

# Improve Maternal and Newborn Health and Nutrition

## Facts, Solutions, Case Studies, and Policy Recommendations

### OVERVIEW

In spite of substantial advances in maternal and newborn health over recent decades, roughly 300,000 girls and women still die due to pregnancy related complications every year.<sup>1</sup> There is widespread evidence and agreement within the global community on what needs to be done to prevent these deaths and improve the health and wellbeing of women and babies.

Clinical interventions and health services need to be delivered across a continuum of care – before, during pregnancy, and after pregnancy.<sup>2</sup> There must also be an enhanced focus on the role that nutrition plays in saving lives and safeguarding the health of women and newborns.<sup>3</sup> Good nutrition is essential for physical growth, mental development, performance, productivity, health, and wellbeing across the entire life-span, making nutrition a sound investment for any country.<sup>4</sup>

The interventions discussed in this policy brief not only address the leading causes of maternal and newborn death, but they also explore overall health and wellbeing, encompassing adequate nutrition and the prevention and treatment of maternal injuries.

### SECTION 1: FRAMING THE ISSUE

Over the past 25 years, great strides have been made in maternal and newborn health – the number of maternal deaths has dropped by nearly half since 1990,<sup>5</sup> and the number of newborn deaths fell 47% between 1990 and 2015.<sup>6</sup> However, of the nearly 127 million women who give birth every year, 27% do not deliver their babies in a healthcare facility and 39% million do not receive the minimum 4 antenatal care visits.<sup>7</sup> For every woman who dies of pregnancy related complications, another 20 women experience a form of morbidity – such as an obstetric fistula, or uterine prolapse – which carry long-term consequences that can encumber health, wellbeing, and even social and economic status.<sup>8</sup>

Every day, some 830 women die from pregnancy or childbirth related complications, which equates to about one woman every two minutes.<sup>9</sup> In some countries a woman's lifetime risk of dying in pregnancy is as high as 1 in 17, while in high-income countries on average it is 1 in 3300.<sup>10</sup>

The major causes of maternal death include severe bleeding, infection, pre-eclampsia and eclampsia, complications from delivery, and unsafe abortion. Combined, these causes account for roughly 73% of all maternal deaths.<sup>11</sup> Causes of maternal mortality and morbidity are becoming increasingly diverse, taking into account the effect of non-communicable diseases, as well as environmental and demographic shifts – these diverse needs require responsive policy and care.<sup>12</sup> Weak health systems also contribute to maternal mortality rates, particularly wherever facilities lack essential medical supplies and equipment, basic services such as reliable, accessible water and sanitation services and hygiene training, face a shortage of skilled-birth attendants, and a general shortage of healthcare workers.<sup>13,14,15</sup>

A number of issues further contribute to increased vulnerability to maternal death and disability:

- **Low-income, rural, and marginalized women have less access to care:** Due to limited access to comprehensive maternal healthcare, these women are most likely to experience pregnancy and childbirth related complications.<sup>16</sup> In the developing world, 53 million women worldwide give birth at home every year without a skilled birth attendant.<sup>17</sup> Even though the rates of women receiving antenatal care around the world have increased, in developing regions only 68% of women have skilled labor present during childbirth and only 40% receive the suggested number of antenatal visits while pregnant.<sup>18,19,20</sup> Studies show a clear link between low income and births in inadequate environments which lack the basic services for infection prevention, critical for a safe delivery. A WHO report looking at assessments from over 66,000 healthcare facilities in low- and middle-income countries found that 38% did not have access to clean water.<sup>21</sup> This reinforces the need to ensure adequate support to women and their newborns who are particularly susceptible, as, each year, millions of people die – and many more are sickened – from diseases associated with poor water, sanitation, and hygiene. These needs can be especially acute in emergencies, where the specific hygiene needs of girls and women are often overlooked.<sup>22</sup>



**Meeting the demand for modern contraception and reproductive health is linked to the achievement of several of the Sustainable Development Goals (SDGs) and targets, including:**

#### SDG Goal 1: End poverty in all its forms everywhere

- **1.1** By 2030, eradicate extreme poverty for all people everywhere, currently measured as people living on less than \$1.25 a day
- **1.2** By 2030, reduce at least by half the proportion of men, women and children of all ages living in poverty in all its dimensions according to national definitions
- **1.5** By 2030, build the resilience of the poor and those in vulnerable situations and reduce their exposure and vulnerability to climate-related extreme events and other economic, social and environmental shocks and disasters

#### SDG Goal 2: End hunger, achieve food security and improved nutrition and promote sustainable agriculture

- **2.1** By 2030, end hunger and ensure access by all people, in particular the poor and people in vulnerable situations, including infants, to safe, nutritious and sufficient food all year round
- **2.2** By 2030, end all forms of malnutrition, including achieving, by 2025, the internationally agreed targets on stunting and wasting in children under 5 years of age, and address the nutritional needs of adolescent girls, pregnant and lactating women, and older persons

*Disclaimer: The views and opinions expressed in this technical paper are those of the authors and do not necessarily reflect the official policy or position of all partnering organizations.*





- **Young women and adolescents are at increased risk:** Early pregnancy and childbearing increases the risks of complications for adolescent girls and their newborns. Pregnancy and childbirth complications are the leading cause of death for women aged 15–19 globally<sup>23</sup> and result in 17,000 deaths per year.<sup>24</sup> Babies born to adolescent girls under 18 have a 60% increased risk of death compared to babies born to mothers older than 19<sup>25</sup> – these newborns are also more likely to be pre-term and have low birth weight.<sup>26,27,28</sup> Studies show that if all women in low- and middle-income countries had a secondary education, 26% fewer children would be stunted, or too short for their age, making the need for investments into girls' education the more critical.<sup>29</sup>
- **Nutritional status:** As every country has a nutrition problem – be it over or undernutrition – boosting girls' and women's nutritional status is critical to improving maternal and newborn health. Undernutrition among pregnant women leads to increased risks of infection, anemia, lethargy and weakness, lower productivity, poor birth outcomes, maternal complications, and even death.<sup>30,31</sup> Nutrition plays another critical role; in developing countries, every other pregnant woman is iron deficient, and anemia contributes to 20% of all maternal deaths worldwide.<sup>32</sup> Poor nutrition in women at large, and pregnant women in particular, also contributes to newborn death and disability; being small for gestational age results in some 800,000 deaths annually in the first month of life, or about a quarter of all newborn deaths.<sup>33,34</sup> Poor maternal nutrition increases risk of premature delivery, low birthweight, and birth defects.<sup>35</sup> Because of inadequate nutrition during pregnancy, in 2015, more than 50 million children were wasted, or had body mass indexes that were too low, and more than 150 million children around the world were stunted, which hampers the possibility of children being able to grow into healthy, active, and productive members of their families, communities, and countries.<sup>36</sup> Undernutrition and overnutrition can result in obesity and Gestational Diabetes Mellitus (GDM), or the onset of diabetes during pregnancy, which is associated with higher incidences of maternal and newborn health complications.<sup>37,38</sup> Maternal obesity is also associated with a higher risk of pre-eclampsia (hypertensive disorders during pregnancy),<sup>39</sup> the second leading cause of maternal death,<sup>40</sup> which can also lead to newborn and infant death.<sup>41</sup>
- **Unsafe abortion:** One of the leading causes of maternal mortality, unsafe abortion results in 22,000 maternal deaths annually.<sup>42</sup> Unsafe abortions are more likely to occur where abortion is illegal.<sup>43</sup> In these contexts women risk unsafe methods, such as obtaining an abortion from an unqualified provider, self-medicating to induce abortion, drinking toxic fluids, and self-injury.<sup>44,45</sup> Women who survive these procedures often suffer serious—if not permanent—injuries.<sup>46</sup>
- **HIV:** HIV is a significant factor in maternal deaths, particularly across the developing world. When compared with HIV-negative women, HIV-positive women are eight times more likely to die during pregnancy, childbirth, or in the period immediately after childbirth.<sup>47</sup> In 2015, of the roughly 4,700 AIDS-related maternal deaths worldwide, sub-Saharan Africa accounted for 85%, or 4,000 deaths.<sup>48</sup> Without treatment, newborns with HIV progress rapidly to AIDS because their immune systems are underdeveloped.<sup>49</sup> Early infant diagnosis is crucial to reducing the persistently high AIDS-related mortalities among children. Half of newborns with HIV die before reaching the age of two, and the highest number of deaths occur between six and eight weeks of life. The majority of these deaths are preventable, by treating opportunistic infections with antibiotics or through antiretroviral therapy.<sup>50</sup>
- **Humanitarian Settings and Emergencies:** The number of people affected by humanitarian emergencies has been sharply increasing over the past decade – over 125 million are in need of humanitarian assistance, five times the number 10 years ago.<sup>51</sup> In such settings, girls and women are often the most vulnerable, facing increased challenges to their sexual and reproductive health and overall wellbeing.<sup>52,53</sup> It is estimated that over half of all maternal and newborn deaths occur in humanitarian settings.<sup>54</sup> In 2015, there were approximately 185,000 maternal deaths in the 35 countries affected by a humanitarian crisis or fragile conditions -- this accounts 61% of the global estimate of maternal deaths.<sup>55</sup> Even though girls and women face increased vulnerability in emergency settings, their protection has received insufficient attention within humanitarian response.<sup>56</sup>

