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## Supplementary webappendix

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# Webappendix: Causes of neonatal and child mortality in India: a nationally representative mortality survey

## METHODS

### A. Sub-national estimates of livebirths and under-five deaths in India in 2005

State-level, gender and urban/rural estimates of livebirths, neonatal deaths and deaths at ages 1-59 months were calculated and adjusted to reflect the United Nations (UN) Population Division estimates for livebirths and under-five deaths in India in 2005. [1] The UN Population Division does not publish state-level estimates; thus we used the Census of India,[2] Sample Registration System (SRS) data [3] and the National Family Health Surveys (NFHS) [4-6] to partition national deaths by urban and rural areas of each state and by gender, as described below.

**Livebirths**

(i) Total livebirths were estimated using the following steps: the starting point was the Census projection of the population of India in 2005 [2] by five-year age group and gender for each urban and rural area of each state (ie: 2[boys, girls] x 2[urban, rural] x 35[states] = 140 strata). The sum of the age-specific population in each of these strata was adjusted to reflect the age-specific UN population estimates for India in 2005. [1] The population of each urban and rural area of each state was multiplied by the SRS crude birth rate (averaged from published reports for the years 2004-6) [7-9] for each of these areas, resulting in the total livebirths in 70 strata (urban/rural areas for 35 states). Livebirths (total for India = 26 761 721) were stratified by gender using the average of the SRS sex ratio at birth for the same three years. [7-9] The resulting number of livebirths by gender for each rural and urban area of each state were multiplied by an adjustment factor so the national total number of livebirths would equal the UN gender-specific totals for India in 2005 (total UN livebirths for India 27 311 155; 14 180 792 boys and 13 130 363 girls). [1] The adjustment factors for boys and girls were 0.999 and 1.045, respectively.

**Under-five deaths**

Infant (<1 year) and neonatal (<1 month) deaths were estimated separately from deaths at ages 1-4 years because the SRS state-level mortality estimates for ages 1-4 years do not use livebirths as the denominator. For this reason, death estimates for children 1-4 years had to be constructed separately and then added to estimates of infant deaths. The process for these calculations is described below.

**Infant and neonatal deaths**

(ii) Total infant deaths were estimated by multiplying the livebirth estimates for each of the 140 strata by the corresponding SRS infant mortality rates (average for 2004-6). SRS infant mortality rate estimates were not available for the following states: Arunachal Pradesh, Chandigarh, Dadra and Nagar Haveli, Daman and Diu, Goa, Lakshadweep, Manipur, Meghalaya, Mizoram, Nagaland, Pondicherry, Sikkim, Tripura, Uttarakhand. Thus, the infant mortality rates from India's 2005-6 National Family Health Survey (NFHS-3) [5] were used. The resulting number of infant deaths for India was 1 577 706 (802 283 boys and 775 423 girls) and this value was adjusted to equal the UN infant death estimates (1 581 762; 813 623 boys and 768 139 girls). The adjustment factors for boys and girls were 1.014 and 0.991, respectively.

(iii) Total neonatal deaths were calculated by multiplying the total infant deaths from step (ii) by the proportion of neonatal to infant deaths (at the state level and by urban/rural area, but not by gender) reported by the SRS (average for 2004-6). The resulting state-level urban/rural neonatal deaths were stratified by gender using the corresponding averaged proportion of male to female neonatal deaths from the NFHS-2 and 3. [5, 6] The resulting total number of neonatal deaths for 2005 was 1 008 706 (569 203 boys and 439 503 girls).

**Deaths at ages 1-4 years**

(iv) Total deaths at ages 1-4 years were estimated using the state-level mortality rates at ages 1- 4 years from NFHS-3. [5] These rates were partitioned by urban/rural area and by gender using the proportional distribution of the SRS under-five death rate in each stratum, since no mortality rates for ages 1-4 years in each stratum were available. The resulting mortality rates were multiplied by the stratum-specific livebirths from step (i). The resulting total number of deaths at ages 1-4 years was 505 133 (250 902 boys and 254 231 girls). This value was then adjusted to equal the UN estimate of deaths at ages 1-4 years in India in 2005, as described below.

**Under-five deaths**

(v) Total under-five deaths were calculated by adding the infant deaths from step (ii) to deaths at ages 1-4 years from step (iv) for each stratum. The resulting total under-five deaths (2 086 895; 1 064 525 boys and 1 022 370) were adjusted to equal the UN estimate for India in 2005 (2 345 205; 1 160 709 boys and 1 184 496 girls). [1] The adjustment factors for boys and girls were 1.090 and 1.160, respectively. As previously, adjustments were applied to each stratum. Adjusted infant deaths (1 581 762; 813 623 boys and 768 139 girls) were subtracted from adjusted under-five deaths (2 345 205; 1 160 709 boys and 1 184 496 girls) to produce the adjusted deaths at ages 1-4 years (763 443; 347 086 boys and 416 357 girls).

**Other age groups**

(vi) Total deaths between 29 days and 1 year (573 056) were calculated by subtracting the neonatal deaths from step (iii) from the infant deaths from step (ii).

(vii) Total deaths at ages 1-59 months were calculated by subtracting the neonatal deaths from step (iii) from the under-five deaths from step (v).

Mortality rates for neonates, for children at ages 1-59 months and for children under-five years were calculated for both genders and for urban and rural areas of each state using the adjusted estimates of total deaths and livebirths described above. Information on sex ratio at birth, proportion of infant deaths that occur during the neonatal period, infant mortality rates and under-five mortality rates were missing for some smaller states. For these states we used the estimates from an adjacent reference state as follows:

- Haryana for Chandigarh
- Uttar Pradesh for Uttaranchal
- Assam for each of Sikkim, Arunachal Pradesh, Nagaland, Manipur, Mizoram, Tripura and Mizoram
- Gujarat for each of Daman-Diu and Dadra & Nagar Haveli
- Maharashtra for Goa
- Kerala for Lakshadweep
- Tamil Nadu for Pondicherry
- Karnataka for A&N Islands

We use SRS rates for the sub-national mortality envelopes (adjusted to the UN totals, nationally) wherever possible, with use of NFHS-3 data only where needed to fill gaps. The SRS has been independently judged to have better ascertainment rates than the NFHS or District Level Household Surveys (DLHS). [10] This is because: (a) the SRS is about 5-10 times bigger than the NFHS; (b) it covers all states versus 29 for NFHS; (c) it uses a continuous registration method with dual ascertainment of events (in contrast to single retrospective review of the last 3 years of child births and deaths in the NFHS); and (d) provides corresponding death rates for adults, which the NFHS does not do reliably. The same methodological considerations apply to the DLHS, which is very similar to the NFHS in design.

**Uncertainty in the underlying demographic estimates**

The major source of uncertainty in the regional and gender variation in cause-specific mortality rates in this study is the cause of death proportion. We have calculated 99% confidence intervals for all estimates of proportions of causes of death based on the observed number of deaths in the study and the survey design and sampling (see methods section). The UN annual estimates of total number of livebirths and deaths by country are widely accepted and the corresponding uncertainty bounds are also made available by the UN Population Division. (For India, the base estimates for 2005 were 2.35 M deaths, uncertainty 2.26 M to 2.46 M). [11] The SRS does not publish uncertainty bounds for the 140 sub-national strata that were used in our calculations and without those, no sub-national uncertainty estimates can be generated.

**B. ICD-10 Classification of neonatal deaths and deaths at ages 1-59 months**

Three-character International Classification of Diseases (ICD-10) [12] codes were assigned to each child death; inconsistencies in coding (after adjudication) were revised and, if necessary, re-classified with input from the Child Health and Epidemiology Reference Group (CHERG). [13] Two classification systems were developed for the causes of neonatal deaths (box 1) and deaths among children aged 1-59 months (box 2).

Infections during the neonatal period are difficult to classify using VA, given the large overlap in symptoms and signs during the neonatal period, and especially during the first 1-2 weeks of life, when most of these deaths occurred. For this reason, neonatal pneumonias, sepsis and CNS infections are combined under a common category 'Neonatal infections'. Similarly, given the difficulty in separating prematurity from low birthweight outside hospital settings, these two conditions are kept together as the category 'Prematurity & low birthweight'.

Specific rules were used when assigning final cause of death to malaria, measles and tetanus. We adopted a strict case-definition for malaria deaths requiring that both physician coders assigned a malaria code (codes B50-B54) in order to produce conservative estimates of malaria mortality. Full estimates of child malaria deaths are published. [14] Deaths caused by measles (B05) in children younger than five years were revised to reduce misclassification with other causes, especially respiratory diseases and diarrhoeal diseases. We adopted a less strict measles definition that required only one measles code for a death to be assigned as caused by measles in the final classification. Deaths coded as tetanus (A33) before the third day of life were re-classified according to the alternative ICD-10 codes assigned either by the physicians during the coding process or available keywords to either bacterial sepsis of the newborn (P36), central nervous system infections (A80-A89) or birth asphyxia and birth trauma (P21, P10-P15).

**Box 1: Cause of death classification for neonates**

| **Neonatal category** | **ICD-10 codes** |
|---|---|
| | |
| Prematurity & low birthweight | P01, P05, P07, P22, P25-P28, P52, P61, P77, R04 |
| Neonatal Infections: | |
| *Neonatal Pneumonia* | A37, H65-H68, H70, H71, J00-J06, J09-J18, J20-J22, J32, J36, J85, J86, P23, U04 |
| *Sepsis* | A20-A28, A32, A38, A40-A44, A46, A48, A49, A68-A70, A74, A75, A77-A79, B95, B96, H10, H60, I30, I32, I33, I39-I41, K65, K67, K81, L00-L04, L08, M00, M01, M60, M86, N10, N30, N34, N41, N49, N61, P35-P39 |
| *Meningitis/encephalitis* | A39, A81-A89, G00-G09 |
| Birth asphyxia & birth trauma | P00, P02, P03. P10-P15, P20, P21, P24, P29, P50, P90, P91 |
| Other noncommunicable diseases | C00-C26, C30-C34, C37-C41, C43-C58, C60-C85, C88, C90-C97, D01-D07, D09-D48, D55-D77, D80-D84, D86, D89, E03-E07, E10-E16, E20-E32, E34, E35, E65-E68, E70-E80, E83-E90, F00-F07, F09-F25, F28-F34, F38-F45, F48, F50-F55, F59-F66, F68-F73, F78-F84, F88-F95, F98, F99, H00-H06, H11, H13, H15-H22, H25-H28, H30-H36, H40, H42, H43-H55, H57-H59, H61, H62, H69, H72-H75, H80-H83, H90-H95, I00-I02, I05-I13, I15, I20-I28, I3, I34-I38, I42-I52, I60-I74, I77-I89, I95, I97-I99, J30, J31, J33-J35, J37-J47, J60, J64, J66-J70, J80-J82, J84, J90-J96, J98, J99, K00-K03, K06-K14, K20-K23, K25-K31, K35-K38, K40-K46, K50-K52, K55-K60, K62, K63, K70-K77, K80, K82, K83, K85-K87, K90-K93, L05, L10-L14, L20-L30, L40-L45, L50-L60, L62-L68, L70-L75, L80-L95, L97-L99, M02, M03, M05-M25, M30-M36, M40-M43, M45-M51, M53, M54, M61-M63, M65-M68, M70-M73, M75-M77, M79-M85, M87-M96, M99, N00-N08, N11-N23, N25-N29, N31-N33, N35-N37, N39, N40, N42-N48, N50, N51, N60, N62-N64, N75-N77, N80-N99, P04, P08, P51, P53-P60, P70-P72, P74-P76, P78, P80, P81, P83, P92-P94, R00, R01, R03, R05, R06, R11-R23, R26, R27, R29-R36, R39-R49, R55, R56, R59, R63, R70-R74, R76, R77, R80-R82, R84-R87, R90, R91 |
| Congenital anomalies | G10-G13, G20-G26, G30-G32, G35-G37, G40, G41, G43-G47, G50-G64, G70-G73, G80-83, G90-G99, Q00-Q07, Q10-18, Q20-Q28, Q30-Q45, Q50-56, Q60-Q87, Q89-Q93, Q95, Q96-Q99 |
| Diarrhoeal diseases | A00-A09 |
| Tetanus | A33-A35 |
| Injuries | S00-S99, T00-T71, T73-T75, T78-T98, V01-V06, V09-V99, W00-W46, W49-W60, W64-W70, W73-W81, W83-W94, W99, X00-X06, X08-X52, X57-X99, Y00-Y36, Y40-Y66, Y69-Y91, Y97, Y98 |
| Other causes: | |
| *Fever of unknown origin* | R50 |
| *Ill defined or cause unknown* | P96, R02, R07, R09, R10, R25, R51-R54, R57-R58, R60-R62, R64, R68, R69, R78, R79, R83, R89, R92-R96, R98, R99 |
| *Malaria* | B50-B54 |
| *Measles* | B01, B05 |
| *Nutritional diseases* | D50-D53, E00-E02, E40-E46, E50-E56, E59-E61, E63, E64, X53, X54 |
| *Other infectious and parasitic diseases* | A15-A19, A30, A31, A36, A50-A60, A63-A67, A71, A90-A96, A98, A99, B00, B02-B04, B06-B09, B15-B27, B30, B33-B49, B55--B60, B64-B83, B85-B90, B92, B94, B97, B99, J65, K02, K04, K05, K61, N70-N74, R75, U00, Y95 |
| *Poliomyelitis* | A80, B91 |

