

# VENEZUELA HEALTH PROFILE



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## Abbreviations

CHW	Community Health Worker
DALYs	Disability-adjusted life years
ENCOVI	Encuesta Nacional de Condiciones de Vida (National Living Conditions Survey)
FAO	Food and Agriculture Organization
iCCM	Integrated Community Case Management
LAC	Latin America and the Caribbean
LiST	Lives Saved Tool
MNSS	Mental, neurologic, substance use disorders and suicide
NCD	Non-Communicable Disease
OCHA	Office for the Coordination of Humanitarian Affairs
SRH	Sexual and reproductive health
UN	United Nations
WFP	World Food Programme
WHO	World Health Organization
YLDs	Years living with disability

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## Executive Summary

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The political and economic crisis that Venezuelans have endured over the past five years has impacted all facets of life and has had widespread ramifications across many sectors. The COVID-19 pandemic has further exacerbated the situation, with respect to health and food security. While relatively little data is available from Venezuela and many questions and limitations surround the available evidence, humanitarian response planning and decision making must rely on currently available information despite its limitations. This report summarizes the health situation in Venezuela using data sources available thru October 2021 with the aim of informing humanitarian health programming.

**Mortality.** Contrary to regional trends, Venezuela has rising rates of under-five and maternal mortality. Infant and under-five mortality rates are estimated at 21 and 24 deaths/1000 live births, respectively, and have increased by more than 40% since 2011. Over 60% of under-five mortality occurs among infants less than one month of age; the leading causes of neonatal deaths are prematurity, congenital anomalies, sepsis and birth complications. In children 1-59 months of age, infectious diseases—notably pneumonia and diarrhea—and injury are the most common causes of death. Current estimates suggest that under-five mortality is highest in Delta Amacuro and Amazonas. Like child mortality, Venezuela has seen recent increases in maternal mortality whilst the rest of the Latin American and Caribbean (LAC) region have seen declines in maternal deaths. The most recent available estimate places the maternal mortality ratio at 125 deaths per 100,000 live births; the leading causes of maternal death are hypertensive causes, indirect causes and abortion. When considering overall mortality, non-communicable diseases account for the majority of deaths in Venezuela. Also of note, injury and homicide in account for a larger proportion of deaths in Venezuela as compared to the LAC region. Cardiovascular disease, malignant neoplasms and diabetes are the leading causes of non-communicable disease deaths; communicable diseases account for ~10% of deaths, with lower respiratory infections and HIV/AIDS as the most frequent causes of mortality.

**Communicable Diseases.** Venezuela has experienced a resurgence of communicable diseases which has reversed decades of progress and had spill-over effects throughout the region. Declines in vaccination coverage has resulted in the reemergence of numerous vaccine preventable diseases, most notably the 2017-2019 measles outbreak, but there have also been sizeable increases in diphtheria, pertussis, and mumps. Declines in vaccination coverage began in 2016, and while mass vaccination campaigns have been ongoing since 2018/2019, there are still critical gaps in vaccination coverage, with some vaccines virtually unavailable and vaccination coverage levels far below those of neighboring countries. Other notable communicable diseases include malaria—which saw a near 900% increases in cases from 2007 to 2017, with Venezuela now accounting for more than half of malaria cases in the Americas; within Venezuela, Bolivar state is most affected due to mining and deforestation. HIV and TB are also of concern where disruptions in medication coverage and testing have contributed to poor HIV and TB outcomes; TB rates are stable or declining in most countries in the region, but almost doubled from 2010 to 2018 in Venezuela. Low reported rates of COVID-19 and associated mortality in Venezuela are not credible given limited testing capacity, inadequate tertiary care, and lack of transparency.

**Health Infrastructure.** Lack of spending on health along with frequent utility shortages, the exodus of health workers and the COVID-19 pandemic have contributed to massive declines in health system capacity. At least half of doctors and a quarter of nurses have emigrated since 2012 and COVID-19 has reportedly reduced capacity to care for non-COVID conditions by more than 80%. More than 70% of public hospitals currently do not have regular access to water or electricity and only a fraction of hospital beds are functioning and available. Inability to access medications and high out-of-pocket costs are barriers to care—as nearly half of patients with chronic health problems report no medical attention in the past six months. Little data is available on health service use, but indications are that the majority of outpatient care is for children (57% of visits) and that parasites and intestinal infections, respiratory infections and diseases and nutrition conditions were the most frequent diagnoses. Access

to sexual and reproductive health services is very limited with Venezuela facing steeper declines in key indicators such as antenatal care and skilled birth attendance than typical within the region in recent years. Women face extreme challenges accessing contraceptives and pregnancy care, which is reflected in increased demand for abortions and services in neighboring countries and high adolescent pregnancy rates. Mental health is another critical area of concern—with mental health disorders accounting for 25% of disease burden among Venezuelans 10-40 years of age and psychiatric patients facing extreme risks due to lack of access to medications and poor conditions in treatment facilities.

**Food Insecurity and Nutrition.** Both poverty and food insecurity have risen dramatically in Venezuela as a result of declining employment opportunities and wages coupled with increased costs for goods and services. Recent estimates of food insecurity vary in their methodology, making comparison difficult—for example, the World Food Programme did not classify the crisis in 2021 due to lack of data. Recent surveys suggest that ~60% of the population is moderately or severely food insecure, with a quarter of the population experiencing hunger. Social protection programs such as CLAP boxes, which are subsidized food distributions, are infrequent and inadequate in quantity and quality, and school feeding programs have deteriorated enormously, but are now demonstrate improvement due to WFP engagement. Prevalence of child undernutrition is relatively widespread with an estimated 32% of children having chronic malnutrition (stunting) and 6-11% acute malnutrition (wasting) according to analysis of program data. Coverage of nutrition screening and treatment services is notably limited.

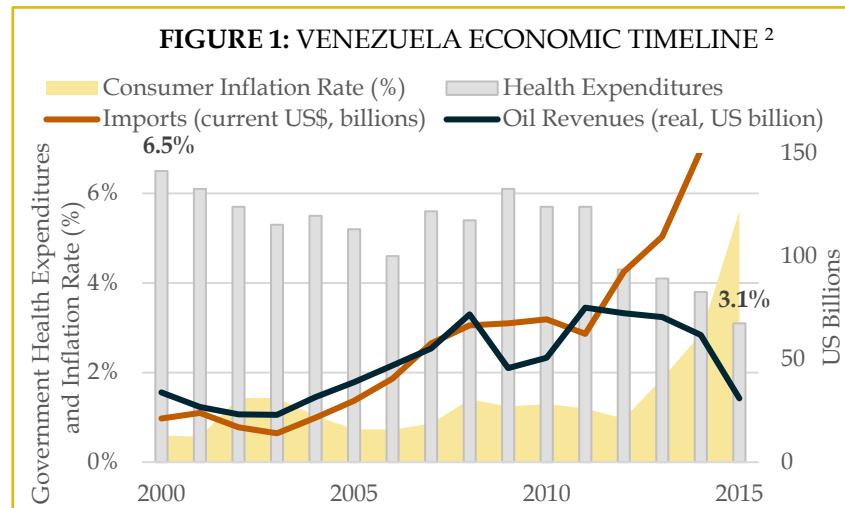
**Humanitarian Response.** The 2020 humanitarian response plan for Venezuela required US\$763 million to provide health care, water, sanitation and hygiene, food security and nutrition, shelter, protection, and education support to 4.5 million Venezuelans; by August 2020, only US\$130 million in assistance had been provided, a shortfall of 83% in funds indicating a dire need for additional financial support for the response. Over 130 organizations are involved in the humanitarian response in Venezuela, the vast majority of which are national or local NGOs. Response activities are concentrated in the areas of health and water and sanitation.

**Lives Saved Analysis.** The Lives Saved (LiST) tool was used to model various scenarios and compare packages of effective interventions to estimate impact (i.e., number of lives that could be saved) with each approach. The goal of the analysis is to guide decision making about health and nutrition programming so program investments may be strategic for reducing the burden of child and maternal deaths within Venezuela. Scenarios were created to model the impact of a grouped set of key maternal and child health interventions. Compared to baseline which assumes no change in coverage, impact was quantified as an estimated change in maternal, neonatal, or child mortality. LiST models suggest the most strategic areas for investment include maternal health with facility-based care followed by integrated community case management with community health workers.

**Recommendations.** Investment in health is critical for addressing both the population's urgent and widespread health needs and for mitigating the impacts of the ongoing crisis on the health system in Venezuela. To the extent possible, investment should concentrate on supporting the health system and facilitating access to primary health healthcare, both at lower-level health facilities and in communities (as opposed to hospitals). Given the critical health worker shortages, investing in new cadres of lower-level health workers that require less extensive training may help to expand access to basic health services, thereby freeing up more qualified providers, which are in short supply, to attend to complicated cases. Within the context of expanding primary care for vulnerable populations, consideration should be given to sexual and reproductive health services and non-communicable diseases in addition to the focus on maternal and child health and nutrition.

## Introduction

The political and economic crisis in Venezuela threatens the nation's health and stability. The current situation, precipitated by a fiscal mismanagement, economic collapse and declines in health investment has precipitated the largest mass migration in the region (Figure 1). Some 5.7 million Venezuelans have emigrated since 2014 to escape violence, poverty, food insecurity, and to seek healthcare.<sup>1</sup>



The full impact on public health has been difficult to assess due to suppression of information, but available evidence points to a health system deteriorating for a decade that has collapsed in recent years.<sup>2</sup> The last epidemiologic report released by the Ministry of Health in 2016, showed a 30% increase in infant mortality in just three years, reversing two decades of progress.<sup>3</sup> A decaying public health infrastructure has led to the resurgence of vaccine-preventable diseases, including a 2017 measles outbreak which led to a regional epidemic that lasted several years.<sup>2</sup> The resurgence of vector-borne illnesses in Venezuela has resulted in the largest rate of increase of malaria in the world.<sup>4,5</sup> Approximately 90% of Venezuelans live in poverty,<sup>6</sup> underscoring the difficulties in maintaining health amidst the dual crises of economic collapse and the COVID-19 pandemic.

Since 2012, Venezuela's health system has had a progressive loss of operational capacity that began to intensify in 2017.<sup>7</sup> A variety of factors have contributed to the collapse of the health system. Emigration of health personnel has led to a progressive loss of operational capacity which intensified since 2017.<sup>1</sup> Lack of infrastructure maintenance and water and electricity shortages are also widespread. Electrical outages occur regularly throughout the country, both planned and unplanned, including in healthcare facilities and 82% of the population does not have regular access to potable water.<sup>8</sup> Reduced investment in preventive measures (e.g. bed nets, insecticides, and vaccinations) has increased the need for care whilst shortages of medications, basic health supplies (e.g. gloves, syringes, and laboratory reagents) and providers have reduced health capacity, resulting in immense unmet health needs and a deterioration in population health. The COVID-19 pandemic has further strained the Venezuelan healthcare infrastructure. As of the end of September 2021, only 362,040 cases and 4,395 deaths attributed to COVID-19 had been reported.<sup>9</sup> This is undoubtedly an underestimate of the true burden of disease- lack of testing reagents, data suppression, and intimidation of healthcare workers who speak out have been widely documented.<sup>10</sup>

To better characterize the current health situation in Venezuela, we undertook a review of available health statistics and literature and applied the Lives Saved Tool ([LiST](#)), to understand which interventions and health programming approaches would be most impactful in the present context. The literature review included 1) A systematic literature search of health databases (e.g. PubMed, Medline) for English and Spanish publications from December 2018 onwards on health in Venezuela;<sup>\*</sup> and 2) a grey literature search including relevant government, non-government organization and United Nations (UN) reports and data on the health situation and humanitarian response.

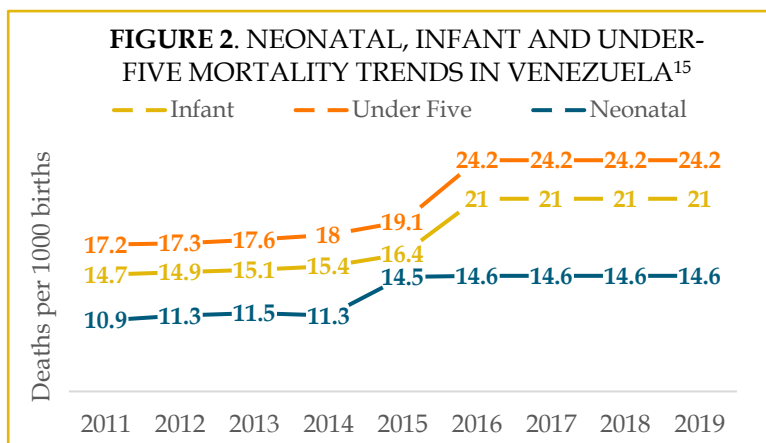
<sup>\*</sup> This effort is an update to an earlier review (Page & Doocy, 2019) that included literature published thru November 2018.

