



Photo courtesy of: Jlhinton / flickr (CC BY-ND 2.0)

# The Global Burden of Stillbirths

## OVERVIEW

Every 17 seconds, one stillbirth occurs. A baby who dies at or after 28 weeks of pregnancy,\* and is born with no sign of life is classified as a stillbirth.<sup>1</sup> In 2021, 1.9 million stillbirths occurred globally.<sup>2</sup>

Stillbirths can be caused by pregnancy and childbirth-related complications, like hemorrhage, placental abruption, and pre-eclampsia; maternal infections during pregnancy, including malaria and sexually transmitted infections; prolonged pregnancy to 42 weeks or more; and pre-existing health conditions.<sup>3</sup> Other risk factors include maternal age and smoking during pregnancy.<sup>4</sup>

Since 2000, stillbirth rates have declined by 35%—but this reduction pales in comparison to other significant strides made in preventing newborn and child death.<sup>5</sup> For example, under five mortality rates declined by 50% in the same period.<sup>6</sup> Global momentum to address stillbirths hasn't generated the same progress and results, in part due to limited national policies and gaps in data collection and analysis. Many governments do not have explicit stillbirth reduction targets or collect data on stillbirths.<sup>7</sup>

Without intervention, 15.9 million babies will be stillborn between now and 2030.<sup>8</sup> Increased research and political attention to stillbirths offers an opportunity to accelerate progress and reduce this number. This policy brief will lay out the multi-faceted impacts of stillbirth on community, individuals, and society, and offer recommendations for increasing attention and action in preventing stillbirth and to creating healthy and supportive environments for families who have experienced stillbirth.

---

This brief was prepared by Sarah B. Barnes, Sophia DeLuca, Maanasa Chitti and Deekshita Ramanarayanan through the generous support of EMD Serono, the healthcare business of Merck KGaA, Darmstadt, Germany.

\*Definitions of stillbirth vary globally. The definition from the World Health Organization (WHO) and the United Nations Children's Fund (UNICEF) is a baby born with no sign of life at 28 weeks of pregnancy or later. Other definitions include a baby born with no sign of life as early as 20- or 24-weeks' gestation.

## THE INEQUALITY OF STILLBIRTH

Stillbirth is a global health issue that affects millions of families each year—but the impacts aren't equally distributed. The country with the highest stillbirth rate has a rate 20 times higher than the country with the lowest rate.<sup>9</sup> Data from 2021 shows stillbirths concentrated in Sub-Saharan Africa (45%) and Central and Southern Asia (33%).<sup>10</sup> The stillbirth rate in Sub-Saharan Africa was 21 per 1000 total births, compared to just 2.9 in Europe, Northern America, Australia, and New Zealand.<sup>11</sup> The current global target is 12 or fewer stillbirths per 1,000 total births in every country by 2030.<sup>12</sup>

These regional inequities are also mirrored in number of preventable stillbirths. In 2021, two in every five global stillbirths occurred during labor (intrapartum). Most intrapartum stillbirths are preventable with monitoring and timely intervention.<sup>13</sup> There are disproportionately high rates of intrapartum stillbirth in some regions—close to 50% of stillbirths in Sub-Saharan Africa, Central and Southern Asia, and Oceania were intrapartum, in stark contrast with just 13% intrapartum stillbirths in Europe, Northern America, Australia, and New Zealand.<sup>14</sup>

## PSYCHOLOGICAL IMPACT

To better address stillbirth in policy and practice, its psychological impact must be understood. The 2022 United Nations Children's Fund (UNICEF) stillbirth estimates report, "Never Forgotten," spotlighted the stories of grieving families and healthcare providers and demonstrated the immense loss, depression, anxiety, confusion, and love experienced after a stillbirth.<sup>15</sup> Stillbirth, and subsequent care, can impact intimate relationships, lead to increased pressure to either quickly conceive again or delay conception, and

create feelings of isolation.<sup>16</sup> In 2016, 4.2 million women were reportedly living with depression related to a stillbirth.<sup>17</sup> Studies also noted potential stigmatization, rejection, or abuse of mothers of a stillborn in certain situations, predominantly in low-and-middle-income countries (LMIC).<sup>18</sup> Grief, anxiety, and post-traumatic stress have been shown to affect the entire family following a stillbirth.<sup>19</sup> The loss of a child can have long-lasting effects, including decreased self-esteem and loss of identity, particularly for women.<sup>20</sup> The suddenness of stillbirth, the unknown cause of a stillbirth, the need to place blame, and the emotional and financial stress on families add additional psychological consequences.<sup>21</sup>

