Report from the U.S. Agency for International Development (USAID)
to Congress on Female Morbidity and Mortality

Pursuant to Section 7019(e) of Division K of Public Law (P.L) 115-141, the Department of State, Foreign Operations, and Related Programs Appropriations Act, 2018, which incorporates by reference the requirements of the Joint Explanatory Statement that accompanied P.L. 115-141, USAID is submitting this report to Congress on female morbidity and mortality in the developing world.

The Joint Explanatory Statement directs the following: *Not later than 120 days after enactment of the act, the USAID Administrator shall submit a report to the Committees on Appropriations on the leading causes of morbidity and mortality of females in low-income countries by age group from infancy to older age, the cost of effectively addressing such causes, and an assessment of the quality and coverage of data in such countries on female morbidity and mortality*

Introduction

The causes of death among girls and women in low-income countries vary. For girls under the age of five, most deaths result from several preventable conditions, including neonatal disorders, like prematurity, birth asphyxia, and infections; pneumonia and diarrheal diseases; communicable diseases, like malaria and HIV; and malnutrition and meningitis. Maternal conditions (including hemorrhage, sepsis, hypertensive disorders of pregnancy, obstructed labor, and other causes of mortality, including complications of abortion, miscarriage and ectopic pregnancy), HIV/AIDS, and tuberculosis are the major causes of death among women of reproductive age (15-49 years). As women age, non-communicable and chronic diseases, such as ischemic heart disease, strokes, and cervical cancer, become more common causes of mortality.

Figure 1: Causes of mortality of females by age group and Global Burden of Disease category

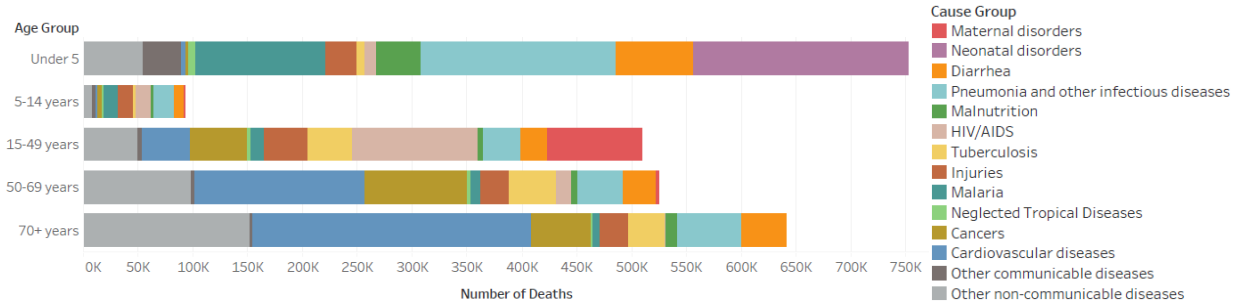
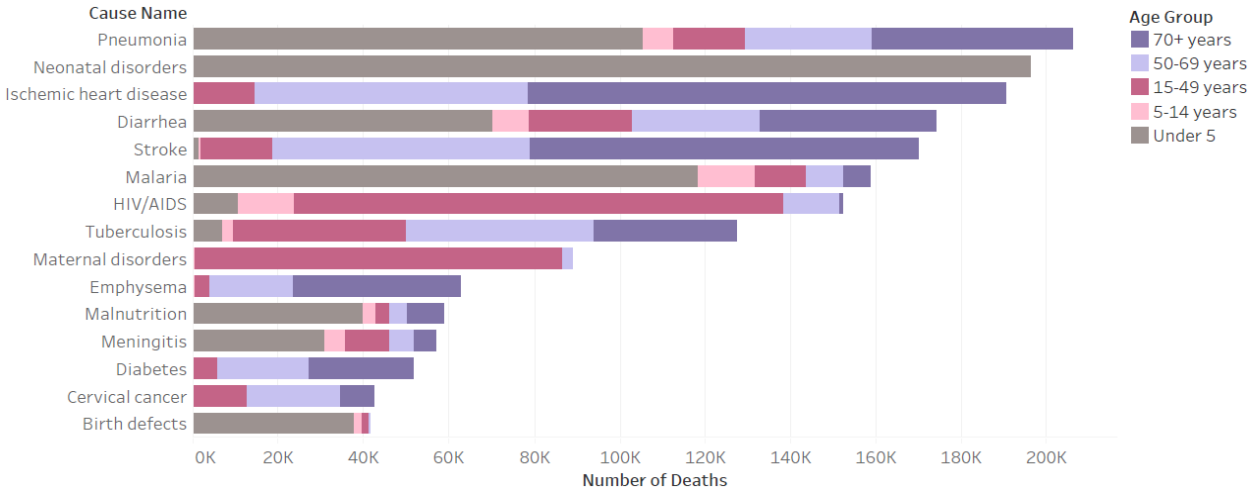


