### SUPPLEMENTARY FILE

**Data sources**

**Data Sources: National**

| Country     | Source | Country     | Source |
|-------------|--------|-------------|--------|
| Argentina   | 1      | Kuwait      | 21     |
| Australia   | 2      | Latvia      | 3      |
| Austria     | 3      | Malaysia    | 22     |
| Belgium     | 3      | Malta       | 3      |
| Botswana    | 4      | Mexico      | 23     |
| Brazil      | 5      | Mongolia    | 24     |
| Chile       | 6      | Mozambique  | 25     |
| China       | 7      | Nepal       | 26     |
| Colombia    | 8      | New Zealand | 3      |
| Costa Rica  | 9      | Nicaragua   | 27     |
| Croatia     | 3      | Norway      | 3      |
| Cuba        | 10     | Panama      | 28     |
| Cyprus      | 3      | Papua New Guinea* | 29, 30, 31 |
| Czechia     | 3      | Paraguay    | 32     |
| Ecuador*    | 11, 12, 13 | Peru     | 33     |
| Egypt       | 14     | Philippines* | 34, 35, 36 |
| El Salvador | 15     | Singapore   | 37     |
| England     | 3      | South Africa| 38     |
| Estonia     | 3      | South Korea | 3      |
| France      | 3      | Sri Lanka*  | 39, 40 |
| Guatemala*  | 16, 17, 18 | Thailand* | 41, 42 |
| Iran        | 19     | Trinidad and Tobago | 43 |
| Iraq        | 20     | Tunisia     | 44     |
| Ireland     | 3      | United States | 45    |
| Japan       | 3      | Uruguay     | 46     |

* Also subnational data.

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**Data Sources: Subnational**

| Country | Subnational area       | Source |
|---------|-------------------------|--------|
| Angola  | Dande HDSS              | 1, 2   |
| Burkina Faso | Nouna HDSS        | 3      |
| Kenya   | Kilifi HDSS             | 4, 5, 6|
| Kenya   | Kombewa HDSS            | 7, 8   |
| Tanzania| Korogwe HDSS            | 9-10   |
| Ethiopia| Kersa HDSS              | 11     |
| Ethiopia| Kilite-Awlaelo HDSS     | 12-13  |
| Zambia  | SAVVY in four provinces | 14-16  |
| Bangladesh| Matlab HDSS          | 17, 18 |

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Global Burden of Disease (GBD) region classification

The GBD region classification¹ was changed for two countries in this study: 1) Mongolia from Central Asia to East Asia, because of its proximity to China (the other East Asian country in the database) and because no other Central Asian countries are in this database, and 2) Sri Lanka from Southeast Asia to South Asia, because of its geographic location within South Asia. All European regions were combined because the primary focus is on LMICs, while sub-Saharan African regions were also combined because data were not available for Western Sub-Saharan Africa.

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Further description of models

National model

Comparisons of the percentage of home deaths between countries must account for the significant age and cause dependency of this measure otherwise results may be incorrectly interpreted. For the 15 countries in the database where data on place of death by age at death are available, the percentage of deaths occurring at home typically exhibits a strong relationship with age (Figure A.1). Deaths under the age of 1 year are the most likely to occur in a hospital (80%, on average), with about two in three deaths at ages 1-25 years also occurring in hospitals. Beyond age 25 years, the percentage of home deaths increases steadily with increasing age, rising to about two in three deaths at the oldest ages, but with wide variation across countries. In particular, for some countries where death at home is relatively common, there is little gradient in the measure by age.

Figure A.1: Age-specific home death percentage, 15 countries (grey) and average (blue)

Note: The average all-age percentage of deaths occurring at home in these countries is 46%. Countries listed in Table 1.

Data on the percentage of home deaths by both age and cause of death were relatively scarce, only available for four countries (all in Latin America). In those countries the home death percentage for Group 2 deaths (non-communicable diseases) increases consistently with age, and beyond age 10 is consistently lower for Group 1 deaths (infectious, nutritional, neonatal and maternal causes). The vast majority of deaths from Group 3 causes (external) occur in hospital, although among infants and young children, one-fifth to one-third die at home (Figure 2). The age pattern of the home death percentage for all deaths, similar to that in Figure 1, is affected by the age-specific proportion of deaths due to each cause group.
Figure A.2: Age- and cause-specific home death percentage, average of four countries

Note: Countries are Colombia, Mexico, Chile and Uruguay. The average all-age percentage of deaths occurring at home in these countries is 40%.

The modelling strategy to estimate the home death percentage therefore needed to standardise this metric by age and cause. This was firstly done by developing a set of regressions to predict a country’s age-specific home death percentage that matches its all-age home death percentage and age distribution of deaths. Using the age-specific home death percentage data for the 15 countries shown in Figure A.1, for each age group $x$ a regression was conducted as follows:

$$\logit(h_x) - \logit(h_0) = \beta_0 + \beta_1 Y + \beta_2 Z + \beta_3 I + e$$

where $h$ is home death percentage, $x$ is age group (1-4 years, 5-9 years ... 85+ years), 0 is age group 0 years, $Y$ is the percentage of births occurring at home, $Z$ is health expenditure (average of last 10 years), $I$ is indirectly age-standardised home death percentage (the age distribution of deaths in the population according to the Global Burden of Disease (GBD) Study, multiplied by the average age-specific home death percentage of the 15 countries – this is included to represent the level of home death percentage in a country where the age-specific home death percentage data is not available, i.e. countries outside the 15 included to develop this model), and $e$ is an error term.

The model was then used to predict the age-specific home death percentage in all countries in the database by solving $h_0$ so that the predicted age-specific home death percentages multiplied by the country’s GBD age distribution of deaths equals their reported all-age home death percentage:

$$\sum_{x=0}^{85} \hat{h}_x D_x = h_{all}$$

where $\hat{h}_x$ is predicted home death percentage in age group $x$, $D_x$ is the percentage of a country’s deaths occurring in age group $x$, and $h_{all}$ is observed home death percentage at all ages.

The age-specific home death percentage in each country in the database was then converted to an age-cause-specific home death percentage by using the age-cause-specific home death data in the four countries with these data. For each age group $x$, logit cause ratios were calculated of
\[ \logit(h_{x,c}) - \logit(h_{x,1}) \], where \( c \) is cause and 1 is cause group 1 of 3 (as above). In each age group for each country in the database, we solved \( \logit(h_{x,1}) \) so that the product of the age-cause-specific home death percentage and the percentage of deaths in the age group due to each cause (again from the GBD) equals the age-specific home death percentage:

\[ \sum_{c=1}^{3} \sum_{x=0}^{85} h_{x,c} D_{x,c} = h_x \]

where \( h_{x,c} \) is the predicted age-cause-specific home death percentage and \( D_{x,c} \) is the percentage of deaths in the age group due to each cause.

The age-cause-standardised home death percentage for each country in the database could then be calculated using the GBD's age distribution of global deaths as the standard.  