## ECONOMIC IMPACT

For the individual family, the cost of a stillbirth can be substantial. A study quantifying the cost of stillbirth in Australia from time of birth to two years postpartum found that out of pocket fees for parents were 52% higher for those who had a stillbirth as compared to those who had a live birth.<sup>22</sup> A study conducted in England and Wales found that expenditure on health services during a subsequent pregnancy was much higher for pregnant people who had experienced a stillbirth without a known cause.<sup>23</sup> Costs for national governments are also significant. The same study conducted in Australia found that the overall cost to the government was 42% higher for a stillbirth than a live birth.<sup>24</sup>

A systematic review of the economic burden of stillbirth in high-income countries found high costs associated with stillbirth beyond direct hospital bills or future medical expenses.<sup>25</sup> One study in the United Kingdom found that 97% of total cost from a stillbirth comes from indirect costs including grieving parents' reduced work hours, extended time off work, and decreased overall





Photo courtesy of: [Black Brush / Shutterstock.com](#)

productivity. Additionally, funeral costs, like burial plots and services, and lawsuits led by parents over issues like hospital negligence add to a family's financial burden.<sup>26</sup> However, the research supporting these findings was conducted in high income countries, presenting a limited view of the indirect costs of stillbirth in low- and middle-income countries, where the prevalence and burden of stillbirth are often higher.

## STILLBIRTHS IN EMERGENCIES & HUMANITARIAN SETTINGS

"The 'four C's' – conflict, climate change, COVID-19, and the cost-of-living crisis heighten threats for the most vulnerable women and babies in all countries," states the newly launched Born Too Soon report, which details the global state of preterm birth, including stillbirths.<sup>27</sup> The highest risk of stillbirth occurs in humanitarian settings<sup>28</sup> with 51% of stillbirths

occurring in the 29 countries with 2023 UN Humanitarian Appeals.<sup>29</sup> This is an increase from 2022, when 38% of stillbirths occurred in humanitarian settings.<sup>30</sup>

Disruptions to supply chains, caused by COVID-19, conflict, and the climate crisis, have dramatically pushed up the cost of living for millions of people.<sup>31</sup> A healthy economy is associated with low and declining levels of stillbirth, while economic recession and increased cost of living is associated with an increase in the prevalence of stillbirths.<sup>32, 33</sup>

Research on climate and environmental impacts shows direct and indirect effects of climate change on stillbirths.<sup>34</sup> As climate change continues to progress and intensify without unified global action, rising temperatures and natural disasters will continue to be risk factors for stillbirth. A 2021 study of weather data from 14 LMIC countries was the first to establish a "strong



correlation” between extreme heat and stillbirth.<sup>35</sup> Extreme heat events have since become more frequent and more severe, often occurring in differential seasonal patterns—making them less predictable.<sup>36</sup> Air pollution has also been linked to increased risk of stillbirth. One study found that approximately 40% of stillbirths across 137 countries in Asia, Africa, and Latin America were attributed to ambient fine particles, which are primarily produced through the burning of fossil fuels.<sup>37</sup> Toxic pollutant particles have been found in the lungs, livers, and brains of fetuses and black carbon particles have been found in cord blood, proving the ability of these particles to enter the fetal circulation system via the placenta.<sup>38</sup>

Research is varied and ongoing on the effects of COVID-19 on stillbirths. One US study found that women with COVID-19 at the time of delivery were at increased risk for stillbirth compared to women without COVID-19.<sup>39</sup> A systematic review and meta-analysis including 40 studies found a significant increase in stillbirth during the pandemic as compared to data prior to the pandemic.<sup>40</sup> This rise in stillbirths may be attributed to changes in obstetric services, potentially resulting from staff shortages or reduced antenatal visits, ultrasound scans, and screening during the first few months of lockdown.<sup>41</sup> Additionally, the pandemic may have led to the underdiagnosis of pregnancy complications, such as gestational hypertension, as women had fewer face-to-face antenatal visits, limiting the opportunity for proper assessment and monitoring.<sup>42</sup>

One analysis of the association between COVID-19 and stillbirth found that indirect causes of increased stillbirth could include resistance to seeking care at the hospital due to fear of infection or stress of overburdening health services. Public campaigns to reduce unnecessary hospitalization may have discouraged some pregnant people from seeking care when needed and disruptions in

public transportation may have impacted patients in rural areas.<sup>43</sup>

## EXISTING GLOBAL INITIATIVES ADDRESSING STILLBIRTH

**Every Newborn Action Plan (ENAP):** ENAP was initially launched in 2014 by the World Health Organization (WHO) and UNICEF, among other partners, and endorsed by 194 member states. ENAP acts as a “road map” to end newborn mortality, maternal mortality, and stillbirths. ENAP initially set goals and targets for 2020, addressing a gap in the United Nations Millennium Development Goals: stillbirths and newborn deaths were not originally mentioned.