**Box 2: Cause of death classification for children aged 1-59 months**

| **1-59 months category** | **ICD-10 codes** |
|---|---|
| | |
| Pneumonia | A37, H65-H68, H70, H71, J00-J06, J09-J18, J20-J22, J32, J36, J85, J86, P23, U04 |
| Diarrhoeal diseases | A00-A09 |
| Measles | B01, B05 |
| Other noncommunicable diseases | C00-C26, C30-C34, C37-C41, C43-C58, C60-C85, C88, C90-C97, D01-D07, D09-D48, D55-D77, D80-D84, D86, D89, E03-E07, E10-E16, E20-E32, E34, E35, E65-E68, E70-E80, E83-E90, F00-F07, F09-F25, F28-F34, F38-F45, F48, F50-F55, F59-F66, F68-F73, F78-F84, F88-F95, F98, F99, G10-G13, G20-G26, G30-G32, G35-G37, G40, G41, G43-G47, G50-G64, G70-G73, G80-83, G90-G99, H00-H06, H11, H13, H15-H22, H25-H28, H30-H36, H40, H42, H43-H55, H57-H59, H61, H62, H69, H72-H75, H80-H83, H90-H95, I00-I02, I05-I13, I15, I20-I28, I3, I34-I38, I42-I52, I60-I74, I77-I89, I95, I97-I99, J30, J31, J33-J35, J37-J47, J60, J64, J66-J70, J80-J82, J84, J90-J96, J98, J99, K00-K03, K06-K14, K20-K23, K25-K31, K35-K38, K40-K46, K50-K52, K55-K60, K62, K63, K70-K77, K80, K82, K83, K85-K87, K90-K93, L05, L10-L14, L20-L30, L40-L45, L50-L60, L62-L68, L70-L75, L80-L95, L97-L99, M02, M03, M05-M25, M30-M36, M40-M43, M45-M51, M53, M54, M61-M63, M65-M68, M70-M73, M75-M77, M79-M85, M87-M96, M99, N00-N08, N11-N23, N25-N29, N31-N33, N35-N37, N39, N40, N42-N48, N50, N51, N60, N62-N64, N75-N77, N80-N99, P04, P08, P51, P53-P60, P70-P72, P74-P76, P78, P80, P81, P83, P92-P94, R00, R01, R03-R05, R06, R11-R23, R26, R27, R29-R36, R39-R49, R55, R56, R59, R63, R70-R74, R76, R77, R80-R82, R84-R87, R90, R91 |
| Injuries | S00-S99, T00-T71, T73-T75, T78-T98, V01-V06, V09-V99, W00-W46, W49-W60, W64-W70, W73-W81, W83-W94, W99, X00-X06, X08-X52, X57-X99, Y00-Y36, Y40-Y66, Y69-Y91, Y97, Y98. |
| Malaria | B50-B54 |
| Meningitis/encephalitis | A39, A81-A89, G00-G09 |
| Nutritional diseases | D50-D53, E00-E02, E40-E46, E50-E56, E59-E61, E63, E64, X53, X54 |
| Acute bacterial sepsis and severe infections | A20-A28, A32, A38, A40-A44, A46, A48, A49, A68-A70, A74, A75, A77-A79, B95, B96, H10, H60, I30, I32, I33, I39-I41, K65, K67, K81, L00-L04, L08, M00, M01, M60, M86, N10, N30, N34, N41, N49, N61, P36, P38 |
| Other infectious and parasitic diseases | A30, A31, A36, A50-A60, A63-A67, A71, A90-A96, A98, A99, B00, B02-B04, B06-B09, B15-B19, B25-B27, B30, B33-B49, B55--B60, B64-B83, B85-B89, B92, B94, B97, B99, K02, K04, K05, K61, N70-N74, P35, P37, P39, U00, Y95 |
| Other causes: | |
| *Birth asphyxia & birth trauma* | P00, P02, P03. P10-P15, P20, P21, P24, P29, P50, P90, P91 |
| *Congenital anomalies* | Q00-Q07, Q10-18, Q20-Q28, Q30-Q45, Q50-56, Q60-Q87, Q89-Q93, Q95, Q96-Q99 |
| *Fever of unknown origin* | R50 |
| *HIV/AIDS* | B20-B24, R75 |
| *Ill defined or cause unknown* | P96, R02, R07, R09, R10, R25, R51-R54, R57-R58, R60-R62, R64, R68, R69, R78, R79, R83, R89, R92-R96, R98, R99 |
| *Poliomyelitis* | A80, B91 |
| *Prematurity & low birthweight* | P01, P05, P07, P22, P25-P28, P52, P61, P77 |
| *Tetanus* | A33-A35 |
| *Tuberculosis* | A15-A19, B90, J65 |

## ADDITIONAL RESULTS

In 2005, 27•3 M children were born in India and 2•35 M died at ages 0-4 years. Rural areas had 21•2 M livebirths and 2•0 M deaths. Webfigure 1 shows the distribution deaths among children aged 0-4 years in India. About 67% (1•58 M/2•35 M) of all child deaths occurred during the first year of life, 43% (1•01 M/2•35 M) occurred within the neonatal period, 29% (0•67 M/2•35 M) occurred during the first week, and 18% (0•42 M/2•35 M) occurred during the first two days of life. More boys (14•2 M) than girls (13•1 M) were born, however more girls (1•19 M) than boys (1•16 M) died. Among neonates, about 0•13 M more boys (0•57 M) than girls (0•44 M) died. At ages 1-59 months, more girls (0•74 M) than boys (0•59 M) died.

Webtable 1 describes the distribution of births and deaths at ages 0-4 years, including neonatal deaths and deaths at ages 1-59 months, by gender, and for rural and urban areas of India in 2005 for all major states. In addition, it describes the state-level variability in the proportion of deaths at ages 0-4 years that are neonatal deaths.

Webtable 2 presents the mortality rates (per 1000 livebirths) at ages 0-4 years, and for neonatal deaths and deaths at ages 1-59 months, by gender, and for rural and urban areas of India in 2005 for all major states.

Webtable 3 shows the proportional distribution of the leading causes of neonatal deaths and deaths at ages 1-59 months for the major states. The distribution of the top three causes of neonatal deaths is described; prematurity & low birthweight, neonatal infections and birth asphyxia & birth trauma. The distribution of the top two causes of deaths at ages 1-59 months are described; pneumonia and diarrhoeal diseases.

Webtable 4(a-c) and Webfigures 2-6 present, for the leading causes of death, the mortality rates and deaths across the major states and also by urban and rural areas and comparing the lower- and higher-income states. The lower-income states are part of the Empowered Action Group (EAG) (see also figure 1 in main paper). The EAG states are identified by the government as having particularly high levels of child mortality and low life expectancy. [15] Although they have only about 45% of India's population, they account for almost 70% of all child deaths in India. These states comprise Bihar, Chhattisgarh, Jharkhand, Madhya Pradesh, Orissa, Rajasthan, Uttarakhand, and Uttar Pradesh. The EAG states and Assam together (EAGA) are referred to here as the lower-income states.

### Neonatal Deaths

Webfigure 2 shows the neonatal mortality rates and total neonatal deaths from prematurity & low birthweight by major state, rural and urban areas, and poorer and richer states. Webfigure 3 shows the neonatal mortality rates and total neonatal deaths from neonatal infections by major state, rural and urban areas, and poorer and richer states. Webfigure 4 shows the neonatal mortality rates and total neonatal deaths from birth asphyxia & birth trauma by major state, rural and urban areas, and poorer and richer states.

### Deaths between ages 1-59 months

Webfigure 5 shows the mortality rates and total deaths at ages 1-59 months from pneumonia by major state, rural and urban areas, and poorer and richer states. Webfigure 6 shows the mortality rates and total deaths at ages 1-59 months from diarrhoeal diseases by major state, rural and urban areas, and poorer and richer states.

The data for all tables and figures are available in excel format upon written request to the authors (cghr@smh.ca).

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**Webtable 1. Distribution of livebirths and deaths at age 0–4 years by gender, urban/rural area and state in India, 2005**

| | Livebirths (thousands) | | | | | Deaths (thousands) | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Neonatal | | | | | 1–59 months | | | | | 0–4 years | | | | | |
| | Boys | | Girls | | Total | Boys | | Girls | | Total | Boys | | Girls | | Total | Boys | | Girls | | Total | % of deaths at 0–4 years occuring in neonatal period |
| State (Region) | Urban | Rural | Urban | Rural | | Urban | Rural | Urban | Rural | | Urban | Rural | Urban | Rural | | Urban | Rural | Urban | Rural | | |
| **Kerala (S)** | 66 | 200 | 66 | 187 | 519 | <1 | 3 | <1 | 2 | 5 | <1 | <1 | <1 | 2 | 3 | <1 | 4 | <1 | 3 | 9 | 61 |
| **Delhi (N)** | 151 | 12 | 133 | 10 | 306 | 4 | <1 | 2 | <1 | 6 | 3 | <1 | 4 | <1 | 8 | 6 | <1 | 6 | <1 | 14 | 46 |
| **Tamil Nadu (S)** | 243 | 321 | 233 | 325 | 1122 | 5 | 11 | 4 | 9 | 30 | 5 | 5 | 6 | 8 | 25 | 10 | 17 | 10 | 18 | 55 | 54 |
| **Maharashtra (W)** | 433 | 634 | 395 | 583 | 2045 | 8 | 21 | 6 | 18 | 53 | 7 | 13 | 9 | 21 | 51 | 16 | 34 | 16 | 38 | 104 | 51 |
| **West Bengal (E)** | 163 | 679 | 152 | 666 | 1660 | 3 | 26 | 3 | 17 | 48 | 3 | 17 | 5 | 23 | 47 | 6 | 42 | 7 | 40 | 96 | 50 |
| **Himachal Pradesh (N)** | 4 | 64 | 4 | 57 | 129 | <1 | 2 | <1 | 2 | 4 | <1 | 2 | <1 | 2 | 4 | <1 | 4 | <1 | 4 | 8 | 51 |
| **Punjab (N)** | 86 | 181 | 71 | 154 | 492 | 2 | 6 | 2 | 5 | 15 | 2 | 4 | 3 | 7 | 16 | 4 | 11 | 4 | 12 | 31 | 48 |
| **Jammu & Kashmir (N)** | 21 | 92 | 19 | 79 | 211 | <1 | 4 | <1 | 3 | 8 | <1 | 1 | <1 | 3 | 6 | <1 | 6 | <1 | 6 | 14 | 59 |
| **Karnataka (S)** | 179 | 434 | 176 | 413 | 1202 | 3 | 16 | 2 | 12 | 33 | 6 | 15 | 7 | 22 | 51 | 9 | 32 | 9 | 34 | 83 | 39 |
| **Gujarat (W)** | 243 | 477 | 207 | 437 | 1364 | 8 | 21 | 5 | 17 | 50 | 3 | 19 | 7 | 23 | 51 | 11 | 40 | 12 | 39 | 102 | 50 |
| **Andhra Pradesh (S)** | 188 | 626 | 188 | 592 | 1594 | 3 | 30 | 2 | 21 | 56 | 7 | 22 | 7 | 31 | 66 | 9 | 51 | 10 | 52 | 122 | 46 |
| **Haryana (N)** | 80 | 237 | 69 | 206 | 591 | 2 | 9 | 2 | 7 | 20 | 2 | 9 | 3 | 13 | 27 | 4 | 18 | 5 | 20 | 47 | 42 |
| **Jharkhand (E)** | 68 | 347 | 59 | 321 | 795 | 1 | 11 | <1 | 9 | 22 | 2 | 17 | 3 | 24 | 46 | 3 | 28 | 4 | 33 | 68 | 32 |
| **Chhattisgarh (C)** | 47 | 270 | 46 | 273 | 636 | 2 | 14 | 1 | 10 | 28 | 1 | 13 | 2 | 15 | 31 | 3 | 27 | 4 | 25 | 59 | 47 |
| **Bihar (E)** | 123 | 1365 | 109 | 1245 | 2842 | 2 | 47 | 2 | 41 | 93 | 6 | 79 | 7 | 89 | 181 | 8 | 127 | 8 | 130 | 274 | 34 |
| **Assam (NE)** | 30 | 351 | 29 | 336 | 746 | <1 | 14 | <1 | 11 | 26 | <1 | 23 | 1 | 23 | 48 | 2 | 37 | 2 | 34 | 74 | 35 |
| **Rajasthan (C)** | 192 | 794 | 171 | 700 | 1856 | 6 | 40 | 4 | 31 | 81 | 5 | 42 | 6 | 53 | 106 | 11 | 82 | 11 | 84 | 187 | 43 |
| **Uttar Pradesh (C)** | 549 | 2483 | 495 | 2249 | 5777 | 20 | 132 | 15 | 105 | 271 | 21 | 142 | 28 | 169 | 360 | 41 | 274 | 43 | 273 | 631 | 43 |
| **Madhya Pradesh (C)** | 208 | 818 | 198 | 783 | 2007 | 9 | 47 | 6 | 39 | 101 | 7 | 52 | 10 | 61 | 130 | 15 | 99 | 16 | 101 | 231 | 44 |
| **Orissa (E)** | 52 | 400 | 49 | 394 | 895 | 2 | 25 | 1 | 17 | 46 | 2 | 21 | 3 | 32 | 58 | 4 | 47 | 4 | 49 | 104 | 44 |
| **Higher-income states**[T] | 1903 | 4076 | 1757 | 3823 | 11 559 | 41 | 153 | 29 | 113 | 336 | 39 | 114 | 54 | 161 | 368 | 80 | 267 | 83 | 274 | 704 | 48 |
| **Lower-income states**[T] | 1292 | 6909 | 1176 | 6375 | 15 752 | 42 | 332 | 31 | 267 | 672 | 46 | 393 | 61 | 469 | 969 | 88 | 725 | 92 | 736 | 1641 | 41 |
| **INDIA**[†] | **3195** | **10 985** | **2933** | **10 198** | **27 311** | **83** | **485** | **60** | **380** | **1008** | **85** | **507** | **115** | **630** | **1337** | **168** | **992** | **175** | **1010** | **2345** | **43** |