After conducting the BMA model described in the main text, the predicted age-cause-standardised home death percentage in each country was converted to a predicted age-specific home death percentage using the same models as those described earlier based on the 15 countries' data, but using the age-cause-standardised home death percentage predicted by the BMA model rather than indirectly age-standardised home death percentage as the predictor, and applying the same procedure to solve for \( h_0 \). Next, the logit cause ratios from a previous step were used to convert the age-specific home death percentage to a predicted age-cause-specific home death percentage, and finally to convert to a predicted all-age home death percentage calculated using the GBD’s age-cause distribution of deaths in that country.  

Subnational model

The subnational model is age-standardised to the GBD age distribution of global deaths below and above age five years, because the percentage of deaths by age are only commonly available for these broad age groups at the subnational level. Cause was unable to be standardised for because no reliable cause of death data are available at the subnational level for most countries. Again, the age-specific home death percentage data for the 15 countries, a regression was conducted as follows:

\[ \logit(h_5) - \logit(h_{0-4}) = \beta_0 + \beta_1 Y + \beta_2 Z + \beta_3 J + e \]

Where \( h_5 \) is home death percentage at ages five years and above, \( h_{0-4} \) is home death percentage at ages less than five years, \( J \) is home death percentage indirectly standardised based on ages 0-4 and 5+ years, and \( e \) is an error term. Again, \( h_0 \) is solved so that:

\[ \sum_{x=0}^{5} h_x D_x = h_{all} \]

The age-standardised home death percentage for each country in the database could then be calculated using the GBD’s 2019 age distribution of global deaths as the standard.  

Once the subnational model had been conducted, the predicted age-standardised home death percentage in each subnational area was converted to a predicted age-specific home death percentage (at ages 0-4 and 5+ years) using similar models to those described above based on the 15 countries' data, but using the age-standardised home death percentage predicted by the subnational model rather than indirectly age-standardised home death percentage as the predictor, and using the same procedure to solve for \( h_0 \). The all-age home death percentage could then be calculated in the subnational areas using its percentage of deaths at ages 0-4 and 5+ years, which
can be estimated using the empirical completeness method and an estimate of the under-five mortality rate.2

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Covariates used in the models

The covariates used in the models reflect health system, socio-economic and geographic characteristics. In general, it is expected that a stronger health system, higher level of socio-economic development and more urbanised society would mean greater provision of and access to hospitals, and so a lower percentage of deaths occurring at home. The covariates used are:

Health system

- the log of health expenditure per capita from the World Health Organization Global Health Expenditure Database (constant 2017 purchasing power parity per capita), measured for the same year as the place of death data as well as the average over the previous five years and previous 10 years (to reflect long-term rather than short-term spending). It is expected that this covariate would be negatively related with home death percentage, because higher health expenditure should be related with greater access to and provision of hospitals. Preliminary analysis revealed that log of average health expenditure per capita over the previous 10 years has the strongest negative correlation with age-cause-standardised home death percentage. The United States is an outlier, however, because it has an unusually high home death percentage (31% in 2017) despite clearly having the highest health expenditure per capita; hence it was not included in this database.

- the GBD’s Universal Health Care (UHC) effective coverage index. The 23 indicators of the UHC index represent health service types of promotion, prevention, treatment, rehabilitation and palliation, and across five population age groups. The indicators include both direct measures of the coverage of health system interventions as well as measures of outcomes. The index weighted the indicators based on their potential health gains according to disability-adjusted life-years. It is also hypothesised that the higher the UHC index of a country, the better the access of the population to hospitals and so the lower the expected home death percentage.

- the percentage of births that occur at home reported by UNICEF, Multiple Indicator Cluster Survey and Demographic and Health Survey data. The most recent reported figure was used, as well as the average of the last two reported figures, since in some countries this indicator has reduced substantially in recent years and so a longer-term measurement may more appropriately reflect health system accessibility. This covariate is expected to be positively correlated with home death percentage.

Socio-economic

- the GBD’s Socio-Demographic Index (SDI), which is the geometric mean of the fertility rate at ages below 25 years, mean education for ages 15 years and above, and lag distributed income per capita. A higher level of SDI would be expected to be negatively related with home death percentage, which typically is more common among poorer groups in a population.

- the UN’s Human Development Index (HDI) education index (as a measure of mean years of schooling) and income index, and the geometric mean of these two indexes. The other component of the HDI, life expectancy at birth, was not used because it a measure of mortality, which is related to the outcome variable. Again, it is hypothesised that these covariates are negatively related with home death percentage.

Geographic
the percentage of the population living in urban areas as measured by the UN Population Division. Increased urbanisation is expected to be negatively related with home death percentage because home deaths are typically more common in rural areas.

- the region in which the country is located (see Table 1).

BMA involves specification of two types of covariates: those which clearly should be in the model due to no other alternative, and “auxiliary” covariates for which there are multiple possible covariates that could be included. In the modelling, region and urbanisation were used as covariates in every model (for which there are no alternative measures), while the socio-economic and health system variables were treated as auxiliary variables because for each variable the data has an alternative variable which is similar (e.g. SDI and the geometric mean of the HDI income and education indexes).

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## Additional tables

Table S1: Estimated and observed all-age home death percentage, low- and middle-income countries, all country-years