## SECTION 2: SOLUTIONS AND INTERVENTIONS

There is global consensus on the health and nutrition interventions that should be made available to women and newborns along a continuum of care.<sup>57</sup> These holistic, women-centered interventions are not only aimed at preventing the leading causes of maternal and newborn deaths, but look to improve the overall health of women and infants by facilitating proper nutrition, and preventing and treating maternal challenges, such as gestational diabetes, childbirth injuries, and managing blood pressure.<sup>58</sup> Improved care for women during pregnancy plays a decisive role in reducing newborn and infant mortality rates, as well as low-birth weight and stillbirths.<sup>59</sup>

A health system that is ready to deliver for women, when women are ready to deliver, is key. An effective continuum of care includes quality care before, during, and after pregnancy, and envisions care for normal pregnancy and childbirth, as well as emergency obstetric care delivered by skilled healthcare providers within a functioning health system.<sup>60</sup> For the continuum of care to have a significant impact on maternal and newborn health, it must also include access to the necessary facilities, medicines, supplies, equipment, and skilled health providers.<sup>61</sup> In low-income settings,

### SDG Goal 3: Ensure healthy lives and promote wellbeing for all at all ages

- **3.7** By 2030, ensure universal access to sexual and reproductive health-care services, including for family planning, information and education, and the integration of reproductive health into national strategies and programmes
- **3.8** Achieve universal health coverage, including financial risk protection, access to quality essential health-care services and access to safe, effective, quality and affordable essential medicines and vaccines for all
- **3.c** Substantially increase health financing and the recruitment, development, training and retention of the health workforce in developing countries, especially in least developed countries and small island developing States

### SDG Goal 5: Achieve gender equality and empower all women and girls

- **5.1** End all forms of discrimination against all women and girls everywhere
- **5.2** Eliminate all forms of violence against all women and girls in the public and private spheres, including trafficking and sexual and other types of exploitation
- **5.3** Eliminate all harmful practices, such as child, early and forced marriage and female genital mutilation
- **5.6** Ensure universal access to sexual and reproductive health and reproductive rights as agreed in accordance with the Programme of Action of the International Conference on Population and Development and the Beijing Platform for Action and the outcome documents of their review conferences



improvements in water and sanitation are essential to improving the health of women and babies, and saving lives.<sup>62</sup> Finally, health services must be available, accessible, acceptable, and of quality (AAAQ)<sup>63</sup> and must be provided in a dignified and respectful manner, free from discrimination and abuse.<sup>64</sup>

While the global community agrees on the clinical interventions needed to improve maternal and newborn health and nutrition, there are still gaps in service. This brief highlights four strategies that have the potential to address these gaps:

- Ensure access to quality maternal and newborn care, including midwifery care
- Expand community-level strategies to reach the most vulnerable girls and women
- Address unintended pregnancy through modern contraception and increase access to safe abortion
- Provide maternal and newborn nutrition education, counseling, and support – and promote exclusive breastfeeding

### Ensure Access to Quality Maternal and Newborn Care, Including Midwifery Care

The provision of affordable and quality maternal and newborn healthcare services must go hand-in-hand with access to skilled, knowledgeable, and compassionate midwifery care throughout pre-pregnancy, pregnancy, birth, the postnatal period, and the first months of infancy. This is one of the most important investments a country can make to improve maternal and newborn health.<sup>65</sup> The provision of full care, as recommended by the WHO, for all pregnant women and newborns, combined with modern contraception for women who wanted to avoid pregnancy, would yield a drop in maternal deaths from 308,000 to 84,000 per year, and a drop in newborn deaths from 2.7 million to 541,000 per year.<sup>66</sup>

Many countries – including Burkina Faso, Cambodia, Indonesia, Morocco, and Sri Lanka – have significantly reduced maternal and newborn deaths by training and deploying midwives.<sup>67,68</sup> Midwives, or skilled birth attendants with midwifery skills, can counsel women on sound nutrition practices – such as the importance of folic acid through food fortification – that strengthen their ability to carry pregnancies to term, prevent birth defects, and save newborn lives.<sup>69</sup> Midwives are crucial in the early initiation and ongoing support of breastfeeding in the first moments and weeks of life, a key newborn health and nutrition intervention.<sup>70</sup> Continued breastfeeding for the first six months of life has the potential to save the lives of hundreds of thousands of infants and reduce health-care costs.<sup>71,72</sup> While newborns need the nutrients found in breastmilk to protect them from diseases such as diarrhea, adolescents and adults who were breastfed as babies are less likely to become overweight or obese and perform better in intelligence tests. For the woman, breastfeeding can also help reduce risks of breast and ovarian cancer, type II diabetes, and postpartum depression.<sup>73,74</sup>

Many low- and middle-income countries still have a long way to go before quality midwifery coverage is available for the most underserved populations. Only 42% of the world's medical, midwifery, and nursing professionals are available in the 73 low- and middle-income countries where 92% of maternal and newborn deaths and stillbirths occur.<sup>75,76</sup> Not only is there a need to increase the number of midwives in these countries, but continued commitment by governments and their development partners must guarantee that midwifery services are available, accessible, acceptable, and of high-quality.

#### Case Study: Improving Midwifery Care in Cambodia

Maternal and newborn mortality has been falling significantly in Cambodia since 2005.<sup>77</sup> Key to this decline was a notable investment in midwifery education and a marked increase in the number of midwives providing antenatal care and deliveries within an expanding primary healthcare network. Ensuring increased access to quality maternity care was led by the government, with the support of a range of partners, including NGOs and UN organizations.<sup>78,79</sup> Access to improved primary healthcare, with a focus on midwifery, was also seen across the health system, including the public and private health sector. In 2010, skilled birth attendance in a facility accounted for 55% of all births, and home deliveries with a midwife for 16%. Pre-service education and in-service training for midwives has been prioritized and all health centers have at least one primary midwife.<sup>80,81</sup>

### Expand Community-Level Strategies to Reach the Most Vulnerable Women and Girls

In order to improve maternal and newborn health and nutrition, essential health services need to be provided through functioning health systems that integrate a continuum of community- and facility-based care. Grassroots-level interventions include community mobilization, health and behavior change education, community support groups, and home visits during pregnancy and after childbirth.<sup>82</sup> These may be provided by a healthcare provider or a community health worker at the home, village, school, or local clinic. Growing evidence suggests that community-based strategies improve maternal and newborn health outcomes, and positively affect health and nutrition practices – such as the uptake of exclusive breastfeeding.<sup>83</sup> Finally, strengthening community participation and engagement – involving both women and men – in the design and delivery of health services has led to improvements in their quality, availability, and utilization.<sup>84</sup> Invoking the power of community participation and engagement in



### SDG 9: Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation

- **9.1** Develop quality, reliable, sustainable and resilient infrastructure, including regional and transborder infrastructure, to support economic development and human well-being, with a focus on affordable and equitable access for all

### SDG 11: Make cities and human settlement inclusive, safe, resilient and sustainable.

- **11.2** By 2030, provide access to safe, affordable, accessible and sustainable transport systems for all, improving road safety, notably by expanding public transport, with special attention to the needs of those in vulnerable situations, women, children, persons with disabilities, and older persons

### International agreements related to improving maternal and newborn health and nutrition include:

- Programme of Action of the International Conference on Population and Development (1994)
- Beijing Platform of Action, Fourth World Conference on Women (1995)
- Millennium Development Goals (2000-2015)
- Global Strategy for Women's and Children's Health (2010)
- Scaling-Up Nutrition Movement Strategy (2012-2015)
- Sustainable Development Goals (2015-2030)
- Global Strategy for Women's, Children's, and Adolescents' Health (2016-2030)
- Report of the High-Level Working Group on the Health and Human Rights of Women, Children and Adolescents (2017)



emergency settings is particularly key to ensure that the specific needs of girls and women are not overlooked.<sup>85,86</sup> Effective community level interventions include:

- **Training and deploying community health workers (CHWs):** Community health workers can play an important role in increasing access to essential health information services, and, in particular, can be instrumental in providing care to underserved populations, including youth and adolescents, in rural areas and in humanitarian settings. Community health workers receive a limited amount of training to deliver a wide range of health and nutrition services to the members of their communities, and to promote sound practices, such as breastfeeding. They typically remain in their home village or neighborhood, serving as a link between their neighbors and the health facility or formal health providers; in this capacity, they can ensure that women at risk and infants are referred to the appropriate health facility, or skilled provider, for needed care and treatment.<sup>87,88</sup> A number of countries have embarked on national community health worker programs with positive results. Ethiopia's Health Extension Program (HEP), Pakistan's Lady Health Workers (LHW) Program, and Uganda's Village Health Teams, among others, improve the promotion of essential health information and services.<sup>89</sup>
- **Mobilizing communities through women's or community groups:** Evidence from countries in Africa and Asia points to the role of women's groups in improving maternal and newborn care practices and reducing maternal and newborn deaths. These groups bring women together before, during, and after pregnancy to share common experiences, identify problems, exchange information, discuss ways to access quality maternal and newborn healthcare, identify gaps in the system, and find potential solutions. A meta-analysis conducted in 2013 showed that women's groups can reduce maternal deaths by 49% and newborn deaths by one-third.<sup>90</sup>