States are listed in ascending order of under-five mortality rate, as given in Webtable 2. Totals may not sum due to rounding. *Lower-income states are the EAGA states (i.e. Assam, Bihar, Chhattisgarh, Jharkhand, Madhya Pradesh, Orissa, Rajasthan, Uttarakhand and Uttar Pradesh); higher-income states are the remaining 26 states/union territories. † Includes the 20 major states shown in the table, plus the 15 smaller states/union territories (i.e. Adaman & Nicobar Islands, Arunachal Pradesh, Chandigarh, Dadra & Nagar Haveli, Daman & Diu, Goa, Lakshadweep, Manipur, Meghalaya, Mizoram, Nagaland, Pondicherry, Sikkim, Tripura and Uttarakhand).

**Webtable 2. Mortality rates by age group, gender, urban/rural area and state in India, 2005**

| | Mortality rate per 1000 livebirths | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Neonatal | | | | | 1–59 months | | | | | | | | | 0–4 years | | | | | | | |
| | | | | | | Boys | | | Girls | | | Total | | | Boys | | | Girls | | | Total | | |
| State (Region) | Boys | Girls | Urban | Rural | Total | Urban | Rural | Total | Urban | Rural | Total | Urban | Rural | Total | Urban | Rural | Total | Urban | Rural | Total | Urban | Rural | Total |
| **Kerala (S)** | 11·9 | 8·5 | 8·0 | 11·0 | 10·2 | 4·1 | 4·7 | 4·5 | 7·1 | 9·3 | 8·7 | 5·6 | 6·9 | 6·6 | 12·2 | 17·9 | 16·4 | 15·0 | 18·0 | 17·2 | 13·6 | 17·9 | **16·8** |
| **Delhi (N)** | 18·7 | 16.0 | 10·2 | 18·2 | 17·4 | 10.0 | 30·1 | 28.0 | 22·6 | 29·6 | 28·9 | 16·2 | 29·8 | 28·5 | 24·6 | 49·3 | 46·7 | 28·2 | 46·8 | 44·9 | 26·4 | 48.0 | **45·9** |
| **Tamil Nadu (S)** | 28·9 | 24·0 | 18·8 | 32·1 | 26·4 | 22·6 | 16·1 | 18·9 | 27·1 | 25·3 | 26·0 | 24·8 | 20·8 | 22·5 | 43·0 | 51·4 | 47·8 | 44·1 | 54·2 | 50·0 | 43·6 | 52·9 | **48·9** |
| **Maharashtra (W)** | 27·5 | 24·6 | 18·1 | 31·6 | 26·1 | 16·8 | 21·1 | 19·3 | 23·3 | 35·7 | 30·7 | 19·9 | 28·1 | 24·8 | 36·4 | 54·0 | 46·8 | 39·7 | 65·9 | 55·3 | 38·0 | 59·7 | **50·9** |
| **West Bengal (E)** | 34·5 | 23·5 | 19·1 | 31·4 | 29·1 | 19·2 | 24·6 | 23·6 | 29·9 | 34·5 | 33·6 | 24·4 | 29·5 | 28·5 | 39·8 | 62·4 | 58·1 | 47·5 | 59·4 | 57·1 | 43·5 | 60·9 | **57·6** |
| **Himachal Pradesh (N)** | 35·1 | 28·2 | 13·1 | 33·2 | 31·9 | 10·6 | 26·5 | 25·5 | 13·3 | 37·1 | 35·5 | 11·9 | 31·5 | 30·3 | 26·0 | 63·0 | 60·6 | 23·9 | 66·6 | 63·7 | 25·0 | 64·7 | **62·2** |
| **Punjab (N)** | 31·8 | 28·8 | 23·2 | 33·9 | 30·5 | 17·8 | 23·9 | 22·0 | 38·6 | 48·5 | 45·4 | 27·2 | 35·2 | 32·7 | 42·4 | 59·2 | 53·8 | 60·1 | 80·7 | 74·2 | 50·4 | 69·1 | **63·2** |
| **Jammu & Kashmir (N)** | 42·0 | 32·9 | 30·3 | 39·5 | 37·8 | 14·2 | 16·0 | 15·6 | 22·2 | 43·1 | 39·0 | 18·0 | 28·5 | 26·5 | 44·8 | 60·6 | 57·6 | 52·1 | 76·8 | 71·9 | 48·3 | 68·0 | **64·3** |
| **Karnataka (S)** | 31·7 | 22·8 | 14·0 | 33·0 | 27·4 | 35·2 | 34·9 | 35·0 | 39·0 | 54·0 | 49·5 | 37·1 | 44·2 | 42·1 | 52·4 | 72·6 | 66·7 | 49·8 | 82·0 | 72·3 | 51·1 | 77·2 | **69·5** |
| **Gujarat (W)** | 40·4 | 33·2 | 28·9 | 41·0 | 37·0 | 10·8 | 39·1 | 29·6 | 33·9 | 51·9 | 46·2 | 21·4 | 45·3 | 37·4 | 44·7 | 82·7 | 70·0 | 56·9 | 90·0 | 79·4 | 50·3 | 86·3 | **74·4** |
| **Andhra Pradesh (S)** | 40·0 | 29·9 | 12·7 | 42.0 | 35·1 | 35·4 | 34·5 | 34·7 | 39·7 | 51·8 | 48·9 | 37·6 | 42·9 | 41·6 | 49·8 | 82·3 | 74·7 | 50·8 | 87·7 | 78·8 | 50·3 | 84·9 | **76·7** |
| **Haryana (N)** | 35·2 | 32·3 | 26·8 | 36·2 | 33·9 | 23·7 | 39·7 | 35·6 | 46·4 | 61·5 | 57·7 | 34·2 | 49·8 | 45·9 | 50·1 | 77·9 | 70·8 | 73·6 | 95·5 | 90·0 | 61·0 | 86·0 | **79·8** |
| **Jharkhand (E)** | 29·0 | 25·8 | 14·3 | 30·0 | 27·5 | 28·9 | 47·7 | 44·6 | 50·4 | 75·4 | 71·5 | 38·9 | 61·0 | 57·5 | 43·4 | 79·6 | 73·6 | 64·5 | 103·4 | 97·3 | 53·2 | 91·0 | **85·0** |
| **Chhattisgarh (C)** | 51·2 | 36·6 | 37·2 | 45·0 | 43·9 | 25·9 | 46·7 | 43·6 | 46·4 | 55·9 | 54·5 | 36·0 | 51·3 | 49·1 | 69·7 | 99·2 | 94·8 | 76·9 | 93·5 | 91·1 | 73·2 | 96·3 | **93·0** |
| **Bihar (E)** | 33·2 | 32·0 | 17·6 | 34·0 | 32·6 | 49·3 | 58·1 | 57·4 | 60·3 | 71·4 | 70·5 | 54·5 | 64·5 | 63·7 | 66·8 | 92·7 | 90·6 | 77·9 | 104·7 | 102·5 | 72·1 | 98·5 | **96·3** |
| **Assam (NE)** | 38·4 | 30·4 | 20·0 | 35·7 | 34·5 | 27·7 | 65·8 | 62·8 | 43·3 | 68·3 | 66·3 | 35·3 | 67·0 | 64·5 | 51·9 | 105·4 | 101·2 | 59·0 | 100·0 | 96·7 | 55·3 | 102·7 | **99·0** |
| **Rajasthan (C)** | 46·6 | 40·3 | 27·0 | 47·7 | 43·7 | 28·2 | 52·7 | 47·9 | 37·1 | 75·2 | 67·7 | 32·3 | 63·2 | 57·2 | 57·3 | 103·5 | 94·5 | 61·7 | 119·4 | 108·0 | 59·3 | 110·9 | **100·9** |
| **Uttar Pradesh (C)** | 50·0 | 43·5 | 32·9 | 50·0 | 46·9 | 39·1 | 57·3 | 54·0 | 56·7 | 74·9 | 71·6 | 47·4 | 65·7 | 62·4 | 75·3 | 110·3 | 104·0 | 86·0 | 121·5 | 115·1 | 80·3 | 115·7 | **109·3** |
| **Madhya Pradesh (C)** | 54·0 | 45·9 | 36.0 | 53·6 | 50·1 | 32·2 | 63·5 | 57·1 | 51·3 | 78·6 | 73·1 | 41·5 | 70·9 | 64·9 | 74·5 | 120·5 | 111·1 | 80·8 | 128·7 | 119·0 | 77·5 | 124·5 | **115·0** |
| **Orissa (E)** | 59·7 | 42·6 | 33·5 | 53·5 | 51·3 | 37·2 | 53·7 | 51·8 | 58·7 | 80·1 | 77·7 | 47·7 | 66·8 | 64·6 | 74·4 | 116·4 | 111·5 | 88·2 | 124·4 | 120·3 | 81·2 | 120·3 | **115·9** |
| **Higher-income states**[†] | 32·4 | 25·6 | 19·2 | 33·7 | 29·1 | 20·5 | 28·1 | 25·7 | 30·5 | 42·2 | 38·5 | 25·3 | 34·9 | 31·9 | 41·9 | 65·7 | 58·1 | 47·2 | 71·9 | 64·1 | 44·5 | 68·7 | **61·0** |
| **Lower-income states**[†] | 45·8 | 39·3 | 29·8 | 45·0 | 42·7 | 35·7 | 56·7 | 53·4 | 51·9 | 73·6 | 70·2 | 43·4 | 64·8 | 61·4 | 68·7 | 104·9 | 99·2 | 78·3 | 115·2 | 109·5 | 73·2 | 109·8 | **104·1** |
| **INDIA**[†] | **40·1** | **33·5** | **23·5** | **40·8** | **36·9** | **26·6** | **46·1** | **41·7** | **39·1** | **61·8** | **56·7** | **32·6** | **53·7** | **48·9** | **52·7** | **90·3** | **81·8** | **59·7** | **99·0** | **90·2** | **56·1** | **94·5** | **85·8** |

States are listed in ascending order of under-five mortality rate. *Lower-income states are the EAGA states (i.e. Assam, Bihar, Chhattisgarh, Jharkhand, Madhya Pradesh, Orissa, Rajasthan, Uttarakhand and Uttar Pradesh); higher-income states are the remaining 26 states/union territories. †Includes the 20 major states shown in the table, plus the 15 smaller states/union territories (i.e. Adaman & Nicobar Islands, Arunachal Pradesh, Chandigarh, Dadra & Nagar Haveli, Daman & Diu, Goa, Lakshadweep, Manipur, Meghalaya, Mizoram, Nagaland, Pondicherry, Sikkim, Tripura and Uttarakhand).