Figure 2: Top 15 causes of mortality of females in low-income countries[1], by cause:



Analysis

As shown in Figures 1 and 2, a large proportion of deaths in girls under the age of five years are attributable to complications at birth or in the first 28 days of life. Neonatal disorders, such as prematurity, asphyxia, and sepsis cause approximately 200,000 deaths annually. For girls under the age of five and outside of the neonatal period, the leading causes of death are malaria, pneumonia, and other common infections, with more than 118,000 and 178,000 deaths each year, respectively; followed by diarrhea (70,000); malnutrition (41,000); and communicable diseases, such as HIV/AIDS (11,000) and tuberculosis (7,000).

Overall mortality for girls between the ages of five and 14 appears to be lower than that for younger girls, since this age group is less vulnerable to childhood illnesses and the acquisition of new HIV infections, and is generally not yet susceptible to adult diseases and pregnancy-related mortality. Pneumonia, diarrhea, and HIV/AIDS are the leading causes of death in this age group.

The leading causes of death for women of reproductive age (15–49 years) are infectious diseases, including HIV/AIDS (more than 114,000), tuberculosis (41,000); and maternal conditions (86,000), including hemorrhage, sepsis, complications of abortion, miscarriage and ectopic pregnancy, hypertensive disorders, and obstructed labor. Additionally, cancers, cardiovascular disease, injuries, and pneumonia also cause significant mortality.

For women between 50 and 69 years of age, non-communicable diseases (NCDs) become more prevalent. In this age group, ischemic heart disease, also known as coronary artery disease, causes approximately 64,000 deaths annually. Stroke is the second major cause of death of women aged 50-69. Tuberculosis (44,000), pneumonia (30,000), and diarrhea (30,000) are also significant causes of death, followed by cervical cancer, diabetes, emphysema, HIV/AIDS, and malaria. This increase in NCDs is because women are living longer, which generally indicates that fewer women are dying from communicable diseases and maternal conditions earlier in life.

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[1] "Low-income countries" are the following: Afghanistan, Benin, Burkina Faso, Burundi, the Central African Republic, Chad, Comoros, the Democratic Republic of Congo, Eritrea, Ethiopia, The Gambia, Guinea, Guinea-Bissau, Haïti, the Democratic People's Republic of Korea, Liberia, Madagascar, Malawi, Mali, Mozambique, Nepal, Niger, Rwanda, Sénégal, Sierra Leone, Somalia, South Sudan, Tanzania, Togo, Uganda, and Zimbabwe (Source: databank.worldbank.org)

For the age grouping over 70 years of age, the most-common causes of death are NCDs, including heart disease, stroke (91,000), emphysema (39,000), diabetes (24,000) and cancers (55,000). However, infectious conditions, including pneumonia, diarrheal diseases, and tuberculosis, are also important causes of mortality.

In considering the burden of mortality among girls and women in low-income countries, it is imperative to understand projected trends in mortality. A number of conditions are projected to become more important causes of death for girls and women by 2030, as compared to 2016. These anticipated increases relate to the prevalence of specific conditions, as well as projected population increases in low-income countries.