## Mortality

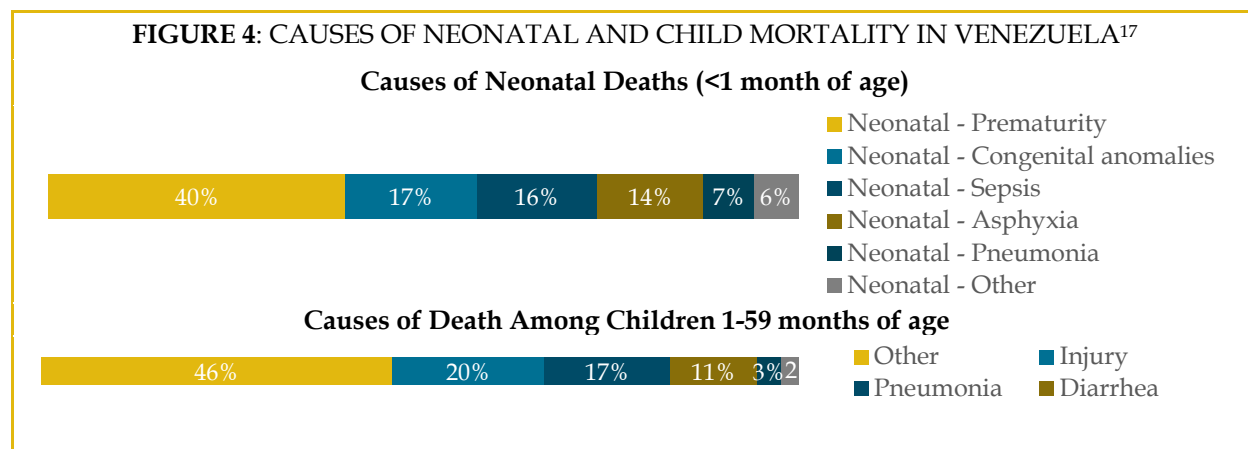
Life expectancy in Venezuela increased steadily through 2010 when it peaked at 73 years and then began to decline.<sup>11</sup> In 2019, life expectancy was 68.3 years for men and 76.0 years for women in Venezuela, which compares to Latin American and Caribbean (LAC) regional estimates of 72.5 for men and 76.8 for women.<sup>12</sup> According to a 2019 Amnesty International Report, there is a 3.5 year decrease in life expectancy for children under 5 in Venezuela largely due to the “structural damage to the standards of living of the population.”<sup>13</sup>

### Under-five Mortality

Globally, infant and child deaths declined by 44% and 47%, respectively between 2000 and 2017; Venezuela followed an opposite trend with increases in both infant and under-five mortality in this timeframe. Official mortality data have not been published since 2013 with the exception of the brief release of 2016 data in 2017. Infant deaths were 63.6% higher in 2016 than they were in 2012 according to government data, and the



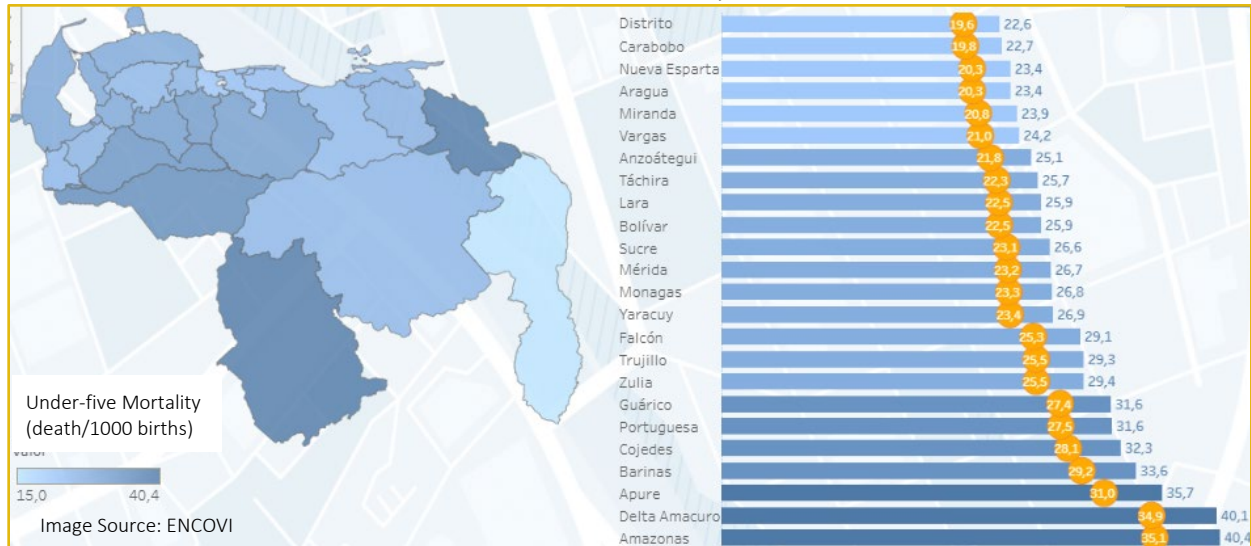
WHO/UNICEF/World Bank joint mortality estimates suggest the increased level of under-five mortality persists (Figure 2) with current estimates of neonatal and child mortality rates, respectively, at 14.6 and 24.2 deaths per 1000 live births.<sup>14,15</sup> Other 2020 models from the Encuesta Nacional de Condiciones de Vida (ENCOVI) suggest under-five and infant mortality rates are higher, at 29.0 and 25.2 death per 1000 births, respectively.<sup>16</sup> In both models, children <1 year of age accounted for the majority of under-five deaths, indicating interventions to reduce neonatal infant mortality would be impactful for under-five mortality reduction. Diarrheal disease and respiratory infections were estimated to account for 4.2% and 10.4% of under-five mortality in 2016, though causes of under-five mortality likely shifted given the deterioration in access to health services.<sup>12</sup> The leading causes of death during the neonatal period include prematurity (40%), congenital anomalies (17%), sepsis (16%) and intrapartum-related birth complications (14%), formerly described as birth asphyxia. During the post-neonatal period (1-59 months), most children in Venezuela die from a category grouped together as “other causes” (46%), injury (20%), pneumonia (17%), or diarrhea (11%) (Figure 4).<sup>17</sup> Infectious diseases are prominent as leading contributors of child death and the dire health implications as vector-borne illnesses rise in the region have been noted.<sup>4</sup>





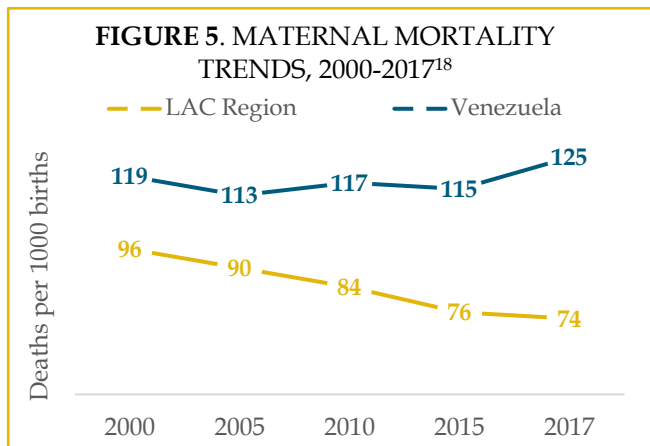
There was a notable geographic disparity in infant and under-five mortality as illustrated in **Figure 4** with the highest mortality rates in the states of Delta Amacuro and Amazonas followed by Apure, Barinas, Portuguesa and Guárico.

**FIGURE 4: UNDER-FIVE AND INFANT MORTALITY PROJECTIONS BY STATE, 2020**

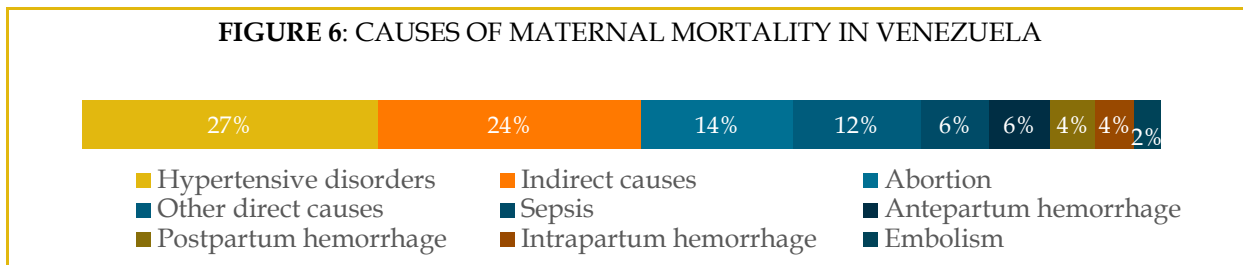


### Maternal Mortality

Similar to under-five mortality, figures on maternal deaths have not been reported by the government since 2017. Between 2012 and 2016, maternal deaths doubled from 370 to 756 nationwide.<sup>14</sup> The Maternal mortality ratio is the number of women who die from pregnancy-related causes while pregnant or within 42 days of pregnancy termination per 100,000 live births. The maternal mortality ratio was last estimated at 125 in 2017, which compares to an estimate of 115 in 2015, and a regional estimate of 74 for the LAC region (**Figure 5**). The 5% rise in maternal mortality in Venezuela between 2000 and 2017 is the opposite of the global trend, which saw a 38% decline in the same time period.<sup>18</sup> According to UNFPA, in August 2019 alone there were 352 officially reported deaths for women during pregnancy, childbirth, and the postpartum period, suggesting that maternal mortality has dramatically increased over the last several years.<sup>19</sup> The leading causes of maternal death in Venezuela are hypertensive disorders (27%), indirect causes (24%), and abortion (14%) (**Figure 6**).<sup>20</sup>



**FIGURE 6: CAUSES OF MATERNAL MORTALITY IN VENEZUELA**



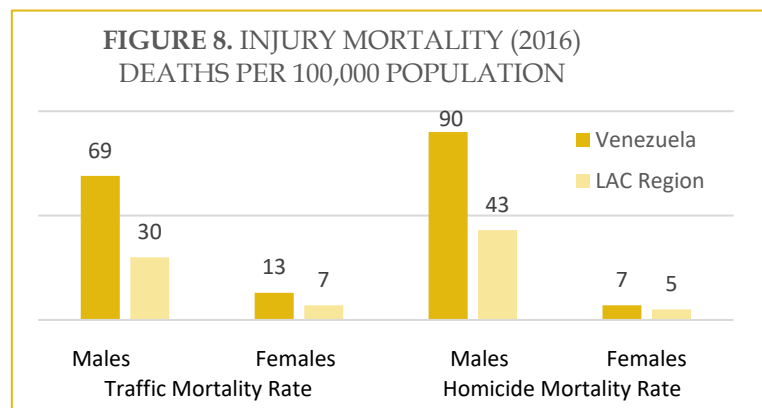
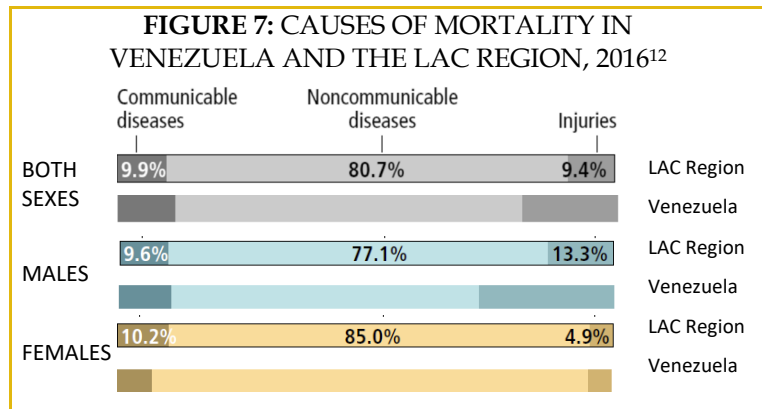


A 2020 New York Times article following several pregnancies in Venezuela documented the difficulty of attaining safe delivery, where many hospitals are not equipped for safe delivery, and added to the doubt surrounding vital events reporting where newborn death certificates were not always issued.<sup>21</sup> Among a small study conducted in four hospitals in Venezuela, the most common causes of maternal death were infections, hypertension, hemorrhaging, and unsafe abortions.<sup>13</sup> The factor that pushes these complications to become causes of death are largely due to the lack of supplies or resources and available prenatal care.<sup>22</sup> Lack of maternal health and newborn care in Venezuela have been documented since 2018, and this gap in services is a driver of both rising maternal and infant mortality as well as migration to Colombia and Brazil where border region hospitals have seen drastic increases in the caseload of Venezuelans seeking antenatal care and hospital deliveries.<sup>2,23</sup>

### Causes of Death

In both Venezuela and the LAC region, noncommunicable diseases (NCDs) account for a majority of deaths, largely due to progress through the demographic and epidemiologic transition where the population is progressively aging and there have been long-term gains in communicable disease control.

According to 2016 estimates, non-communicable diseases accounted for 72.4% and communicable diseases accounted for 10.6% of deaths in Venezuela (Figure 7). In comparison to the LAC region, the proportion of communicable disease deaths are similar whilst NCD mortality is lower due to a high injury burden, which comprised 17.0% of deaths in Venezuela.<sup>12</sup> Traffic fatalities and homicide rates are notably higher in Venezuela as compared to the LAC region, and were concentrated among males (Figure 8).