| Country     | Year | Observed | Estimated | Difference | Region      |
|-------------|------|----------|-----------|------------|-------------|
| Ecuador     | 2013 | 47.5     | 46.5      | -1.0       | Andean LA   |
| Ecuador     | 2014 | 47.7     | 45.8      | -1.9       | Andean LA   |
| Ecuador     | 2015 | 47.3     | 44.5      | -2.8       | Andean LA   |
| Ecuador     | 2016 | 48.7     | 44.2      | -4.5       | Andean LA   |
| Ecuador     | 2017 | 46.9     | 43.8      | -3.1       | Andean LA   |
| Peru        | 2018 | 38.9     | 44.7      | +5.8       | Andean LA   |
| Peru        | 2019 | 36.2     | 44.2      | +8.0       | Andean LA   |
| Brazil      | 2014 | 19.5     | 19.0      | -0.5       | Tropical LA |
| Brazil      | 2015 | 19.7     | 18.9      | -0.8       | Tropical LA |
| Brazil      | 2016 | 19.6     | 18.8      | -0.8       | Tropical LA |
| Brazil      | 2017 | 19.6     | 18.7      | -0.9       | Tropical LA |
| Paraguay    | 2014 | 31.4     | 32.8      | +1.4       | Tropical LA |
| Paraguay    | 2015 | 30.1     | 31.9      | +1.8       | Tropical LA |
| Paraguay    | 2016 | 30.5     | 31.2      | +0.7       | Tropical LA |
| Paraguay    | 2017 | 29.3     | 30.4      | +1.1       | Tropical LA |
| Paraguay    | 2018 | 29.2     | 29.8      | +0.6       | Tropical LA |
| Argentina   | 2017 | 22.6     | 40.2      | +17.6      | Southern LA |
| Colombia    | 2014 | 25.5     | 36.0      | +10.5      | Central LA  |
| Colombia    | 2015 | 25.3     | 35.5      | +10.2      | Central LA  |
| Colombia    | 2016 | 25.0     | 35.1      | +10.1      | Central LA  |
| Colombia    | 2017 | 26.0     | 34.8      | +8.8       | Central LA  |
| Colombia    | 2018 | 25.0     | 34.7      | +9.7       | Central LA  |
| Costa Rica  | 2015 | 35.6     | 33.3      | -2.3       | Central LA  |
| Costa Rica  | 2016 | 36.2     | 32.9      | -3.3       | Central LA  |
| Costa Rica  | 2017 | 36.2     | 32.5      | -3.7       | Central LA  |
| Costa Rica  | 2018 | 37.1     | 32.4      | -4.7       | Central LA  |
| El Salvador | 2016 | 48.2     | 46.3      | -1.9       | Central LA  |
| Guatemala   | 2013 | 64.1     | 62.2      | -1.9       | Central LA  |
| Guatemala   | 2014 | 63.9     | 60.9      | -3.0       | Central LA  |
| Guatemala   | 2015 | 63.9     | 60.2      | -3.7       | Central LA  |
| Guatemala   | 2016 | 64.9     | 59.5      | -5.4       | Central LA  |
| Guatemala   | 2017 | 65.1     | 58.9      | -6.2       | Central LA  |
| Mexico      | 2013 | 44.9     | 34.2      | -10.7      | Central LA  |
| Mexico      | 2014 | 45.1     | 34.1      | -11.0      | Central LA  |
| Mexico      | 2015 | 45.4     | 33.8      | -11.6      | Central LA  |
| Mexico      | 2016 | 45.5     | 33.4      | -12.1      | Central LA  |
| Mexico      | 2017 | 45.8     | 33.2      | -12.6      | Central LA  |
| Nicaragua   | 2015 | 50.1     | 55.6      | +5.5       | Central LA  |
| Nicaragua   | 2016 | 50.6     | 54.3      | +3.7       | Central LA  |
| Nicaragua   | 2017 | 50.1     | 53.7      | +3.6       | Central LA  |
| Country             | Year | Value | Previous | Change | Region |
|---------------------|------|-------|----------|--------|--------|
| Cuba                | 2014 | 40.9  | 33.9     | -7.0   | Caribbean |
| Cuba                | 2015 | 41.2  | 33.1     | -8.1   | Caribbean |
| Cuba                | 2016 | 40.2  | 32.7     | -7.5   | Caribbean |
| Cuba                | 2017 | 39.9  | 32.2     | -7.7   | Caribbean |
| Cuba                | 2018 | 39.9  | 33.4     | -6.5   | Caribbean |
| Trinidad and Tobago | 2014 | 29.4  | 35.1     | +5.7   | Caribbean |
| Trinidad and Tobago | 2015 | 28.4  | 34.5     | +6.1   | Caribbean |
| Trinidad and Tobago | 2016 | 29.6  | 34.3     | +4.7   | Caribbean |
| Trinidad and Tobago | 2017 | 29.7  | 33.9     | +4.2   | Caribbean |
| Trinidad and Tobago | 2018 | 29.8  | 33.6     | +3.8   | Caribbean |
| Egypt               | 2015 | 72.6  | 62.1     | -10.5  | MENA    |
| Egypt               | 2016 | 71.0  | 61.4     | -9.6   | MENA    |
| Egypt               | 2017 | 69.9  | 60.4     | -9.5   | MENA    |
| Egypt               | 2018 | 67.6  | 59.6     | -8.0   | MENA    |
| Egypt               | 2019 | 65.8  | 58.7     | -7.1   | MENA    |
| Iran                | 2013 | 40.8  | 40.7     | -0.1   | MENA    |
| Iran                | 2014 | 37.4  | 40.7     | +3.3   | MENA    |
| Iran                | 2015 | 38.9  | 41.0     | +2.1   | MENA    |
| Iran                | 2016 | 38.4  | 40.5     | +2.1   | MENA    |
| Iran                | 2017 | 36.6  | 40.2     | +3.6   | MENA    |
| Iraq                | 2019 | 48.2  | 51.9     | +3.7   | MENA    |
| Tunisia             | 2007 | 58.9  | 55.8     | -3.1   | MENA    |
| Tunisia             | 2008 | 58.6  | 55.1     | -3.5   | MENA    |
| Tunisia             | 2009 | 55.9  | 54.4     | -1.5   | MENA    |
| Tunisia             | 2010 | 56.3  | 53.7     | -2.6   | MENA    |
| Tunisia             | 2011 | 57.1  | 53.0     | -4.1   | MENA    |
| Nepal               | 2015 | 72.0  | 74.0     | +2.0   | South Asia |
| Sri Lanka           | 2010 | 46.7  | 45.4     | -1.3   | South Asia |
| Sri Lanka           | 2011 | 45.6  | 45.1     | -0.5   | South Asia |
| Sri Lanka           | 2012 | 45.2  | 44.7     | -0.5   | South Asia |
| Sri Lanka           | 2013 | 45.3  | 44.1     | -1.2   | South Asia |
| Sri Lanka           | 2014 | 43.9  | 43.7     | -0.2   | South Asia |
| China               | 2014 | 72.1  | 73.2     | +1.1   | East Asia |
| China               | 2015 | 72.6  | 71.9     | -0.7   | East Asia |
| China               | 2016 | 73.0  | 70.7     | -2.3   | East Asia |
| China               | 2017 | 73.9  | 69.5     | -4.4   | East Asia |
| China               | 2018 | 73.4  | 68.4     | -5.0   | East Asia |
| Mongolia            | 2019 | 60.9  | 61.0     | +0.1   | East Asia |
| Malaysia            | 2013 | 48.0  | 34.8     | -13.2  | Southeast Asia |
| Philippines         | 2014 | 61.1  | 67.0     | +5.9   | Southeast Asia |
| Philippines         | 2015 | 59.1  | 64.8     | +5.7   | Southeast Asia |
| Philippines         | 2016 | 56.8  | 62.6     | +5.8   | Southeast Asia |
| Philippines         | 2017 | 55.2  | 59.9     | +4.7   | Southeast Asia |
| Philippines         | 2018 | 53.2  | 58.3     | +5.1   | Southeast Asia |
| Thailand            | 2013 | 50.4  | 49.9     | -0.5   | Southeast Asia |
| Thailand            | 2014 | 49.6  | 49.1     | -0.5   | Southeast Asia |
| Country          | Year | Value 1 | Value 2 | Difference | Region       |
|------------------|------|---------|---------|------------|--------------|
| Thailand         | 2015 | 49.5    | 48.5    | -1.0       | Southeast Asia|
| Thailand         | 2016 | 49.4    | 47.7    | -1.7       | Southeast Asia|
| Thailand         | 2017 | 49.5    | 47.1    | -2.4       | Southeast Asia|
| Mozambique       | 2007 | 75.0    | 78.7    | +3.7       | SSA          |
| Botswana         | 2018 | 47.9    | 24.6    | -23.3      | SSA          |
| South Africa     | 2012 | 32.8    | 27.8    | -5.0       | SSA          |
| South Africa     | 2013 | 30.1    | 27.5    | -2.6       | SSA          |
| South Africa     | 2014 | 30.1    | 27.2    | -2.9       | SSA          |
| South Africa     | 2015 | 28.5    | 26.9    | -1.6       | SSA          |
| South Africa     | 2016 | 28.8    | 26.8    | -2.0       | SSA          |
| Papua New Guinea | 2010 | 74.9    | 76.1    | +1.2       | Oceania       |