#### **Case Study: Pakistan's Lady Health Worker Program**

To respond to many urban-rural disparities and a drastic imbalance in the health workforce, including insufficient numbers of health workers, nurses, and skilled birth attendants, Pakistan created the Lady Health Worker cadre in 1994.<sup>91</sup> Through this program, workers must be recommended by the community, have at least eight years of schooling, and undergo extensive training. The goal of this program is to equip female health workers with the skills to provide essential primary health services in rural and urban slum communities.<sup>92</sup> External evaluation has shown substantially better health indicators in the population served by Lady Health Workers. In the Punjab province, for example, Lady Health Workers have played a critical role in reducing maternal mortality rates. A 2006 study of the region revealed a drop in maternal mortality from 350 to 250 per 100,000 live births. Infant mortality also declined from 250 to 79 per 100,000 live births.<sup>93</sup>

### **Address Unintended Pregnancy Through Modern Contraception and Increase Access to Safe Abortion**

Roughly 40% of the 213 million pregnancies that occurred globally in 2012 were unplanned;<sup>94</sup> of those unintended pregnancies, 50% ended in abortion,<sup>95</sup> half of which are typically unsafe.<sup>96</sup> To eliminate the risks posed by unintended pregnancy and unsafe abortion, girls and women need access to contraceptive information, counseling, products, and services, as well as to be able to plan their pregnancies.<sup>97</sup> Girls and women also need access to quality post-abortion care to treat complications arising from an incomplete or unsafe abortion.<sup>98</sup> In humanitarian settings, where adolescent girls and women are particularly vulnerable to sexual assault, access to these services is particularly critical.<sup>99</sup>

➔ *For more, please reference the brief focused on Meeting the Demand for Modern Contraception and Reproductive Health.*

Increasing access to and use of modern contraception is the best way to reduce unintended pregnancies and unsafe abortions. The use of modern contraception also allows for birth spacing, which in turn reduces birth complications, thus increasing the health of both the woman and baby.<sup>100,101</sup> However, when contraceptive methods fail, or when pregnancies pose a health risk to the mother, access to safe and legal abortion is crucial to reducing maternal mortality and morbidity.<sup>102</sup> Therefore, liberalizing abortion laws and increasing access to safe abortion services needs to be a priority in places where it is currently highly restricted or illegal.<sup>103</sup> In countries such as Nepal, South Africa, and Tunisia, legalizing abortion has been linked to a drop in maternal mortality.<sup>104,105</sup>

Where safe abortion services do exist, communities must know how to access them, and available services must be affordable. In countries where abortion remains highly restricted, and therefore often unsafe, post-abortion care (PAC) services should be strengthened and efforts must be made to increase awareness of them. Fear of stigma may prevent women, and especially adolescents, from seeking care for abortion-related complications. PAC providers should not only be trained on appropriate techniques and procedures, but should also know how to provide non-judgmental, confidential, and adolescent/youth-friendly services, which should include counseling on contraception. Evidence shows that providing contraceptive services together with PAC services increases their use, thereby reducing unintended pregnancies and repeat abortions.<sup>106</sup>

In countries where abortion is legal, the following actions promote access to safe abortion:<sup>107</sup>

- Registering essential medicines and making supplies available for safe abortion services;
- Training providers on WHO-endorsed safe abortion methods, including vacuum aspiration for surgical abortion and misoprostol for medical abortion;
- Ensuring abortion is affordable, legal, and confidential for all, without age or marriage restriction.

➔ *For more, please reference the brief focused on Respecting, Protecting, and Fulfilling Sexual Health and Rights.*

#### **Case Study: The Impact of Legal Reform on Availability of Abortion in South Africa**

In 1996, abortion was legalized in South Africa, after which there was a significant decrease in infections and hospitalization of women who had undergone unsafe abortion, especially younger women.<sup>108</sup> A review of national data indicates that abortion mortality dropped by more than 90% between 1994 and 2001.<sup>109</sup>

### **Provide Maternal and Newborn Nutrition Education, Counselling, and Support – and Promote Exclusive Breastfeeding**

Given the intergenerational nature of malnutrition, it is important to recognize the value of nutritional education, counseling, and support services as effective tools to improve maternal and newborn health, and enhance overall health and wellbeing. When girls and women who are malnourished become pregnant, the impacts can be detrimental.<sup>110</sup> Lack of proper nutrition can lead to the birth of underweight babies who face an increased risk of poor health throughout their lives – a risk that can have long-term impacts on health.<sup>111</sup> Today, it is estimated that one quarter of children under five worldwide experience chronic malnutrition.<sup>112</sup> This figure is even higher in low-and middle-income countries such as India, Indonesia, and Guatemala, where over one-third of all girls and boys at the national level, and up to 80% in some regions, are stunted.<sup>113</sup> Proper nutrition during the first 1,000 days of a baby's life, starting from the beginning of a woman's pregnancy, is critical.<sup>114</sup> This 1,000-day critical window of opportunity can have a strong impact on a child's growth and ability to learn<sup>115</sup>, as early childhood nutrition, and early stimulation and learning programs, lead to extend school completion, improve learning outcomes, and increase adult wages and access to decent work opportunities.<sup>116</sup>



An increased risk of malnutrition, death, and illness during the postnatal period has been linked to poor and inadequate feeding practices. Even though evidence clearly indicates the benefits of early initiation and exclusive breastfeeding for the first six months of life, only about one in three Sub-Saharan African babies, for example, is exclusively breastfed.<sup>117</sup> This is due to a lack of awareness of optimal feeding practices and a lack of support from healthcare providers, community members, and families. Babies who are not breastfed within the first hour and exclusively for six months have a higher risk of death, especially from infection.<sup>118</sup> Therefore, it is vital that healthcare providers and community members advising new mothers are educated and equipped with the necessary skills and knowledge to promote and support maternal nutrition and the merits of optimal breastfeeding practices.<sup>119</sup> Special attention and support around breastfeeding must also be given to low birth weight babies and their mothers, HIV-positive mothers, and babies born in emergency settings.<sup>120</sup> It is thus vital to ensure that healthcare providers, as well as community members who often advise new mothers about infant care, have accurate information about the merits of breastfeeding and are educated and equipped to promote and support maternal nutrition and recommended breastfeeding practices. Due to lacking maternity protection provisions, many women who return to work stop breastfeeding partially or completely because they do not have sufficient time, or a place to breastfeed, express, and store their milk.<sup>121</sup> Enabling conditions at work, such as paid maternity leave; part-time work arrangements; on-site childcare; clean, safe, and private facilities for expressing and storing breast milk; and breastfeeding breaks, can help.<sup>122</sup>

A recent Lancet study estimated that the costs required for breastfeeding promotion are relatively low. For the 34 countries with 90% of the world's stunted children, achieving vast coverage in promoting early, exclusive, and continued breastfeeding through education and nutrition supplementation would cost roughly \$175 per life-year saved.<sup>123</sup>

#### **Case Study: Scaling Up Breastfeeding in Bangladesh**

*Breastfeeding has been widely lauded for enduring health benefits for infants and their mothers. In the past six to eight years, exclusive breastfeeding in Bangladesh has increased by 13%. Bangladesh's success has been attributed to community mobilization and media outreach around the importance of breastfeeding, along with comprehensive health worker training. This training serves to create a support system at health facilities that provide a vital resource for positive nutritional education. Bangladesh also utilized strategic technical experience of various stakeholders – including civil society, UNICEF, and the Alive and Thrive initiative – incorporated existing evidence and best practices and worked across sectors to create uniform messaging and practice around breastfeeding promotion.<sup>124</sup>*

### **SECTION 3: THE BENEFITS OF INVESTMENT**

If all girls and women had access to modern contraception and the full range of maternal and newborn health services, maternal death would drop roughly 73%, and newborn deaths would be reduced by about 80%.<sup>125</sup>

Investments in maternal, newborn, and reproductive health are sound investments. They not only save lives, but they increase both social and economic benefits for developing nations.<sup>126</sup> Every dollar spent globally on interventions promoting contraception and high-quality maternal and newborn health care would reap \$120 in benefits.<sup>127</sup> Given the important role girls and women play in contributing to national and global economies, ensuring they are healthy makes them more likely to save, invest, and deliver better for themselves, their families, communities, and societies. Conversely, poor health outcomes, resulting from maternal death, disability and inadequate nutrition, adversely affect the economy and slash family earnings.

Evidence suggests that in Africa and Asia, an 11% boost in gross national product is achievable through the elimination of undernutrition,<sup>128</sup> and that scaling up nutrition interventions targeting pregnant women and young children yields a return of at least US\$16 for every US\$1 spent.<sup>129,130</sup> Children who are malnourished during their first 1,000 days of life are more susceptible to infectious diseases and have lower cognitive abilities. As a result, early undernutrition can considerably hinder a country's economic growth.<sup>131</sup>

During the first two years of a child's life, optimal breastfeeding reduces a child's risk of death and lowers the long-term negative impact of poor nutrition. Breastfeeding and proper nutrition may also lower the risk of high blood pressure and cholesterol, obesity, diabetes and some childhood asthmas and cancers.<sup>133,134</sup> Providing women with micronutrients can help ensure healthy pregnancies, prevent anemia, enhance fetal growth, and support healthy birth weights.<sup>135</sup> Micronutrients are important for the health of the baby, but also for the overall health and wellbeing of girls and women.