More recent 2019 cause of death estimates, which are aggregated using a slightly different approach, concur that NCDs cause the majority of deaths (66.0%) but place both injuries (19.2%) and communicable, maternal and perinatal conditions (14.9%) as more prominent causes of death (Figure 9, following page).<sup>24</sup> Among communicable, maternal and neonatal deaths, the most frequent causes included lower respiratory infections (28.6%), HIV/AIDS (28.2%) and neonatal conditions (17.7%). The leading causes of NCD mortality were cardiovascular disease (42.3%), malignant neoplasms (22.9%) and diabetes (10.1%). According to 2019 estimates from PAHO, mortality rates in Venezuela were well above LAC regional averages for the three most frequent causes of NCD mortality including ischemic heart disease (1.4 times greater, 126.1 deaths/100,000 in VZ vs. 87.9), cerebrovascular disease (1.2 times greater, 53.0 VZ vs. 43.4 LAC) and diabetes (1.3 times greater, 57.3 VZ vs. 42.9 LAC).<sup>12</sup> When examining changes in the primary causes of mortality over the past decade, both injuries and communicable, maternal, neonatal and nutritional deficiencies have declined in relative importance, whilst NCD mortality has increased (Figure 10, following page).<sup>25</sup>

FIGURE 9. CAUSES OF DEATH ESTIMATES FOR VENEZEULA, 2019

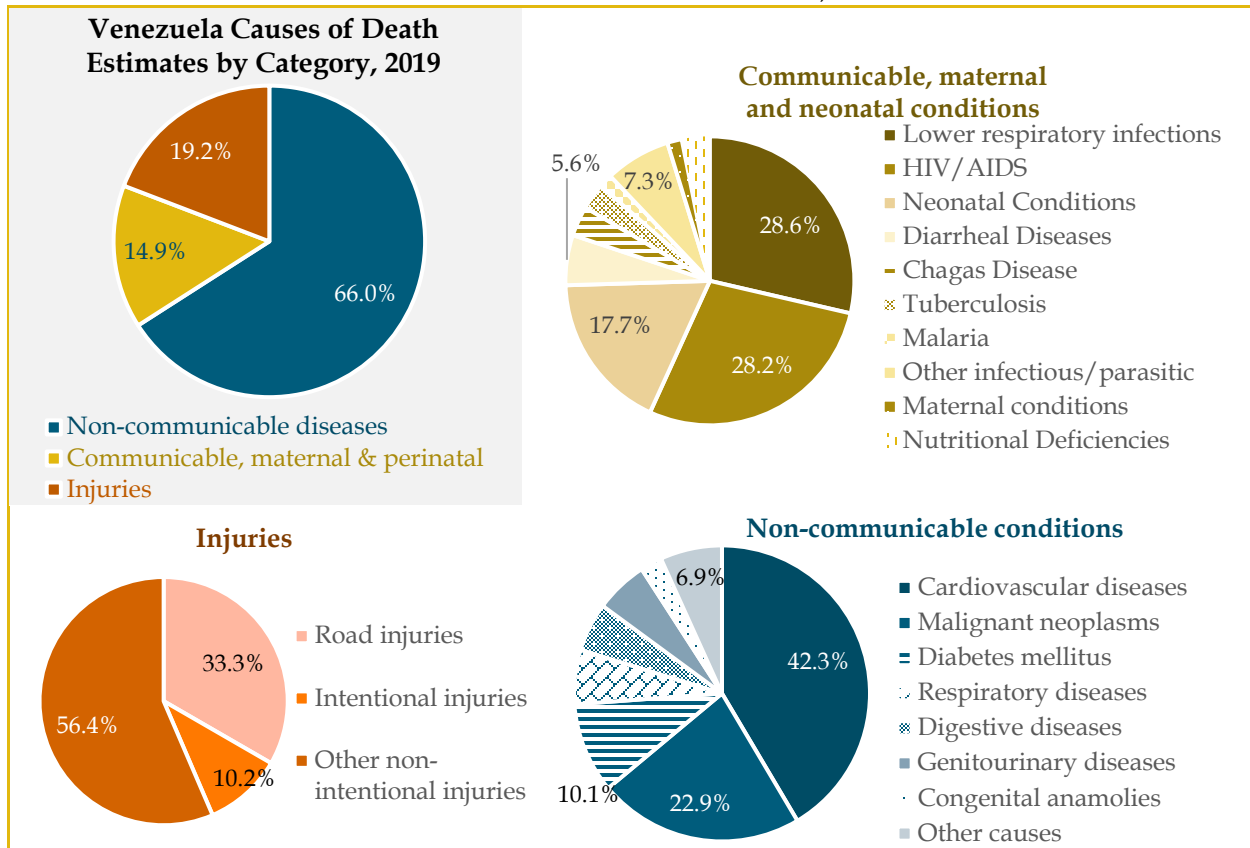
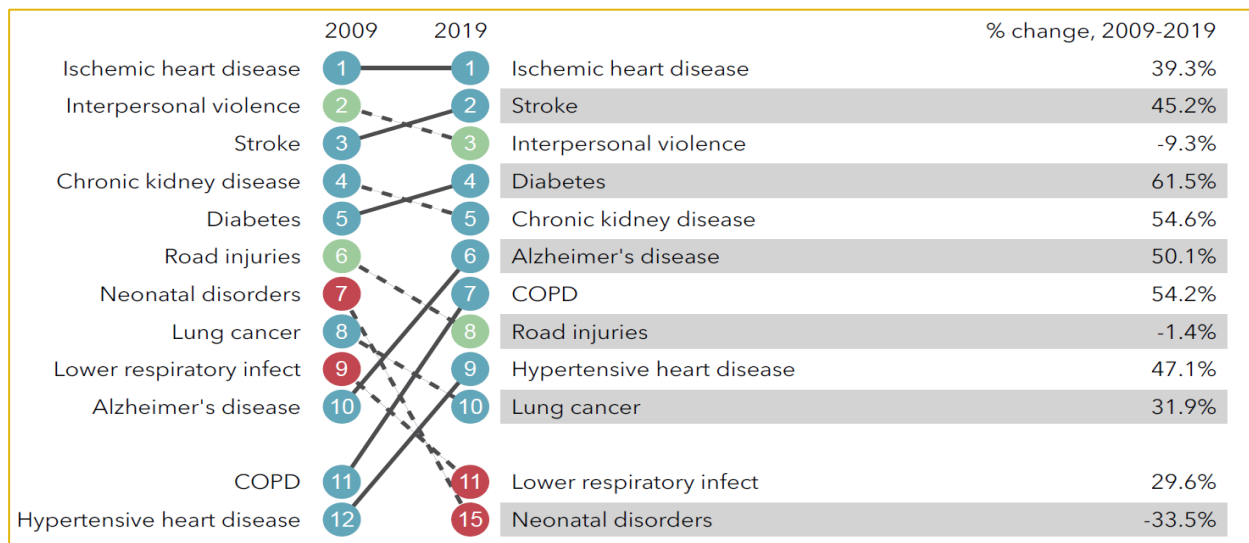


FIGURE 10. LEADING CAUSES OF DEATH IN VENEZUELA, 2009 & 2019<sup>24</sup>



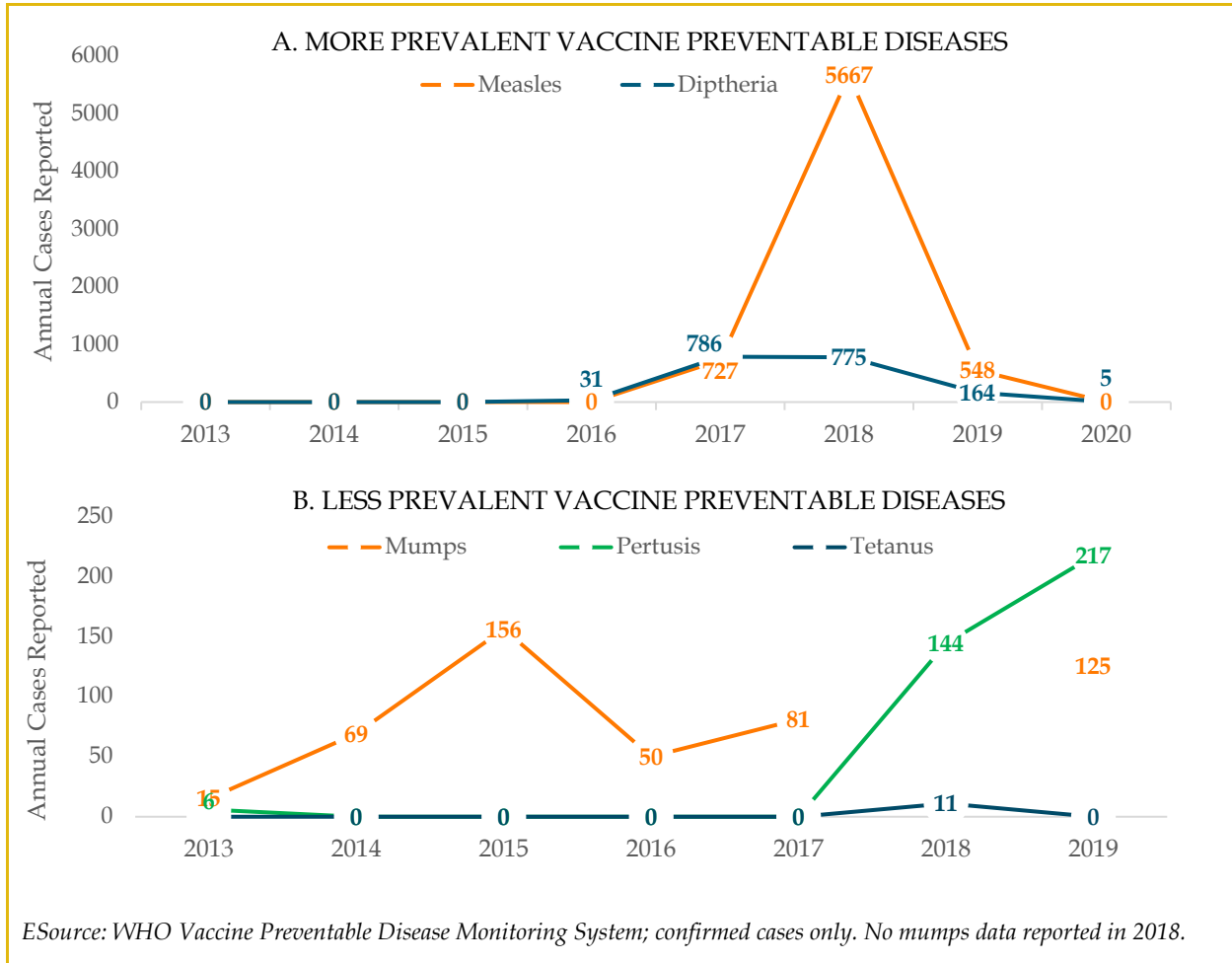
## Communicable Diseases

Countries with high mortality rates tend to have a significant infectious disease burden. In the case of Venezuela, diarrheal diseases and acute respiratory infections cause a significant portion of under-five mortality and are a leading cause of morbidity among a broader age group. In addition, resurgence of malaria and other vaccine preventable diseases have reversed decades of progress. This section examines vaccine preventable diseases, including trends over time and vaccination coverage, and other infectious diseases that are prevalent in Venezuela.

### Vaccine Preventable Diseases

The collapse of the public health infrastructure in Venezuela was most obvious in the resurgence of vaccine-preventable diseases. For over a decade beginning in 2007, there were virtually no vaccination campaigns in the country. Between 2007-2009, no vaccines were provided against polio, diphtheria, tetanus, pertussis, hepatitis B, and Haemophilus influenzae type b to children under 5, and in 2010, almost 20% of children were unvaccinated.<sup>2</sup> The breakdown in vaccination coverage caused repercussions that resonated throughout the region – with increased cases of diphtheria, measles and pertussis in Venezuela, and the spread of diphtheria and measles cases to other countries in the region (Figure 11).

FIGURE 11. TRENDS IN MORE VACCINE PREVENTABLE DISEASES IN VENEZUELA, 2013-2019<sup>26</sup>

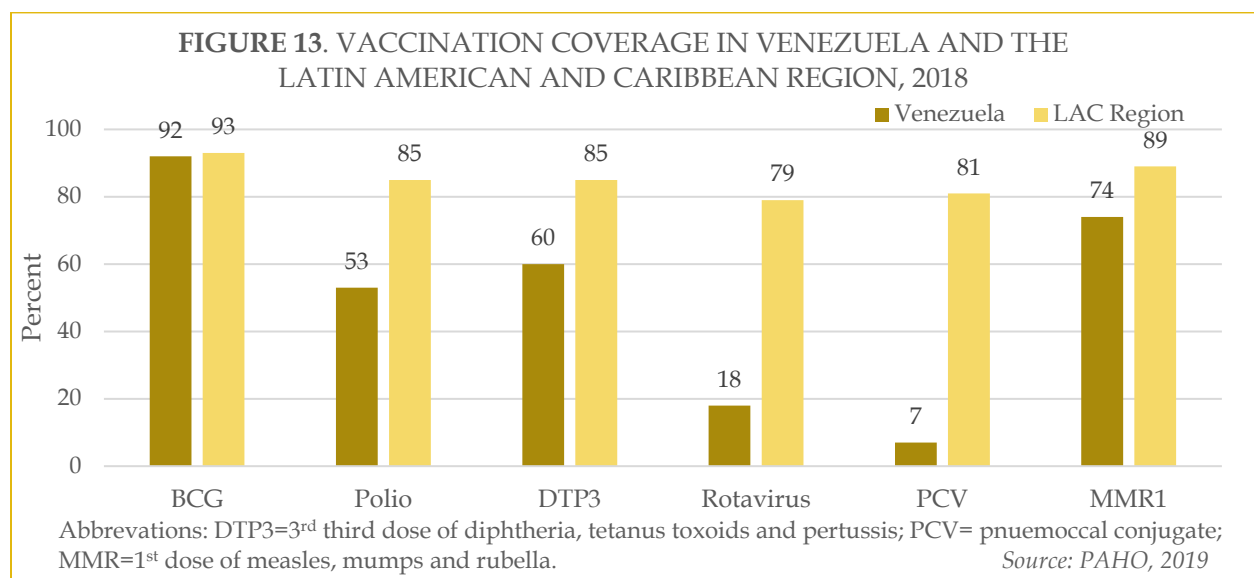
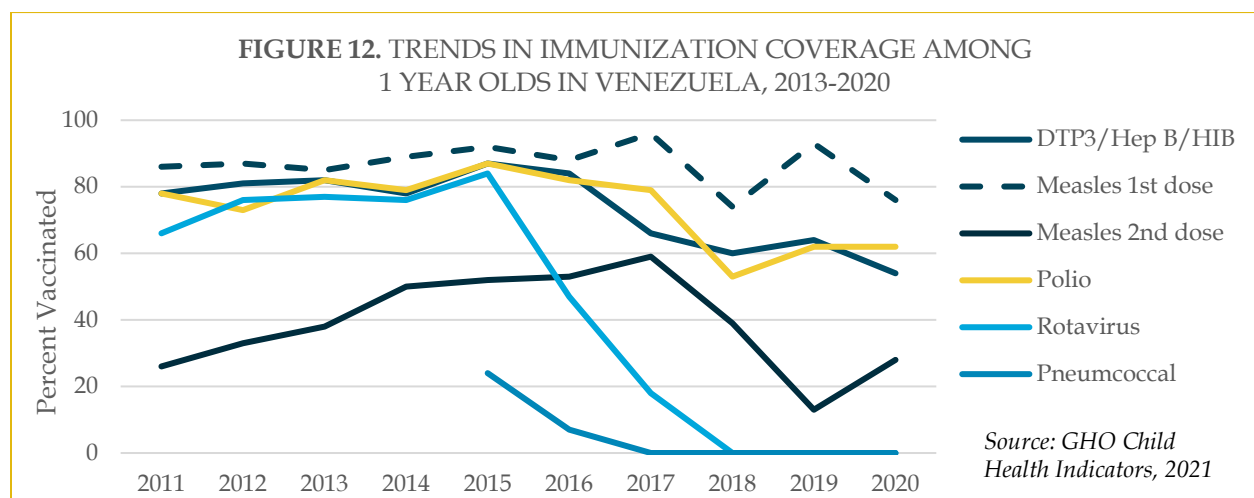