SSA: Sub-Saharan Africa. RMSE: 6.2 percentage points. MAE: 4.6 percentage points.
Table S2: Estimated and observed home death percentage by broad income group and country, 2019

| Country                  | Home death percentage (95% UI) | Estimated deaths* | Income group | Region       |
|--------------------------|-------------------------------|-------------------|--------------|--------------|
| **Low- and middle-income countries** |                               |                   |              |              |
| China                    | 73.4 (73.4 – 73.4)**          | 10,653,448        | Upper-middle | East Asia    |
| India                    | 53.2 (39.1 – 67.0)            | 9,391,549         | Lower-middle | South Asia   |
| Russian Federation       | 30.9 (20.3 – 44.3)            | 1,788,286         | Upper-middle | Europe       |
| Indonesia                | 59.2 (45.6 – 71.8)            | 1,705,895         | Upper-middle | Southeast Asia |
| Nigeria                  | 75.0 (64.3 – 83.8)            | 1,593,180         | Lower-middle | SSA          |
| Pakistan                 | 61.2 (48.3 – 73.1)            | 1,499,878         | Lower-middle | South Asia   |
| Brazil                   | 19.5 (19.4 – 19.6)**          | 1,411,016         | Upper-middle | Tropical LA   |
| Bangladesh               | 73.0 (59.3 – 83.4)            | 849,561           | Lower-middle | South Asia   |
| Mexico                   | 45.8 (45.7 – 45.9)**          | 738,425           | Upper-middle | Central LA   |
| Ukraine                  | 52.2 (37.3 – 67.1)            | 698,663           | Lower-middle | Europe       |
| Philippines              | 53.2 (53.1 – 53.3)**          | 638,801           | Lower-middle | Southeast Asia |
| Vietnam                  | 59.8 (45.4 – 72.9)            | 631,818           | Lower-middle | Southeast Asia |
| Democratic Republic of the Congo | 75.4 (63.5 – 84.7) | 564,091 | Low | SSA |
| Egypt**                  | 65.8 (65.7 – 65.9)**          | 561,556           | Lower-middle | MENA         |
| Ethiopia                 | 91.2 (85.2 – 95.0)            | 559,997           | Low          | SSA          |
| South Africa             | 28.0 (27.9 – 28.1)**          | 521,802           | Upper-middle | SSA          |
| Thailand*                | 49.5 (49.4 – 49.6)**          | 497,502           | Upper-middle | Southeast Asia |
| Turkey                   | 42.6 (29.5 – 57.1)            | 454,742           | Upper-middle | MENA         |
| Myanmar                  | 82.3 (72.5 – 89.2)            | 420,932           | Lower-middle | Southeast Asia |
| Iran                     | 36.6 (36.4 – 36.8)**          | 391,113           | Upper-middle | MENA         |
| Tanzania                 | 74.5 (63.4 – 83.4)            | 354,351           | Lower-middle | SSA          |
| Argentina                | 22.6 (22.5 – 22.7)**          | 348,823           | Upper-middle | Southern LA  |
| Kenya                    | 71.1 (59.3 – 80.9)            | 293,888           | Lower-middle | SSA          |
| Mozambique               | 82.0 (72.6 – 88.9)**          | 264,784           | Low          | SSA          |
| Afghanistan              | 85.2 (77.2 – 90.9)            | 251,418           | Low          | MENA         |
| Colombia                 | 25.0 (24.8 – 25.2)            | 246,679           | Upper-middle | Central LA   |
| Uganda                   | 66.3 (54.5 – 76.8)            | 242,798           | Low          | SSA          |
| Morocco                  | 64.1 (50.5 – 75.9)            | 228,124           | Lower-middle | MENA         |
| Ghana                    | 59.5 (46.7 – 71.4)            | 208,182           | Lower-middle | SSA          |
| Cameroon                 | 63.0 (50.8 – 74.2)            | 207,271           | Lower-middle | SSA          |
| Uzbekistan               | 44.9 (32.0 – 58.9)            | 203,599           | Lower-middle | Europe       |
| Niger                     | 86.4 (78.2 – 92.0)            | 202,621           | Low          | SSA          |
| Sudan                    | 87.2 (79.7 – 92.3)            | 202,165           | Low          | MENA         |
| Burkina Faso             | 65.6 (53.6 – 76.3)            | 201,814           | Low          | SSA          |
| Mali                     | 75.0 (64.1 – 83.9)            | 201,433           | Low          | SSA          |
| Algeria                  | 44.9 (32.1 – 58.3)            | 201,111           | Lower-middle | MENA         |
| Nepal                    | 72.0 (71.8 – 72.2)**          | 193,331           | Lower-middle | South Asia   |
| Venezuela                | 49.4 (35.8 – 63.3)            | 186,929           | Upper-middle | Central LA   |
| Angola                   | 67.3 (55.6 – 77.7)            | 184,934           | Lower-middle | SSA          |
| Country         | HDI (Low – High) | Population | Income Classification | Region          |
|-----------------|------------------|------------|------------------------|-----------------|
| Cote d'Ivoire  | 61.4 (49.3 – 72.8) | 182,433    | Lower-middle           | SSA             |
| Iraq            | 48.2 (48.0 – 48.4)** | 179,615    | Upper-middle           | MENA            |
| Malaysia        | 48.0 (47.8 – 48.2)** | 175,876    | Upper-middle           | Southeast Asia  |
| Yemen           | 86.5 (79.0 – 91.7) | 174,542    | Low                    | MENA            |
| Madagascar      | 84.1 (75.4 – 90.3) | 164,161    | Low                    | SSA             |
| Chad            | 92.3 (87.2 – 95.6) | 156,649    | Low                    | SSA             |
| Peru            | 36.2 (36.0 – 36.4)** | 152,433    | Upper-middle           | Andean LA       |
| Kazakhstan      | 38.5 (36.3 – 52.4) | 139,467    | Upper-middle           | Europe          |
| Sri Lanka       | 43.9 (43.6 – 44.2)** | 135,633    | Lower-middle           | South Asia      |
| Zimbabwe        | 60.9 (48.5 – 72.5) | 126,523    | Lower-middle           | SSA             |