In 2014, ENAP set a goal for all countries to achieve fewer than 14 stillbirths per 1000 total births by 2020, less than 12 by 2030, and less than 10 by 2035.<sup>44</sup> In 2020, the ENAP progress report tracked success and stagnation of ENAP goals. While 87% of countries defined a newborn mortality reduction target, only 32% had a stillbirth reduction target. Approximately 60% of countries were not on track to meet the 2020 stillbirth reduction goal of 14 or fewer stillbirths per 1000 total births. Of all high burden countries, just 44% had a research agenda that included stillbirth research and social, behavioral and community engagement research.

At the recent International Maternal and Newborn Health Conference (IMNHC), ENAP and the Ending Preventable Maternal Mortality (EPMM) initiative launched a joint 2023 progress report detailing the ENAP-EPMM shared global targets of 90% coverage of four or more antenatal care contacts and 90% of births attended by skilled birth attendants to reduce maternal and newborn morbidity, mortality, and stillbirths.<sup>45</sup>





Photo courtesy of: [MMPhoto21 / Shutterstock.com](#)

**United Nations Inter-Agency Group for Child Mortality Estimation (UN IGME):** UN IGME is led by UNICEF and was formed in 2004 with the central goals of sharing child mortality data and improving individual country capacities to collect data and create data estimations. 2018 was the first year UN IGME developed specific indicators for stillbirth, which were published in 2020.<sup>46</sup> The process for including stillbirth indicators in UN IGME estimates include compiling data, processing it, creating a statistical model for each country, creating estimates for stillbirth rates, and disseminating information. Country consultation was conducted throughout.<sup>47</sup> UN IGME global and country data and indicators help fill a long-standing gap in standardized stillbirth data and estimates, increasing awareness of the state of stillbirth globally.

**International Stillbirth Alliance (ISA):** ISA was founded in 2003 by three American mothers who experienced stillbirth and is focused on global stillbirth prevention and bereavement care. ISA works to raise awareness; connect parents, researchers, and doctors; and increase stillbirth-related research. At IMNHC, ISA launched the “Global Guide for Stillbirth Advocacy and Implementation,” which brings together existing resources and practical guidance for governments, ministries of health, professional organizations, as well as parents, community leaders, parent organizations, health workers, and others to prevent stillbirth and improve care for women and families who experience stillbirth.<sup>48</sup>