**Diphtheria.** Prior to the outbreak that began in July 2016, there had been no cases of diphtheria in Venezuela since 1992.<sup>27</sup> Since then, a total of 3,114 suspected cases have been reported (1,790 have been confirmed), and 294 people have died of diphtheria. The outbreak affected all states and the Capital District, with the highest incidence in children under 15 years old, and the highest case fatality among 5 to 9 year-olds (33%) and infants (25%). Confirmed cases peaked at 775 in 2018 and declined by 79% by 2019 to 166 cases; likewise, deaths declined more than 7-fold from 151 in 2018 to 21 in 2019).<sup>28</sup> In 2020 there were only 5 confirmed cases and 2 deaths attributed to diphtheria,<sup>29</sup> and, as of June 25, no cases have been reported in 2021.<sup>30</sup> However, disruptions in vaccination due to COVID-19 have resulted in a decline in the third dose of the diphtheria, tetanus, and pertussis vaccine (DTP3) among infants less than 1-year-old.<sup>30</sup> This may threaten progress and highlights the importance of continued vigilance and high quality epidemiologic surveillance.

**Measles.** As of 27 September 2016, the Region of the Americas was the first in the world to be declared measles-free. At the time, the last cases of measles in Venezuela had been reported in February 2007 following a mass vaccination campaign.<sup>27</sup> However, in July 2017, a measles outbreak originating in Venezuela rapidly spread throughout the region and caused outbreaks that only recently are beginning to abate. In Venezuela, there were a total of 7,054 confirmed measles cases and 84 deaths between the onset of the outbreak and the end of 2019; 62% of cases were in children <5 years of age.<sup>31</sup> Confirmed cases dropped 91% from 2018 to 2019, and no new measles cases reported in 2020.<sup>32</sup>

### Vaccination Coverage

Declines in vaccination coverage in Venezuela were first observed in 2016 and were initially most notable among rotavirus and pneumococcal vaccines, though by 2017 polio and measles vaccination rates also saw substantial declines (Figure 12). Measles 1<sup>st</sup> dose coverage has improved significantly in the last two years, but 2<sup>nd</sup> dose coverage remains very low (13% in 2019, and 28% in 2020). Only 54% of infants had received the 3 recommended doses of diphtheria-tetanus-pertussis (DTP3) and Haemophilus influenzae type B (HiB3) vaccination in 2020.<sup>18</sup> Venezuela does not participate in the PAHO/WHO Global Network for Sentinel Surveillance of Pneumonia and Bacterial Meningitis so estimates of HiB cases and mortality are unavailable for the country. No polio cases have been identified in Venezuela by the WHO/PAHO surveillance system despite suboptimal vaccination coverage (62% in 2020).<sup>2,3</sup> Figure 12 shows the marked difference in vaccination coverage in 2018 for common preventable diseases in Venezuela compared to the region.



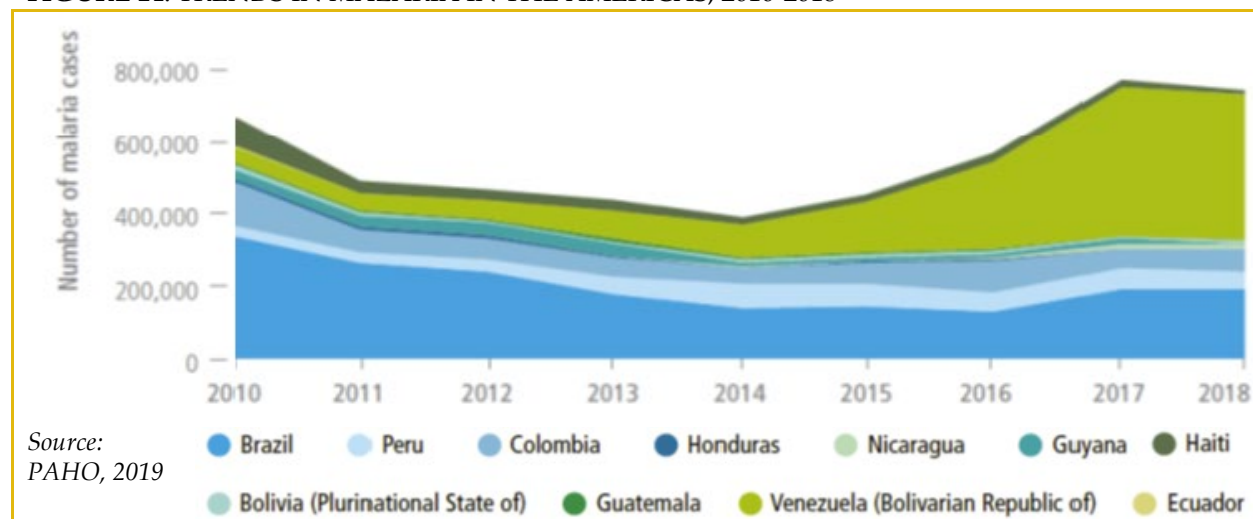
The gaps in vaccination coverage highlight the importance of high-quality epidemiologic surveillance to identify new outbreaks of vaccine-preventable diseases and respond rapidly. Continued investment in strengthening basic vaccination infrastructure and supply chain will be critical to achieve target vaccination coverage throughout the country. In 2018, in response to the alarming rise in vaccine-preventable diseases in Venezuela, PAHO and its partners launched country-wide vaccination campaign that reached 8.8 million children between 6 months and 15 years of age.<sup>31</sup> Between April 2018 and July 2019, a national catch-up campaign mobilized between 19,000 to 31,000 vaccinators per month. The impact of the campaign was readily evident in the marked declines in vaccine-preventable diseases starting in 2019. Although the 2018-2019 mass vaccination campaign led by PAHO and partners controlled the measles and diphtheria outbreak in Venezuela, important gaps in vaccination coverage persist and certain immunizations, such as rotavirus and pneumococcal vaccines, are virtually unavailable.<sup>18</sup>

## Other Prevalent Infectious Diseases

### Malaria

Over the past twenty-five years, malaria incidence in the Americas has declined, though more recently there have been increases in several countries, including Venezuela. **Figure 14** shows trends in malaria cases from 2010-2018 in countries with high malaria burden (>10,000 cases annually in 1995). Malaria incidence was relatively stable through 2011 and increased slowly through 2014, after which a malaria epidemic took hold, with a rise in mortality and proportion of cases caused by *Plasmodium falciparum* and mixed infections (*P. falciparum* and *P. vivax*).<sup>33</sup> Between 2007 and 2017, malaria cases increased by 893%; in 2017 malaria affected 16 of 23 states in Venezuela, with many cases in the state of Bolivar and incidence was estimated at 10 cases/1000 population.<sup>34</sup>

**FIGURE 14:** TRENDS IN MALARIA IN THE AMERICAS, 2010-2018<sup>12</sup>



Within the state of Bolívar, there is substantial heterogeneity in transmission, with the highest burden of *P. vivax* in the parishes of San Isidro, Dalla Costa and Ikabaru. In 2017, the San Isidro parish had annual *P. vivax* incidences as high as 4,672 cases/1,000 inhabitants-year and 1,919 cases/1,000 inhabitants-year for *P. falciparum*.<sup>33</sup> Transmission in these hotspots within Bolívar are attributed in part to mining activities and deforestation. Venezuela continues to lead South America in number of malaria cases, accounting for 70% of all cases in the region in 2019 and 52% in 2020. Last year, there was a 58% decline in cases reported in Venezuela compared to 2019 (from 248,191 in 2019 to 104,005 in 2020) which was not observed to the same degree in other countries in the region. In the absence of enhanced vector-control, it is likely that the decline was largely due to under-reporting of cases caused by interruptions in medication and diagnostic supplies delivery from the COVID-19 onset, though reduced mobility due to fuel shortages and COVID-19 may have also contributed to reduced transmission.<sup>35</sup>



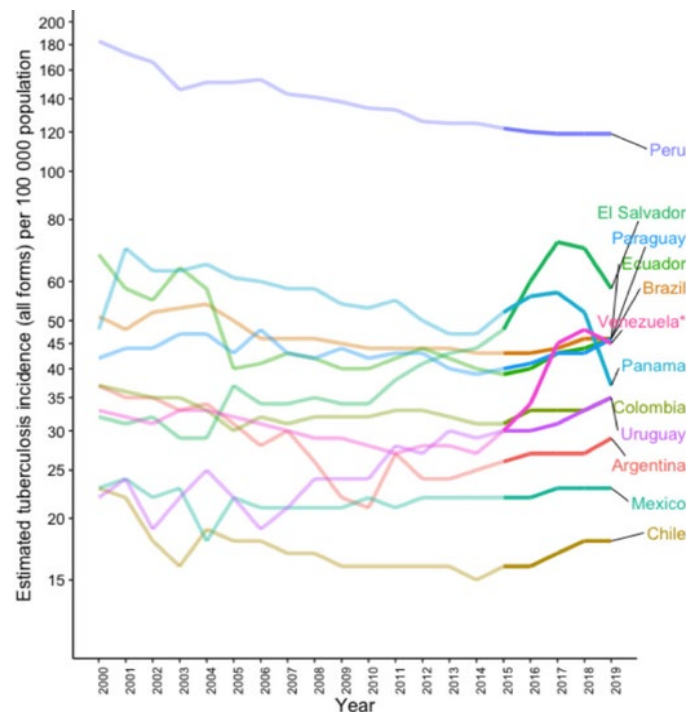
## HIV

Overall HIV prevalence is estimated to be 0.5% among the general adult population with an incidence of 0.08 per 1000 population, but prevalence is much higher in key populations- 22% among men who have sex with men (MSM) and 36% among transgender women.<sup>36</sup> Major gaps in HIV diagnostic and treatment in Venezuela since 2015 have limited the availability of reliable estimates of disease burden. A coordinated response led by PAHO has improved ART coverage since then, though the country is still far from the UNAIDS 90-90-90 diagnosis, treatment and suppression targets.<sup>37</sup> In 2016, only 59% of HIV-infected patients had access to antiretroviral therapy and only 7% had achieved the virologic outcomes (suppression) needed to improve life expectancy and reduce transmission. By 2018, the situation had markedly deteriorated PAHO estimated that only 13% of HIV-infected patients prescribed ART were receiving it and there were no reagents for critical HIV testing, including at blood banks.<sup>38</sup> In 2020, UNAIDS estimated that 71% of people living with HIV were diagnosed, 55% of people with known HIV infection were receiving ART, and there was no data on virologic suppression rates; an alarmingly low proportion (30%) of pregnant women with HIV received ART for prevention of maternal-to-child transmission.<sup>36</sup>

## Tuberculosis

Over the last few years, Venezuela has seen the most dramatic rise in tuberculosis (TB) in the region. TB incidence almost doubled from 2014 to 2018 (from 27 in 100,000 to 48 per 100,000), and marginally declined in 2019 to 45 per 100,000.<sup>39</sup> **Figure 15** shows changes in TB incidence in 12 Latin American countries (pink line Venezuela).<sup>40</sup> Several factors have contributed to setbacks in TB control, including a reduction in TB evaluation among people with respiratory symptoms due to the general health system decline, water interruptions that compromise biosafety procedures, lack of testing reagents, and inadequate transportation systems for patient samples.<sup>38</sup> The severe underfunding of the TB program in Venezuela has resulted in low testing rates (67%) for multidrug resistant TB (MDR-TB) and HIV co-infection (60%).<sup>41</sup> In 2017, there were 300 cases of MDR-TB reported in Venezuela- 5% were new diagnoses, 48% had received previous anti-TB treatment, and 22% were tested for susceptibility to second line therapy.<sup>41</sup> Although shortages in first- and second-line TB medications have not been officially reported, physicians working in Venezuela indicate that access to treatment in regional health centers is very limited, and patients need to travel to large urban centers for treatment.

**FIGURE 15: ESTIMATED TUBERCULOSIS INCIDENCE IN 12 LATIN AMERICAN COUNTRIES**



Source: Ranzani, et al. 2021.