| Bulgaria        | 34.5 (22.7 – 49.0) | 124,226    | Upper-middle           | Europe          |
| Zambia          | 67.0 (55.0 – 77.5) | 123,355    | Lower-middle           | SSA             |
| Belarus         | 33.7 (22.1 – 48.1) | 121,777    | Upper-middle           | Europe          |
| Serbia          | 40.4 (27.2 – 55.7) | 117,629    | Upper-middle           | Europe          |
| Malawi          | 66.8 (54.7 – 77.4) | 116,671    | Low                    | SSA             |
| Guinea          | 82.3 (72.8 – 89.2) | 114,265    | Low                    | SSA             |
| Cambodia        | 72.1 (60.0 – 81.7) | 110,851    | Lower-middle           | South Asia      |
| Cuba            | 39.9 (39.6 – 40.2)** | 105,984    | Upper-middle           | Caribbean       |
| Haiti           | 82.2 (72.1 – 89.4) | 99,708     | Low                    | Caribbean       |
| Guatemala       | 65.1 (64.8 – 65.4) | 94,821     | Upper-middle           | Central LA      |
| Benin           | 60.7 (48.4 – 72.3) | 93,065     | Lower-middle           | SSA             |
| Ecuador         | 46.9 (46.6 – 47.2) | 92,531     | Upper-middle           | Andean LA       |
| Senegal         | 64.8 (52.4 – 75.8) | 89,909     | Lower-middle           | SSA             |
| Syria           | 78.3 (66.6 – 88.7) | 84,425     | Low                    | MENA            |
| Burundi         | 75.6 (64.6 – 84.3) | 83,466     | Low                    | SSA             |
| Bolivia         | 51.1 (37.5 – 64.6) | 75,910     | Lower-middle           | Andean LA       |
| Azerbaijan      | 41.5 (29.1 – 55.3) | 75,129     | Upper-middle           | Europe          |
| South Sudan     | 90.7 (84.7 – 94.6) | 72,739     | Low                    | SSA             |
| Dominican Republic | 34.8 (23.4 – 48.3) | 70,545     | Upper-middle           | Caribbean       |
| Sierra Leone    | 60.9 (48.8 – 72.1) | 70,114     | Low                    | SSA             |
| Papua New Guinea| 74.9 (74.6 – 75.2)** | 69,785     | Lower-middle           | Oceania         |
| Rwanda          | 65.8 (53.3 – 76.6) | 68,571     | Low                    | SSA             |
| Central African Republic | 86.1 (77.7 – 91.9) | 67,755     | Low                    | SSA             |
| Tunisia         | 57.1 (56.7 – 57.5)** | 67,618     | Lower-middle           | MENA            |
| Togo            | 69.1 (57.0 – 79.4) | 53,555     | Low                    | SSA             |
| Honduras        | 58.9 (45.6 – 71.0) | 52,569     | Lower-middle           | Central LA      |
| Georgia         | 45.0 (31.0 – 60.4) | 49,418     | Upper-middle           | Europe          |
| Tajikistan      | 64.9 (51.6 – 76.3) | 48,703     | Low                    | Europe          |
| Laos            | 76.0 (64.9 – 84.6) | 44,457     | Lower-middle           | Southeast Asia  |
| Eritrea         | 86.6 (78.6 – 92.1) | 43,395     | Low                    | SSA             |
| Moldova         | 56.3 (41.1 – 70.8) | 40,998     | Lower-middle           | Europe          |
| El Salvador     | 48.2 (47.7 – 48.7) | 40,199     | Lower-middle           | Central LA      |
| Bosnia and Herzegovina | 46.0 (31.8 – 61.5) | 37,424     | Upper-middle           | Europe          |
| Congo           | 48.7 (36.0 – 61.9) | 35,713     | Lower-middle           | SSA             |
| Kyrgyzstan      | 61.9 (47.5 – 74.7) | 34,676     | Lower-middle           | Europe          |
| Paraguay        | 29.2 (28.7 – 29.7)** | 34,171     | Upper-middle           | Tropical LA     |
| Country                  | 2020 GDP PPP (2016$) | Midpoint Rank | Income Group | Region       |
|-------------------------|----------------------|---------------|--------------|--------------|
| Lebanon                 | 41.2 (28.2 – 55.8)   | 33,858        | Upper-middle | MENA         |
| Turkmenistan            | 37.7 (26.3 – 50.6)   | 33,620        | Upper-middle | Europe       |
| Lesotho                 | 60.3 (47.7 – 72.2)   | 32,514        | Lower-middle | SSA          |
| Jordan                  | 38.2 (26.6 – 51.3)   | 32,265        | Upper-middle | MENA         |
| Libya                   | 44.2 (31.6 – 57.8)   | 31,660        | Upper-middle | MENA         |
| Liberia                 | 77.0 (66.1 – 85.5)   | 29,750        | Low          | SSA          |
| Nicaragua               | 50.1 (49.5 – 50.7)   | 29,196        | Lower-middle | Central LA   |
| Armenia                 | 43.0 (29.4 – 58.1)   | 27,978        | Upper-middle | Europe       |
| Mongolia                | 60.9 (60.3 – 61.5)   | 24,859        | Upper-middle | Europe       |
| Costa Rica              | 37.1 (36.5 – 37.7)   | 24,416        | Upper-middle | Central LA   |
| North Macedonia         | 43.7 (30.0 – 59.0)   | 24,047        | Upper-middle | Europe       |
| Albania                 | 48.3 (33.5 – 63.9)   | 22,671        | Lower-middle | Europe       |
| Botswana                | 47.9 (47.2 – 48.6)   | 21,172        | Lower-middle | SSA          |
| Mauritania              | 66.1 (53.3 – 77.1)   | 20,981        | Upper-middle | SSA          |
| Jamaica                 | 51.7 (36.9 – 66.4)   | 19,658        | Upper-middle | Caribbean    |
| Namibia                 | 36.6 (25.5 – 49.3)   | 18,907        | Upper-middle | SSA          |
| Guinea-Bissau           | 79.3 (69.4 – 87.0)   | 14,816        | Low          | SSA          |
| The Gambia              | 76.9 (65.2 – 85.8)   | 13,505        | Low          | SSA          |
| Gabon                   | 31.0 (20.6 – 43.6)   | 11,767        | Upper-middle | SSA          |
| Swaziland               | 44.0 (32.1 – 57.1)   | 11,566        | Lower-middle | SSA          |
| Timor-Leste             | 79.6 (69.0 – 87.3)   | 7,756         | Lower-middle | Southeast Asia |
| Equatorial Guinea       | 37.1 (26.7 – 48.8)   | 7,618         | Upper-middle | SSA          |
| Djibouti                | 54.0 (41.0 – 66.9)   | 7,575         | Lower-middle | SSA          |