**Webtable 3. Distribution of leading causes of death in neonates and at age 1–59 months by state in the present study, 2001-03**

| | Neonatal | | | | | | | | 1–59 months | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Study deaths | Died in a health facility | Prematurity & low birthweight | | Neonatal infections* | | Birth asphyxia & birth trauma | | Study deaths | Died in a health facility | Pneumonia | | Diarrhoeal diseases | |
| State | n | % | % | (99%CI) | % | (99%CI) | % | (99%CI) | n | % | % | (99%CI) | % | (99%CI) |
| **Kerala (S)** | 91 | 80·2 | 27·9 | (17·4–41·6) | 7·5 | (2·8–18·2) | 33·2 | (21·9–47·0) | 40 | 55·0 | 13·9 | (4·9–33·6) | 4·6 | (0·7–23·9) |
| **Delhi (N)** | 67 | 64·2 | 39·0 | (24·5–55·8) | 4·8 | (1·2–17·9) | 29·4 | (16·7–46·5) | 74 | 28·4 | 35·1 | (23·7–52·9) | 11·9 | (4·9–26·0) |
| **Tamil Nadu (S)** | 274 | 56·6 | 47·9 | (40·1–55·9) | 8·3 | (4·9–13·7) | 16·2 | (11·1–22·9) | 201 | 22·9 | 9·1 | (7·1–18·9) | 22·7 | (15·7–31·5) |
| **Maharashtra (W)** | 462 | 42·6 | 51·9 | (45·6–58·2) | 17·5 | (13·3–22·6) | 15·9 | (11·7–21·3) | 294 | 25·2 | 26·7 | (24·9–39·5) | 12·9 | (8·5–19·1) |
| **West Bengal (E)** | 557 | 26·6 | 33·1 | (28·2–38·4) | 20·6 | (16·5–25·3) | 23·0 | (18·7–27·9) | 623 | 20·7 | 25·7 | (26·7–36·3) | 16·4 | (12·9–20·5) |
| **Himachal Pradesh (N)** | 136 | 39·0 | 32·3 | (22·7–43·8) | 11·8 | (6·2–21·4) | 25·3 | (16·7–36·4) | 89 | 25·8 | 32·5 | (23·0–49·2) | 19·7 | (10·8–33·2) |
| **Punjab (N)** | 109 | 22·9 | 22·8 | (14·1–34·7) | 24·9 | (15·7–37·3) | 27·9 | (18·3–40·1) | 173 | 14·5 | 20·4 | (18·4–35·4) | 21·0 | (14·0–30·2) |
| **Jammu & Kashmir (N)** | 195 | 18·5 | 14·9 | (9·4–22·7) | 45·7 | (36·8–55·0) | 20·4 | (14·0–28·8) | 127 | 24·4 | 46·5 | (37·0–59·4) | 10·2 | (5·1–19·5) |
| **Karnataka (S)** | 564 | 42·4 | 44·4 | (39·0–49·9) | 17·1 | (13·3–21·6) | 21·8 | (17·5–26·7) | 498 | 22·3 | 17·1 | (21·5–32·0) | 16·6 | (12·6–21·4) |
| **Gujarat (W)** | 725 | 34·6 | 43·3 | (38·3–48·5) | 16·3 | (12·9–20·5) | 23·3 | (19·2–27·9) | 628 | 12·7 | 24·4 | (22·9–32·7) | 19·1 | (15·1–23·8) |
| **Andhra Pradesh (S)** | 226 | 51·8 | 46·6 | (38·2–55·3) | 14·1 | (9·1–21·1) | 21·7 | (15·4–29·7) | 114 | 24·6 | 13·7 | (10·7–29·4) | 19·1 | (11·3–30·4) |
| **Haryana (N)** | 311 | 21·9 | 31·9 | (25·5–39·1) | 23·5 | (17·8–30·3) | 22·7 | (17·1–29·3) | 582 | 10·0 | 23·7 | (23·0–32·6) | 27·8 | (23·2–32·8) |
| **Jharkhand (E)** | 199 | 5·0 | 28·7 | (21·2–37·6) | 35·1 | (26·9–44·2) | 17·3 | (11·4–25·4) | 266 | 4·5 | 30·4 | (27·5–42·4) | 21·7 | (15·9–28·9) |
| **Chhattisgarh (C)** | 299 | 10·7 | 37·1 | (30·0–44·8) | 23·4 | (17·6–30·4) | 12·6 | (8·4–18·5) | 264 | 10·6 | 30·3 | (29·1–44·8) | 16·9 | (11·6–24·0) |
| **Bihar (E)** | 1203 | 7·8 | 25·4 | (22·3–28·8) | 34·7 | (31·2–38·3) | 18·2 | (15·5–21·3) | 1454 | 5·6 | 32·1 | (32·3–38·8) | 27·9 | (25·0–31·1) |
| **Assam (NE)** | 524 | 8·8 | 29·5 | (24·6–34·8) | 24·6 | (20·0–29·7) | 23·0 | (18·6–28·0) | 512 | 7·2 | 20·2 | (31·9–42·9) | 21·7 | (17·3–26·7) |
| **Rajasthan (C)** | 965 | 16·2 | 37·2 | (33·2–41·3) | 34·2 | (30·4–38·2) | 11·6 | (9·1–14·6) | 1116 | 8·1 | 38·2 | (41·8–49·5) | 16·7 | (14·0–19·8) |
| **Uttar Pradesh (C)** | 1821 | 12·1 | 19·5 | (17·2–22·1) | 31·4 | (28·6–34·3) | 19·9 | (17·6–22·5) | 2617 | 7·7 | 26·9 | (29·4–34·2) | 26·3 | (24·1–28·6) |
| **Madhya Pradesh (C)** | 1059 | 16·1 | 35·7 | (32·0–39·7) | 29·8 | (26·3–33·6) | 16·6 | (13·9–19·8) | 1201 | 10·7 | 31·0 | (31·9–39·1) | 22·4 | (19·4–25·7) |
| **Orissa (E)** | 763 | 23·2 | 41·7 | (37·2–46·4) | 25·4 | (21·5–29·6) | 17·7 | (14·4–21·6) | 749 | 15·4 | 20·2 | (25·2–33·8) | 20·5 | (17·0–24·6) |
| **Urban** | 977 | 46·9 | 38·0 | (33·6–42·5) | 18·7 | (15·4–22·6) | 20·5 | (14·0–24·4) | 1113 | 23·5 | 24·9 | (21·4–28·8) | 21·4 | (18·0–25·2) |
| **Rural** | 9915 | 19·8 | 31·6 | (30·3–32·9) | 27·9 | (26·7–29·1) | 18·6 | (17·6–19·7) | 11 147 | 10·8 | 28·0 | (26·8–29·2) | 22·8 | (21·7–23·9) |
| **Higher-income states†** | 4026 | 37·4 | 42·1 | (39·8–44·4) | 17·5 | (15·9–19·3) | 21·0 | (19·2–22·9) | 4034 | 18·9 | 23·1 | (21·2–25·1) | 18·1 | (16·4–19·9) |
| **Lower-income states†** | 6866 | 13·3 | 27·8 | (26·4–29·3) | 31·0 | (29·5–32·5) | 17·8 | (16·6–19·1) | 8226 | 8·5 | 29·1 | (27·8–30·5) | 24·1 | (22·8–25·4) |
| **INDIA‡** | **10 892** | **22·2** | **32·4** | **(31·2–33·7)** | **26·7** | **(25·5–27·9)** | **18·9** | **(17·8–19·9)** | **12 260** | **11·9** | **27·6** | **(31·8–34·1)** | **22·6** | **(21·5–23·7)** |

States are listed in ascending order of under-five mortality rate, as given in Webtable 2. Cause-specific percentages and confidence intervals are sample-weighted. *Includes pneumonia, sepsis, and infections of the central nervous system. †Lower-income states are the EAGA states (i.e. Assam, Bihar, Chhattisgarh, Jharkhand, Madhya Pradesh, Orissa, Rajasthan, Uttarakhand and Uttar Pradesh); higher-income states are the remaining 26 states/union territories. ‡ ncludes the 20 major states shown in the table, plus the 15 smaller states/union territories (i.e. Adaman & Nicobar Islands, Arunachal Pradesh, Chandigarh, Dadra & Nagar Haveli, Daman & Diu, Goa, Lakshadweep, Manipur, Meghalaya, Mizoram, Nagaland, Pondicherry, Sikkim, Tripura and Uttarakhand).

**Webtable 4a. Mortality rates and total deaths for the leading causes of death in neonates and at age 1–59 months by state in India, 2005**