## COVID-19

According to official WHO statistics, as of September 27, 2021 there were 362,040 confirmed cases of COVID-19, with only 4,395 deaths.<sup>9</sup> However, the death rate from COVID-19 reported in Venezuela is so much lower than in neighboring countries which calls into question the reliability of the data (**Figure 16**).<sup>42</sup> Lack of infrastructure and testing, as well as deliberate governmental attempts to suppress data, have contributed to an underestimate of the true burden of disease.<sup>42</sup> Public hospitals



in Venezuela are not equipped to prevent nosocomial transmission of COVID-19, and to protect healthcare workers and patients.<sup>43</sup> In addition, there is minimal capacity to care for patients with severe COVID-19 in need of complex care and/or ventilatory support.

The latest PAHO COVID-19 Epidemiologic Update (August 21 2021) reported that the three variants of concern, including the Delta variant, had been

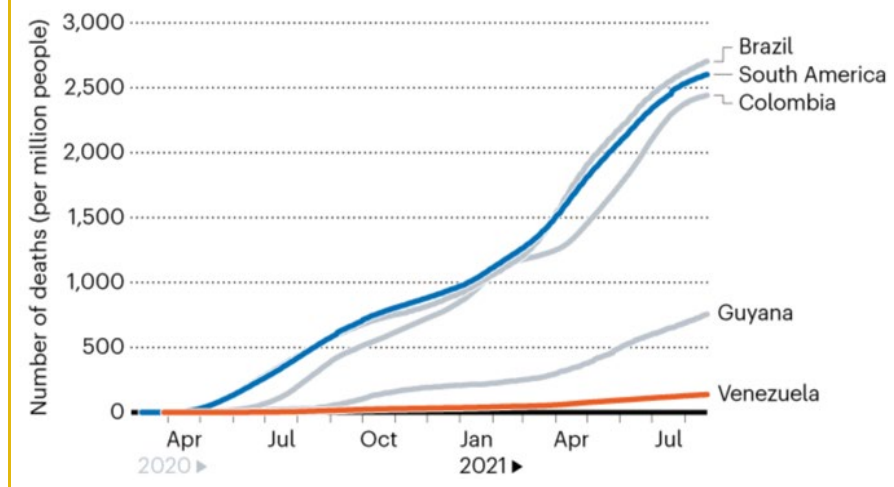
identified in Venezuela.<sup>44</sup> In addition, there was a concerning increase of 67% in COVID-19 related deaths among indigenous populations in Venezuela, though reported number of cases in this population since the beginning of the pandemic is so much lower in Venezuela than neighboring Colombia (1,286 vs. 68,716) that it suggests a severe undercount.<sup>44</sup> According to official statistics, 4,212 healthcare workers have contracted COVID-19 and 194 have died, but an independent monitoring system established by Médicos Unidos suggests that between June 16, 2020 and September 13, 2021, there were 721 deaths among healthcare workers with clinical and epidemiologic presentation consistent with COVID-19, with the highest number of deaths (153) in Zulia.<sup>44,45,46</sup>

Venezuela's COVID-19 vaccination campaign has been hampered by limited public health infrastructure, lack of governmental transparency, and severely eroded institutional mistrust given years of mismanagement and suppression of health indicators. A disjointed procurement strategy of vaccines has made it difficult to assess the campaign, but according Oxford University, an estimated 4.27 million Venezuelans – 15% of the population – have been fully vaccinated against COVID-19 as of Sep. 7, 2021.<sup>47</sup> Vaccines obtained by the Venezuelan government include an estimated 3.5 million doses of Russia's Sputnik V and Chinese-made vaccines, as well as more than 12 million doses of two experimental Cuban-made vaccines, Abdala and Soberana 2, which are not currently WHO approved.<sup>48</sup> On September 7, 2021, the first COVAX shipment of 693,600 doses of WHO-authorized Sinovac arrived to Venezuela and just over 12 million doses will be received via the COVAX mechanism.<sup>49</sup> PAHO is providing technical assistance and logistical support to ensure cold-chain management, identify priority populations, facilitate access to hard-to-reach populations, and develop surveillance post-vaccination systems and monitoring plans.

## Health Infrastructure

Declines in population health in Venezuela follow a notable reduction in health spending beginning in 2012. In 2018, government health expenditures were just 1.7% of GDP in Venezuela, compared to an average of 4.1% in the LAC region.<sup>18</sup> Shortages of medications and basic health products (e.g. gloves, syringes, and laboratory reagents), reduced investment in preventive measures (e.g. bed nets, insecticides, and vaccinations), lack of infrastructure maintenance, and emigration of health personnel have led to a progressive loss of operational capacity which intensified since 2017.<sup>2</sup> In 2018, private expenditures comprised 52% of current health expenditures in Venezuela compared to 42% in the LAC region<sup>1218</sup> – and as the health system has gradually collapsed, out-of-pocket costs have likely increased given widespread reports of patients being requested to provide medical supplies and medications required for care.

**FIGURE 16: COVID-19 CASES IN REPORTED IN SELECTED LATIN AMERICAN COUNTRIES, 2020-2021<sup>42</sup>**



In addition, water and electricity shortages are widespread and have further eroded public health. Despite ample reserves of freshwater in Venezuela, a survey conducted from October to November 2020 in 12 cities showed that 76% of respondents had unreliable water services, and 11% none at all.<sup>50</sup> Electrical outages occur regularly throughout the country – both planned and unplanned. In March 2019, the failure of the Guri Hydroelectric Plant, one of the largest power stations in the world, resulted in widespread outages that affected the entire country, including healthcare facilities. As of June 2021, 15.7 million people faced severely restricted access to potable water – with the most affected areas Aragua, Trujillo, Amazonas, and Anzoátegui. Over the last few years, the national electric grid has operated at 12% of full capacity, resulting in a 71% drop in generated electricity, which has impacted 90% of the population. In 2021, the frequency of electricity shortages doubled compared to the previous year, affecting 21.3 million people, and were especially severe in Mérida, Táchira, Aragua, Nueva Esparta, and Zulia.<sup>51</sup>

## Health System Capacity

### Health Infrastructure

According to a survey by Médicos Unidos conducted in March 2020, a few days before the first COVID-19 case was reported in Venezuela, 53% of hospital beds in 124 public hospitals were inoperable, laboratory capacity was at 10%, and only 25% had reliable access to potable water.<sup>4, 5, 52</sup> The pandemic further exacerbated the situation. In the last year, public hospitals have reported an 82% reduction in capacity to care for non-COVID-19 conditions, with a 42% reduction in surgical procedures, further reduction of laboratory capacity to 7%, and an 85% deficit in blood bank operations. More than 70% of public hospitals currently do not have regular access to water or electricity, which has profound impacts on both health service availability and quality (Box 1).<sup>51</sup> Additionally, basic medication and supplies were limited and operating rooms and lack of laboratory, x-ray, and ultrasound technologies limit the operational capacity of most healthcare facilities. The general breakdown of many primary health facilities has significantly paralyzed many facilities' tertiary care capacity.<sup>53,54</sup>

#### BOX 1: HOSPITAL CAPACITY ASSESSMENT

In December 2019, Johns Hopkins University investigators, in collaboration with Human Rights Watch (HRW), conducted semi-structured, in-depth interviews with 19 physicians and nurses working at 14 public hospitals in Caracas, and five states – Anzoátegui, Barinas, Bolívar, Lara, and Zulia. Participants described marked reductions in clinical capacity due to water and electricity shortages, which occur at regular and unanticipated times; lack of personnel and supplies; poorly functioning/broken equipment; and infrastructure decay. Doctors and nurses described dire working conditions, where minimum hospital infection control practices, such as handwashing, were difficult to comply with. Although difficult to quantify, providers indicated that mortality had increased within and outside hospitals due to a rise in hospital-acquired infections, lack of medications and diagnostic tests, delays in care, and reduced capacity to admit patients with life threatening conditions. To cope with water shortages, hospitals prioritize certain services and patients, such as children and pregnant women, but sometimes are forced to suspend services altogether. These necessary decisions diminish access to healthcare services for some and reduce the quality of care for most. Health care rationing takes into account three main factors: 1) whether emergency care is needed, 2) the ability to provide care for specific patients based on the resources available, and 3) whether family members or the patient are able to bring needed supplies.

### Human Resources for Health

Prior to the economic crisis, human resources for health in Venezuela were above average when compared to surrounding Andean Region countries. In 2017, Venezuela had 17.3 physicians and 20.1 nurses per 1000 population, respectively, which compares to an average of 16.6 physicians and 13.1 and nurses in the Andean Region and 21.4 physicians and 15.8 nurses in the LAC Region.<sup>12</sup> COVID-19 has exacerbated shortages in healthcare personnel due to increased demand, and an increase in the retirement rate of physicians (70%) and nurses (88%).<sup>51</sup> Recent estimates of the number of healthcare workers that have left the country are not available, but 2018 figures suggest that more than half of the country's doctors (22,000) and a quarter of nurses had emigrated between 2012 and 2017; as of 2014, there were 39,900 medical professionals registered as working in Venezuela.<sup>55,56</sup> According to the 2019 Encuesta Nacional de Hospitales (ENH19), for every 10 emergency physicians, only 3.5 are

specialists, a likely factor in the reduction of specialty areas being offered at some hospitals.<sup>53,57</sup> Recent declines in higher education enrollment and graduation<sup>58</sup> will limit the size of new cadres of health workers, further contributing to a lack of human resources for health in the foreseeable future.

## Organ Transplantation

Apart from a handful of anecdotal reports, there is very limited available information on organ and blood transplants in Venezuela in the past four years. This is largely due to what has become an extended suspension, beginning in 2014, of the cadaver transplant program in response to inadequate infrastructure along with insufficient access to post-operation immunosuppressants.<sup>59</sup> In the four years since 2017, it is estimated that 960 opportunities for transplants have been lost, more than 15% of which were for children or adolescents.<sup>59, 60</sup> Liver transplants have not occurred since 2017,<sup>61</sup> and in 2019 only two facilities had capacity for bone marrow transplants;<sup>62</sup> living donor transplants could only take place in a handful of private clinics at costs upwards of US\$ 70,000 making them inaccessible for most of the population.<sup>60, 63, 64</sup> In December of 2021, Amigos Trasplantados and Codevida reported 113 preventable deaths of transplanted patients due to inadequate care since 2016, most (64%) of which occurred in 2020 and 2021.<sup>65</sup> Availability of immunosuppressants is very limited, and when available they are financially out of reach for many with costs estimated at US\$700 monthly.<sup>66</sup> The lack of available transplants has resulted in an increased demand for dialysis and immunosuppressants, but resources are scarce.<sup>67, 68</sup> In 2019, the immunosuppressant shortage was estimated at 60% and of the 300 dialysis units in the country, less than half were active [and of those, many were out of operation].<sup>63</sup> The 128 active units in 2019 was only 5.1% of the available resources in 2012.<sup>63, 69</sup> In 2019, capacity was estimated at 5% of 2012 levels, and by August 2021 it was reported that only seven dialysis machines were operational nationwide.<sup>69</sup>

By 2020, the number of both hemodialysis patients and peritoneal dialysis decreased significantly.<sup>67</sup> Between 2013 and 2020 there was a 40% decline in registered hemodialysis patients and caseloads have likely continued to decrease.<sup>67</sup> This is likely the result of access constraints, where dialysis centers have become noticeably absent in smaller towns and rural regions in recent years.<sup>67</sup> With the onset of the Covid-19 pandemic in 2020, many of the operating hemodialysis centers were observed to be insufficiently equipped. Fewer than one in five centers were reported to have an isolation area for patients with Covid-19 and use of PPE, symptom tracking, or preventative measures were scarce and shortages of critical treatment components and infrastructure suitably present an ongoing challenges. In December 2021, Amigos Trasplantados reported that 2,620 hemodialysis patients were at risk of losing their treatment due to a bicarbonate shortage, a crucial component in treatment.<sup>70</sup>

The health system collapse has effectively eliminated the transplants in Venezuela, save for a handful that are conducted at private hospitals with costs that are out of reach for the majority in need. Among transplant recipients, immunosuppressants are often unavailable and/or cost prohibitive and for those unable to receive transplants that are reliant of dialysis, availability has decreased in over the past five years. Given the complexity of ensuring hospital capacity, availability of qualified providers and the need for a central coordination mechanism it appears that lack of transplant capacity in Venezuela will persist for the foreseeable future.

## Health Needs, Access and Utilization

### Health Service Access and Utilization

In 2018 and 2019, an estimated 2.4 million Venezuelans with severe health conditions did not have access to essential medications, in part due to drastic import restrictions starting in 2021 which led to a 70% decline in available medications. By June 2021, the situation has improved due to lifting of

import restrictions and increased production in country, but there was still a 33 to 36% shortage in medications for chronic diseases and acute conditions.<sup>51</sup>

High out-of-pocket costs profoundly limits access to care and medications in Venezuela. As of June 2021, an estimated 18.8 million people had lost access to health services in both the public and private sector. An estimated 10.4 million people with chronic health problems did not have adequate access to health services, and 48% of them had not received care in the last 6 months.<sup>51</sup> Table 1 shows the estimated percentage of people with serious health conditions who do not have access to care or medications. Data is based on a survey of 15,175 individuals conducted in May and June 2021 in 16 states.<sup>51</sup> A previous survey conducted by 903 individuals > 50 years of age suggests that barriers to care may be even more significant for older Venezuelans—64% of respondents were unable to afford needed health services or medications, and 14% reported age discrimination.<sup>71</sup>

While data on reasons for care seeking are not available for government health facilities, information on current health needs can be gleaned from other service providers. Caritas provides health services in 12 states of Venezuela† and reported over 14,700 consultations in the first quarter of 2021, providing a relatively recent snapshot of care seeking in the NGO sector. Demand for health services was greatest among children which comprised 57% of all consultations, with children <5 years of age accounting for 34% of all visits. Older adults accounted for 14% of visits and working age adults 29% of visit; among adults, women accounted for more than two-thirds of visits, which is consistent with prior reports that men are less likely to seek care. The most common diagnoses were 1) parasites and infections (16.9%), in particular diarrhea, protozoosis, other intestinal parasites and hepatitis; 2) respiratory infections and diseases (13.0%), the majority of which were common colds (68% rhinoparyngitis) which represents a decrease from prior reporting periods, likely due to COVID-19 prevention measures; and 3) nutrition conditions (11.1%) – which nearly doubled in prominence from the 3<sup>rd</sup> quarter of 2020 when they accounted for 5.6% of consultations.<sup>72</sup>

### Sexual and Reproductive Health

Similar to mortality data, there is a critical lack of data on sexual and reproductive health in government reports since 2013. Most maternal health data is sourced from small surveys taken from health facilities or anecdotal evidence collected by news reports and are not representative or comparable. By all indications, access to adequate sexual and reproductive health services in Venezuela is a major concern.