Research has demonstrated that the impact of maternal death on families, and especially on children who are left behind, can be devastating.<sup>136</sup> Maternal mortality has implications for the surviving household's financial stability and puts the future education of children at risk.<sup>137</sup> Research has shown that newborns whose mothers die in childbirth are far less likely to reach their first birthday than those whose mothers survive.<sup>138</sup> Among surviving daughters, school dropout and early marriage rates soar, repeating the cycle of poverty for the next generation.<sup>139</sup>

### **SECTION 4: CALLS TO ACTION**

The vast majority of maternal and newborn deaths can be prevented by known interventions provided through a continuum of care. Access to quality maternal and newborn care and nutrition not only benefits the woman and child, but it has far-reaching benefits for families, communities, and societies as a whole. In order to power progress for all, many different constituents must work together – governments, civil society, academia, media, affected populations, the United Nations, and the private sector – to take the following actions for girls and women:

- Guarantee access to quality, affordable care before, during, and after pregnancy – inclusive of midwifery and obstetric care, modern contraception, safe abortion, and post-abortion care.  
(Most relevant for: civil society, governments, the United Nations, and the private sector)
- Ensure quality care is inclusive of midwifery and obstetric care, family planning, safe abortion, and post-abortion care.  
(Most relevant for: civil society, governments, the United Nations, and the private sector)
- Meet the unmet need for modern contraception for girls and women.  
(Most relevant for: civil society, governments, the United Nations, and the private sector)
- Support the prevention, screening, and treatment of common challenges during pregnancy such as obesity, gestational diabetes, and high blood pressure.  
(Most relevant for: civil society, governments, the United Nations, and the private sector)
- Increase national budgets for maternal and newborn health and nutrition to meet global health and nutrition targets by 2030.  
(Most relevant for: governments)



- Set measurable targets for improving maternal and newborn health and nutrition, monitor progress, and strengthen accountability mechanisms, while ensuring the equal involvement of all stakeholders, including civil society.  
(Most relevant for: civil society and governments)
- Address barriers to healthcare, including user fees, poor infrastructure – including inadequate access to clean water, sanitation, and hygiene – and a lack of essential supplies, medicines, and micronutrients.  
(Most relevant for: governments, civil society, and the private sector)
- Include girls, young people, and women in the design and implementation of maternal and newborn health and nutrition programs as context experts.  
(Most relevant for: civil society, governments, and the United Nations)
- Hold governments accountable to commitments made in support of girls' and women's health, rights, and wellbeing.  
(Most relevant for: affected populations, civil society, and the United Nations)
- Promote and provide women access to nutritious food, counseling on proper nutritional practices such as early initiation, exclusive, and continued breastfeeding, and critical micronutrients.  
(Most relevant for: affected populations, civil society, governments, private sector, and the United Nations)
- Ensure that adequate maternity protection measures are put in place so that mothers who return to work are aware of their rights and can continue breastfeeding until their baby is at least 6 months old.  
(Most relevant for: governments, the United Nations, the private sector, and civil society)
- Ensure that the full spectrum of maternal and newborn health and nutrition interventions are included in humanitarian response guidelines and protocols, financed, and implemented.  
(Most relevant for the United Nations, governments, and civil society)

---

## Reviewed and Updated August 2017

**Prepared by:** Kathleen Schaffer, Family Care International and Shafia Rashid, FCI Program of Management Sciences for Health

**Reviewed by:** Genine Babakian, Consultant; Juliana Bennington, Women Deliver; Masha DeVoe, Women Deliver; Tatiana DiLanzo, Women Deliver; Louise Dunn, Women Deliver; Katja Iversen, Women Deliver; Jessica Malter, Women Deliver; Susan Papp, Women Deliver; Savannah Russo, Women Deliver; Dominic Schofield, Global Alliance for Improved Nutrition; Liuba Grechen Shirley, Consultant; Ann Starrs, Guttmacher Institute; Petra ten Hoop-Bender, Women Deliver; Tamara Windau-Melmer, Women Deliver; Iselin Danbolt, SUN; Athena Rayburn, Women Deliver; Mary Crippen, Consultant

*Disclaimer: The views and opinions expressed in this technical paper are those of the authors and do not necessarily reflect the official policy or position of all partnering organizations.*

*These briefs are intended to be used by policymakers, decision-makers, advocates, and activists to advance issues effecting girls and women in global development. These materials are designed to be open-sourced and available for your use.*

➔ **To learn about the Deliver for Good campaign, visit [deliverforgood.org](http://deliverforgood.org).**

---

## ENDNOTES

- <sup>1</sup> Alkema, Leontine. "Global, regional, and national levels and trends in maternal mortality between 1990 and 2015, with scenario-based projections to 2030: a systematic analysis by the UN Maternal Mortality Estimation Inter-Agency Group." *The Lancet* 387.10017 (2016): 462-74. *The Lancet*. Web. <[http://thelancet.com/journals/lancet/article/PIIS0140-6736\(15\)00838-7/fulltext](http://thelancet.com/journals/lancet/article/PIIS0140-6736(15)00838-7/fulltext)>.
- <sup>2</sup> "Essential Interventions, Commodities and Guidelines for Reproductive, Maternal, Newborn and Child Health." World Health Organization. 2011. Web. <[http://www.who.int/pmnch/topics/part\\_publications/essential\\_interventions\\_18\\_01\\_2012.pdf](http://www.who.int/pmnch/topics/part_publications/essential_interventions_18_01_2012.pdf)>.
- <sup>3</sup> Essential Nutrition Actions: improving maternal, newborn, infant and young child health and nutrition. World Health Organization, 2013. Web. 20 Apr. 2017. <[http://apps.who.int/iris/bitstream/10665/84409/1/9789241505550\\_eng.pdf](http://apps.who.int/iris/bitstream/10665/84409/1/9789241505550_eng.pdf)>. "State of the World's Mothers." Save the Children. 2012. Web. <<http://www.savethechildren.org/atf/cf/%7B9def2ebe-10ae-432c-9bd0-df91d2eba74a%7D/STATE-OF-THE-WORLDS-MOTHERS-REPORT-2012-FINAL.PDF>>
- <sup>4</sup> "State of the World's Mothers." Save the Children. 2012. Web. <<http://www.savethechildren.org/atf/cf/%7B9def2ebe-10ae-432c-9bd0-df91d2eba74a%7D/STATE-OF-THE-WORLDS-MOTHERS-REPORT-2012-FINAL.PDF>>5
- <sup>5</sup> "Trends in Maternal Mortality: 1990 to 2015: WHO, UNICEF, UNFPA, The World Bank and the United Nations Population Division." World Health Organization. 2015. Web. <[http://apps.who.int/iris/bitstream/10665/194254/1/9789241565141\\_eng.pdf?ua=1](http://apps.who.int/iris/bitstream/10665/194254/1/9789241565141_eng.pdf?ua=1)>.
- <sup>6</sup> "Committing to Child Survival: A Promise Renewed." UNICEF. 2015. Web. <<http://www.apromiserenewed.org/wp-content/uploads/2016/01/APR-Report-2015-e-version.pdf>>.
- <sup>7</sup> Greater Investments Needed to Meet Women's Sexual and Reproductive Health Needs in Developing Regions." Guttmacher Institute. N.p., 29 June 2017. Web. 29 June 2017. <<https://www.guttmacher.org/news-release/2017/greater-investments-needed-meet-womens-sexual-and-reproductive-health-needs>>.
- <sup>8</sup> Hardee, Karen, et al. "Maternal Morbidity: Neglected Dimension of Safe Motherhood in the Developing World." *Global Public Health*, 7,6 (2012): 603–617. Web. <<http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3396379/>>.
- <sup>9</sup> "Maternal Health." UNFPA. Web. 23 Mar. 2016. <<http://www.unfpa.org/maternal-health>>.
- <sup>10</sup> "Trends in Maternal Mortality: 1990 to 2015: WHO, UNICEF, UNFPA, The World Bank and the United Nations Population Division." World Health Organization. 2015. Web. <[http://apps.who.int/iris/bitstream/10665/194254/1/9789241565141\\_eng.pdf?ua=1](http://apps.who.int/iris/bitstream/10665/194254/1/9789241565141_eng.pdf?ua=1)>.
- <sup>11</sup> Say, Lale, et al. "Global causes of maternal death: a WHO systematic analysis." *The Lancet Global Health* 2.6 (2014): E323-333. June 2014. Web. <[http://thelancet.com/journals/langlo/article/PIIS2214-109X\(14\)70227-X/fulltext](http://thelancet.com/journals/langlo/article/PIIS2214-109X(14)70227-X/fulltext)>. />