Figure 3: Leading causes of combined morbidity and mortality (DALYs) of females in low-income countries, by age group

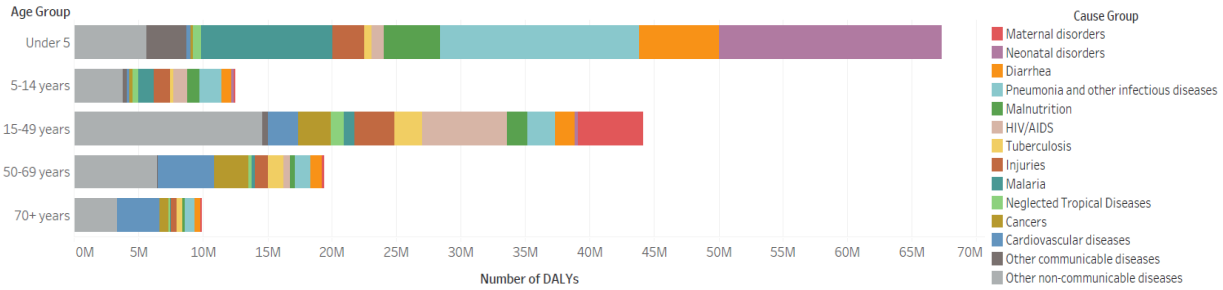
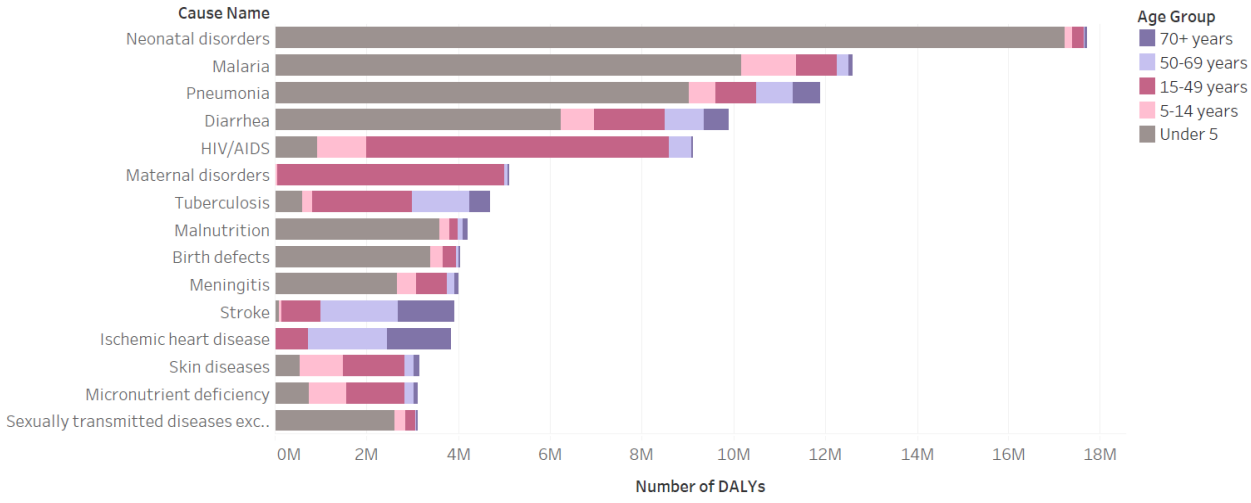


Figure 4: Leading causes of combined morbidity and mortality (DALYs) of females in low-income countries, by cause



Analysis

Figures 3 and 4 showcase the leading causes of disability-adjusted life years (DALYs) for females in low-income countries, a summary measure of morbidity and mortality that gives a more-complete picture of the burden of disease. DALYs estimate the number of years lost to illness, disability, or premature death from specific causes and risk factors, and capture the gap between the current health status of a population and their ideal health situation.

Figure 3 showcases the distribution of the various causes that contribute to DALYs for each age group. Similar to the leading causes of death, neonatal disorders, pneumonia, malaria, and diarrhea comprise the largest share of the disease-burden in the under-five age group. Pneumonia and other common infectious diseases, malnutrition, malaria, HIV/AIDS, and injuries have their greatest impact on young girls between the ages of five and 14, but this population has the lowest number of DALYs overall. Among women ages 15-49, HIV/AIDS, maternal conditions, cardiovascular diseases, cancers, and other NCDs emerge as the leading contributors to the loss of healthy years of life. The biggest difference between Figures 1 and 3 is that women of reproductive age account for proportionally more DALYs than deaths, since morbidity and mortality in this age group lead to more years of life lost.