According to the 2019 PAHO health indicator report, 70% of women in Venezuela use modern contraceptives, 84% of pregnant women receive antenatal care, and 95% deliver in hospitals.<sup>73</sup> However, these estimates are based on data from 2018 or older and do not reflect the rapidly deteriorating healthcare infrastructure of the last few years. Furthermore, access to pre- and post-natal care have been further curtailed by COVID-19. PAHO estimates that disruption of services due to the COVID-19 pandemic in Venezuela has led to a 75% decline in skilled birth attendance, 76% decline in ante-natal care, and 70% decline in contraceptive use. In comparison, these parameters have declined on average by 19%, 24%, 36% in the region, with most countries experiencing 10-20% declines ([Figure 17](#), following page).<sup>74</sup>

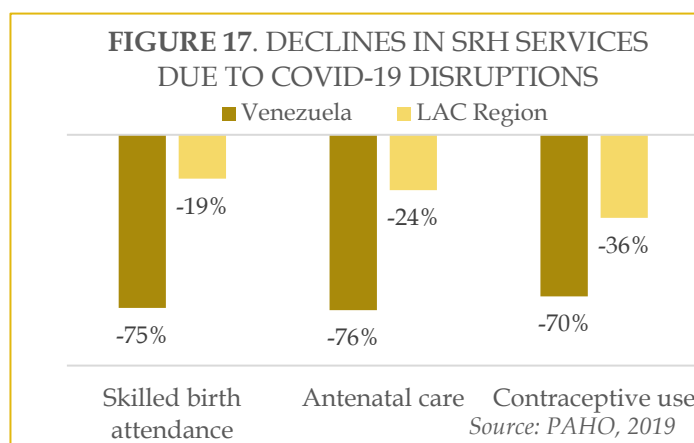
TABLE 1: ACCESS TO HEALTH CARE AND MEDICINES (2021)<sup>51</sup>

STATE	No access to healthcare	No access to medications
Amazonas	66,9	31,0
Anzoátegui	43,6	23,0
Aragua	37,9	33,6
Bolívar	53,5	42,6
Carabobo	42,6	23,2
D. Capital	49,0	26,7
Guárico	30,0	42,5
Lara	34,0	20,8
Mérida	37,1	47,1
Miranda	43,7	38,8
Monagas	67,9	66,2
N. Esparta	45,2	34,7
Táchira	25,7	36,8
Trujillo	21,9	36,7
Yaracuy	31,5	57,2
Zulia	46,2	29,7
<b>Total</b>	<b>41,1</b>	<b>36,9</b>

† Apure, Aragua, Barinas, Bolívar, Carabobo, Distrito Capital, Falcón, La Guaira, Miranda, Mérida, Sucre, Zulia.



The shortage of contraceptives has significant implications for maternal and child health. Avoiding unplanned pregnancy is a critical strategy for reducing maternal mortality. According to WHO estimates, family planning has the potential to reduce maternal deaths by 30% and newborn deaths by 10%. Venezuela now has the highest adolescent fertility in South America, estimated at 85 births per 1000 women 15-19 years of age in 2019 (compared to 62 per 1000 for the Latin America and Caribbean region).<sup>19,73</sup> In addition, PAHO projects that the disruption of SRH services could quadruple the fertility rate from 2.3 in 2018 to 9.9 in 2021.<sup>74</sup> Contraceptives, once free in Venezuela have become scarce and exceedingly expensive. According to the New York Times, a pack of condoms in Caracas costs US\$4.40 and birth control pills US\$11 a month, while the monthly minimum wage is US\$1.50.<sup>75</sup>



According to healthcare professionals and community workers, the number of women seeking abortions is also increasing substantially.<sup>75</sup> A free abortion hotline reported a 50% increase in the number of calls received between 2018 and 2019 (757 to 1142).<sup>76</sup> In 2019, 46% of the women who called the abortion line reported economic hardship as the primary reason for an abortion, and 60% had obtained the misoprostol from sources outside the health system.<sup>76</sup> The crisis in SRH services in Venezuela is evident in the Colombian border, where Profamilia has reported a profound rise in abortions performed in Venezuelan women (26 in 2017, 364 in 2018, and over 800 in 2019) and Colombian hospitals have seen substantial increases in of deliveries attended for Venezuelan women.<sup>22</sup>

Although official maternal mortality rates have not been available since 2017, UNFPA reported that in August 2019 alone there were 352 officially reported deaths for women during pregnancy, childbirth, and the postpartum period, suggesting that maternal mortality has dramatically increased over the last several years.<sup>19</sup> According to the most recent ENCOVI survey, receipt of prenatal care is declining: twice as many pregnant women had an inadequate number of prenatal checks in 2021 compared to 2017.<sup>77</sup> The leading causes of maternal death in Venezuela are hypertensive disorders (27%), indirect causes (24%), and abortion (14%) – and are largely preventable with adequate prenatal care.<sup>20</sup> In a New York Times article following several Venezuelan pregnant women seeking care, women were routinely turned away from care due to lack of supplies and capacity at the various hospitals.<sup>21</sup> In one instance, a woman was turned away from 12 hospitals before giving birth to a premature boy who died ten days later. Given the dire conditions, many women walk to Colombia to deliver- at the Hospital San José in Maicao, Colombia, deliveries by Venezuelan women have increased 39-fold in 5 years (70 in 2014 to 2,700 in 2020).<sup>21</sup>

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## Mental Health

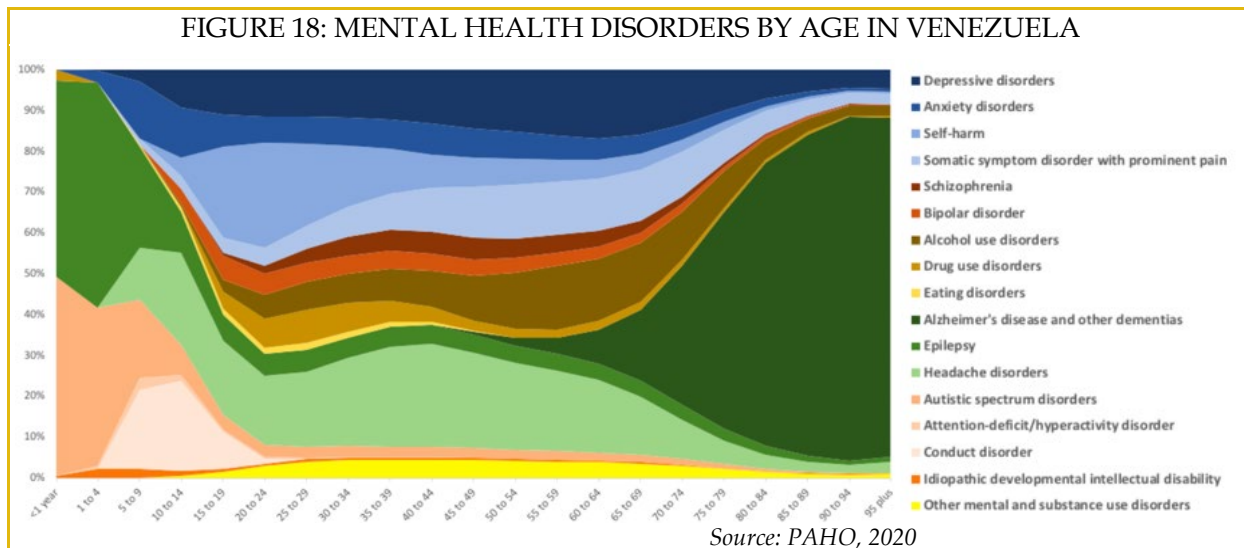
The socioeconomic and political crisis in Venezuela has increased levels of anxiety, depression, and associated disorders in the population, as well as severely curtailed the country's capacity to provide mental health services. In 2020, PAHO reported that mental, neurologic, substance use disorders and suicide (MNSS) accounted for 16.5% of disability-adjusted life years (DALYs), 34.4% of years living with disability (YLDs), and 25% of all disease burden among people between the ages of 10 and 40 years in Venezuela. Among adults with MNSS, 42% have anxiety, depression, self-harm or somatic symptom disorder, and 14% substance use disorders (10% alcohol use disorder). There are differences in MNSS burden among men and women—the most prevalent conditions in men are self-

harm/suicide and alcohol use disorder, while in women, headaches and depressive disorders predominate (Table 2).<sup>78</sup> Among children with MNSS, the most common diagnoses are epilepsy (52%) and autism (44%) for children under 5 years, and conduct disorders (21%), headaches (18%) and anxiety disorders (13%) for those 5 to 15 years of age (Figure 18). COVID-19 may be increasing anxiety among children and adolescents. Cedocap, an organization that works on child and adolescent rights, provided 1,458 mental health consultations in the first 6 months of 2020 compared to 1,115 in the previous year. Prior to the pandemic, approximately 9% of children expressed depression and anxiety, compared to 31% in June 2020.<sup>79</sup>

TABLE 2: MENTAL HEALTH DISEASE BURDEN BY SEX IN VENEZUELA

Men		Women	
Disorder	DALYs per 100 000	Disorder	DALYs per 100 000
MNSS (all)	4627	MNSS (all)	4009
Self-harm and suicide	835	Headache disorders	996
Alcohol use disorders	563	Depressive disorders	595
Headache disorders	547	Alzheimer's disease and other dementias	451
Alzheimer's disease and other dementias	465	Somatic symptom disorder with prominent pain	403
Depressive disorders	444	Anxiety disorders	345

FIGURE 18: MENTAL HEALTH DISORDERS BY AGE IN VENEZUELA



Axis 1 diagnoses (schizophrenia and bipolar disorders) are less common, affecting 8% of adults with MNSS. However, the health system has limited to no capacity to care for patients with severe mental health disorders, and patients with previously well-controlled conditions have tragically deteriorated in the absence of critical medications. A 2016 New York Times article documented dire conditions in six psychiatric wards in Venezuela where patients lacked food, water, cleaning supplies, and essential medications such as antipsychotics and anxiolytics.<sup>80</sup> In one instance, an unmedicated patient, bit the nose off another patient. Clinical staff ration medications and resort to restraints or solitary confinement to control psychotic patients, and suicide attempts within the hospital are common.<sup>81</sup> According to the Washington Post, in one of the main psychiatric facilities (El Peñon), 14 patients have died since 2016 due lack of access to medications.<sup>82</sup> The World Federation for Mental Health has declared a mental health crisis in Venezuela which requires urgent implementation of community-based interventions.<sup>83</sup>

## Food Security and Nutrition

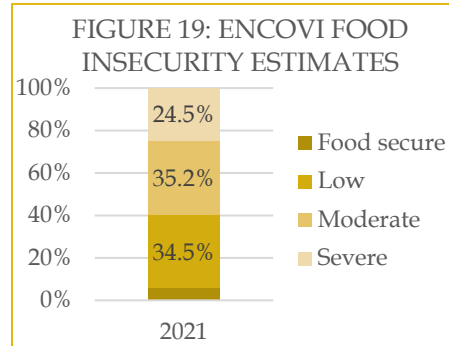
### Food Security

The proportion of Venezuelans living in poverty soared in parallel to recent hyperinflation trends. According to ENCOVI, poverty increases from approximately one-third of the population in 2007-2012 to more than 90% in 2018 and after.<sup>16</sup> Estimates from the Economic Commission for Latin America and the Caribbean are lower but follow the same increasing trend, rising from 8% in 2014 to 33% in 2018. Rising poverty is due to declining employment opportunities and wages coupled with

