

# Neonatal and Perinatal Mortality

Country,  
Regional and  
Global Estimates 2004



World Health  
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## Neonatal and Perinatal Mortality

### Country, Regional and Global Estimates 2004

This leaflet provides neonatal and perinatal mortality estimates for 2004. These estimates have been updated with new data from surveys and vital registration, using the same methodology and assumptions as those published for 2000<sup>1</sup> ([http://www.who.int/making\\_pregnancy\\_safer/publications/neonatalcoverA4F.2.pdf](http://www.who.int/making_pregnancy_safer/publications/neonatalcoverA4F.2.pdf)) and adjusted to the WHO estimated under-five mortality for 2004.<sup>2</sup> This update is done in response to a surge in national community studies and acknowledging improved reporting of vital registration data.

Table 1 shows that new data (after 2003) were available for 56% of live births, 29% from surveys and 27% from vital registration. Estimates based on regression from the WHO estimated under-five mortality was calculated for 5% of births. All data were recalculated within the 2004 WHO under-five mortality estimates. The resulting global and regional estimates for 2004 are shown in Table 2 and country estimates in Table 3.

**Table 1**      **Source of data**

|  | Number of countries | Number of live births | % of live births |
|--|---------------------|-----------------------|------------------|
| Surveys, data after 2003                             | 41                  | 39 094                | 29               |
| Surveys, data before and including 2003              | 48                  | 51 535                | 39               |
| Vital registration, data after 2003                  | 79                  | 35 673                | 27               |
| Vital registration, data before and including 2003   | 2                   | 36                    | 0.03             |
| Total countries with available data                  | 170                 | 126 349               | 95               |
| Countries / areas with no reliable data (Regression) | 33                  | 6 635                 | 5                |
| No data, no estimate                                 | 4                   | 152                   | 0.1              |
| Grand total  | 207                 | 133 136               | 100              |

In 2004 there were 133 million live births; 3.7 million of these died in the neonatal period. Three million infants were stillborn. Ninety-eight per cent of deaths took place in the developing world, where 90% of babies were born.

According to these new estimates, neonatal mortality in developing countries was 31 deaths per 1000 live births; of those deaths, 76%, or 3 million, occurred in the early neonatal period.

With 40 neonatal deaths per 1000 live births, the risk of neonatal death remained the highest in Africa; the sub-Saharan regions of eastern, western and central Africa had between 40 and 46 neonatal deaths per 1000 live births. South-central Asia, with 40 neonatal deaths per 1000 live births, showed rates close to those registered in sub-Saharan Africa, while the neonatal mortality rate for Latin America and the Caribbean was 13 per 1000 live births. Most neonatal deaths occurred in Asia, which is where most children were born. Given the high mortality rate in the south-central Asia subregion, over 40% of global neonatal deaths took place there. In those regions and countries stillbirth rates also remained high. The highest rates were measured in sub-Saharan Africa (38/1000 total births) and south-central Asia (33/1000 total births).

Neonatal deaths in developed countries were rare events (4 deaths/1000 live births) and the stillbirth rate was substantially lower (4/1000 total births) than the estimates for 2000, as detailed data, now available, allowed the application of the definition of 28 weeks, which matches data possible to retrieve for developing countries and recommended for international comparison.

The reduction of neonatal mortality in developed countries was 13% and in developing and least developed countries 6% and 1% respectively. The gap between developing and developed countries