## POLICY RECOMMENDATIONS

- 1. Increase data on stillbirths to decrease prevalence.** The significance of stillbirths needs to be measured globally and each stillbirth must be counted. Currently, stillbirths are not counted in preterm burden estimates, which reflect live births only. Countries must also include **surveillance and data collection for stillbirths and cause of death in national maternal and newborn health plans** to supplement stillbirth estimates from UN IGME. Both Bangladesh and Algeria, countries highlighted by UNICEF’s “Never Forgotten” stillbirth estimates report saw significant reductions in stillbirth rates after they made improvements in data collection and stillbirth surveillance.<sup>49</sup> In addition to strong surveillance systems, **additional training for healthcare workers is essential to avoid the misclassification of stillbirths as neonatal deaths or miscarriages.** These misclassifications may be due to confusion around stillbirth definitions, or intentional to avoid blame or additional burden on healthcare workers.<sup>50</sup> While WHO and UNICEF define stillbirths as a baby that dies at or after 28 weeks of gestation,<sup>51</sup> other definitions of stillbirth in research include deaths as early as 20 or 24 weeks, making data across studies non-comparable.
- 2. Reduce the stigma, taboo, and misconception of stillbirth.** When women are blamed for stillbirth, there is a higher risk of negative mental health conditions, isolation, and abuse or rejection from spouses or families.<sup>52</sup> Studies show that many women who experience stillbirth need positive support from networks, including family and friends after a stillbirth, to reduce negative outcomes.<sup>53</sup> **Respectful healthcare is also essential for women, during and after a stillbirth.** Policy makers should support programs that include training for healthcare providers on how to implement respectful maternity care guidelines, including mental health support for parents following a stillbirth.<sup>54</sup>
- 3. Set national and local stillbirth reduction targets.** Setting national targets and priorities for stillbirth reduction encourages investment and commitment from government and health experts. In 2020, the ENAP progress report found that just 32% of countries had a stillbirth reduction target. Sub-national targets are essential alongside national targets to evaluate equity and distribute resources well.<sup>55</sup>
- 4. Invest in strengthening health systems to provide high-quality care, particularly in humanitarian settings and regions with the highest prevalence of stillbirths.** Intrapartum stillbirths account for 40% of all stillbirths, almost all of which are preventable with access to timely and high-quality care.<sup>56</sup> In order to reduce preventable stillbirths, increased investment in high-quality care, including training more skilled birth workers, like midwives, is needed. **Increased coverage of international-standard midwives can lead to stillbirth reduction.**<sup>57</sup> A Lancet study using the “Lives Saved Tool” modeled the potential impact of increasing access to quality midwifery care in LMICs. The model estimates that even a modest increase of midwifery coverage of 10% every 5 years would avert 14% of all stillbirths each year.<sup>58</sup> Access to antenatal care is another essential first step in reducing stillbirths.<sup>59</sup> Bangladesh and Rwanda, two high burden countries, were spotlighted by the “Never Forgotten” stillbirth estimates report for significant reductions after they improved antenatal care quality and access.<sup>60</sup>
- 5. Enact supportive policies for working parents who experience loss.** Bereavement or parental leave policies must be implemented to account for the emotional and economic impacts for parents who experience stillbirth. **In some countries, there are existing policies to address paid bereavement or parental leave after a stillbirth or child death.** For example, in the United Kingdom, workers are eligible for two weeks of paid bereavement leave after a stillbirth or child death.<sup>61</sup> In New Zealand, this paid leave is just three days long<sup>62</sup> and in the United States, there is no guaranteed paid leave in the case of stillbirth. The US Family Medical Leave Act (FMLA) allows certain eligible workers to take 12 weeks of unpaid leave for serious health conditions, including miscarriage and stillbirth,<sup>63</sup> and some cities or municipalities have implemented bereavement leave policies that include stillbirth in accordance with FMLA,<sup>64</sup> but these policies are in no way inclusive of all workers.



