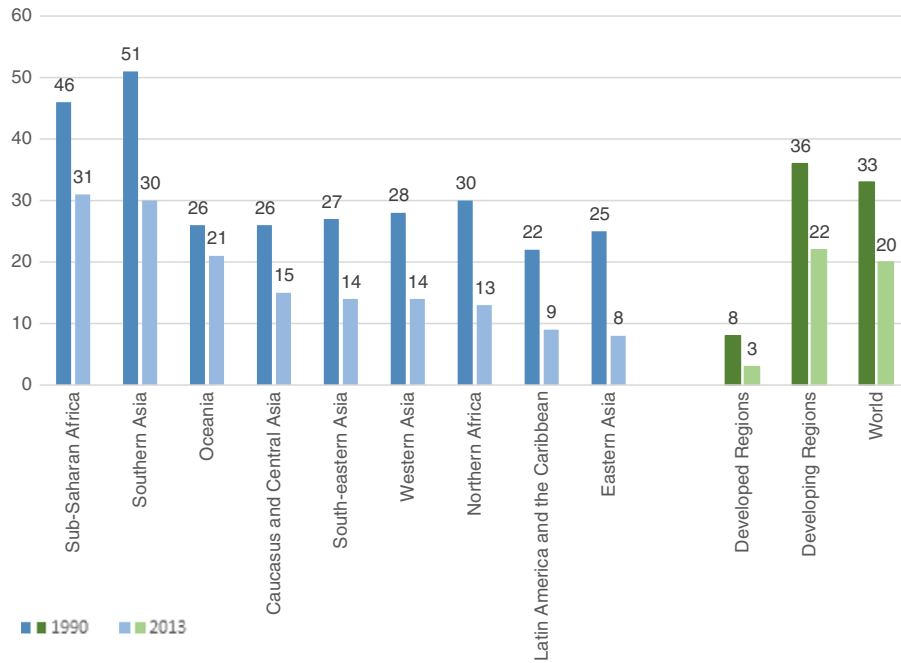
As the Millennium Development Goal (MDG) era ends, the international community applauds the MDG 4 and MDG 5 achievements of reducing maternal and child mortality by 50% since 1990. However, differentials in reduction rates demonstrate that declines in neonatal mortality rates (<28 days) (NMR) have been lagging notably behind those of post-neonates (1–59 months) (Figs. 1 and 2). The rate of death among newborn infants has dropped only 40% from 1990 to 2013, compared with 56% for post-neonatal children (Fig. 2) and 45% for mothers [1]. In the same period, the share of neonatal deaths among under-five deaths increased from 37% to 44%—a trend that is expected to continue as under-five mortality rates (U5MR) continue to decline. Today, approximately 2.8 million children die annually

within the first 28 days of life [2]. Of these, 36% die on first day, 37% within the next six days of life, and 28% between day 7 and day 27 [3]. Even more alarming is that another 2.6 million babies are stillborn every year [4]—a population that has been virtually invisible in the MDG agenda. Stillborn deaths (defined as fetal death at greater than or equal to 1000 g or greater than or equal to 28 weeks of gestation) may be due to similar causes as early neonatal deaths, and each year over one million occur during labor [5]. Maternal and fetal deaths are intrinsically linked; the critical 48-hour window around labor and delivery is when almost half of all stillbirths, maternal, and neonatal deaths occur [5,6], which emphasizes the need for lifesaving integrated intrapartum care for both the mother and child.

The majority of neonatal deaths are from preventable causes such as preterm birth complications (accounting for 36% of neonatal deaths), complications during labor and delivery (23%), and infectious diseases (15% sepsis, 5% pneumonia, 2% tetanus, 1% diarrhea)—trends that are consistent across MDG regions and countries (Fig. 3) [3,7]. Small size at birth—due to preterm birth or small-for-gestational-age (SGA) or both—is the biggest risk factor for more than 80% of neonatal deaths

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**Fig. 1.** Neonatal mortality rate by Millennium Development Goal region, 1990 and 2013 (deaths per 1000 live births). Adapted from: United Nations Inter-agency Group for Child Mortality Estimation [1].

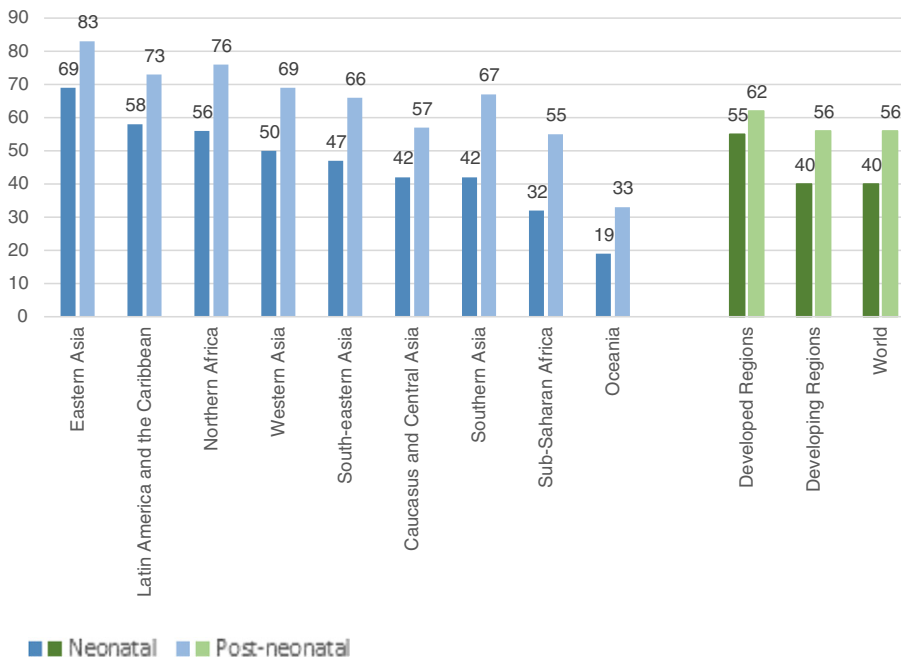
and increases risk of post-neonatal mortality, growth failure, and adult-onset noncommunicable diseases [3]. Additionally, an estimated four million neonates annually have other life-threatening or disabling conditions including intrapartum-related brain injury, severe bacterial infections, or pathological jaundice [3].

Impressive global reductions in preventable mortality among women and children mask wide variations between countries and regions. Sub-Saharan Africa and South Asia account for more than 75% of the annual global newborn death burden, and countries in these regions also tend to have the most births and slowest progress in reducing neonatal mortality (Fig. 2). Nine countries had an NMR greater than

or equal to 40 per 1000 live births in 2013, eight of these were in Sub-Saharan Africa [1]. At the current rate, it will be more than a century before babies born in Africa have the same chance of survival as those born in high-resource nations [3].

**2. An action plan for ending preventable newborn deaths and stillbirths**

In light of the reality of over 15 000 deaths each day, global partners and governments have recently committed toward the unfinished agenda of improving newborn survival, health, and preventing stillbirths. In



**Fig. 2.** Decline in neonatal (age <1 month) and post-neonatal (age 1–59 months) mortality rates, by Millennium Development Goal region, 1990–2013 (percent). Adapted from: United Nations Inter-agency Group for Child Mortality Estimation [1].

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