| | Neonatal | | | | | | | | | 1–59 months | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Prematurity & low birthweight | | | Neonatal infections* | | | Birth asphyxia & birth trauma | | | Pneumonia | | | Diarrhoeal diseases | | | All causes | | | | | |
| | | | | | | | | | | | | | | | | MR | | | Total deaths (thousands) | | |
| State (Region) | MR | (99% CI) | Total deaths (thousands) | MR | (99% CI) | Total deaths (thousands) | MR | (99% CI) | Total deaths (thousands) | MR | (99% CI) | Total deaths (thousands) | MR | (99% CI) | Total deaths (thousands) | Girls | Boys | Ratio | Girls | Boys | Difference |
| **Kerala (S)** | 2·9 | (1·8–4·3) | 1 | 0·8 | (0·3–1·9) | <1 | 3·4 | (2·2–4·8) | 2 | 0·9 | (0·3–2·2) | <1 | 0·3 | (0·0–1·6) | <1 | 8·7 | 4·5 | 1·9 | 2 | 1 | 1 |
| **Delhi (N)** | 8·3 | (5·2–11·8) | 3 | 1·0 | (0·2–3·8) | <1 | 6·3 | (3·5–9·9) | 2 | 8·7 | (5·4–12·6) | 3 | 2·9 | (1·2–6·4) | <1 | 31·1 | 19·1 | 1·6 | 5 | 3 | 1 |
| **Tamil Nadu (S)** | 12·7 | (10·6–14·8) | 14 | 2·2 | (1·3–3·6) | 2 | 4·3 | (2·9–6·1) | 5 | 2·0 | (1·1–3·6) | 2 | 5·1 | (3·5–7·1) | 6 | 26·0 | 18·9 | 1·4 | 15 | 11 | 4 |
| **Maharashtra (W)** | 13·6 | (11·9–15·2) | 28 | 4·6 | (3·5–5·9) | 9 | 4·2 | (3·0–5·6) | 8 | 6·6 | (5·0–8·5) | 14 | 3·2 | (2·1–4·7) | 7 | 30·7 | 19·3 | 1·6 | 30 | 21 | 9 |
| **West Bengal (E)** | 9·6 | (8·2–11·2) | 16 | 6·0 | (4·8–7·4) | 10 | 6·7 | (5·4–8·1) | 11 | 7·3 | (6·1–8·7) | 12 | 4·7 | (3·7–5·9) | 8 | 33·6 | 23·6 | 1·4 | 28 | 20 | 8 |
| **Himachal Pradesh (N)** | 10·3 | (7·2–14·0) | 1 | 3·8 | (2·0–6·8) | <1 | 8·1 | (5·3–11·6) | 1 | 9·8 | (6·3–14·1) | 1 | 6·0 | (3·3–10·1) | <1 | 35·5 | 25·5 | 1·4 | 2 | 2 | <1 |
| **Punjab (N)** | 6·9 | (4·3–10·6) | 3 | 7·6 | (4·8–11·4) | 4 | 8·5 | (5·6–12·2) | 4 | 6·7 | (4·5–9·6) | 3 | 6·8 | (4·6–9·9) | 3 | 45·4 | 22·0 | 2·1 | 10 | 6 | 4 |
| **Jammu & Kashmir (N)** | 5·6 | (3·6–8·6) | 1 | 17·3 | (13·9–20·8) | 4 | 7·7 | (5·3–10·9) | 2 | 12·3 | (9·4–15·3) | 3 | 2·7 | (1·3–5·2) | <1 | 39·0 | 15·6 | 2·5 | 4 | 2 | 2 |
| **Karnataka (S)** | 12·2 | (10·7–13·7) | 15 | 4·7 | (3·6–5·9) | 6 | 6·0 | (4·8–7·3) | 7 | 7·2 | (5·5–9·3) | 9 | 7·0 | (5·3–9) | 8 | 49·5 | 35·0 | 1·4 | 29 | 21 | 8 |
| **Gujarat (W)** | 16·0 | (14·2–17·9) | 22 | 6.0 | (4·8–7·6) | 8 | 8·6 | (7·1–10·3) | 12 | 9·1 | (7·5–11·0) | 12 | 7·1 | (5·7–8·9) | 10 | 46·2 | 29·6 | 1·6 | 30 | 21 | 8 |
| **Andhra Pradesh (S)** | 16·4 | (13·4–19·4) | 26 | 4·9 | (3·2–7·4) | 8 | 7·6 | (5·4–10·4) | 12 | 5·7 | (3·1–10·1) | 9 | 7·9 | (4·7–12·6) | 13 | 48·9 | 34·7 | 1·4 | 38 | 28 | 10 |
| **Haryana (N)** | 10·8 | (8·6–13·2) | 6 | 7·9 | (6·0–10·3) | 5 | 7·7 | (5·8–9·9) | 5 | 10·9 | (8·9–13·1) | 6 | 12·7 | (10·7–15·1) | 8 | 57·7 | 35·6 | 1·6 | 16 | 11 | 5 |
| **Jharkhand (E)** | 7·9 | (5·8–10·3) | 6 | 9·6 | (7·4–12·1) | 8 | 4·8 | (3·1–7·0) | 4 | 17·5 | (13·6–21·9) | 14 | 12·5 | (9·1–16·6) | 10 | 71·5 | 44·6 | 1·6 | 27 | 19 | 9 |
| **Chhattisgarh (C)** | 16·3 | (13·2–19·7) | 10 | 10·3 | (7·7–13·3) | 7 | 5·5 | (3·7–8·1) | 4 | 14·9 | (11·5–18·7) | 9 | 8·3 | (5·7–11·8) | 5 | 54·5 | 43·6 | 1·3 | 17 | 14 | 4 |
| **Bihar (E)** | 8·3 | (7·3–9·4) | 24 | 11·3 | (10·2–12·5) | 32 | 6·0 | (5·1–7·0) | 17 | 20·4 | (18·5–22·5) | 58 | 17·8 | (15·9–19·8) | 51 | 70·5 | 57·4 | 1·2 | 96 | 85 | 10 |
| **Assam (NE)** | 10·2 | (8·5–12·0) | 8 | 8·5 | (6·9–10·3) | 6 | 7·9 | (6·4–9·7) | 6 | 13·0 | (10·3–16·2) | 10 | 14·0 | (11·2–17·3) | 10 | 66·3 | 62·8 | 1·1 | 24 | 24 | <1 |
| **Rajasthan (C)** | 16·2 | (14·5–18) | 30 | 14·9 | (13·3–16·7) | 28 | 5·1 | (4·0–6·4) | 9 | 21·8 | (19·7–24·0) | 41 | 9·5 | (8·0–11·3) | 18 | 67·7 | 47·9 | 1·4 | 59 | 47 | 12 |
| **Uttar Pradesh (C)** | 9·2 | (8·1–10·4) | 53 | 14·7 | (13·4–16·1) | 85 | 9·3 | (8·3–10·5) | 54 | 16·8 | (15·4–18·2) | 97 | 16·4 | (15–17·8) | 95 | 71·6 | 54·0 | 1·3 | 197 | 164 | 33 |
| **Madhya Pradesh (C)** | 17·9 | (16·0–19·9) | 36 | 14·9 | (13·2–16·8) | 30 | 8·3 | (7·0–9·9) | 17 | 20·1 | (17·9–22·4) | 40 | 14·5 | (12·6–16·7) | 29 | 73·1 | 57·1 | 1·3 | 72 | 59 | 13 |
| **Orissa (E)** | 21·4 | (19·1–23·8) | 19 | 13·0 | (11·0–15·2) | 12 | 9·1 | (7·4–11·1) | 8 | 13·1 | (10·8–15·7) | 12 | 13·3 | (11·0–15·9) | 12 | 77·7 | 51·8 | 1·5 | 34 | 23 | 11 |
| **Urban** | 8·9 | (7·9–10·0) | 54 | 4·4 | (3·6–5·3) | 27 | 4·8 | (4·0–5·7) | 29 | 8·1 | (7·0–9·4) | 50 | 7·0 | (5·9–8·2) | 43 | 39·1 | 26·6 | 1·5 | 115 | 85 | 30 |
| **Rural** | 12·9 | (12·4–13·4) | 273 | 11·4 | (10·9–11·9) | 241 | 7·6 | (7·2–8·0) | 161 | 15·0 | (14·4–15·7) | 319 | 12·2 | (11·6–12·8) | 259 | 61·8 | 46·1 | 1·3 | 630 | 506 | 124 |
| **Higher-income states†** | 12·3 | (11·6–12·9) | 141 | 5·1 | (4·6–5·6) | 58 | 6·1 | (5·6–6·7) | 70 | 7·4 | (6·8–8·0) | 86 | 5·8 | (5·2–6·4) | 68 | 38·5 | 25·7 | 1·5 | 215 | 154 | 61 |
| **Lower-income states†** | 11·9 | (11·3–12·5) | 186 | 13·2 | (12·6–13·9) | 210 | 7·6 | (7·1–8·2) | 120 | 17·9 | (17·1–8·7) | 283 | 14·8 | (14·0-15·6) | 234 | 70·2 | 53·4 | 1·3 | 530 | 438 | 92 |
| **INDIA‡** | **12·0** | **(11·5–12·4)** | **327** | **9·9** | **(9·4–10·3)** | **268** | **7·0** | **(6·6–7·4)** | **190** | **13·5** | **(13·0–14·1)** | **369** | **11·1** | **(10·5–11·6)** | **302** | **56·7** | **41·7** | **1·4** | **745** | **592** | **153** |

States are listed in ascending order of under-five mortality rate, as given in Webtable 2. Totals may not sum due to rounding (including totals of boys and girls given in Webtables 4b and 4c). *Includes neonatal pneumonia, sepsis, and infections of the central nervous system. †Lower-income states are the EAGA states (i.e. Assam, Bihar, Chhattisgarh, Jharkhand, Madhya Pradesh, Orissa, Rajasthan, Uttarakhand and Uttar Pradesh); higher-income states are the remaining 26 states/union territories. ‡ Includes the 20 major states shown in the table, plus the 15 smaller states/union territories (i.e. Adaman & Nicobar Islands, Arunachal Pradesh, Chandigarh, Dadra & Nagar Haveli, Daman & Diu, Goa, Lakshadweep, Manipur, Meghalaya, Mizoram, Nagaland, Pondicherry, Sikkim, Tripura and Uttarakhand).

**Webtable 4b. Boy mortality rates and total deaths for the leading causes of death in neonates and at age 1–59 months by state in India, 2005**