## ENDNOTES

- 1 "Stillbirth." (2023, January). UNICEF Data. UNICEF, <https://data.unicef.org/topic/child-survival/stillbirths/>.
- 2 "Stillbirth." (2023, January). UNICEF Data. UNICEF, <https://data.unicef.org/topic/child-survival/stillbirths/>.
- 3 "Stillbirth." World Health Organization Health Topics. World Health Organization, [https://www.who.int/health-topics/still-birth#tab=tab\\_1](https://www.who.int/health-topics/still-birth#tab=tab_1).
- 4 "Stillbirth." World Health Organization Health Topics. World Health Organization, [https://www.who.int/health-topics/still-birth#tab=tab\\_1](https://www.who.int/health-topics/still-birth#tab=tab_1).
- 5 "Never Forgotten: The Situation of Stillbirth around the Globe." UNICEF Data. UNICEF, January 16, 2023. <https://data.unicef.org/resources/never-forgotten-stillbirth-estimates-report/>.
- 6 "Never Forgotten: The Situation of Stillbirth around the Globe." UNICEF Data. UNICEF, January 16, 2023. <https://data.unicef.org/resources/never-forgotten-stillbirth-estimates-report/>.
- 7 "Never Forgotten: The Situation of Stillbirth around the Globe." UNICEF Data. UNICEF, January 16, 2023. <https://data.unicef.org/resources/never-forgotten-stillbirth-estimates-report/>.
- 8 "Never Forgotten: The Situation of Stillbirth around the Globe." UNICEF Data. UNICEF, January 16, 2023. <https://data.unicef.org/resources/never-forgotten-stillbirth-estimates-report/>.
- 9 "Never Forgotten: The Situation of Stillbirth around the Globe." UNICEF Data. UNICEF, January 16, 2023. <https://data.unicef.org/resources/never-forgotten-stillbirth-estimates-report/>.
- 10 "Never Forgotten: The Situation of Stillbirth around the Globe." UNICEF Data. UNICEF, January 16, 2023. <https://data.unicef.org/resources/never-forgotten-stillbirth-estimates-report/>.
- 11 "Never Forgotten: The Situation of Stillbirth around the Globe." UNICEF Data. UNICEF, January 16, 2023. <https://data.unicef.org/resources/never-forgotten-stillbirth-estimates-report/>.
- 12 "Stillbirth." World Health Organization Health Topics. World Health Organization, [https://www.who.int/health-topics/still-birth#tab=tab\\_1](https://www.who.int/health-topics/still-birth#tab=tab_1).
- 13 "Never Forgotten: The Situation of Stillbirth around the Globe." UNICEF Data. UNICEF, January 16, 2023. <https://data.unicef.org/resources/never-forgotten-stillbirth-estimates-report/>.
- 14 "Never Forgotten: The Situation of Stillbirth around the Globe." UNICEF Data. UNICEF, January 16, 2023. <https://data.unicef.org/resources/never-forgotten-stillbirth-estimates-report/>.
- 15 "Never Forgotten: The Situation of Stillbirth around the Globe." UNICEF Data. UNICEF, January 16, 2023. <https://data.unicef.org/resources/never-forgotten-stillbirth-estimates-report/>.
- 16 Burden, C, Bradley, S., Storey, C., Ellis, A., Heazell, A., Downe, S., Cacciatore, J., and Siassakos, D. "From Grief, Guilt Pain and Stigma to Hope and Pride – A Systematic Review and Meta-Analysis of Mixed-Method Research of the Psychosocial Impact of Stillbirth." *BMC Pregnancy and Childbirth* 16, no. 1 (2016). <https://doi.org/10.1186/s12884-016-0800-8>.
- 17 Leisher, S H., Lawn, J., Kinney, M., Kuo, N., and De Bernis, Luc. "Brief for GSDR–2016 Update: Stillbirths: Investment in Ending Preventable Stillbirths by 2030 Will Yield Multiple Returns and Help Achieve Multiple Sustainable Development Goals." The Lancet Ending Preventable Stillbirths Series Advisory and Study Group, [https://sustainabledevelopment.un.org/content/documents/975137\\_Leisher%20et%20al.\\_Stillbirths-Investment%20in%20ending%20preventable%20stillbirths%20by%202030%20will%20yield%20multiple%20returns%20and%20help%20achieve%20multiple%20Sustainable%20Development%20Goals.pdf](https://sustainabledevelopment.un.org/content/documents/975137_Leisher%20et%20al._Stillbirths-Investment%20in%20ending%20preventable%20stillbirths%20by%202030%20will%20yield%20multiple%20returns%20and%20help%20achieve%20multiple%20Sustainable%20Development%20Goals.pdf).
- 18 Burden, C, Bradley, S., Storey, C., Ellis, A., Heazell, A., Downe, S., Cacciatore, J., and Siassakos, D. "From Grief, Guilt Pain and Stigma to Hope and Pride – A Systematic Review and Meta-Analysis of Mixed-Method Research of the Psychosocial Impact of Stillbirth." *BMC Pregnancy and Childbirth* 16, no. 1 (2016). <https://doi.org/10.1186/s12884-016-0800-8>.
- 19 Burden, C, Bradley, S., Storey, C., Ellis, A., Heazell, A., Downe, S., Cacciatore, J., and Siassakos, D. "From Grief, Guilt Pain and Stigma to Hope and Pride – A Systematic Review and Meta-Analysis of Mixed-Method Research of the Psychosocial Impact of Stillbirth." *BMC Pregnancy and Childbirth* 16, no. 1 (2016). <https://doi.org/10.1186/s12884-016-0800-8>.
- 20 "What You Need to Know about Stillbirths: Answers to Common Questions about This Tragic Loss of Life." UNICEF, January 10, 2023. <https://www.unicef.org/stories/what-you-need-to-know-about-stillbirths>.
- 21 Gopichandran, V., Subramaniam, S. & Kalsingh, M.J. "Psycho-social impact of stillbirths on women and their families in Tamil Nadu, India – a qualitative study." *BMC Pregnancy Childbirth* 18, 109 (2018). <https://doi.org/10.1186/s12884-018-1742-0>
- 22 Callander, E. J., Thomas, J., Fox, H., Ellwood, D., & Flenady, V. (2020). "What are the costs of stillbirth? Capturing the direct health care and macroeconomic costs in Australia." *Birth (Berkeley, Calif.)*, 47(2), 183–190. <https://doi.org/10.1111/birt.12469>