| Fiji                    | 30.1 (16.9 – 47.9)   | 7,419         | Upper-middle | Oceania      |
| Montenegro              | 35.3 (23.4 – 49.8)   | 6,794         | Upper-middle | Europe       |
| Guyana                  | 60.0 (46.1 – 72.9)   | 6,684         | Upper-middle | Caribbean    |
| Solomon Islands         | 59.2 (42.5 – 74.9)   | 6,221         | Lower-middle | Oceania      |
| Comoros                 | 71.7 (59.5 – 81.5)   | 5,007         | Lower-middle | SSA          |
| Suriname                | 42.1 (29.4 – 56.0)   | 4,371         | Upper-middle | Caribbean    |
| Bhutan                  | 54.8 (40.3 – 68.5)   | 4,252         | Lower-middle | South Asia   |
| Cape Verde              | 55.2 (40.6 – 68.8)   | 3,501         | Lower-middle | SSA          |
| Vanuatu                 | 54.4 (37.0 – 71.2)   | 2,236         | Lower-middle | Oceania      |
| Belize                  | 51.2 (37.9 – 64.5)   | 1,990         | Upper-middle | Caribbean    |
| Maldives                | 28.7 (18.2 – 42.0)   | 1,502         | Upper-middle | South Asia   |
| Saint Lucia             | 58.4 (43.0 – 72.5)   | 1,406         | Upper-middle | Caribbean    |
| Samoa                   | 48.2 (30.5 – 66.7)   | 1,367         | Upper-middle | Oceania      |
| Kiribati                | 48.0 (32.1 – 64.7)   | 1,151         | Lower-middle | Oceania      |
| Sao Tome and Principe   | 49.6 (36.0 – 63.3)   | 1,011         | Lower-middle | SSA          |
| Federated States of Micronesia | 31.6 (18.3 – 48.8) | 939 | Lower-middle | Oceania |
| Tonga                   | 42.5 (25.2 – 62.1)   | 658           | Upper-middle | Oceania      |
| Marshall Islands        | 25.1 (14.0 – 40.6)   | 422           | Upper-middle | Oceania      |
| **High-income countries** |                      |               |              |              |
| United States           | 30.8 (30.7 – 30.9)   | 2,946,456     | High         | North America |
| Japan                   | 23.8 (14.5 – 37.0)   | 1,400,013     | High         | HIAP          |
| Germany                 | 20.4 (12.6 – 31.7)   | 959,889       | High         | Europe        |
| Country          | Mean (95% CI) | Median | Continent     |
|------------------|---------------|--------|---------------|
| Italy            | 29.0 (18.5 – 42.9) | 642,342 | High Europe   |
| United Kingdom   | 22.9 (14.3 – 34.9) | 621,815 | High Europe   |
| France           | 23.7 (14.9 – 36.1) | 603,278 | High Europe   |
| Spain            | 27.1 (17.2 – 40.5) | 428,577 | High Europe   |
| Poland           | 33.1 (21.8 – 47.2) | 406,277 | High Europe   |
| South Korea      | 25.8 (16.1 – 39.0) | 318,631 | HIAP          |
| Canada           | 20.8 (12.9 – 32.0) | 288,193 | High North America |
| Romania          | 41.9 (28.5 – 57.1) | 262,811 | High Europe   |
| Australia        | 14.8 (14.6 – 15.0)** | 170,852 | High HIAP     |
| Netherlands      | 18.1 (11.1 – 28.5) | 157,008 | High Europe   |
| Hungary          | 31.0 (20.2 – 44.8) | 128,869 | High Europe   |
| Greece           | 30.5 (19.6 – 44.6) | 128,669 | High Europe   |
| Portugal         | 33.3 (21.7 – 47.9) | 116,387 | High Europe   |
| Belgium          | 18.6 (11.3 – 29.2) | 114,074 | High Europe   |
| Czechia          | 26.7 (17.0 – 39.6) | 113,803 | High Europe   |
| Chile            | 49.0 (48.7 – 49.3)** | 113,086 | High Southern LA |
| Sweden           | 19.5 (12.0 – 30.5) | 93,801  | High Europe   |
| Austria          | 33.0 (32.7 – 33.3)** | 82,490  | High Europe   |
| Switzerland      | 19.6 (11.9 – 30.8) | 69,817  | High Europe   |
| Finland          | 21.2 (13.2 – 32.7) | 56,113  | High Europe   |
| Denmark          | 18.4 (11.3 – 28.8) | 55,374  | High Europe   |
| Slovakia         | 33.5 (22.0 – 47.6) | 54,549  | High Europe   |
| Croatia          | 30.2 (29.8 – 30.6)** | 52,311  | High Europe   |
| Israel           | 23.2 (14.5 – 35.3) | 47,925  | High Europe   |
| Norway           | 21.0 (20.6 – 21.4)** | 41,386  | High Europe   |
| Lithuania        | 30.2 (19.6 – 43.8) | 38,501  | High Europe   |
| New Zealand      | 24.8 (15.3 – 38.0) | 34,498  | High HIAP     |
| Uruguay          | 41.0 (40.5 – 41.5)** | 33,847  | High Southern LA |
| Ireland          | 25.3 (24.8 – 25.8)** | 32,354  | High Europe   |
| United Arab Emirates | 21.7 (14.7 – 30.9) | 29,113  | High MENA     |
| Latvia           | 40.4 (39.8 – 41.0)** | 27,427  | High Europe   |
| Singapore        | 23.9 (23.3 – 24.5)** | 23,222  | High HIAP     |
| Slovenia         | 31.2 (20.1 – 45.5) | 20,813  | High Europe   |
| Panama           | 34.9 (34.2 – 35.6) | 19,798  | High Central LA |
| Estonia          | 30.2 (19.5 – 43.9) | 15,889  | High Europe   |
| Oman             | 27.7 (18.6 – 39.1) | 12,374  | High MENA     |
| Trinidad and Tobago | 29.8 (28.9 – 30.7) | 11,765  | High Caribbean |
| Mauritius        | 41.5 (28.2 – 56.5) | 10,713  | High Southeast Asia |
| Kuwait           | 23.3 (22.4 – 24.2)** | 10,013  | High MENA     |
| Cyprus           | 30.4 (19.7 – 44.2) | 8,707   | High Europe   |
| Qatar            | 17.3 (11.1 – 25.7) | 4,421   | High MENA     |
| Bahrain          | 27.1 (17.8 – 38.9) | 4,266   | High MENA     |
| Luxembourg       | 17.9 (11.0 – 28.2) | 4,147   | High Europe   |
| Malta            | 21.5 (13.3 – 33.2) | 3,780   | High Europe   |
| Barbados         | 47.4 (32.6 – 63.0) | 3,093   | High Caribbean |
| The Bahamas      | 25.0 (16.1 – 36.6) | 2,731   | High Caribbean |
| Country                  | Death Rate (95% UI) | Death Count | Population | Region     |
|-------------------------|---------------------|-------------|------------|------------|
| Iceland                 | 19.0 (11.7 – 29.6)  | 2,113       | 29.6       | Europe     |
| Brunei                  | 25.7 (16.5 – 37.7)  | 1,880       | 29.6       | Southeast Asia |
| Andorra                 | 21.0 (13.0 – 32.2)  | 620         | 29.6       | Europe     |
| Antigua and Barbuda     | 50.6 (35.7 – 65.8)  | 610         | 29.6       | Caribbean  |