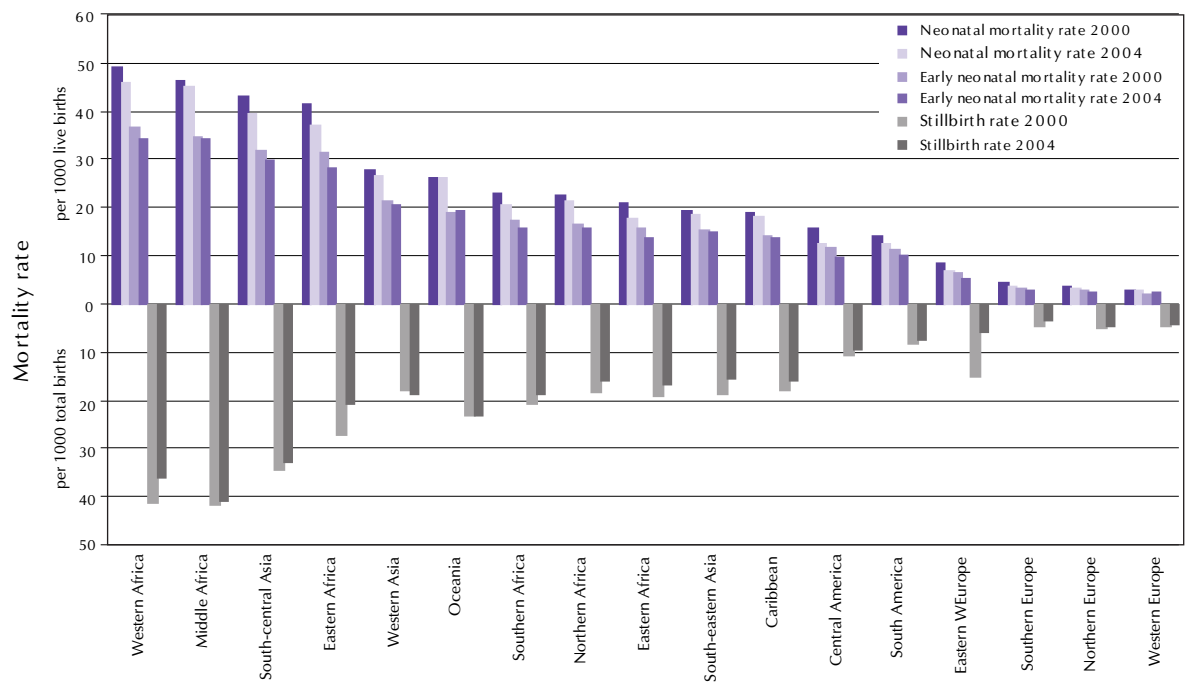
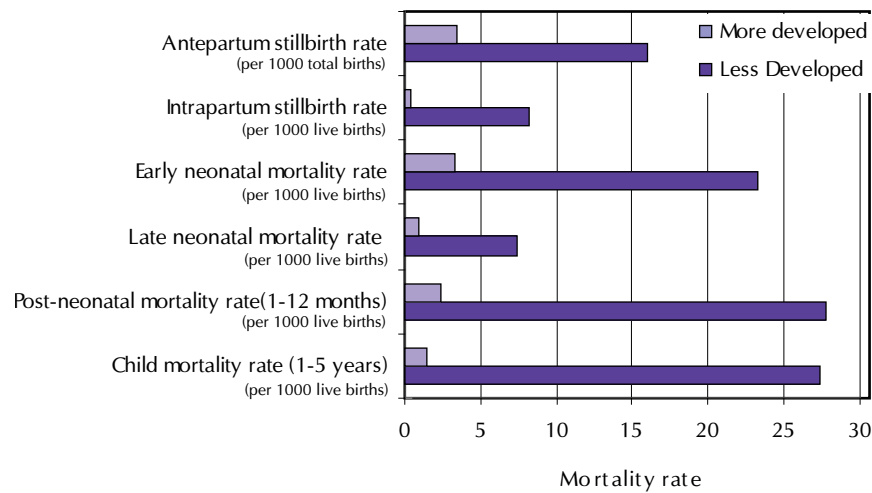
has increased as compared to the evaluation in 2000. The risk of death in the neonatal period was over seven times greater than in developed countries; in the least developed countries it was 10 times higher than in developed countries. For perinatal death the risks were 7 and 9 times higher respectively.

Worldwide, there were 5.9 million perinatal deaths., almost all of which occurred in developing countries and 30% of them in the least developed countries alone. Stillbirths accounted for over half of all perinatal deaths. According to 2000 estimates, one third of stillbirths took place during delivery. Those intrapartum deaths are closely linked to place of, and care at, delivery and are largely avoidable with skilled care. In developing countries, just over 40% of deliveries occurred in health facilities and little more than one in two with the assistance of a doctor, midwife or qualified nurse.<sup>3</sup>

However, current data are still not good enough to give us the true burden of perinatal deaths. Stillbirth data from less developed countries remain incomplete and thus estimates are less reliable than neonatal mortality estimates; surveys continue reporting unrealistic low stillbirth rates that are reflected in these estimates. It is to be hoped that problems related to such data will stimulate further research and collection of population-based data, which will help to improve mortality monitoring and provide health managers with comparative information about the nature and extent of the problem in their country. Keeping such limitations in mind, this document nevertheless allows countries to review their achievements in the area of maternal and neonatal health, and compare their results with those obtained by other countries.

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**Figure 1 Neonatal, early neonatal and stillbirth mortality rates for 2000 and 2004****Figure 2 Component of under-five rates and component for stillbirth rates for more developed and less developed countries for 2004**