- <sup>12</sup> Graham W, Woodd S, Byass P, et al. Diversity and divergence: the dynamic burden of poor maternal health. *Lancet*. 2016. Web. <[http://dx.doi.org/10.1016/S0140-6736\(16\)31533-1](http://dx.doi.org/10.1016/S0140-6736(16)31533-1)>
- <sup>13</sup> Interagency list of medical devices for essential interventions for Reproductive, Maternal, Newborn and Child Health. World Health Organization, 2015. Web. <[http://www.who.int/medical\\_devices/md\\_maternal\\_v12\\_web.pdf](http://www.who.int/medical_devices/md_maternal_v12_web.pdf)>.
- <sup>14</sup> Water, Sanitation and Hygiene - the Impact on RMNCH. The Partnership for Maternal, Newborn & Child Health, 2014. Web. <<http://www.who.int/pmnch/knowledge/publications/summaries/ks30.pdf?ua=1>>.
- <sup>15</sup> "A Universal Truth: No Health Without a Workforce." Global Health Workforce Alliance Secretariat and the World Health Organization. 2014. Web. <[http://www.who.int/workforcealliance/knowledge/resources/GHWA-a\\_universal\\_truth\\_report.pdf](http://www.who.int/workforcealliance/knowledge/resources/GHWA-a_universal_truth_report.pdf)>.
- <sup>16</sup> Rich Mother, Poor Mother: The Social Determinants of Maternal Death and Disability. Fact sheet. UNFPA, Dec. 2012. Web. <<https://www.unfpa.org/sites/default/files/resource-pdf/EN-SRH%20fact%20sheet-Poormother.pdf>>.
- <sup>17</sup> Maternal Health: An Executive Summary for the Lancet Series. *Lancet*. 2016. Web. <<http://www.thelancet.com/pb/assets/raw/Lancet/stories/series/maternal-health-2016/mathealth2016-exec-summ.pdf>>
- <sup>18</sup> The Millennium Development Goals Report 2014. United Nations, 2014. Web. <<http://www.un.org/millenniumgoals/2014%20MDG%20report/MDG%202014%20English%20web.pdf>>.
- <sup>19</sup> The Millennium Development Goals Report 2014. United Nations, 2014. Web. <<http://www.un.org/millenniumgoals/2014%20MDG%20report/MDG%202014%20English%20web.pdf>>.
- <sup>20</sup> "Maternal Mortality Fact Sheet No. 348." World Health Organization. Nov. 2015. Web. <<http://www.who.int/mediacentre/factsheets/fs348/en/>>.
- <sup>21</sup> "Water, Sanitation and Hygiene in Health Care Facilities Status in Low- and Middle-income Countries and Way Forward." World Health Organization, UNICEF, 2015. Web. 29 Aug. 2016. <[http://www.washinhc.org/fileadmin/user\\_upload/documents/WASH\\_in\\_health\\_care\\_facilitiesReview\\_2015.pdf](http://www.washinhc.org/fileadmin/user_upload/documents/WASH_in_health_care_facilitiesReview_2015.pdf)>.
- <sup>22</sup> "Water, Sanitation and Hygiene in Health Care Facilities Status in Low- and Middle-income Countries and Way Forward." World Health Organization, UNICEF, 2015. Web. 29 Aug. 2016. <[http://www.washinhc.org/fileadmin/user\\_upload/documents/WASH\\_in\\_health\\_care\\_facilitiesReview\\_2015.pdf](http://www.washinhc.org/fileadmin/user_upload/documents/WASH_in_health_care_facilitiesReview_2015.pdf)>.
- <sup>23</sup> "Adolescents: Health Risks and Solutions." Geneva: World Health Organization, 2017. Web. <<http://www.who.int/mediacentre/factsheets/fs345/en/>>.
- <sup>24</sup> Darroch, Jacqueline E., et al. ADDING IT UP: Costs and Benefits of Meeting the Contraceptive Needs of Adolescents. Guttmacher Institute, May 2016. Web. <[https://www.guttmacher.org/sites/default/files/report\\_pdf/adding-it-up-adolescents-report.pdf](https://www.guttmacher.org/sites/default/files/report_pdf/adding-it-up-adolescents-report.pdf)>.
- <sup>25</sup> Rawe, Kathryn. "Every Woman's Right: How family planning saves children's lives." London: Save the Children, 2012. Web. 29 Mar. 2016. <[http://www.savethechildren.org.uk/sites/default/files/docs/Every%20Woman's%20Right%20low%20res%20\(2\).pdf](http://www.savethechildren.org.uk/sites/default/files/docs/Every%20Woman's%20Right%20low%20res%20(2).pdf)>.
- <sup>26</sup> "Report to the World Health Assembly 16 March 2012, Preventing Early Pregnancy and Poor Reproductive Outcomes Among Adolescents in Developing Countries." World Health Organization. 2011. Web. <[http://www.who.int/immunization/hpv/target/preventing\\_early\\_pregnancy\\_and\\_poor\\_reproductive\\_outcomes\\_who\\_2006.pdf](http://www.who.int/immunization/hpv/target/preventing_early_pregnancy_and_poor_reproductive_outcomes_who_2006.pdf)>.
- <sup>27</sup> Gibbs, Cassandra M., et al. "The Impact of Early Age at First Childbirth on Maternal and Infant Health." *Paediatric and Perinatal Epidemiology* 26 (2012). Web. <<http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4562289/>>.
- <sup>28</sup> Gibbs, Cassandra M., et al. "The Impact of Early Age at First Childbirth on Maternal and Infant Health." *Paediatric and Perinatal Epidemiology* 26 (2012). Web. <<http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4562289/>>.
- <sup>29</sup> Education transforms lives. United Nations Education, Scientific and Cultural Organization. 2013. Web. <<unesdoc.unesco.org/images/0022/002231/223115E.pdf>>
- <sup>30</sup> "Maternal Nutrition During Pregnancy and Lactation." LINKAGES: Breastfeeding, LAM, Related Complementary Feeding, and Maternal Nutrition Program and the Child Survival Collaborations and Resources (CORE) Nutrition Working Group. Aug. 2004. Web. <[http://www.coregroup.org/storage/documents/Workingpapers/MaternalNutritionDietaryGuide\\_AED.pdf](http://www.coregroup.org/storage/documents/Workingpapers/MaternalNutritionDietaryGuide_AED.pdf)>.
- <sup>31</sup> Good Maternal Nutrition: The best start in life. World Health Organization, 2016. Web. <[http://www.euro.who.int/\\_data/assets/pdf\\_file/0008/313667/Good-maternal-nutrition-The-best-start-in-life.pdf?ua=1](http://www.euro.who.int/_data/assets/pdf_file/0008/313667/Good-maternal-nutrition-The-best-start-in-life.pdf?ua=1)>.
- <sup>32</sup> "Micronutrient Deficiencies." World Health Organization. 2016. Web. <<http://www.who.int/nutrition/topics/ida/en/>>.
- <sup>33</sup> Black, RE, et al. "Maternal and child undernutrition and overweight in low-income and middle-income countries." *The Lancet* 382.9890 (2013): 427-51. Web. <<http://www.ncbi.nlm.nih.gov/pubmed/23746772>>.
- <sup>34</sup> "Newborn death and illness." The Partnership for Maternal, Newborn & Child Health. World Health Organization, Sep. 2011. Web. <[http://www.who.int/pmnch/media/press\\_materials/fs/fs\\_newborndeath\\_illness/en/](http://www.who.int/pmnch/media/press_materials/fs/fs_newborndeath_illness/en/)>.
- <sup>35</sup> Abu-Saad, Kathleen, and Drora Fraser. "Maternal Nutrition and Birth Outcomes." *Epidemiologic Reviews* 32.1 (2010): 5-25. 17 Mar. 2010. Web. <<https://academic.oup.com/epirev/article-lookup/doi/10.1093/epirev/mxq001>>.