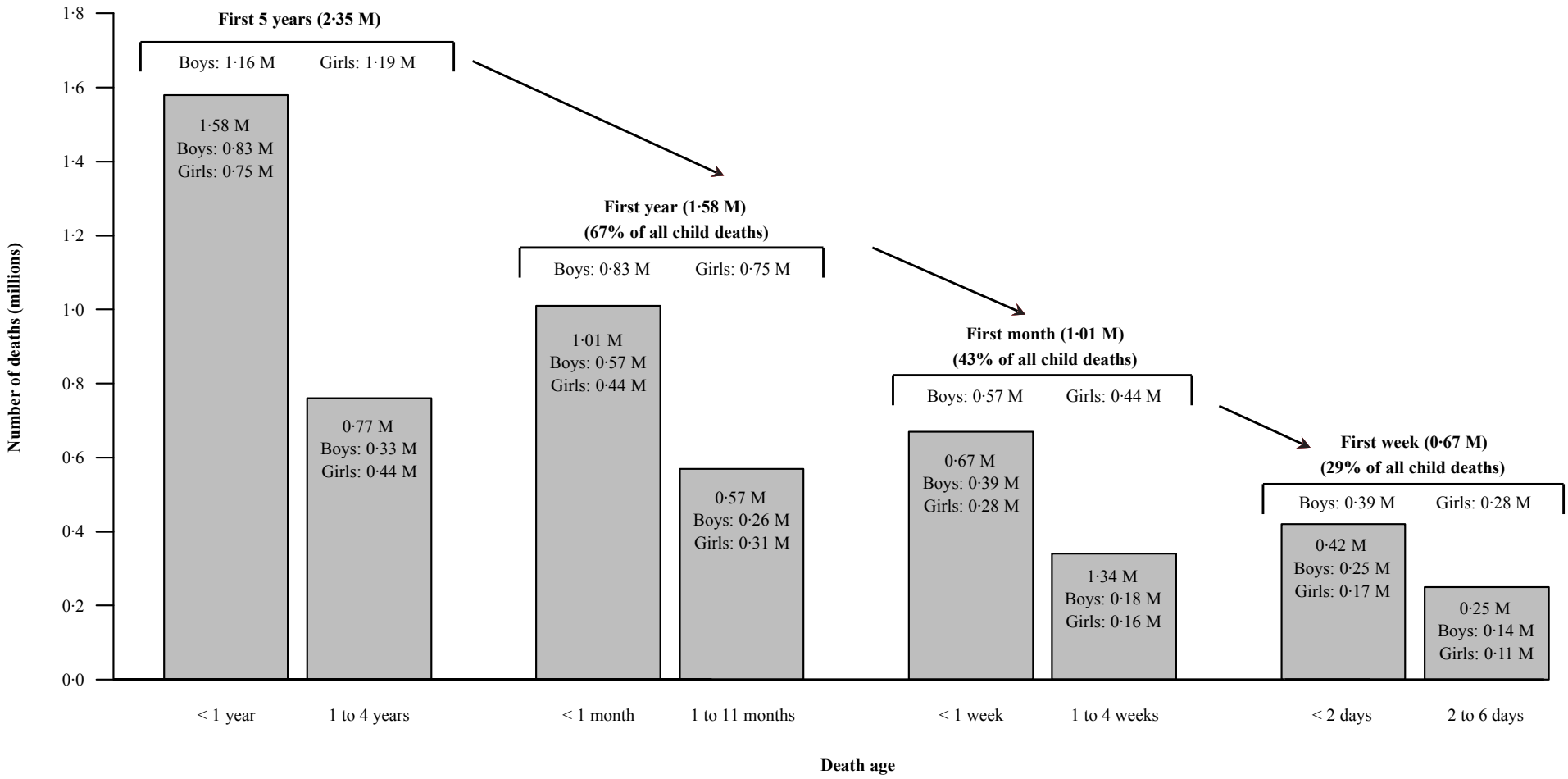
| | Neonatal | | | | | | | | | 1–59 months | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Prematurity & low birthweight | | | Neonatal infections* | | | Birth asphyxia & birth trauma | | | Pneumonia | | | Diarrhoeal diseases | | |
| State (Region) | MR | (99% CI) | Total deaths (thousands) | MR | (99% CI) | Total deaths (thousands) | MR | (99% CI) | Total deaths (thousands) | MR | (99% CI) | Total deaths (thousands) | MR | (99% CI) | Total deaths (thousands) |
| **Kerala (S)** | 3·6 | (2·0–5·8) | <1 | 0·9 | (0·2–2·7) | <1 | 3·7 | (2·1–5·9) | 1 | 0·7 | (0·2–2·3) | <1 | 0§ | | <1 |
| **Delhi (N)** | 10·3 | (6·2–14·9) | 2 | 1·3 | (0·3–5·5) | <1 | 5.0 | (2·2–9·8) | <1 | 4·7 | (1·6–10·2) | <1 | 3·3 | (0·9–8·6) | <1 |
| **Tamil Nadu (S)** | 13.0 | (10·1–16) | 7 | 2·7 | (1·4–4·8) | 2 | 5·2 | (3·2–7·8) | 3 | 2.0 | (0·9–4·0) | 1 | 3·9 | (2·2–6·2) | 2 |
| **Maharashtra (W)** | 14·1 | (11·7–16·4) | 15 | 4·6 | (3·1–6·5) | 5 | 5·1 | (3·4–7·2) | 5 | 5·3 | (3·5–7·6) | 6 | 3.0 | (1·7–5·1) | 3 |
| **West Bengal (E)** | 12.0 | (9·8–14·5) | 10 | 7·4 | (5·6–9·6) | 6 | 7·8 | (6·0–10·1) | 7 | 5·7 | (4·3–7·3) | 5 | 4.0 | (2·8–5·5) | 3 |
| **Himachal Pradesh (N)** | 12·5 | (8·0–17·8) | <1 | 5·5 | (2·6–10·5) | <1 | 8·4 | (4·7–13·7) | <1 | 7·1 | (3·5–12·3) | <1 | 3·9 | (1·4–8·9) | <1 |
| **Punjab (N)** | 4·5 | (1·9–9·8) | 1 | 7·2 | (3·6–13·0) | 2 | 12·6 | (7·7–18·2) | 3 | 4·9 | (2·6–8·3) | 1 | 4·1 | (2·0–7·3) | 1 |
| **Jammu & Kashmir (N)** | 5·7 | (3·0–10·2) | <1 | 18·2 | (13·3–23·3) | 2 | 8·7 | (5·2–13·5) | <1 | 7·4 | (5·0–9·8) | <1 | 1·9 | (0·8–4·2) | <1 |
| **Karnataka (S)** | 13·9 | (11·7–16·3) | 9 | 5·5 | (4·0–7·6) | 3 | 6·4 | (4·7–8·5) | 4 | 6·1 | (4·1–8·6) | 4 | 5·4 | (3·5–7·9) | 3 |
| **Gujarat (W)** | 18·4 | (15·7–21·2) | 13 | 5·7 | (4·1–7·8) | 4 | 9·9 | (7·8–12·4) | 7 | 7.0 | (5·2–9·2) | 5 | 5·6 | (4·0–7·7) | 4 |
| **Andhra Pradesh (S)** | 20·9 | (16·4–25·4) | 17 | 3·3 | (1·6–6·8) | 3 | 8·8 | (5·5–13·2) | 7 | 5·7 | (2·3–12·1) | 5 | 6·1 | (2·7–12·4) | 5 |
| **Haryana (N)** | 11·2 | (8·3–14·5) | 4 | 7·5 | (5·2–10·6) | 2 | 8·7 | (6·2–11·8) | 3 | 9·2 | (6·8–12) | 3 | 8·1 | (5·9–10·8) | 3 |
| **Jharkhand (E)** | 7·5 | (4·7–11·1) | 3 | 9·2 | (6·2–12·9) | 4 | 6.0 | (3·5–9·5) | 2 | 11·7 | (7·9–16·6) | 5 | 11.0 | (7·3–15·8) | 5 |
| **Chhattisgarh (C)** | 21·1 | (16·2–26·3) | 7 | 10·5 | (7·0–15·2) | 3 | 6·9 | (4·2–10·9) | 2 | 11·8 | (7·8–16·9) | 4 | 5·8 | (3·0–10·4) | 2 |
| **Bihar (E)** | 8·6 | (7·2–10·1) | 13 | 11·1 | (9·6–12·8) | 17 | 6·3 | (5·1–7·7) | 9 | 18·3 | (15·6–21·1) | 27 | 14·9 | (12·4–17·6) | 22 |
| **Assam (NE)** | 10·8 | (8·4–13·7) | 4 | 8·6 | (6·4–11·3) | 3 | 9·8 | (7·5–12·6) | 4 | 13·6 | (9·9–18·2) | 5 | 13·4 | (9·7–18·0) | 5 |
| **Rajasthan (C)** | 16·8 | (14·3–19·3) | 17 | 15·6 | (13·3–17·9) | 15 | 5·7 | (4·2–7·6) | 6 | 18·4 | (15·8–21·1) | 18 | 7·5 | (5·7–9·7) | 7 |
| **Uttar Pradesh (C)** | 9·5 | (8·0–11·3) | 29 | 15·2 | (13·4–17·1) | 46 | 10·5 | (8·9–12·3) | 32 | 14·8 | (13·0–16·7) | 45 | 12·8 | (11·1–14·7) | 39 |
| **Madhya Pradesh (C)** | 17·1 | (14·5–20·0) | 18 | 17·1 | (14·5–19·9) | 18 | 9·9 | (7·9–12·4) | 10 | 15·1 | (12·5–18) | 15 | 12·5 | (10·1–15·2) | 13 |
| **Orissa (E)** | 25·2 | (21·6–29) | 11 | 14·2 | (11·3–17·7) | 6 | 11.0 | (8·4–14·2) | 5 | 9·1 | (6·7–12·1) | 4 | 11·7 | (9·1–14·9) | 5 |
| **Urban** | 10·5 | (9·0–12·1) | 34 | 4·1 | (3·1–5·3) | 13 | 5·6 | (4·4–7·0) | 18 | 6·1 | (4·8–7·7) | 19 | 5·3 | (4·0–6·8) | 17 |
| **Rural** | 13·8 | (13·0–14·5) | 153 | 12.0 | (11·3–12·8) | 132 | 8·7 | (8·0–9·3) | 96 | 11·3 | (11·9–13·5) | 124 | 9·9 | (9·2–10·6) | 109 |
| **Higher-income states†** | 13·9 | (12·9–14·9) | 83 | 5·3 | (4·7–6·1) | 32 | 7·1 | (6·3–7·9) | 42 | 5·9 | (5·2–6·7) | 35 | 4·5 | (3·9–5·2) | 27 |
| **Lower-income states†** | 12·5 | (11·6–13·4) | 103 | 13·8 | (12·9–14·7) | 113 | 8·7 | (7·9–9·5) | 71 | 15·1 | (14·1–16·2) | 124 | 12.0 | (11·0–13·0) | 98 |
| **INDIA‡** | **13.0** | **(12·3–13·7)** | **185** | **10·3** | **(9·6–10·9)** | **145** | **8.0** | **(7·4–8·6)** | **113** | **11·2** | **(10·6–11·9)** | **159** | **8·9** | **(8·2–9·5)** | **126** |

States are listed in ascending order of under-five mortality rate, as given in Webtable 2. Totals may not sum due to rounding. *Includes neonatal pneumonia, sepsis, and infections of the central nervous system. †Lower-income states are the EAGA states (i.e. Assam, Bihar, Chhattisgarh, Jharkhand, Madhya Pradesh, Orissa, Rajasthan, Uttarakhand and Uttar Pradesh); higher-income states are the remaining 26 states/union territories. ‡Includes the 20 major states shown in the table, plus the 15 smaller states/union territories (i.e. Adaman & Nicobar Islands, Arunachal Pradesh, Chandigarh, Dadra & Nagar Haveli, Daman & Diu, Goa, Lakshadweep, Manipur, Meghalaya, Mizoram, Nagaland, Pondicherry, Sikkim, Tripura and Uttarakhand). §No diarrhoeal deaths were recorded among boys aged 1–59 months in Kerala in the study.

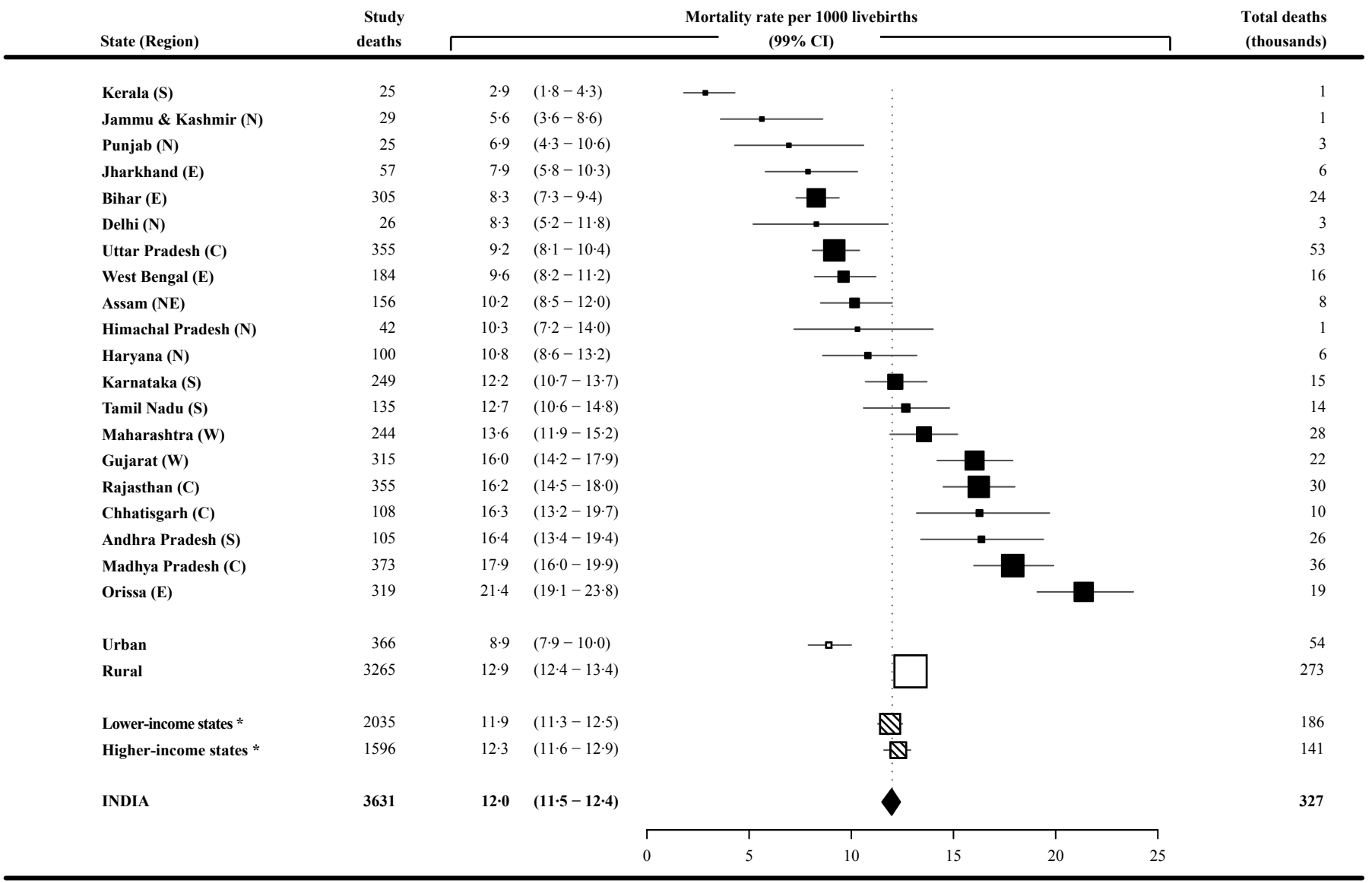
**Webtable 4c. Girl mortality rates and total deaths for the leading causes of death in neonates and at age 1–59 months by state in India, 2005**