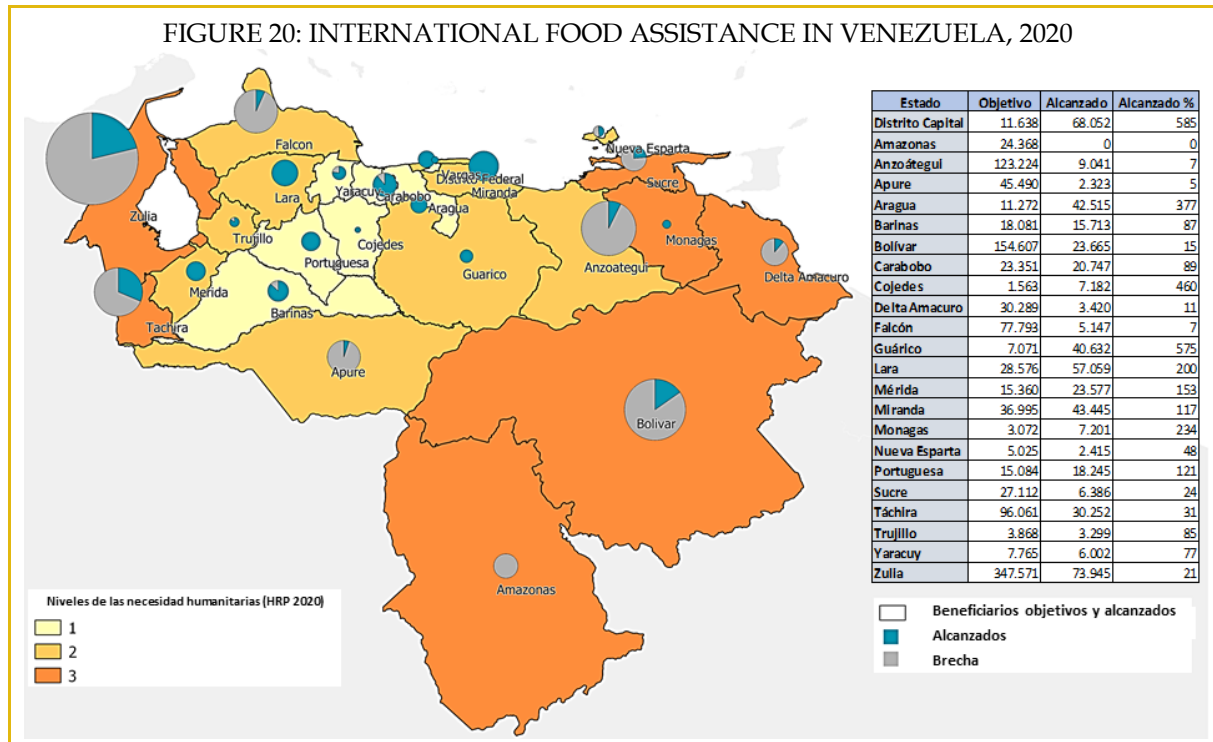


increased costs for goods and services. In 2020, the monthly minimum wage of 10 million Bolivares equated to US\$ 3.05 due to continuing hyperinflation (2960% cumulative inflation in 2020).<sup>84</sup>

The extent of food security crisis in Venezuela is largely unknown. In 2019, the World Food Programme (WFP) estimated that 32.3% of the population was moderately or severely food insecure and 59.7% were marginally food secure. This translates to 2.3 million Venezuelans that were severely food insecure and in need of humanitarian assistance.<sup>84</sup> In the 2021 report on Global Food Crisis, WFP declined to classify Venezuela citing insufficient evidence but reported that food security likely was deteriorating.<sup>85</sup> ENCOVI data suggest that food insecurity has risen in parallel with poverty, with 94% of households food insecure in 2019-2021 (Figure 19).<sup>77</sup> Those with low food insecurity (34.5%) faced reduced dietary diversity, whereas those with moderate food insecurity (35.2%) also reduced the quantity or frequency of meals and those with severe food insecurity experienced hunger (24.5%).



Social protection programs to support the poor, such as regular food distributions known as CLAP boxes, report widespread coverage – 80% of the population – however distributions are infrequent with half of households receiving CLAP boxes less than once every two months. When CLAP boxes are received, their content is variable with an estimated value of US\$20 (for which recipients pay US\$1). A large proportion of Venezuelans depend on CLAP boxes, however they are low in dietary quality and variety and insufficient in quantity. CLAP boxes are estimated to supply 1300kcal per day compared to a requirement of 2,200kcal/person/day and are estimated to last a family of five for only five days.<sup>86</sup> International food assistance began scaling up in early 2020 and reached approximately half of the targeted 1.1 million beneficiaries. Figure 20 illustrates coverage of food assistance and levels of food insecurity by state at the end of 2020 (the most recent available data).<sup>87</sup>



The COVID-19 pandemic has impacted both education and access to school feeding programs. In 2021, only 19% of households reported these programs were ongoing compared to 65% in 2019/20. The most recent ENCOVI estimates that 1.3 of 4.5 million children had access to school feeding programs. Among those schools with functional school feeding programs only 14% provided food

daily (40% rarely provided food and 46% sometimes provided food) – with half of schools providing take away meals. School feeding programs are expected to improve in 2021/22 with the introduction of WFP assistance which will target 1.5 million children with take-home rations through 2022.<sup>84</sup>

## Nutrition

Data on nutrition in Venezuela is scarce. The most recent World Bank/UNICEF joint malnutrition estimates are from 2009 where stunting (low-height-for-age or chronic malnutrition) was at 13.4%, wasting (low weight-for-height or acute malnutrition) was 4.1% and underweight (low-weight-for-age) was 2.9%.<sup>88</sup> More recent estimates from the Food and Agriculture Organization (FAO) place prevalence of undernutrition was 27.4% from 2018-2020. Among adults, prevalence of obesity was 25.6% (2016) and 24.2% of women of reproductive age were anemic (2019). Among children, prevalence of stunting was estimated at 10.6% (2020) and overweight 6.7% (2020); no estimates for wasting were available.<sup>89</sup> ENCOVI 2019/2020 data suggests that 8% of children <5 years of age are underweight, which is higher than estimates for nearby countries such as Colombia (3.4%) and Peru (3.2%). ENCOVI estimated stunting prevalence at 30.3% which translates to an estimated 639,000 children under five with chronic malnutrition.<sup>16</sup>

The most granular child nutrition data available is from Caritas which analyzed anthropometric data collected from 2017 to 2019 on 46,462 children <5 years in poor areas of Venezuela. Caritas observed a stunting rate of 31.7% and a wasting rate of 11.5%; both stunting and wasting were more prevalent among boys. Prevalence of food insecurity and child wasting from the Caritas study are presented in **Table 3**. Prevalence of stunting increased by 4% from 2016 to 2019 whereas wasting prevalence decreased by 4% in this period. Of note were high levels of wasting in Guarico (20%), Monagas (19%), Falcon (15%) and Anzoategui (14%) and the association between undernutrition and access to water.<sup>90</sup>

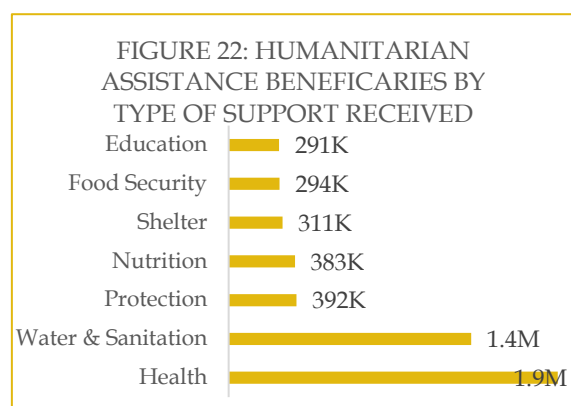
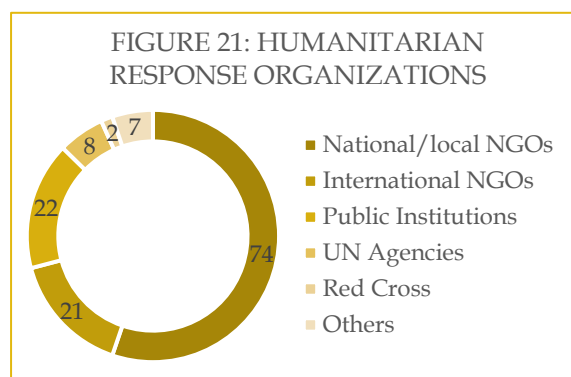
District	Cases	Percentage of households with...			Prevalences		
		Moderate food insecurity	Severe food insecurity	No access to running water	Stunting	Wasting	Stunting and wasting (concurrency)
Capital	3,037	19.4	6.5	5.6	0.27 (0.44)	0.09 (0.28)	0.03 (0.17)
Anzoategui	871	25.0	10.2	14.2	0.37 (0.48)	0.14 (0.35)	0.06 (0.23)
Apure	1,421	29.6	6.6	8.9	0.35 (0.48)	0.12 (0.32)	0.04 (0.20)
Aragua	121	21.5	5.7	11.9	0.28 (0.45)	0.07 (0.25)	0.01 (0.09)
Barinas	2,593	25.2	9.1	7.6	0.29 (0.45)	0.09 (0.28)	0.03 (0.17)
Bolivar	2,730	30.0	10.5	17.9	0.28 (0.45)	0.11 (0.32)	0.04 (0.19)
Carabobo	5,889	25.1	5.1	5.7	0.32 (0.46)	0.11 (0.32)	0.04 (0.19)
Falcon	417	27.4	13.4	5.6	0.38 (0.49)	0.15 (0.35)	0.06 (0.24)
Guarico	5,237	19.0	5.5	42.6	0.24 (0.42)	0.20 (0.40)	0.03 (0.17)
Lara	801	14.9	3.3	18.1	0.29 (0.45)	0.09 (0.28)	0.03 (0.16)
Merida	5,578	15.4	7.5	14.6	0.31 (0.46)	0.08 (0.27)	0.03 (0.16)
Miranda	509	21.6	5.2	0.3	0.34 (0.47)	0.13 (0.34)	0.05 (0.22)
Monagas	555	32.5	9.5	6.1	0.33 (0.47)	0.19 (0.39)	0.06 (0.24)
Portuguesa	3,463	19.8	7.6	8.3	0.40 (0.49)	0.12 (0.32)	0.03 (0.18)
Sucre	620	32.2	5.1	7.8	0.28 (0.45)	0.13 (0.34)	0.04 (0.19)
Trujillo	5,138	32.6	9.9	8.4	0.27 (0.49)	0.09 (0.29)	0.02 (0.14)
Yaracuy	4,726	24.6	8.4	5.4	0.38 (0.49)	0.12 (0.33)	0.04 (0.19)

More recently, in mid-2021 nutrition cluster partners reported conducting nutrition screening 71,670 children <5 years of age; of these 3,978 were diagnosed with moderate or severe acute malnutrition (5.5%). In addition, 15,732 pregnant women were screened including, 982 (6.2%) were underweight and 937 anemic (6.0%). Comparisons of the nutrition situation by state were not feasible due to substantial differences in sample size by state and the non-representative nature of the sample. According to the nutrition cluster, the largest gaps in nutrition programming were in Lara, Apure, Amazonas and Bolivar states where coverage was <30% of targets. Among children <5yrs treated for 4,643 children <5 years with moderate (n=4,663) and severe (n=1617) acute malnutrition in the first six months of 2021, boys accounted for 57% of the caseload, which is consistent with Caritas observations that boys faced increased risk for acute malnutrition.<sup>91,92</sup>

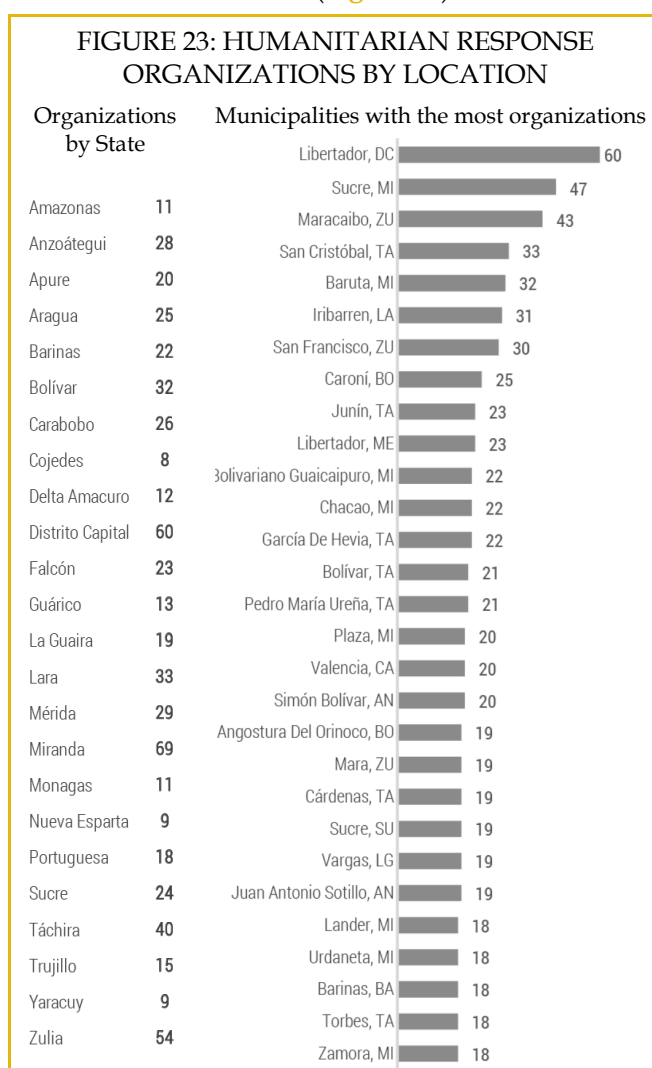
## The Humanitarian Response Landscape

As the situation in Venezuela has deteriorated and out-migration increased, attention to the crisis and has increased with more international support, in terms of dollars and organizations, becoming involved both within Venezuela as well as the regional migrant response. According to the 2021 Global Humanitarian Assistance Report, 14.3 million people in Venezuela—more than half of the population—were in need of humanitarian assistance, the third most of any country in the world (after Yemen and Democratic Republic of the Congo).<sup>93</sup> The 2020 humanitarian response plan required US\$763 million, to provide health care, water, sanitation and hygiene, food security and nutrition, shelter, protection and education support to 4.5 million Venezuelans. More than halfway through the year in August 2020, international donors had provided US\$130 million in assistance, which equates to shortfall of 83% in funds indicating a dire need for additional financial support for the response.<sup>94</sup>

The UN Office for the Coordination of Humanitarian Affairs (OCHA) reports 134 organizations, including UN agencies and international and national non-governmental organizations are engaged in the humanitarian response, working closely with national institutions (Figure 21).<sup>95</sup> Other sources suggest even broad participation in the humanitarian response—for example the HumVenezuela Platform which was developed by Venezuelan civil society for monitoring and documenting the emergency, includes more than 300 civil society actors.