- <sup>36</sup> Levels and trends in child malnutrition. UNICEF / WHO / World Bank Group Joint Child Malnutrition Estimates. 2016. Key findings of the 2016 edition. Web. <<http://www.who.int/nutgrowthdb/estimates2015/en/>>.
- <sup>37</sup> Hod, Moshe, et al. "The International Federation of Gynecology and Obstetrics (FIGO) Initiative on Gestational Diabetes Mellitus: A Pragmatic Guide for Diagnosis, Management and Care." *International Journal of Gynecology and Obstetrics* 131 Supplement 3 (2015). Web. <[http://www.ijgo.org/pb/assets/raw/Health%20Advance/journals/ijg/FIGO\\_Initiative\\_on\\_GDM.pdf](http://www.ijgo.org/pb/assets/raw/Health%20Advance/journals/ijg/FIGO_Initiative_on_GDM.pdf)>.
- <sup>38</sup> Dror, Daphna K., and Lindsay H. Allen. "Vitamin D inadequacy in pregnancy: biology, outcomes, and interventions." *Nutrition Reviews* 68.8 (2010): 465-77. 7 Oct. 2014. Web. <<https://academic.oup.com/nutritionreviews/article-abstract/68/8/465/1842075/Vitamin-D-inadequacy-in-pregnancy-biology-outcomes?redirectedFrom=fulltext>>.
- <sup>39</sup> Sohlberg, Sara, et al. "Maternal Body Mass Index, Height, and Risks of Preeclampsia." *American Journal of Hypertension* 25.1 (2012): 120-25. 1 Jan. 2012. Web. <<https://academic.oup.com/ajh/article-lookup/doi/10.1038/ajh.2011.175>>.
- <sup>40</sup> Say, Lale, et al. "Global causes of maternal death: a WHO systematic analysis." *The Lancet Global Health* 2.6 (2014): E323-333. Jun. 2014. Web. <[http://thelancet.com/journals/langlo/article/PIIS2214-109X\(14\)70227-X/fulltext](http://thelancet.com/journals/langlo/article/PIIS2214-109X(14)70227-X/fulltext)>.
- <sup>41</sup> Hodgins, Stephen. "Pre-eclampsia as Underlying Cause for Perinatal Deaths: Time for Action." *Global Health: Science and Practice* 3.4 (2015): 525-27. Dec. 2015. Web. <<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4682577/>>. Black, RE, et al.
- <sup>42</sup> Singh, Susheela, et al. "Adding It Up: The Costs and Benefits of Investing in Sexual and Reproductive Health 2014." Guttmacher Institute and UNFPA. 2014. Web. <<https://www.guttmacher.org/pubs/AddingItUp2014.pdf>>.
- <sup>43</sup> "Preventing unsafe abortion." Jul. 2015. Web. 29 Mar. 2016. <<http://www.who.int/mediacentre/factsheets/fs388/en/>>.
- <sup>44</sup> Ibid.
- <sup>45</sup> Grimes, David A, et al. "Unsafe abortion: the preventable pandemic." *The Lancet Sexual and Reproductive Health Series* (2006): n. pag. Oct. 2006. Web. <[http://www.who.int/reproductivehealth/topics/unsafe\\_abortion/article\\_unsafe\\_abortion.pdf](http://www.who.int/reproductivehealth/topics/unsafe_abortion/article_unsafe_abortion.pdf)>.
- <sup>46</sup> "Preventing unsafe abortion." Jul. 2015. Web. 29 Mar. 2016. <<http://www.who.int/mediacentre/factsheets/fs388/en/>>. Ibid.
- <sup>47</sup> "HIV and AIDS and Maternal Health Integration." USAID. 2 Feb. 2016. Web. <<https://www.usaid.gov/what-we-do/global-health/hiv-and-aids/technical-areas/hiv-and-aids-and-maternal-health-integration>>.
- <sup>48</sup> "Trends in Maternal Mortality: 1990 to 2015: WHO, UNICEF, UNFPA, The World Bank and the United Nations Population Division." World Health Organization. 2015. Web. <[http://apps.who.int/iris/bitstream/10665/194254/1/9789241565141\\_eng.pdf?ua=1](http://apps.who.int/iris/bitstream/10665/194254/1/9789241565141_eng.pdf?ua=1)>.
- <sup>49</sup> "How AIDS Changed Everything. MDG6: 15 Years, 15 Lessons of Hope from the AIDS Response." UNAIDS. 2015. Web. <[http://www.unaids.org/sites/default/files/media\\_asset/MDG6Report\\_en.pdf](http://www.unaids.org/sites/default/files/media_asset/MDG6Report_en.pdf)>.
- <sup>50</sup> Ibid.
- <sup>51</sup> HRP Annual Report 2016. WHO Department of Reproductive Health and Research including the UNDP/UNFPA/UNICEF/WHO/World Bank Special Programme of Research, Development and Research Training in Human Reproduction (HRP). 2016. Web. <<http://apps.who.int/iris/bitstream/10665/255768/1/WHO-RHR-HRP-17.06-eng.pdf?ua=1>>.
- <sup>52</sup> Ibid.
- <sup>53</sup> "The Global Strategy for Women's, Children's, and Adolescent's Health (2016-2030): Survive, Thrive, Transform." *Every Woman Every Child*. 2015. Web. <<http://who.int/life-course/partners/global-strategy/globalstrategyreport2016-2030-lowres.pdf>>.
- <sup>54</sup> Ibid.
- <sup>55</sup> "Maternal Mortality in Humanitarian Crises and in Fragile Setting." UNFPA. Web. <[http://www.unfpa.org/sites/default/files/resource-pdf/MMR\\_in\\_humanitarian\\_settings-final4\\_0.pdf](http://www.unfpa.org/sites/default/files/resource-pdf/MMR_in_humanitarian_settings-final4_0.pdf)>.
- <sup>56</sup> "The Global Strategy for Women's, Children's, and Adolescent's Health (2016-2030): Survive, Thrive, Transform." *Every Woman Every Child*. 2015. Web. <<http://who.int/life-course/partners/global-strategy/globalstrategyreport2016-2030-lowres.pdf>>.
- <sup>57</sup> "Essential Interventions, Commodities and Guidelines for Reproductive, Maternal, Newborn and Child Health." World Health Organization. 2011. Web. <[http://www.who.int/pmnch/topics/part\\_publications/essential\\_interventions\\_18\\_01\\_2012.pdf](http://www.who.int/pmnch/topics/part_publications/essential_interventions_18_01_2012.pdf)>.
- <sup>58</sup> Ibid.
- <sup>59</sup> "Care of the Preterm and/or Low-Birth-Weight Newborn." World Health Organization. 2016. Web. <[http://www.who.int/maternal\\_child\\_adolescent/topics/newborn/care\\_of\\_preterm/en/](http://www.who.int/maternal_child_adolescent/topics/newborn/care_of_preterm/en/)>.
- <sup>60</sup> "Essential Interventions, Commodities and Guidelines for Reproductive, Maternal, Newborn and Child Health." World Health Organization. 2011. Web. <[http://www.who.int/pmnch/topics/part\\_publications/essential\\_interventions\\_18\\_01\\_2012.pdf](http://www.who.int/pmnch/topics/part_publications/essential_interventions_18_01_2012.pdf)>.
- <sup>61</sup> Ibid.
- <sup>62</sup> Knowledge Summary: Water, sanitation and hygiene - the impact on RMNCH. Rep. no. 30. The Partnership for Maternal, Newborn & Child Health, 2014. Web. <<http://www.who.int/pmnch/knowledge/publications/summaries/ks30.pdf?ua=1>>.
- <sup>63</sup> Knowledge Summary: Women's & Children's Health: Human Rights & Accountability. Rep. no. 23. The Partnership for Maternal, Newborn & Child Health, 2013. Web. <[http://www.who.int/pmnch/topics/part\\_publications/KS23\\_human\\_rights.pdf](http://www.who.int/pmnch/topics/part_publications/KS23_human_rights.pdf)>.
- <sup>64</sup> "The Prevention and Elimination of Disrespect and Abuse During Facility-Based Childbirth." World Health Organization. 2015. Web. <<http://apps.who.int/iris/bitstream/10665/134588/1>>