| | Neonatal | | | | | | | | | 1–59 months | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Prematurity & low birthweight | | | Neonatal infections* | | | Birth asphyxia & birth trauma | | | Pneumonia | | | Diarrhoeal diseases | | |
| State (Region) | MR | (99% CI) | Total deaths (thousands) | MR | (99% CI) | Total deaths (thousands) | MR | (99% CI) | Total deaths (thousands) | MR | (99% CI) | Total deaths (thousands) | MR | (99% CI) | Total deaths (thousands) |
| **Kerala (S)** | 2·1 | (0·9–3·9) | <1 | 0·7 | (0·2–2·4) | <1 | 3.0 | (1·6–4·9) | <1 | 1·1 | (0·2–3·6) | <1 | 0·7 | (0·1–3·3) | <1 |
| **Delhi (N)** | 5.0 | (1·5–11·3) | <1 | 0·5 | (0·0–5·1) | <1 | 10·4 | (4·8–15) | 1 | 12·6 | (7·4–18·5) | 2 | 2·9 | (0·8–8·8) | <1 |
| **Tamil Nadu (S)** | 12·6 | (9·6–15·5) | 7 | 1·7 | (0·7–3·9) | <1 | 3·3 | (1·7–6·0) | 2 | 2.0 | (0·8–4·6) | 1 | 6·6 | (4·0–10·1) | 4 |
| **Maharashtra (W)** | 13.0 | (10·7–15·3) | 13 | 4·6 | (3·1–6·6) | 4 | 3·1 | (1·8–5·0) | 3 | 8.0 | (5·5–11·1) | 8 | 3·3 | (1·8–5·8) | 3 |
| **West Bengal (E)** | 7·2 | (5·5–9·1) | 6 | 4·6 | (3·2–6·3) | 4 | 5·5 | (4·0–7·3) | 4 | 9·1 | (7·2–11·4) | 7 | 5·4 | (3·8–7·4) | 4 |
| **Himachal Pradesh (N)** | 7·9 | (4·2–13) | <1 | 1·8 | (0·5–6·2) | <1 | 7·6 | (4·1–12·7) | <1 | 13·2 | (7·3–20·4) | <1 | 8·6 | (4·0–16) | <1 |
| **Punjab (N)** | 9·1 | (5·1–14·3) | 2 | 7·8 | (4·1–13·1) | 2 | 4·7 | (2·0–9·5) | 1 | 8·8 | (5·1–14·1) | 2 | 10·3 | (6·1–16) | 2 |
| **Jammu & Kashmir (N)** | 5·5 | (2·8–9·8) | <1 | 16·1 | (11·6–20·7) | 2 | 6·6 | (3·7–11·1) | <1 | 17·9 | (11·9–24·3) | 2 | 3·2 | (1·0–8·9) | <1 |
| **Karnataka (S)** | 10·3 | (8·5–12·2) | 6 | 3·8 | (2·6–5·4) | 2 | 5·4 | (4·0–7·3) | 3 | 8·3 | (5·6–12·0) | 5 | 8·8 | (6·1–12·2) | 5 |
| **Gujarat (W)** | 13·3 | (10·9–15·9) | 9 | 6·4 | (4·5–8·8) | 4 | 7·2 | (5·2–9·6) | 5 | 11·6 | (8·8–14·9) | 7 | 8·9 | (6·4–11·9) | 6 |
| **Andhra Pradesh (S)** | 11·7 | (8·2–15·7) | 9 | 6·4 | (3·8–10·2) | 5 | 6·4 | (3·8–10·2) | 5 | 5·7 | (2·3–12·7) | 4 | 9·8 | (4·9–17·6) | 8 |
| **Haryana (N)** | 10·4 | (7·2–14·1) | 3 | 8·6 | (5·6–12·3) | 2 | 6·3 | (3·9–9·8) | 2 | 12·8 | (9·7–16·5) | 4 | 18·2 | (14·6–22·2) | 5 |
| **Jharkhand (E)** | 8·3 | (5·4–11·7) | 3 | 10.0 | (7·0–13·5) | 4 | 3·5 | (1·8–6·5) | 1 | 24·6 | (17·7–32·7) | 9 | 13·4 | (8·2–20·7) | 5 |
| **Chhattisgarh (C)** | 11·4 | (7·9–15·8) | 4 | 10.0 | (6·7–14·2) | 3 | 4·2 | (2·1–7·9) | 1 | 17·9 | (12·8–23·8) | 6 | 10·8 | (6·8–16·5) | 3 |
| **Bihar (E)** | 8.0 | (6·5–9·6) | 11 | 11·6 | (9·9–13·3) | 16 | 5·6 | (4·3–7·0) | 8 | 22·8 | (19·9–25·8) | 31 | 20·8 | (18–23·8) | 28 |
| **Assam (NE)** | 9·4 | (7·3–11·9) | 3 | 8·2 | (6·2–10·7) | 3 | 6·1 | (4·3–8·3) | 2 | 12·4 | (8·7–17·1) | 5 | 14·6 | (10·6–19·5) | 5 |
| **Rajasthan (C)** | 15·7 | (13·2–18·3) | 14 | 14·2 | (11·9–16·7) | 12 | 4·3 | (2·9–6·2) | 4 | 25·7 | (22·3–29·3) | 22 | 11·9 | (9·4–14·9) | 10 |
| **Uttar Pradesh (C)** | 8·7 | (7·3–10·4) | 24 | 14·2 | (12·4–16·0) | 39 | 8·1 | (6·7–9·7) | 22 | 19.0 | (17·0–21·3) | 52 | 20·2 | (18·1–22·5) | 55 |
| **Madhya Pradesh (C)** | 18·7 | (16·0–21·4) | 18 | 12·7 | (10·4–15·3) | 12 | 6·7 | (5·0–8·9) | 7 | 25·6 | (22·1–29·2) | 25 | 16·8 | (13·8–20·1) | 16 |
| **Orissa (E)** | 17·5 | (14·6–20·5) | 8 | 11·6 | (9·2–14·5) | 5 | 7·2 | (5·2–9·7) | 3 | 17·7 | (13·7–22·3) | 8 | 14·3 | (10·8–18·7) | 6 |
| **Urban** | 7·1 | (5·8–8·6) | 21 | 4·9 | (3·7–6·2) | 14 | 3·9 | (2·9–5·2) | 11 | 10·3 | (8·5–12·4) | 30 | 8·8 | (7·1–10·9) | 26 |
| **Rural** | 11·9 | (11·3–12·7) | 121 | 10·7 | (10·0–11·4) | 109 | 6·5 | (5·9–7·1) | 66 | 17·5 | (16·6–18·6) | 178 | 14·8 | (13·8–15·7) | 151 |
| **Higher-income states†** | 10·5 | (9·7–11·4) | 59 | 4·9 | (4·2–5·6) | 27 | 5·1 | (4·4–5·9) | 28 | 8·9 | (7·9–10·0) | 50 | 7·1 | (6·3–8·1) | 40 |
| **Lower-income states†** | 11·2 | (10·4–12·1) | 85 | 12·6 | (11·7–13·5) | 95 | 6·5 | (5·8–7·2) | 49 | 20·9 | (19·6–22·2) | 158 | 17·8 | (16·6–19·1) | 134 |
| **INDIA‡** | **10·8** | **(10·2–11·5)** | **142** | **9·4** | **(8·8–10·0)** | **123** | **5·9** | **(5·4–6·4)** | **77** | **16.0** | **(15·1–16·8)** | **210** | **13·4** | **(12·6–14·3)** | **176** |

States are listed in ascending order of under-five mortality rate, as given in Webtable 2. Totals may not sum due to rounding. *Includes neonatal pneumonia, sepsis, and infections of the central nervous system. †Lower-income states are the EAGA states (i.e. Assam, Bihar, Chhattisgarh, Jharkhand, Madhya Pradesh, Orissa, Rajasthan, Uttarakhand and Uttar Pradesh); higher-income states are the remaining 26 states/union territories. ‡Includes the 20 major states shown in the table, plus the 15 smaller states/union territories (i.e. Adaman & Nicobar Islands, Arunachal Pradesh, Chandigarh, Dadra & Nagar Haveli, Daman & Diu, Goa, Lakshadweep, Manipur, Meghalaya, Mizoram, Nagaland, Pondicherry, Sikkim, Tripura and Uttarakhand).

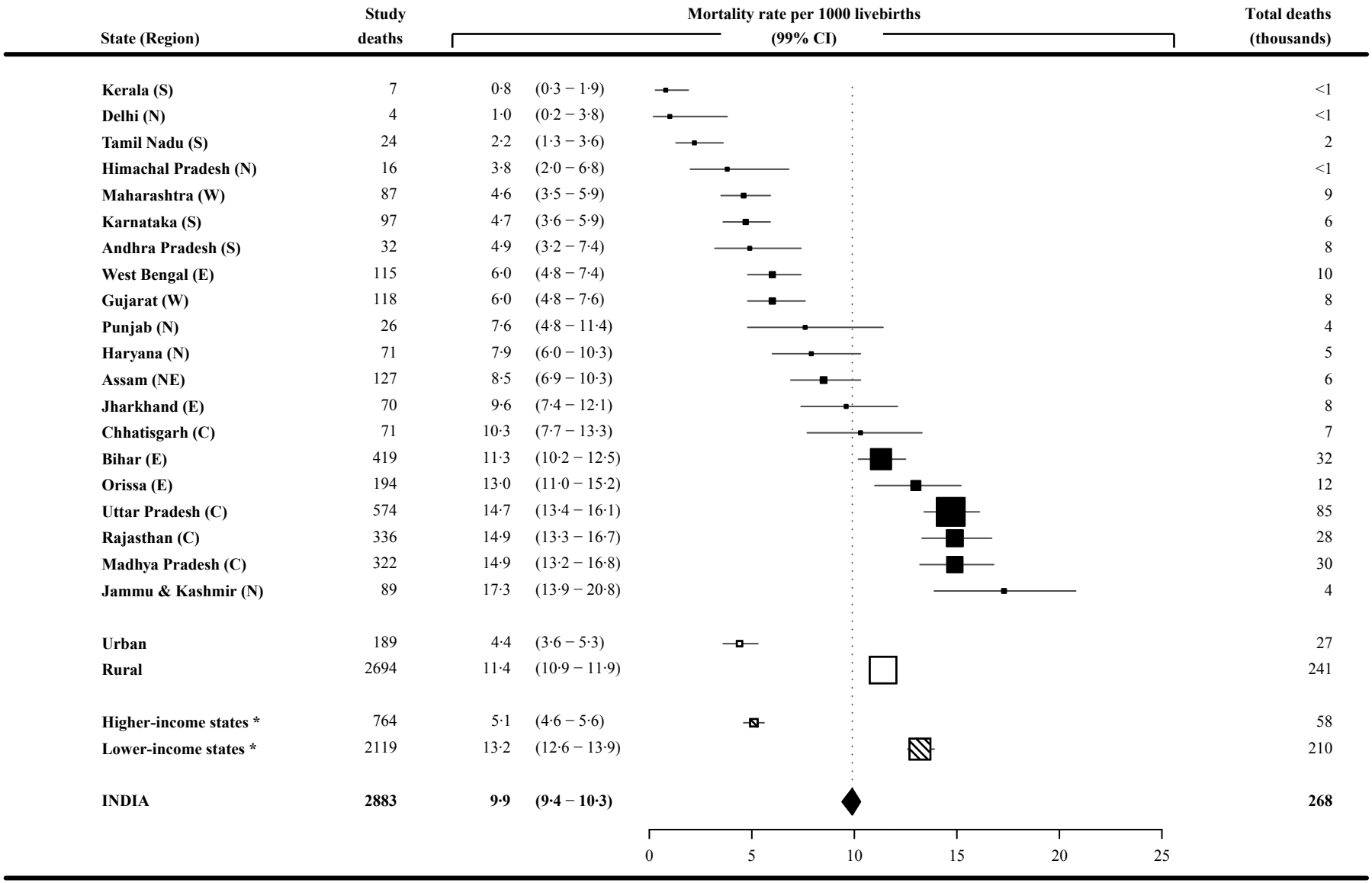



**Webfigure 1: Distribution of 2·35 million deaths at age 0–4 years in India, 2005**




**Webfigure 2: Neonatal mortality due to prematurity & low birthweight by state in India (2005)**

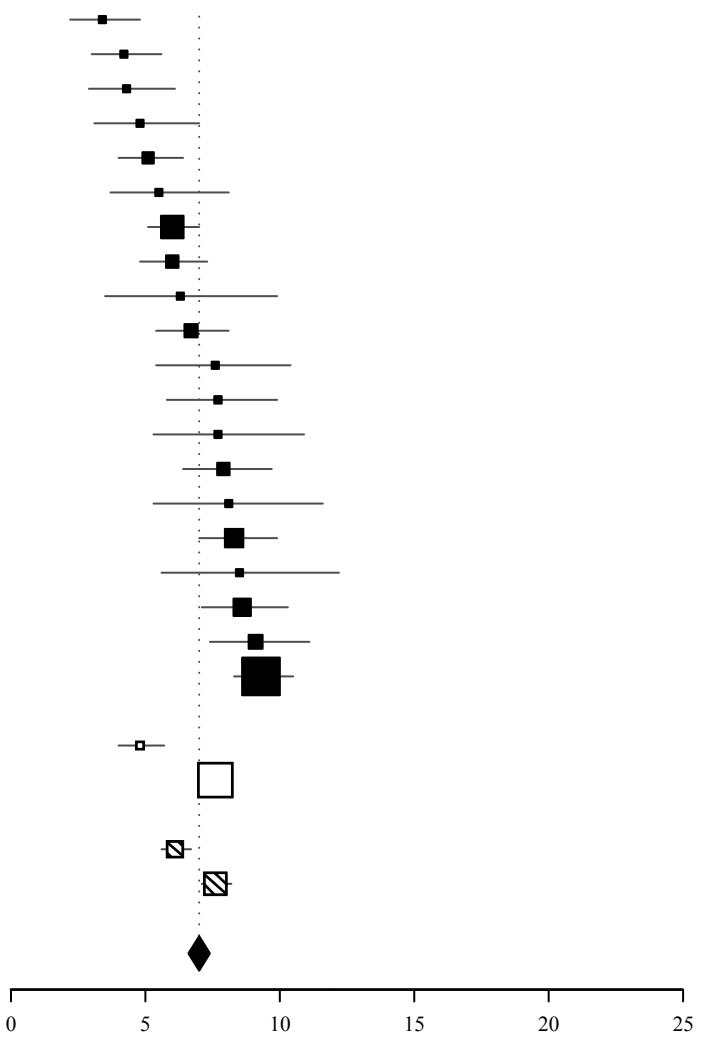
* Lower-income states are the EAGA states (Assam, Bihar, Chhattisgarh, Jharkhand, Madhya Pradesh, Orissa, Rajasthan, Uttarakhand and Uttar Pradesh); higher-income states are the remaining 26 states/union territories.