- 23 Mistry, H., Heazell, A.E.P., Vincent, O. *et al.* "A structured review and exploration of the healthcare costs associated with stillbirth and a subsequent pregnancy in England and Wales." *BMC Pregnancy Childbirth* 13, 236 (2013). <https://doi.org/10.1186/1471-2393-13-236>
- 24 Callander, E. J., Thomas, J., Fox, H., Ellwood, D., & Flenady, V. (2020). "What are the costs of stillbirth? Capturing the direct health care and macroeconomic costs in Australia." *Birth (Berkeley, Calif.)*, 47(2), 183–190. <https://doi.org/10.1111/birt.12469>
- 25 Veettil, S. K., Kategeaw, W., Hejazi, A., Workalemahu, T., Rothwell, E., Silver, R. M., & Chaiyakunapruk, N. (2023). "The economic burden associated with stillbirth: A systematic review." *Birth (Berkeley, Calif.)*, 50(2), 300–309. <https://doi.org/10.1111/birt.12714>
- 26 Veettil, S. K., Kategeaw, W., Hejazi, A., Workalemahu, T., Rothwell, E., Silver, R. M., & Chaiyakunapruk, N. (2023). "The economic burden associated with stillbirth: A systematic review." *Birth (Berkeley, Calif.)*, 50(2), 300–309. <https://doi.org/10.1111/birt.12714>
- 27 "Born Too Soon: Decade of Action on Preterm Birth." World Health Organization: Publications. Maternal, Newborn, Child & Adolescent Health & Ageing, Newborn Health, Partnership for Maternal Newborn and Child Health, (2023, May 9). <https://www.who.int/publications/i/item/9789240073890>.
- 28 "Surviving Day One: Caring for Mothers and Newborns in Humanitarian Emergencies on the Day of Childbirth." Child Rights Resource Center. Inter-Agency Working Group on Reproductive Health in Crises, Save the Children US, <https://resourcecentre.savethechildren.net/document/surviving-day-one-caring-mothers-and-newborns-humanitarian-emergencies-day-childbirth/>.
- 29 "Preventing Maternal and Newborn Mortality with Quality, Respectful, and Dignified Care from Pregnancy through the Postpartum Period." Maternal and Newborn Health. Inter-Agency Working Group on Reproductive Health in Crises, <https://iawg.net/our-work/maternal-newborn-health>.
- 30 Tappis, H., Bryce, E., and Boerma, T. "Tracking Progress in Mortality Reduction in Humanitarian Settings." AlignMNH: Collective Action for Maternal and Newborn Health. AlignMNH, (March 31, 2022). <https://www.alignmnh.org/2022/03/31/tracking-progress-towards-maternal-and-neonatal-mortality-reduction-targets-in-countries-affected-by-humanitarian-crises/>.
- 31 "The Cost of Living: An Avoidable Public Health Crisis." *The Lancet Public Health* 7, no. 6 (2022). [https://doi.org/10.1016/s2468-2667\(22\)00120-7](https://doi.org/10.1016/s2468-2667(22)00120-7).
- 32 Tsimbos C, Verropoulou G, Petropoulou D. "Economic crisis and stillbirth ratios: Evidence from Southern Europe." *PLoS One*. ;16(11):e0259623. (2021, Nov 18). doi: 10.1371/journal.pone.0259623.
- 33 Delap, N., Kitchen, K. "Why the Cost of Living Crisis Is a Reproductive Justice Matter." *BMJ*, (2023). <https://doi.org/10.1136/bmj.p118>.
- 34 McElroy, S., Ilango, S., Dimitrova, A., Gershunov, A., and Benmarhnia, A. "Extreme Heat, Preterm Birth, and Stillbirth: A Global Analysis across 14 Lower-Middle Income Countries." *Environment International* 158 (2022): 106902. <https://doi.org/10.1016/j.envint.2021.106902>.
- 35 Monroe, Robert. "First Link between Stillbirths, Birth Complications and Excessive Heat in Lower-Income Countries." *Scripps Institution of Oceanography*, (2021, October 7). <https://scripps.ucsd.edu/news/first-link-between-stillbirths-birth-complications-and-excessive-heat-lower-income-countries>.
- 36 McElroy, S., Ilango, S., Dimitrova, A., Gershunov, A., and Benmarhnia, A. "Extreme Heat, Preterm Birth, and Stillbirth: A Global Analysis across 14 Lower-Middle Income Countries." *Environment International* 158 (2022): 106902. <https://doi.org/10.1016/j.envint.2021.106902>.
- 37 Xue, T., Tong, M., Li, J. *et al.* "Estimation of stillbirths attributable to ambient fine particles in 137 countries." *Nat Commun* 13, 6950 (2022). <https://doi.org/10.1038/s41467-022-34250-4>
- 38 Bongaerts, E., Lecante, L., Bové, H., Roeffaers, M., Ameloot, M., Fowler, P., and Nawrot, T. "Maternal Exposure to Ambient Black Carbon Particles and Their Presence in Maternal and Fetal Circulation and Organs: An Analysis of Two Independent Population-Based Observational Studies." *The Lancet Planetary Health* 6, no. 10 (2022). [https://doi.org/10.1016/s2542-5196\(22\)00200-5](https://doi.org/10.1016/s2542-5196(22)00200-5).
- 39 DeSisto CL, Wallace B, Simeone RM, et al. "Risk for Stillbirth Among Women With and Without COVID-19 at Delivery Hospitalization — United States, March 2020–September 2021" *MMWR Morb Mortal Wkly Rep* 2021;70:1640–1645. (2021). DOI: <http://dx.doi.org/10.15585/mmwr.mm7047e1>
- 40 Nove, A., Friberg, I., de Bernis, L., McConville, M.A., Moran, A., Najjemba, M. "Potential Impact of midwives in preventing and reducing maternal and neonatal mortality and stillbirths: a Lives Saved Tool modelling study" *The Lancet: Global Health*. (2021) [https://doi.org/10.1016/S2214-109X\(20\)30397-1](https://doi.org/10.1016/S2214-109X(20)30397-1)
- 41 Committee on Foods. *JAMA*. 1932;98(6):480–481.doi:10.1001/jama.1932.02730320040011
- 42 Committee on Foods. *JAMA*. 1932;98(6):480–481.doi:10.1001/jama.1932.02730320040011