- WHO\_RHR\_14.23\_eng.pdf?ua=1&ua=1>.
- <sup>65</sup> "Midwifery: An Executive Summary for The Lancet's Series." The Lancet. Jun. 2014. Web. <[http://www.thelancet.com/pb/assets/raw/Lancet/stories/series/midwifery/midwifery\\_exec\\_summ.pdf](http://www.thelancet.com/pb/assets/raw/Lancet/stories/series/midwifery/midwifery_exec_summ.pdf)>.
- <sup>66</sup> Greater Investments Needed to Meet Women's Sexual and Reproductive Health Needs in Developing Regions." Guttmacher Institute. N.p., 29 June 2017. Web. 29 June 2017. <<https://www.guttmacher.org/news-release/2017/greater-investments-needed-meet-womens-sexual-and-reproductive-health-needs>>.
- <sup>67</sup> Haththotuwa, Rohana, et al. "Models of Care that Have Reduced Maternal Mortality and Morbidity in Sri Lanka." International Journal of Gynecology and Obstetrics 119 Supplement 1 (2012):S45-S49. Web. <[https://www.researchgate.net/publication/230655535\\_Models\\_of\\_care\\_that\\_have\\_reduced\\_maternal\\_mortality\\_and\\_morbidity\\_in\\_Sri\\_Lanka](https://www.researchgate.net/publication/230655535_Models_of_care_that_have_reduced_maternal_mortality_and_morbidity_in_Sri_Lanka)>.
- <sup>68</sup> Van Lerberghe, Wim et al. "Country Experience with Strengthening of Health Systems and Deployment of Midwives in Countries with High Maternal Mortality." The Lancet 384.9949 (2014): 1215-1225. Web. <[http://www.thelancet.com/journals/lancet/article/PIIS0140-6736\(2014\)2960919-3/fulltext](http://www.thelancet.com/journals/lancet/article/PIIS0140-6736(2014)2960919-3/fulltext)>.
- <sup>69</sup> Guyon, Agnes. "Can Trained Traditional Midwives Become Agents of Change for Nutrition?" The Pump. John Snow, Inc., 11 Apr. 2016. Web. <<http://thepump.jsi.com/can-trained-traditional-midwives-become-agents-of-change-for-nutrition/>>.
- <sup>70</sup> Renfrew, Mary, et al. "Midwifery and Quality Care: Findings from a New Evidence-Informed Framework for Maternal and Newborn Care." The Lancet 384.9948 (2014):1129-1145. Web. <[http://www.thelancet.com/journals/lancet/article/PIIS0140-6736\(14\)60789-3/fulltext](http://www.thelancet.com/journals/lancet/article/PIIS0140-6736(14)60789-3/fulltext)>.
- <sup>71</sup> Mason, Frances, Kathryn Rawe, and Simon Wright. Superfood for Babies: How overcoming barriers to breastfeeding will save children's lives. Save the Children, 2013. Web. <<http://www.savethechildren.org/atf/cf/%7B9def2ebe-10ae-432c-9bd0-df91d2eba74a%7D/SUPERFOOD%20FOR%20BABIES%20ASIA%20LOW%20RES%28%29.PDF>>.
- <sup>72</sup> Rollins, Nigel C., et al. "Why Invest, and What it Will Take to Improve Breastfeeding Practices? The Lancet 387 (2016): 491-504. Web. <[http://www.thelancet.com/pdfs/journals/lancet/PIIS0140-6736\(15\)01044-2.pdf](http://www.thelancet.com/pdfs/journals/lancet/PIIS0140-6736(15)01044-2.pdf)>.
- <sup>73</sup> Ibid.
- <sup>74</sup> World Health Organization. 10 facts on breastfeeding. 2015. Web. <<http://www.who.int/features/factfiles/breastfeeding/facts/en/>>.
- <sup>75</sup> The State of the World's Midwifery 2014: A Universal Pathway. A Woman's Right to Health. UNFPA, 2014. Web. <[http://www.unfpa.org/sites/default/files/pub-pdf/EN\\_SoWMY2014\\_complete.pdf](http://www.unfpa.org/sites/default/files/pub-pdf/EN_SoWMY2014_complete.pdf)>.
- <sup>76</sup> Campbell, J, et al. "A universal truth: No health without a workforce." Forum report, Third Global Forum on Human Resources for Health. Geneva: Global Health Workforce Alliance and World Health Organization, 2013.
- <sup>77</sup> Liljestrand, Jerker and Mean Reatanak Sambath. "Socio-economic Improvements and Health System Strengthening of Maternity Care are Contributing to Maternal Mortality Reduction in Cambodia." Reproductive Health Matters 20.39 (2012): 62-72. Web. <<https://www.ncbi.nlm.nih.gov/pubmed/22789083>>.
- <sup>78</sup> Ibid.
- <sup>79</sup> Hor, Darith, et al. "Cambodia Demographic & Health Survey 2010." National Institute of Statistics, Directorate General for Health, and ICF Macro. Sep. 2011. Web. <<https://dhsprogram.com/pubs/pdf/FR249/FR249.pdf>>.
- <sup>80</sup> Liljestrand, Jerker and Mean Reatanak Sambath. "Socio-economic Improvements and Health System Strengthening of Maternity Care are Contributing to Maternal Mortality Reduction in Cambodia." Reproductive Health Matters 20.39 (2012): 62-72. Web. <[http://www.rhm-elsevier.com/article/S0968-8080\(12\)39620-1/pdf](http://www.rhm-elsevier.com/article/S0968-8080(12)39620-1/pdf)>.
- <sup>81</sup> Hor, Darith, et al. "Cambodia Demographic & Health Survey 2010." National Institute of Statistics, Directorate General for Health, and ICF Macro. Sep. 2011. Web. <<https://dhsprogram.com/pubs/pdf/FR249/FR249.pdf>>.
- <sup>82</sup> Lassi, ZS and ZA Bhutta. "Community-based intervention packages for reducing maternal and neonatal morbidity and mortality and improving neonatal outcomes." Cochrane Database Syst Rev. 3 (2015): CD007754. Web. 29 Mar. 2016. <<http://www.ncbi.nlm.nih.gov/pubmed/25803792>>.
- <sup>83</sup> Ibid.
- <sup>84</sup> "Discussion Paper: A Social Determinants Approach to Maternal Health." UNDP. 19 Oct. 2011. Web. <<http://www.undp.org/content/dam/undp/library/Democratic%20Governance/Discussion%20Paper%20MaternalHealth.pdf>>.
- <sup>85</sup> World Health Organization, Inter-agency Working Group on Reproductive Health in Crises. Inter-agency Field Manual on Reproductive Health in Humanitarian Settings. (2010) Web. <[http://www.who.int/reproductivehealth/publications/emergencies/field\\_manual\\_rh\\_humanitarian\\_settings.pdf](http://www.who.int/reproductivehealth/publications/emergencies/field_manual_rh_humanitarian_settings.pdf)>
- <sup>86</sup> "The Global Strategy for Women's, Children's, and Adolescent's Health (2016-2030): Survive, Thrive, Transform." Every Woman Every Child. 2015. Web. <<http://who.int/life-course/partners/global-strategy/globalstrategyreport2016-2030-lowres.pdf>>.
- <sup>87</sup> Nsiband, Duduzile, et al. "Assessment of the Uptake of Neonatal and Young Infant Referrals by Community Health Workers to Public Health Facilities in an Urban Informal Settlement, KwaZulu-Natal, South Africa." BMC Health Services Research (2013). Web. <<http://bmchealthservres.biomedcentral.com/articles/10.1186/1472-6963-13-47>>.
- <sup>88</sup> Andersen, Kathryn, et al. "Early Pregnancy Detection by Female Community Health Volunteers in Nepal Facilitated Referral for Appropriate Reproductive Health Services." Global Health: Science and Practice 1.3 (2013): 372-381. Web. <<http://www.ghsjournal.org/content/1/3/372.short>>.
- <sup>89</sup> "Global Experience of Community Health Workers for Delivery of Health Related Millennium Development Goals: A Systematic Review, Country Case Studies, and Recommendations for Integration into National Health Systems." World Health Organization and Global Health Workforce Alliance. 2010. Web. <[http://www.who.int/workforcealliance/knowledge/publications/CHW\\_FullReport\\_2010.pdf?ua=1](http://www.who.int/workforcealliance/knowledge/publications/CHW_FullReport_2010.pdf?ua=1)>.
- <sup>90</sup> Prost, Audrey, et al. "Women's Groups Practicing Participatory Learning and Action to Improve Maternal and Newborn Health in Low-Resource Settings: A Systematic Review and Meta-Analysis." The Lancet 381 (2014): 1736-46. Web. <[http://www.thelancet.com/pdfs/journals/lancet/PIIS0140-6736\(13\)60685-6.pdf](http://www.thelancet.com/pdfs/journals/lancet/PIIS0140-6736(13)60685-6.pdf)>.
- <sup>91</sup> "Country Case Study: Pakistan's Lady Health Worker Programme." World Health Organization. n.d. Web. <[http://www.who.int/workforcealliance/knowledge/case\\_studies/CS\\_Pakistan\\_web\\_en.pdf?ua=1](http://www.who.int/workforcealliance/knowledge/case_studies/CS_Pakistan_web_en.pdf?ua=1)>.
- <sup>92</sup> Ibid.
- <sup>93</sup> Ibid.
- <sup>94</sup> Sedgh, Gilda, Susheela Singh, and Rubina Hussain. "Intended and Unintended Pregnancies Worldwide in 2012 and Recent Trends." Studies in Family Planning 45.3 (2014): 301-194. Guttmacher Institute. 2014. Web. <[https://www.guttmacher.org/sites/default/files/article\\_files/j.1728-4465.2014.00393.x.pdf](https://www.guttmacher.org/sites/default/files/article_files/j.1728-4465.2014.00393.x.pdf)>.
- <sup>95</sup> Ibid.
- <sup>96</sup> Sedgh, G. "Induced Abortion: Incidence and Trends Worldwide from 1995 to 2008." The Lancet 379.9816 (2012): 625-632. Web. <<https://www.guttmacher.org/pubs/journals/Sedgh-Lancet-2012-01.pdf>>.
- <sup>97</sup> Singh, Susheela and Jacqueline E. Darroch. "Adding It Up: Costs and Benefits of Contraceptive Services: Estimates for 2012." Guttmacher Institute and UNFPA. Jun. 2012. Web. <<https://www.guttmacher.org/pubs/AIU-2012-estimates.pdf>>.
- <sup>98</sup> Singh, Susheela, et al. "Adding It Up: The Costs and Benefits of Investing in Sexual and Reproductive Health 2014." Guttmacher Institute and UNFPA. 2014. Web. <<https://www.guttmacher.org/pubs/AddingItUp2014.pdf>>.
- <sup>99</sup> "The Global Strategy for Women's, Children's, and Adolescent's Health (2016-2030): Survive, Thrive, Transform." Every Woman Every Child. 2015. Web. <<http://who.int/life-course/partners/global-strategy/globalstrategyreport2016-2030-lowres.pdf>>.
- <sup>100</sup> Kozuki, Naoko, and Neff Walker. "Exploring the association between short/long preceding birth intervals and child mortality: using reference birth interval children of the same mother as comparison." BMC Public Health 13(Suppl 3):S6 (2013): n. pag. 17 Sep. 2013. Web. <<https://bmcpubhealth.biomedcentral.com/articles/10.1186/1471-2458-13-S3-S6>>.
- <sup>101</sup> Conde-Agudelo, Agustín, et al. "Effects of Birth Spacing on Maternal, Perinatal, Infant, and Child Health: A Systematic Review of Causal Mechanisms." Studies in Family Planning 43.2 (2012): 93-114. 4 Jun. 2012. Web. <<http://onlinelibrary.wiley.com/doi/10.1111/j.1728-4465.2012.00308.x/abstract>>.
- <sup>102</sup> Singh, Susheela, et al. "Adding It Up: The Costs and Benefits of Investing in Sexual and Reproductive Health 2014." Guttmacher Institute and UNFPA. 2014. Web. <<https://www.guttmacher.org/pubs/AddingItUp2014.pdf>>.
- <sup>103</sup> Cohen, Susan A. "Access to Safe Abortion in the Developing World: Saving Lives While Advancing Rights." Guttmacher Policy Review 15.3 (2012): n. pag. Guttmacher Institute. 17 Oct. 2012. Web. <<https://www.guttmacher.org/gpr/2012/10/access-safe-abortion-developing-world-saving-lives-while-advancing-rights>>.
- <sup>104</sup> Ibid.
- <sup>105</sup> Coeytaux, Francine. "Contraception Editorial February 2011: Reducing Maternal Mortality: A Global Imperative." Contraception 83 (2011) 95-98. Web. <<https://www.arhp.org/UploadDocs/journaleditorialfeb2011.pdf>>.
- <sup>106</sup> Post-abortion Family Planning: Strengthening the Family Planning Component of Post-abortion Care." Family Planning High Impact Practices and USAID. Nov. 2012. Web. <[https://www.fphighimpactpractices.org/sites/fphips/files/hip\\_pac\\_brief.pdf](https://www.fphighimpactpractices.org/sites/fphips/files/hip_pac_brief.pdf)>.
- <sup>107</sup> "Safe abortion: Technical and Policy Guidance for Health Systems, Second edition." World Health Organization. 2012. Web. <[http://apps.who.int/iris/bitstream/10665/70914/1/9789241548434\\_eng.pdf](http://apps.who.int/iris/bitstream/10665/70914/1/9789241548434_eng.pdf)>.
- <sup>108</sup> Jewkes, Rachel, et al. "The Impact of Age on the Epidemiology of Incomplete Abortions in South Africa after Legislative Change." BJOG: An International Journal of Obstetrics & Gynecology 112 (2005): 355-359. Web. <<http://onlinelibrary.wiley.com/doi/10.1111/j.1471-0528.2004.00422.x/epdf>>.
- <sup>109</sup> Ibid.
- <sup>110</sup> "Opportunities for Africa's Newborns: Practical Data, Policy, and Programmatic Support for Newborn Care in Africa." The Partnership for Maternal, Newborn and Child Health. n.d. Web. <<http://www.who.int/pmnch/media/publications/oanfullreport.pdf>>.
- <sup>111</sup> Ibid.
- <sup>112</sup> World Bank. Snapshot: Investing in the early years for growth and productivity. 2016. Web. <<http://documents.worldbank.org/curated/en/276471475756836740/Snapshot-investing-in-the-early-years-for-growth-and-productivity>>.
- <sup>113</sup> Ibid.
- <sup>114</sup> "State of the World's Mothers." Save the Children. 2012. Web. <<http://www.savethechildren.org/atf/cf/%7B9def2ebe-10ae-432c-9bd0-df91d2eba74a%7D/STATE-OF-THE-WORLDS->