**Webfigure 3: Neonatal mortality due to infections by state in India (2005)**

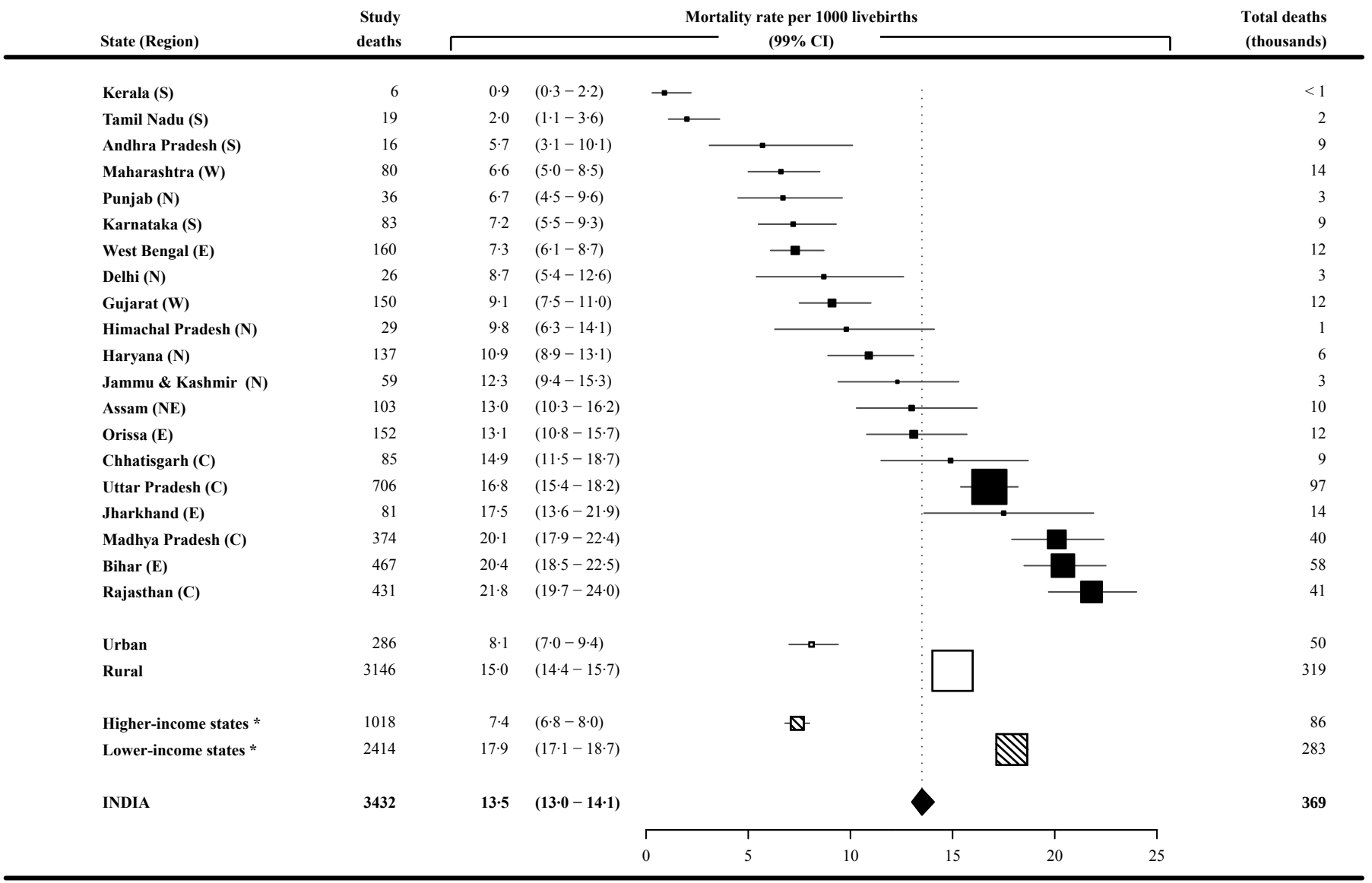
* Lower-income states are the EAGA states (Assam, Bihar, Chhattisgarh, Jharkhand, Madhya Pradesh, Orissa, Rajasthan, Uttarakhand and Uttar Pradesh); higher-income states are the remaining 26 states/union territories.

| State (Region) | Study deaths | Mortality rate per 1000 livebirths (99% CI) | | Total deaths (thousands) |
|---|---|---|---|---|
| **Kerala (S)** | 30 | 3·4 | (2·2 – 4·8) | 2 |
| **Maharashtra (W)** | 67 | 4·2 | (3·0 – 5·6) | 8 |
| **Tamil Nadu (S)** | 44 | 4·3 | (2·9 – 6·1) | 5 |
| **Jharkhand (E)** | 34 | 4·8 | (3·1 – 7·0) | 4 |
| **Rajasthan (C)** | 110 | 5·1 | (4·0 – 6·4) | 9 |
| **Chhatisgarh (C)** | 39 | 5·5 | (3·7 – 8·1) | 4 |
| **Bihar (E)** | 218 | 6·0 | (5·1 – 7·0) | 17 |
| **Karnataka (S)** | 121 | 6·0 | (4·8 – 7·3) | 7 |
| **Delhi (N)** | 18 | 6·3 | (3·5 – 9·9) | 2 |
| **West Bengal (E)** | 128 | 6·7 | (5·4 – 8·1) | 11 |
| **Andhra Pradesh (S)** | 48 | 7·6 | (5·4 – 10·4) | 12 |
| **Haryana (N)** | 72 | 7·7 | (5·8 – 9·9) | 5 |
| **Jammu & Kashmir (N)** | 40 | 7·7 | (5·3 – 10·9) | 2 |
| **Assam (NE)** | 120 | 7·9 | (6·4 – 9·7) | 6 |
| **Himachal Pradesh (N)** | 34 | 8·1 | (5·3 – 11·6) | 1 |
| **Madhya Pradesh (C)** | 178 | 8·3 | (7·0 – 9·9) | 17 |
| **Punjab (N)** | 31 | 8·5 | (5·6 – 12·2) | 4 |
| **Gujarat (W)** | 168 | 8·6 | (7·1 – 10·3) | 12 |
| **Orissa (E)** | 135 | 9·1 | (7·4 – 11·1) | 8 |
| **Uttar Pradesh (C)** | 364 | 9·3 | (8·3 – 10·5) | 54 |
| **Urban** | 204 | 4·8 | (4·0 – 5·7) | 29 |
| **Rural** | 1869 | 7·6 | (7·2 – 8·0) | 161 |
| **Higher-income states *** | 864 | 6·1 | (5·6 – 6·7) | 70 |
| **Lower-income states *** | 1209 | 7·6 | (7·1 – 8·2) | 120 |
| **INDIA** | **2073** | **7·0** | **(6·6 – 7·4)** | **190** |



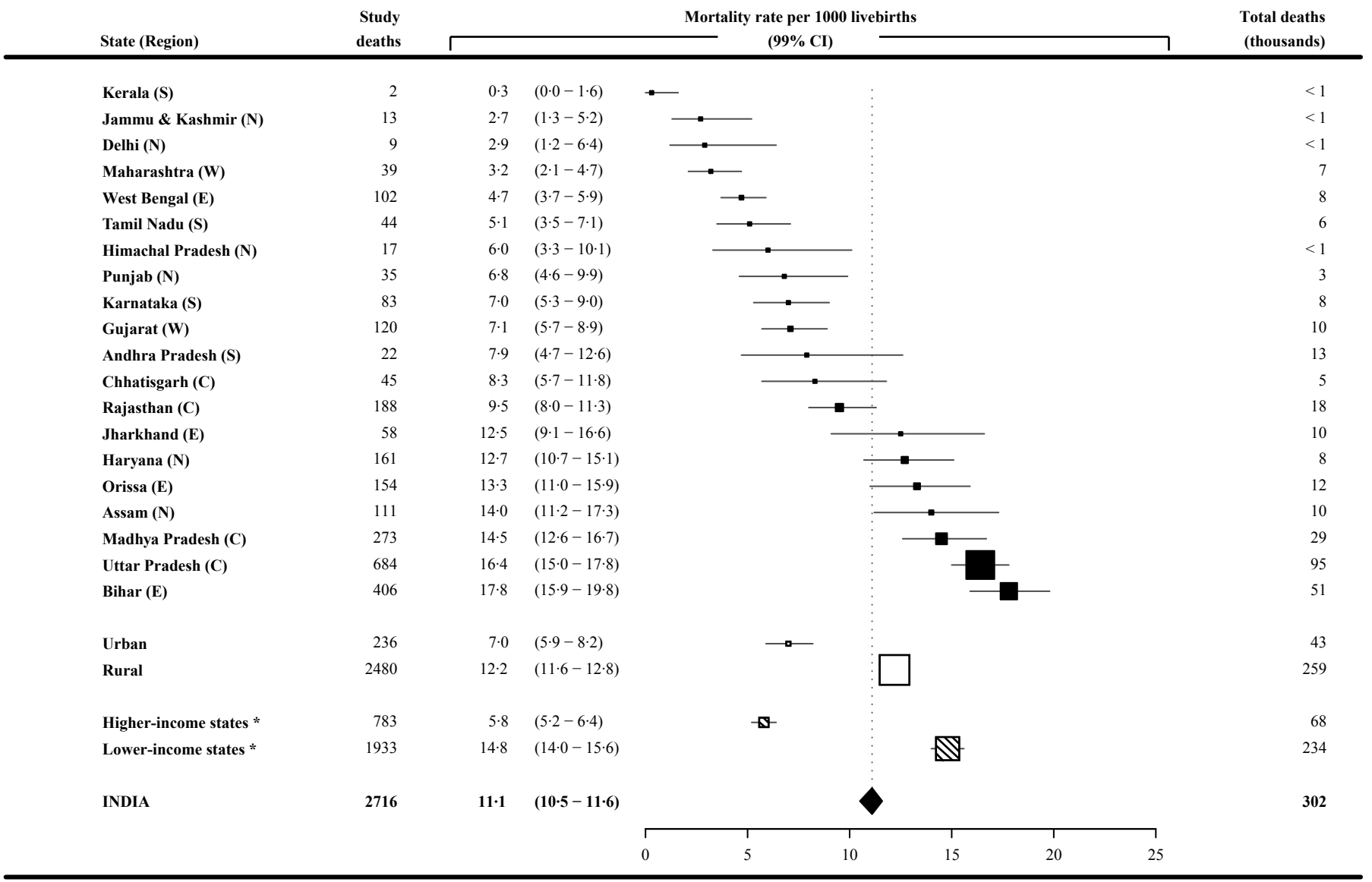

**Webfigure 4: Neonatal mortality due to birth asphyxia & birth trauma by state in India (2005)**

* Lower-income states are the EAGA states (Assam, Bihar, Chhattisgarh, Jharkhand, Madhya Pradesh, Orissa, Rajasthan, Uttarakhand and Uttar Pradesh); higher-income states are the remaining 26 states/union territories.




**Webfigure 5: Mortality due to pneumonia at age 1–59 months by state in India (2005)**

* Lower-income states are the EAGA states (Assam, Bihar, Chhattisgarh, Jharkhand, Madhya Pradesh, Orissa, Rajasthan, Uttarakhand and Uttar Pradesh); higher-income states are the remaining 26 states/union territories.




**Webfigure 6: Mortality due to diarrhoeal diseases at age 1–59 months by state in India (2005)**

* Lower-income states are the EAGA states (Assam, Bihar, Chhattisgarh, Jharkhand, Madhya Pradesh, Orissa, Rajasthan, Uttarakhand and Uttar Pradesh); higher-income states are the remaining 26 states/union territories.