- 43 Khalil, A., H. Blakeway, A. Samara, and P. O'Brien. "COVID-19 and Stillbirth: Direct vs Indirect Effect of the Pandemic." *Ultrasound in Obstetrics & Gynecology* 59, no. 3 (2022): 288–95. <https://doi.org/10.1002/uog.24846>.
- 44 "Every Newborn Action Plan." *World Health Organization*. <https://www.who.int/initiatives/every-newborn-action-plan>.
- 45 "Every Newborn Progress Report 2019." *World Health Organization*. (2020, March 1). <https://www.who.int/publications/m/item/every-newborn-progress-report-2019>.
- 46 "Explanatory Notes: Stillbirth Trend Series to 2019." *United Nations Inter-agency Group for Child Mortality Estimation: UNICEF, the WHO, the UN Population Division and the World Bank Group* (2020, October). <https://childmortality.org/wp-content/uploads/2020/10/UN-IGME-2020-Stillbirth-Report.pdf>.
- 47 "Explanatory Notes: Stillbirth Trend Series to 2019." *United Nations Inter-agency Group for Child Mortality Estimation: UNICEF, the WHO, the UN Population Division and the World Bank Group* (2020, October). <https://childmortality.org/wp-content/uploads/2020/10/UN-IGME-2020-Stillbirth-Report.pdf>.
- 48 "Preventing and Addressing Stillbirths Along the Continuum of Care: A Global Advocacy and Implementation Guide." *International Stillbirth Alliance*. (2023, May). <https://www.stillbirthalliance.org/global-advocacy-and-implementation-guide/>
- 49 "Never Forgotten: The Situation of Stillbirth around the Globe." UNICEF Data. UNICEF, January 16, 2023. <https://data.unicef.org/resources/never-forgotten-stillbirth-estimates-report/>.
- 50 Arora, A. "Stillbirth Definition and Data Quality Assessment for Health Management Information Systems (HMIS)." *UNICEF DATA*, (2023, June 2). <https://data.unicef.org/resources/stillbirth-definition-and-data-quality-assessment-for-health-management-information-systems/>.
- 51 "Stillbirth." World Health Organization Health Topics. World Health Organization, [https://www.who.int/health-topics/still-birth#tab=tab\\_1](https://www.who.int/health-topics/still-birth#tab=tab_1).
- 52 Burden, C, Bradley, S., Storey, C., Ellis, A., Heazell, A., Downe, S., Cacciatore, J., and Siassakos, D. "From Grief, Guilt Pain and Stigma to Hope and Pride – A Systematic Review and Meta-Analysis of Mixed-Method Research of the Psychosocial Impact of Stillbirth." *BMC Pregnancy and Childbirth* 16, no. 1 (2016). <https://doi.org/10.1186/s12884-016-0800-8>.
- 53 Allahdadian M, Irajpour A, Kazemi A, Kheirabadi G. "Social support: An approach to maintaining the health of women who have experienced stillbirth." *Iran J Nurs Midwifery Res.* ;20(4):465-70. (2015). doi: 10.4103/1735-9066.160998. PMID: 26257802; PMCID: PMC4525345.
- 54 Chitti, M. "Delivering Dignity: The Importance of Respectful Maternity Care." *New Security Beat*. (2023, May 31). <https://www.newsecuritybeat.org/2023/05/delivering-dignity-importance-respectful-maternity-care/>.
- 55 "Ending Preventable Newborn Deaths and Stillbirths by 2030" *WHO and UNICEF*. (2020) [https://cdn.who.int/media/docs/default-source/mca-documents/nbh/enap-coverage-targets-and-milestones-2025.pdf?sfvrsn=2add2482\\_2](https://cdn.who.int/media/docs/default-source/mca-documents/nbh/enap-coverage-targets-and-milestones-2025.pdf?sfvrsn=2add2482_2)