**Table 2** Global estimates of stillbirths, early neonatal, perinatal and neonatal mortality rates and numbers by level of development and geographical (United Nations) region and subregion, 2004

|                                    | Live births (1000s) | Perinatal mortality rate | Number of perinatal deaths (1000s) | Stillbirth rate | Number of stillbirths (1000s) | Early neonatal mortality rate | Number of early neonatal deaths (1000s) | Neonatal mortality rate | Number of neonatal deaths (1000s) |
|------------------------------------|---------------------|--------------------------|------------------------------------|-----------------|-------------------------------|-------------------------------|---|-------------------------|-----------------------------------|
| <b>WORLD</b>                       | <b>133 136</b>      | <b>43</b>                | <b>5 852</b>                       | <b>22</b>       | <b>3 027</b>                  | <b>21</b>                     | <b>2 825</b>                            | <b>28</b>               | <b>3 729</b>                      |
| More developed regions             | 13 291              | 7                        | 95                                 | 4               | 51                            | 3                             | 44                                      | 4                       | 56                                |
| Less developed regions             | 119 845             | 47                       | 5 757                              | 24              | 2 976                         | 23                            | 2 781                                   | 31                      | 3 673                             |
| Least developed countries          | 27 823              | 60                       | 1 718                              | 31              | 878                           | 30                            | 841                                     | 41                      | 1 130                             |
| <b>AFRICA</b>                      | <b>33 049</b>       | <b>56</b>                | <b>1 896</b>                       | <b>28</b>       | <b>946</b>                    | <b>29</b>                     | <b>950</b>                              | <b>38</b>               | <b>1 261</b>                      |
| Eastern Africa                     | 11 388              | 48                       | 560                                | 21              | 239                           | 28                            | 321                                     | 37                      | 421                               |
| Middle Africa                      | 4 943               | 74                       | 379                                | 41              | 211                           | 34                            | 168                                     | 45                      | 222                               |
| Northern Africa                    | 4 746               | 31                       | 150                                | 16              | 76                            | 16                            | 74                                      | 21                      | 100                               |
| Southern Africa                    | 1 276               | 34                       | 44                                 | 19              | 24                            | 16                            | 20                                      | 20                      | 26                                |
| Western Africa                     | 10 696              | 69                       | 763                                | 36              | 396                           | 34                            | 367                                     | 46                      | 492                               |
| <b>ASIA*</b>                       | <b>74 794</b>       | <b>47</b>                | <b>3 630</b>                       | <b>25</b>       | <b>1 923</b>                  | <b>23</b>                     | <b>1 707</b>                            | <b>30</b>               | <b>2 254</b>                      |
| Eastern Asia*                      | 18 307              | 30                       | 563                                | 17              | 310                           | 14                            | 254                                     | 18                      | 327                               |
| South-central Asia                 | 39 616              | 61                       | 2 506                              | 33              | 1 333                         | 30                            | 1 172                                   | 40                      | 1 568                             |
| South-eastern Asia                 | 11 458              | 30                       | 346                                | 15              | 177                           | 15                            | 169                                     | 19                      | 213                               |
| Western Asia                       | 5 413               | 39                       | 215                                | 19              | 103                           | 21                            | 112                                     | 27                      | 145                               |
| <b>EUROPE</b>                      | <b>7 354</b>        | <b>8</b>                 | <b>60</b>                          | <b>5</b>        | <b>34</b>                     | <b>4</b>                      | <b>26</b>                               | <b>5</b>                | <b>34</b>                         |
| Eastern Europe                     | 2 916               | 11                       | 32                                 | 6               | 16                            | 5                             | 15                                      | 7                       | 20                                |
| Northern Europe                    | 1 066               | 7                        | 7                                  | 4               | 5                             | 2                             | 3                                       | 3                       | 3                                 |
| Southern Europe                    | 1 490               | 6                        | 9                                  | 3               | 5                             | 3                             | 4                                       | 4                       | 6                                 |
| Western Europe                     | 1 882               | 6                        | 12                                 | 4               | 7                             | 2                             | 4                                       | 3                       | 5                                 |
| <b>LATIN AMERICA AND CARIBBEAN</b> | <b>11 754</b>       | <b>19</b>                | <b>220</b>                         | <b>8</b>        | <b>101</b>                    | <b>10</b>                     | <b>119</b>                              | <b>13</b>               | <b>152</b>                        |
| Caribbean                          | 767                 | 29                       | 23                                 | 16              | 12                            | 14                            | 10                                      | 18                      | 14                                |
| Central America                    | 3 316               | 19                       | 63                                 | 9               | 31                            | 9                             | 31                                      | 13                      | 42                                |
| South America                      | 7 671               | 17                       | 134                                | 7               | 57                            | 10                            | 77                                      | 13                      | 96                                |
| <b>NORTHERN AMERICA</b>            | <b>4 464</b>        | <b>7</b>                 | <b>29</b>                          | <b>3</b>        | <b>14</b>                     | <b>3</b>                      | <b>15</b>                               | <b>4</b>                | <b>19</b>                         |
| <b>OCEANIA*</b>                    | <b>249</b>          | <b>42</b>                | <b>11</b>                          | <b>23</b>       | <b>6</b>                      | <b>19</b>                     | <b>5</b>                                | <b>26</b>               | <b>7</b>                          |
| Australia/New Zealand              | 304                 | 5                        | 2                                  | 3               | 1                             | 2                             | 1                                       | 3                       | 1                                 |

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