As Figure 4 shows, neonatal disorders (over 17 million) and communicable diseases, such as malaria (12 million), pneumonia (11 million), diarrhea (10 million), and HIV/AIDS (9 million), contribute the most to DALYs among the female population in low-income countries. Children under the age of five bear the brunt of these diseases, because they occur earlier in life; this translates to a loss of ideal health over a longer time span. Maternal conditions, HIV/AIDS, and tuberculosis are predominant among women of reproductive age. Other leading causes, including nutritional deficiencies, meningitis, and skin diseases, are distributed across all age groups. Ischemic heart disease and stroke are prevalent among adult and older women.

Older women, on the other hand, experience death and disability largely from cardiovascular disease; cancer; communicable diseases, such as tuberculosis, diarrhea, pneumonia; and other NCDs (*e.g*., chronic liver diseases, diabetes, neurological disorders, and digestive diseases).

Cost of Effectively Addressing Causes of Mortality and Morbidity

Effectively addressing each cause of mortality and morbidity in Figures 1-4 in all low-income countries requires a variety of public-health interventions. First, populations should have access to health education and information, which will help prevent illness. Maternal education, for example, is inversely associated with maternal mortality. When individuals become ill, they should have access to quality health care without incurring financial hardship. Once they gain access to care, they must have confidence in the health-care system, including that trained health professionals practice ethically, and with competence and compassion, to diagnose and treat their conditions properly, with appropriate, safe, and effective medical products and supplies. This requires strong, sustainable health institutions that can provide resources for clinicians and support staff at the community and primary-care levels. It requires the use of evidence-based guidelines and standards, and health professionals adequately trained to provide effective care. These health professionals must also have adequate resources, including diagnostic tools, pharmaceuticals and medical technology, and nursing staff. It also requires community interventions at the household and individual levels focused on prevention and follow-up for adherence to treatment or other interventions. Finally, helping to improve or build health institutions in many countries requires expertise and technical assistance that donors, such as USAID, can provide, but for which there are costs.

Some studies have attempted to estimate the local costs of scaling up a set of known, effective public health interventions in developing countries. In 2013, *The Lancet* published a study on this topic entitled, "Global health 2035: a world converging within a generation." It estimated

the epidemiologic burden of a subset of major global priority diseases (maternal and child health, tuberculosis, malaria, and HIV), along with the associated costs of necessary health-system improvements, to help inform efforts to meet health needs in lower- and lower-middle-income countries for 10 of the 15 causes in Figure 1. Between 2016 and 2025, the total incremental costs to meet these causes was estimated to be $63 billion (approximately $6.3 billion annually), over half of which was disease-specific funding for HIV and malaria.

Researchers have not conducted costing studies for all causes of disease in low-income countries, nor sex-disaggregated costing for those causes that affect both sexes (*e.g.*, cardiovascular disease). As noted above, these studies do not include the full range of actions required by both countries and donor partners for capacity-building.

Assessment of the quality and coverage of data on female morbidity and mortality

The data used to compile Part One of this report are from the Global Burden of Disease database, based at the Institute for Health Metrics and Evaluation (IHME) at the University of Washington in Seattle. Collected and analyzed by a consortium of more than 3,000 researchers in more than 130 countries, the data capture premature death and disability from more than 300 diseases and injuries in 195 countries, by age and sex, from 1990 to the 2018, which allows comparisons over time, across age groups, and among populations. The quantity of data allows a user to analyze causes of mortality and morbidity disaggregated by region, country, cause, and age. It is important to note that this database is built by developing estimates across countries using a variety of sources and estimation methods, because there is no one accurate source for this information across countries. IHME uses both published and unpublished data from its network of researchers, and employs complicated methodologies to develop these robust estimates. The data, therefore, are an excellent source for comparing relative disease burden across countries, and for understanding the overall magnitude of the burden, but might not be an accurate reflection of the exact burden in any one individual country.