* According to GBD, 2019. ** Observed home death percentage for year 2010 or later. LA: Latin America. MENA: Middle East and North Africa. HIAP: High-Income Asia-Pacific. SSA: Sub-Saharan Africa. UI: Uncertainty interval.
### Table S3: Subnational model results

| Variables                          | Coefficient | 95% confidence interval | Lower  | Upper  |
|------------------------------------|-------------|-------------------------|--------|--------|
| Home birth percentage (current)    | 0.012**     | 0.005                   | 0.019  |        |
| Log health expenditure per capita (average 10 years) | -0.461** | -0.589                   | -0.333 |        |
| Urbanisation                      | -0.012**    | -0.017                   | -0.007 |        |
| Region (Ref. Andean LA)           |             |                         |        |        |
| Southern LA                        | 0.570**     | 0.296                   | 0.844  |        |
| Tropical LA                        | -0.715**    | -0.981                   | -0.450 |        |
| Central LA                         | -0.084      | -0.313                   | 0.144  |        |
| Caribbean                          | 0.021       | -0.310                   | 0.267  |        |
| MENA                               | 0.230       | -0.005                   | 0.465  |        |
| South Asia                         | -0.899**    | -1.256                   | -0.541 |        |
| Southeast Asia                     | -0.259*     | -0.527                   | 0.009  |        |
| East Asia                          | 0.800**     | 0.490                   | 1.109  |        |
| Sub-Saharan Africa                 | -0.439**    | -0.727                   | -0.151 |        |
| High-Income Asia-Pacific           | -0.012      | -0.327                   | 0.302  |        |
| Europe                             | -0.005      | -0.272                   | 0.262  |        |
| Oceania                            | -0.798*     | -1.423                   | -0.172 |        |
| Constant                           | 3.541**     | 2.750                   | 4.332  |        |

N= 152. *p<0.05 **p<0.01. PPP: Purchasing power parity. RMSE: 6.3 percentage points. MAE: 4.9 percentage points.
| Country        | Subnational area       | Year(s)  | Observed | Predicted | Difference |
|---------------|------------------------|----------|----------|-----------|------------|
| Angola        | Dande HDSS             | 2009-12  | 48.0     | 64.3      | +16.3      |
| Burkina Faso  | Nouna HDSS             | 2015     | 64.5     | 58.8      | -5.7       |
| Kenya         | Kilifi HDSS            | 2008-11  | 57.0     | 77.8      | +20.8      |
| Kenya         | Kombewa HDSS           | 2011-15  | 62.1     | 74.8      | +12.7      |
| Tanzania      | Korogwe HDSS           | 2006-12  | 70.0     | 71.8      | +1.8       |
| Ethiopia      | Kersa HDSS             | 2007-13  | 85.0     | 93.4      | +8.4       |
| Ethiopia      | Kilite-Awlaelo HDSS    | 2010-11  | 89.0     | 90.3      | +1.3       |
| Zambia        | SAVVY in four provinces| 2009-10  | 49.0     | 61.2      | +12.2      |
| Bangladesh    | Matlab HDSS            | 2012     | 56.1     | 61.0      | +4.9       |

**Subnational areas without national data MAE: 9.3 percentage points**

| Country        | Subnational area       | Year(s) | Observed | Predicted | Difference |
|---------------|------------------------|---------|----------|-----------|------------|
| Ecuador       | Azuay                  | 2017    | 45.3     | 47.1      | +1.8       |
| Ecuador       | Bolívar                | 2017    | 67.2     | 58.8      | -8.4       |
| Ecuador       | Cañar, El Piedrero     | 2017    | 58.2     | 50.6      | -7.6       |
| Ecuador       | Carchi                 | 2017    | 62.3     | 50.1      | -12.2      |
| Ecuador       | Cotopaxi               | 2017    | 64.0     | 55.8      | -8.1       |
| Ecuador       | Chimborazo             | 2017    | 51.3     | 53.7      | +2.4       |
| Ecuador       | El Oro                 | 2017    | 40.5     | 38.5      | -2.0       |
| Ecuador       | Esmeraldas             | 2017    | 47.7     | 50.4      | +2.7       |
| Ecuador       | Guayas and Galápagos   | 2017    | 44.1     | 36.7      | -7.4       |
| Ecuador       | Las Golondrinas        | 2017    | 62.5     | 48.2      | -14.3      |
| Ecuador       | Loja                   | 2017    | 55.1     | 46.6      | -8.5       |
| Ecuador       | Los Ríos               | 2017    | 48.2     | 46.0      | -2.2       |
| Ecuador       | Manabí                 | 2017    | 52.5     | 46.0      | -6.5       |
| Ecuador       | Morona Santiago        | 2017    | 48.7     | 65.1      | +16.4      |
| Ecuador       | Napo                   | 2017    | 61.0     | 56.5      | -4.5       |
| Ecuador       | Pastaza                | 2017    | 39.4     | 59.2      | +19.8      |
| Ecuador       | Pichincha              | 2017    | 38.9     | 41.4      | +2.5       |
| Ecuador       | Tungurahua             | 2017    | 51.5     | 50.5      | -1.0       |
| Ecuador       | Zamora Chinchipe       | 2017    | 60.8     | 53.9      | -6.9       |
| Ecuador       | Sucumbios              | 2017    | 48.0     | 53.9      | +5.9       |
| Ecuador       | Orellana               | 2017    | 54.0     | 58.5      | +4.5       |
| Ecuador       | Santo Domingo de los   | 2017    | 39.7     | 39.9      | +0.2       |
| Ecuador       | Santa Elena            | 2017    | 57.1     | 44.8      | -12.3      |