<sup>115</sup> Ibid.

<sup>116</sup> World Bank. Snapshot: Investing in the early years for growth and productivity. 2016. Web. <http://documents.worldbank.org/curated/en/276471475756836740/Snapshot-investing-in-the-early-years-for-growth-and-productivity>.

<sup>117</sup> THE STATE OF THE WORLD'S CHILDREN 2014 IN NUMBERS: Revealing disparities, advancing children's rights. UNICEF, Jan. 2014. Web. <[https://www.unicef.org/sowc2014/numbers/documents/english/SOWC2014\\_In%20Numbers\\_28%20Jan.pdf](https://www.unicef.org/sowc2014/numbers/documents/english/SOWC2014_In%20Numbers_28%20Jan.pdf)>.

<sup>118</sup> "Opportunities for Africa's Newborns: Practical Data, Policy, and Programmatic Support for Newborn Care in Africa." The Partnership for Maternal, Newborn and Child Health. n.d. Web. <<http://www.who.int/pmnch/media/publications/oanfullreport.pdf>>. Ibid.

<sup>119</sup> Rollins, Nigel C., et al. "Why Invest, and What it Will Take to Improve Breastfeeding Practices?" The Lancet 387 (2016): 491-504. Web. <[http://www.thelancet.com/pdfs/journals/lancet/PIIS0140-6736\(15\)01044-2.pdf](http://www.thelancet.com/pdfs/journals/lancet/PIIS0140-6736(15)01044-2.pdf)>.

<sup>120</sup> Ibid.

<sup>121</sup> World Health Organization. 10 facts on breastfeeding. 2015. Web. <<http://www.who.int/features/factfiles/breastfeeding/facts/en/>>.

<sup>122</sup> Ibid.

<sup>123</sup> Bhutta, Zulfiqar A, et al. "Evidence-based interventions for improvement of maternal and child nutrition: what can be done and at what cost?" The Lancet 382.9890 (2013): 452-77. 3 Aug. 2013. Web. <[http://www.thelancet.com/journals/lancet/article/PIIS0140-6736\(13\)60996-4/fulltext](http://www.thelancet.com/journals/lancet/article/PIIS0140-6736(13)60996-4/fulltext)>.

<sup>124</sup> Rollins, Nigel C., et al. "Why Invest, and What it Will Take to Improve Breastfeeding Practices?" The Lancet 387 (2016): 491-504. Web. <[http://www.thelancet.com/pdfs/journals/lancet/PIIS0140-6736\(15\)01044-2.pdf](http://www.thelancet.com/pdfs/journals/lancet/PIIS0140-6736(15)01044-2.pdf)>.

<sup>125</sup> Greater Investments Needed to Meet Women's Sexual and Reproductive Health Needs in Developing Regions." Guttmacher Institute. N.p., 29 June 2017. Web. 29 June 2017. <<https://www.guttmacher.org/news-release/2017/greater-investments-needed-meet-womens-sexual-and-reproductive-health-needs>>.

<sup>126</sup> "Focus on Five Women's Health and the MDGs." Women Deliver. 2010. Web. <<https://www.unfpa.org/sites/default/files/pub-pdf/Focus-on-5.pdf>>.

<sup>127</sup> Note that the target year indicated by the authors for satisfying unmet need for modern contraception is 2040. Kohler, Hans-Peter and Jere R. Behrman, Population and Demography Assessment Paper: Benefits and Costs of the Population and Demography Targets for the Post- 2015 Development Agenda: Copenhagen Consensus Center. 2014. Web. <[http://www.copenhagenconsensus.com/sites/default/files/population\\_assessment\\_-\\_kohler\\_behrman\\_0.pdf](http://www.copenhagenconsensus.com/sites/default/files/population_assessment_-_kohler_behrman_0.pdf)>

<sup>128</sup> Horton, Sue and Richard H. Steckel. "Global Economic Losses Attributable to Malnutrition 1990-2000 and Projections to 2050." Copenhagen Consensus on Human Challenges. 2011. Web. <<http://www.copenhagenconsensus.com/sites/default/files/malnutrition.pdf>>.

<sup>129</sup> Haddad, Lawrence, et al. "Global Nutrition Report: Actions and Accountability to Accelerate the World's Progress on Nutrition." International Food Policy Research Institute. 2014. Web. <<http://ebrary.ifpri.org/cdm/ref/collection/p15738coll2/id/128484>>.

<sup>130</sup> Bhutta, Zulfiqar A, et al. "Evidence-based interventions for improvement of maternal and child nutrition: what can be done and at what cost?" The Lancet 382.9890 (2013): 452-77. 3 Aug. 2013. Web. <[http://www.thelancet.com/journals/lancet/article/PIIS0140-6736\(13\)60996-4/fulltext](http://www.thelancet.com/journals/lancet/article/PIIS0140-6736(13)60996-4/fulltext)>.

<sup>131</sup> "State of the World's Mothers." Save the Children. 2012. Web. <<http://www.savethechildren.org/atf/cf/%7B9def2ebe-10ae-432c-9bd0-df91d2eba74a%7D/STATE-OF-THE-WORLDS-MOTHERS-REPORT-2012-FINAL.PDF>>.

<sup>132</sup> Black, RE, et al. "Maternal and child undernutrition and overweight in low-income and middle-income countries." The Lancet 382.9890 (2013): 427-51. Web. 29 Mar. 2016. <<http://www.ncbi.nlm.nih.gov/pubmed/23746772>>.

<sup>133</sup> "Breastfeeding." UNICEF. 29 Jul. 2015. Web. <[http://www.unicef.org/nutrition/index\\_24824.html](http://www.unicef.org/nutrition/index_24824.html)>.

<sup>134</sup> Rollins, Nigel C., et al. "Why Invest, and What it Will Take to Improve Breastfeeding Practices?" The Lancet 387 (2016): 491-504. Web. <[http://www.thelancet.com/pdfs/journals/lancet/PIIS0140-6736\(15\)01044-2.pdf](http://www.thelancet.com/pdfs/journals/lancet/PIIS0140-6736(15)01044-2.pdf)>. et al.

<sup>135</sup> "Micronutrients." UNICEF. 23 Dec. 2015. Web. <[https://www.unicef.org/nutrition/index\\_iodine.html](https://www.unicef.org/nutrition/index_iodine.html)>.

<sup>136</sup> Belizan, Jose and Suellen Miller. "True Costs of Maternal Death." Reproductive Health 12 Supplement 1 (2015). Web. <<http://www.reproductive-health-journal.com/supplements/12/S1>>.

<sup>137</sup> Ibid.

<sup>138</sup> Moucheraud, Corrina, et al. "Consequences of maternal mortality on infant and child survival: a 25-year longitudinal analysis in Butajira Ethiopia (1987-2011)." Reproductive Health 12 Supplement 1 (2015). Web. <<http://reproductive-health-journal.biomedcentral.com/articles/10.1186/1742-4755-12-S1-S4>>.

<sup>139</sup> Belizan, Jose and Suellen Miller. "True Costs of Maternal Death." Reproductive Health 12 Supplement 1 (2015). Web. <<http://www.reproductive-health-journal.com/supplements/12/S1>>.