- 56 "Ending Preventable Newborn Deaths and Stillbirths by 2030" *WHO and UNICEF*. (2020) [https://cdn.who.int/media/docs/default-source/mca-documents/nbh/enap-coverage-targets-and-milestones-2025.pdf?sfvrsn=2add2482\\_2](https://cdn.who.int/media/docs/default-source/mca-documents/nbh/enap-coverage-targets-and-milestones-2025.pdf?sfvrsn=2add2482_2)
- 57 Nove, A., Friberg, I., de Bernis, L., McConville, MA., Moran, A., Najjemba, M. "Potential Impact of midwives in preventing and reducing maternal and neonatal mortality and stillbirths: a Lives Saved Tool modelling study" *The Lancet: Global Health*. (2021) [https://doi.org/10.1016/S2214-109X\(20\)30397-1](https://doi.org/10.1016/S2214-109X(20)30397-1)
- 58 Nove, A., Friberg, I., de Bernis, L., McConville, MA., Moran, A., Najjemba, M. "Potential Impact of midwives in preventing and reducing maternal and neonatal mortality and stillbirths: a Lives Saved Tool modelling study" *The Lancet: Global Health*. (2021) [https://doi.org/10.1016/S2214-109X\(20\)30397-1](https://doi.org/10.1016/S2214-109X(20)30397-1)
- 59 "Never Forgotten: The Situation of Stillbirth around the Globe." UNICEF Data. UNICEF, January 16, 2023. <https://data.unicef.org/resources/never-forgotten-stillbirth-estimates-report/>.
- 60 "Never Forgotten: The Situation of Stillbirth around the Globe." UNICEF Data. UNICEF, January 16, 2023. <https://data.unicef.org/resources/never-forgotten-stillbirth-estimates-report/>.
- 61 "Statutory Parental Bereavement Pay and Leave." *GOV.UK*, (2020, May 1). <https://www.gov.uk/parental-bereavement-pay-leave>.
- 62 Wamsley, L. "New Zealand Approves Paid Leave after a Miscarriage." *NPR*, (2021, March 25). <https://www.npr.org/2021/03/25/981309826/new-zealand-approves-paid-leave-after-a-miscarriage>.
- 63 "Family and Medical Leave Act (FMLA)." *DOL*. <https://www.dol.gov/general/topic/workhours/fmla>.
- 64 Warner, C. "Emerging Trend: Bereavement Leave Covers Reproductive Losses." *HRMorning*, June 22, 2022. <https://www.hrmorning.com/news/bereavement-leave-pregnancy/>.



© 2023, Woodrow Wilson International Center for Scholars

Woodrow Wilson International Center for Scholars  
One Woodrow Wilson Plaza  
1300 Pennsylvania Avenue NW  
Washington, DC 20004-3027

## The Wilson Center

 [wilsoncenter.org](https://wilsoncenter.org)

 [facebook.com/WoodrowWilsonCenter](https://facebook.com/WoodrowWilsonCenter)

 [@TheWilsonCenter](https://twitter.com/TheWilsonCenter)

 202.691.4000

## Maternal Health Initiative

Sarah B. Barnes | Director  
Deekshita Ramanarayanan | Program Associate  
Sophia DeLuca | Program Intern  
Maanasa Chitti | Program Intern

 [wilsoncenter.org/maternalhealth](https://wilsoncenter.org/maternalhealth)

 [mhi@wilsoncenter.org](mailto:mhi@wilsoncenter.org)

 [linkedin.com/showcase/wilson-center-maternal-health-initiative](https://linkedin.com/showcase/wilson-center-maternal-health-initiative)

 [@maternalhealthinitiative](https://instagram.com/maternalhealthinitiative)

 [@Wilson\\_MHI](https://twitter.com/Wilson_MHI)

 202.691.4000