**Ecuador MAE: 6.9 percentage points.**

| Country        | Subnational area       | Year(s) | Observed | Predicted | Difference |
|---------------|------------------------|---------|----------|-----------|------------|
| Guatemala     | Guatemala              | 2017    | 42.5     | 42.9      | 0.5        |
| Guatemala     | El Progreso            | 2017    | 68.0     | 54.8      | -13.2      |
| Guatemala     | Sacatepéquez           | 2017    | 62.5     | 45.0      | -17.5      |
| Country         | Department               | Year | Value | Age Standardized | Change |
|-----------------|--------------------------|------|-------|------------------|--------|
| Guatemala       | Chimaltenango            | 2017 | 74.3  | 62.4             | -11.9  |
| Guatemala       | Escuintla                | 2017 | 52.9  | 53.5             | +0.7   |
| Guatemala       | Santa Rosa               | 2017 | 52.0  | 58.0             | +6.1   |
| Guatemala       | Sololá                   | 2017 | 75.8  | 65.3             | -10.4  |
| Guatemala       | Totonicapán              | 2017 | 87.4  | 70.8             | -16.6  |
| Guatemala       | Suchitepequez            | 2017 | 66.0  | 58.7             | -7.2   |
| Guatemala       | Retalhuleu               | 2017 | 74.6  | 56.3             | -18.3  |
| Guatemala       | San Marcos               | 2017 | 80.0  | 73.4             | -6.5   |
| Guatemala       | Huehuetenango            | 2017 | 74.6  | 79.0             | +4.3   |
| Guatemala       | Quiché                   | 2017 | 78.8  | 77.3             | -1.6   |
| Guatemala       | Baja Verapaz             | 2017 | 77.7  | 65.0             | -12.7  |
| Guatemala       | Alta Verapaz             | 2017 | 74.8  | 71.6             | -3.3   |
| Guatemala       | Petén                    | 2017 | 54.7  | 66.0             | +11.3  |
| Guatemala       | Izabal                   | 2017 | 54.7  | 64.7             | +10.0  |
| Guatemala       | Zacapa                   | 2017 | 55.5  | 60.7             | +5.1   |
| Guatemala       | Chiquimula               | 2017 | 65.0  | 70.5             | +5.5   |
| Guatemala       | Jalapa                   | 2017 | 75.3  | 53.4             | -21.9  |
| Guatemala       | Jutiapa                  | 2017 | 72.3  | 57.5             | -14.8  |

**Guatemala MAE: 9.2 percentage points**

| Country             | Department                          | Year | Value | Age Standardized | Change |
|---------------------|-------------------------------------|------|-------|------------------|--------|
| Papua New Guinea    | Western                             | 2010 | 72.0  | 72.8             | +0.8   |
| Papua New Guinea    | Gulf                                | 2010 | 85.0  | 80.6             | -4.4   |
| Papua New Guinea    | Central                             | 2010 | 87.0  | 74.0             | -13.0  |
| Papua New Guinea    | National Capital District           | 2010 | 55.0  | 37.0             | -18.0  |
| Papua New Guinea    | Milne Bay                           | 2010 | 70.0  | 70.2             | 0.2    |
| Papua New Guinea    | Oro                                 | 2010 | 71.0  | 81.2             | 10.2   |
| Papua New Guinea    | Southern Highlands / Hela           | 2010 | 86.0  | 76.7             | -9.3   |
| Papua New Guinea    | Enga                                | 2010 | 81.0  | 80.2             | -0.8   |
| Papua New Guinea    | Western Highlands / Jiwaka          | 2010 | 73.0  | 75.7             | +2.7   |
| Papua New Guinea    | Simbu                               | 2010 | 77.0  | 75.0             | -2.0   |
| Papua New Guinea    | Eastern Highlands                   | 2010 | 74.0  | 76.7             | +2.7   |
| Papua New Guinea    | Morobe                              | 2010 | 73.0  | 74.4             | +1.4   |
| Papua New Guinea    | Madang                              | 2010 | 72.0  | 81.8             | +9.8   |
| Papua New Guinea    | East Sepik                          | 2010 | 78.0  | 83.8             | +5.8   |
| Papua New Guinea    | Sandaun                             | 2010 | 82.0  | 84.6             | +2.6   |
| Papua New Guinea    | Manus                               | 2010 | 67.0  | 64.5             | -2.5   |
| Papua New Guinea    | New Ireland                         | 2010 | 64.0  | 67.1             | +3.1   |
| Papua New Guinea    | East New Britain                    | 2010 | 69.0  | 65.8             | -3.2   |
| Papua New Guinea    | West New Britain                    | 2010 | 62.0  | 72.6             | +10.6  |
| Country               | Region                        | Year | MAE 1 | MAE 2 | MAE 3 |
|-----------------------|-------------------------------|------|-------|-------|-------|
| **Papua New Guinea**  | Bougainville                  | 2010 | 73.0  | 73.1  | +0.1  |
| **Papua New Guinea: MAE 5.2 percentage points** |                         |      |       |       |       |
| Philippines           | National Capital Region       | 2017 | 43.7  | 41.7  | -2.1  |
| Philippines           | Cordillera Administrative Region | 2017 | 58.1  | 64.1  | +6.0  |
| Philippines           | Region I - Ilocos Region      | 2017 | 62.3  | 69.6  | +7.3  |
| Philippines           | Region II - Cagayan Valley    | 2017 | 61.7  | 73.1  | +11.4 |
| Philippines           | Region III - Central Luzon    | 2017 | 54.7  | 57.6  | +2.9  |
| Philippines           | Region IV-A - CALABARZON      | 2017 | 55.2  | 57.0  | +1.8  |
| Philippines           | Region V - Bicol              | 2017 | 62.3  | 72.5  | +10.3 |
| Philippines           | Region VI - Western Visayas   | 2017 | 52.3  | 65.3  | +13.0 |
| Philippines           | Region VII - Central Visayas  | 2017 | 60.4  | 58.7  | -1.7  |
| Philippines           | Region X - Northern Mindanao  | 2017 | 51.3  | 65.8  | +14.5 |
| Philippines           | Region XI - Davao             | 2017 | 52.0  | 59.5  | +7.6  |
| Philippines           | Region XIII - Caraga          | 2017 | 57.8  | 68.9  | +11.1 |
| **Philippines*: MAE 7.5 percentage points** |                         |      |       |       |       |
| Sri Lanka             | Western                       | 2014 | 44.4  | 39.7  | -4.8  |
| Sri Lanka             | Central                       | 2014 | 50.2  | 48.1  | -2.1  |
| Sri Lanka             | Southern                      | 2014 | 53.8  | 48.2  | -5.6  |
| Sri Lanka             | Northern                      | 2014 | 58.3  | 46.2  | -12.1 |
| Sri Lanka             | Eastern                       | 2014 | 60.4  | 43.6  | -16.9 |
| Sri Lanka             | North-West                    | 2014 | 47.1  | 50.3  | +3.2  |
| Sri Lanka             | North-Central                 | 2014 | 39.0  | 49.9  | +11.0 |
| Sri Lanka             | Uva                           | 2014 | 48.1  | 50.6  | +2.6  |
| Sri Lanka             | Sabaragamuwa                  | 2014 | 50.4  | 50.6  | +0.3  |
| **Sri Lanka: MAE 6.5 percentage points** |                         |      |       |       |       |
| Thailand              | Bangkok                       | 2017 | 31.3  | 31.9  | +0.6  |
| Thailand              | Central Region                | 2017 | 43.4  | 45.3  | +1.9  |
| Thailand              | Northern Region               | 2017 | 57.6  | 49.7  | -7.9  |
| Thailand              | Northeastern Region           | 2017 | 68.1  | 51.8  | -16.3 |
| Thailand              | Southern Region               | 2017 | 42.1  | 49.6  | +7.5  |
| **Thailand: MAE 6.8 percentage points** |                         |      |       |       |       |
HDSS: Health and demographic surveillance system. SAVVY: Sample Vital Registration with Verbal Autopsy (SAVVY). MAE: Mean absolute error.* Some regions of Philippines excluded because of low completeness of death registration.