Figures from UN OCHA indicate humanitarian response activities are concentrated in the areas of health and water and sanitation (Figure 22) and that largest concentrations of organizations are in the municipalities of Libertador (Distrito Capital), Sucre (Miranda), and Maracaibo (Zulia) (Figure 23).<sup>95</sup> More detailed information on the number of beneficiaries by state and sector, the number of organizations working in each sector by state and lists of organizations engaged in the various sector responses is presented in Annex 1.



## Lives Saved Analysis

Analysis with the Lives Saved tool (LiST) was conducted to inform future health and nutrition programming in Venezuela. The aim of the analysis is to compare packages of proven interventions and estimate the numbers of lives that could be saved in each scenario. This type of modeling can inform decision making to prioritize programs investments that may be most strategic for preventing child and maternal mortality within Venezuela.

### Overview of the LiST Tool

The [Lives Saved Tool](#) is a modeling platform that has been used since 2003 for strategic planning, program evaluation, and advocacy in global health. The evidence-based [approach](#) relies on the assumption that expanding access to or delivery of high-quality maternal, neonatal, child health, and nutrition (MNCHN) interventions can reduce the burden of disease in a low-resource setting. An overview of the general methodology<sup>96</sup> and additional details about the model structure and underlying assumptions are [available](#). In summary, country-specific information about MNCHN is used to create a baseline scenario and the impact of scaling up or increasing coverage of key interventions can be examined as it improves outcomes among specific population subgroups (e.g., pregnant women, newborns, children under-five). The resulting benefit or impact, calculated as “lives saved,” can be evaluated as a package or individually by intervention. Review of the life-saving interventions which can potentially lead to the greatest reduction in morbidity or mortality can help guide planning efforts in Venezuela with a tailored country-specific focus. Optimization of delivery strategies or health systems strengthening activities can be developed and priorities can be carefully weighed when local stakeholders have a better understanding of the potential gains which could be made given the real-world constraint of finite resources.

The LiST models used maternal, neonatal and child health indicators collated from the most recent nationally representative data sources available including 2000 Multiple Indicator Cluster Survey (MICS), UNICEF/WHO/World Bank Joint Child Malnutrition Estimates Expanded Database, and WHO and UNICEF Estimates of National Immunization Coverage (WUENIC). Demography parameters were based upon projections from the UN Department of Economic and Social Affairs, Population Dynamics, World Population Prospects 2019 report. Baseline mortality for mothers and children under-five years of age was based upon estimates produced by the UN Maternal Mortality Estimation Inter-agency Group (MMEIG) for 2017 and the UN Inter-agency Group for Child Mortality Estimation for 2019 respectively. Baseline mortality rates used for the model were as follows:

- Maternal mortality ratio (deaths/100,000 live births): 125.0<sup>20</sup>
- Maternal mortality rate (deaths per 100,000 women age 15-49): 8.5<sup>20</sup>
- Neonatal mortality rate (deaths/1000 live births): 14.6<sup>24</sup>
- Under five mortality rate (deaths/1000 live births): 24.2<sup>24</sup>

As previously described, hypertensive disorders (27%), indirect causes (24%), and abortion (14%) are the leading causes of maternal death accounting for a majority (65%) of deaths occurring when a woman is pregnant or within 42 days of termination of pregnancy.<sup>20</sup> Effective interventions to target these complex causes and the associated underlying medical condition(s) are delivered mostly during the periconceptual to prenatal periods (see [Annex 1, Table 1](#) for casual pathways of interventions for maternal mortality reduction).

For child mortality in Venezuela, the majority of deaths occur in the neonatal period (~60%) where leading causes of death include prematurity (40%), congenital anomalies (17%), sepsis (16%) and intrapartum-related birth complications (14%), formerly described as birth asphyxia.<sup>24</sup> Health interventions for neonatal mortality reduction are presented in [Annex 1, Table 2](#). During the neonatal period, mortality risk may be mediated by poor outcomes at birth such as preterm birth (i.e., birth that occurs before 37 weeks of gestation) or being small-for-gestational-age, which is caused by conditions of intrauterine growth restriction when growth of a baby is inadequate while in the mother's womb



during pregnancy. Either or both conditions may lead to increased risk of a newborn being born low-birth weight, defined as weighing less than 2,500 grams, which may be associated with serious health problems later in life. During the post-neonatal period (1-59 months), most children in Venezuela die from a category grouped together as “other causes” (46%), injury (20%), pneumonia (17%), or diarrhea (11%).<sup>24</sup> both preventive and curative interventions offer a window of opportunity to save lives among children ages 1-59 months (see Annex 1, Table 3 for an overview of interventions for child mortality reduction). Many of these health-centered interventions are related to improving nutrition, targeting vaccine-preventable illnesses, and seeking high-quality care and treatment for suspected illness.

The LiST models were created with Spectrum (Version 6.08) released 12 May 2021. The rationale for each of the different scenarios and a complete listing of all interventions included in each model is presented in [Annex 2](#). Different models were compared to a ‘baseline model’ to characterize the impact of scaling different interventions with regards to maternal and child lives saved:

- Baseline - assumes no changes from 2020-2030
- Scale-up of all interventions to universal coverage (90%) by 2030
- Scale-up of interventions which could be delivered by community health workers (i.e., Integrated Community Case Management (iCCM) approaches)
- Scale-up of maternal health interventions, including antepartum and intrapartum care
- Scale-up of interventions related to nutrition
- Scale-up of interventions related to immunization

## Results of the LiST Analysis

As previously described, the LiST analysis compares five different scenarios: 1) universal health coverage (UHC), 2) integrated community case management of childhood illness and community health workers (iCCM+CHWs), 3) maternal health interventions, 4) immunization, and 5) nutrition interventions. LiST model projections for the number of child, neonatal and maternal lives saved for each intervention package are summarized in Table 4 and presented in detail Figure 24. The scenario which includes scale-up of all available maternal, neonatal and child health and nutrition interventions to universal health care (UHC), with coverage of 90%, was modeled as the theoretical “upper bound” or the maximum benefit which could be achieved if all interventions were utilized. Under this scenario, maternal mortality would decrease by 49%, under-five mortality by 39% and neonatal mortality by 15% by 2030 if these life-saving interventions reached all populations in need. Recognizing that UHC is likely to be unattainable, the scenarios likely to be the most strategic with regard to reducing under-five and maternal mortality were maternal health and iCCM+CHWs interventions.

TABLE 4: LIVES SAVED IN 2030 UNDER THE ASSUMED SCALE UP OF EACH SCENARIO\*

Lives Saved Estimates	Scenarios				
	UHC	iCCM+CHWs	Maternal	Nutrition	Immunization
<b>Under-five (neonatal)</b>	8340 (6,980)	1,480 (520)	1,430 (1,430)	1,130 (630)	570 (na)
<b>Maternal</b>	360	110	350	40	na

\*NA=no lives saved as a result of the intervention; neonatal lives saved are shown separately in parenthesis and are included within the under-five mortality estimates

When examining under-five mortality, the most lives could be saved by scaling up key interventions which can be delivered through community-based approaches. Although the selected list of interventions was intentionally broader than the traditional iCCM strategy, this scenario represents an alternative to provide high-quality and timely care through outreach when facility access is challenging. Scale-up to successfully diagnose and treat illnesses such as pneumonia, diarrhea, and malaria to reduce the burden of disease among children requires robust training, supervision, and monitoring to accompany the provision of adequate care.

**FIGURE 24: LIVES SAVED TOOL ESTIMATES OF MORTALITY REDUCTION**



Estimates were produced by comparing mortality totals to a baseline model which assumes no change (trends shown in black) in the observed number of deaths for the period 2021-2030. It is however possible that deaths will increase in this period if health service capacity continues to decline, thus the modeled lives saved estimates may be conservative.

For neonatal mortality, the greatest declines in mortality were estimated from scaling up interventions for maternal care as interventions delivered to pregnant women as part of high-quality antenatal care and at or around the time of childbirth. The impact of antenatal care which includes nutritional supplementation during gestation is often beneficial to reduce risk of poor birth outcomes (e.g., prematurity, low birth weight) which influences risk of neonatal mortality. High-quality care



delivered at or around the time of birth improves both maternal and neonatal survival but relies on adequate access to resources including antibiotics and skilled providers. For maternal mortality, maternal health would be the most impactful followed by the scale up scenario modeling an iCCM and CHWs platform.

The analysis provides insight about key priority areas for Venezuela given the current conditions, but the limitations of data availability should be noted. The most recent country-specific indicators available through public sources were used as a basis for the analysis but many data sources were collected five years ago or earlier and the rapid changes that have occurred during that period due to the prevailing socioeconomic and political instability are not captured. If there has been rapid and drastic deterioration in the coverage of key interventions, modeling estimates may not properly reflect potential impact if baseline projections are inaccurate. In this case, additional effort and funding will need to be re-committed to simply “return to baseline,” before expansion of services can occur or improvement of health outcomes would be anticipated. As an example, recent profiles for cause of death do not cite malaria as a leading cause of death. Despite the eradication of malaria in Venezuela in 1961, the recent and rapid increase of malaria cases and lack of attention and resources committed to anti-malaria programs have left the country vulnerable to a greater burden of malaria deaths which is not reflected in the models due to baseline assumptions. Lastly, the assessment of priority and overall rankings to guide next steps must be completed through a thoughtful collaborative exercise and with consideration to the policy and funding environment. This analysis quantifies the benefits for mothers and children under-five but has not captured the impact and potential costs or benefits for the entire population.

## Conclusions and Recommendations

Investing in the health of Venezuela is critical for addressing both the population’s urgent and widespread health needs and for mitigating the impacts of the ongoing crisis on the health system. While it is generally the responsibility of governments to maintain health infrastructure there are many instances globally where the international community supports health service delivery and health system reconstruction. While widespread infrastructure rehabilitation and ensuring access to water and electricity are likely beyond the scope of foreign assistance in Venezuela, other smaller investments can ameliorate deteriorating health facilities and enhance capacity to provide care. For example, ensuring that diagnostic and other equipment is available and working, and that medical supplies, medications and laboratory testing are available are health systems investments that would enhance both financial access to and the availability of higher quality care. To the extent possible, donors should support health system investments that facilitate access to primary health healthcare. While much attention is given to hospitals, investing in primary level services is typically more cost-effective and allows larger populations to be reached. In the case of Venezuela, where basic health services and medications are largely unavailable, a priority focus on primary health care is likely to best meet the needs of vulnerable populations and achieve the greatest reductions in morbidity and mortality.

Both child and maternal mortality have been increasing in Venezuela in recent years which is contrast to both regional and global trends. Most under-five deaths occur within the first month of life and many could be prevented with better access to ante- and postnatal care. Given the challenges in accessing adequate pregnancy care and safe deliveries, a focus on maternal and young child health is critical—especially considering that available evidence suggests most care seekers are children. Integrated and community-based approaches to maternal and child health, including preventative care (e.g. antenatal and postnatal care, vaccination, health education) and basic curative care for common childhood illnesses (e.g. diarrhea, respiratory infections, malaria) should be considered given current access limitations and health workforce challenges. In many settings, community health workers provide basic care and referral for more complicated cases to health facilities and more qualified providers; midwives provide antenatal and postnatal care and attend births outside health facilities. Within the context of Venezuela, where there are critical health worker shortages, investing

in new cadres of health workers that require less extensive training may be a good strategy for expanding access to basic health services while enabling more qualified providers, which are in short supply, to attend to complicated cases.

Within the context of expanding primary care for vulnerable populations, consideration should also be given to sexual and reproductive health services and non-communicable diseases. Efforts to expand access to affordable contraception would reduce adolescent, unwanted pregnancies and unsafe abortions; use of midwives or nurses for home deliveries could help to maintain skilled birth attendance in areas where hospitals are turning pregnant women away. Attention to common chronic diseases, such as hypertension and diabetes, within the context of primary care and ensuring access to medications could also begin to address an important health need. Chronic conditions are the primary cause of mortality in Venezuela and present a significant burden for middle age and older adults. While care for chronic conditions is often provided at the secondary and tertiary levels, expanding access to diagnosis, monitoring and medications at the primary level can reduce complications and lessen the need for more advanced care – which is important given limited hospital capacity.

While it is apparent that poverty and food insecurity have rapidly expanded in Venezuela since the onset of the crisis, the extent of concern that is warranted is unclear. Clearly reductions in food access and dietary quality have impacted the majority of Venezuelans, but fortunately this has not led to crisis levels of acute malnutrition. While available data are limited, it does appear that wasting prevalence has increased since the onset of the crisis and it is clear from humanitarian response information that the coverage of nutrition programs is inadequate and should be expanded. Use of community-based approaches, such as Community Management of Acute Malnutrition or integration of nutrition monitoring and screening into primary health care would ensure that both children and pregnant lactating women have appropriate nutrition support, and if needed, receive treatment to facilitate recovery from acute malnutrition. Given the cost and challenges of addressing food insecurity within Venezuela, investing in nutrition screen and the integration of nutrition services into community programming and primary care is likely to be a more cost-effective approach to addressing undernutrition than supporting food distributions or other types of feeding programs.

The political and economic crisis in Venezuela coupled with the impacts of the COVID-19 pandemic have severely impacted health system capacity in Venezuela and it will take years of investment for the health system to recover. The humanitarian health response should prioritize access to primary health care, as opposed to investing hospitals and secondary care, with the aim of expanding the availability of low cost and proven preventative and curative health services. Given the shortfalls in funding the Venezuela humanitarian response, there is dire need for expanded investment in public health and the health sector.

# Annex 1: Organizations Involved in the Venezuela Humanitarian Response

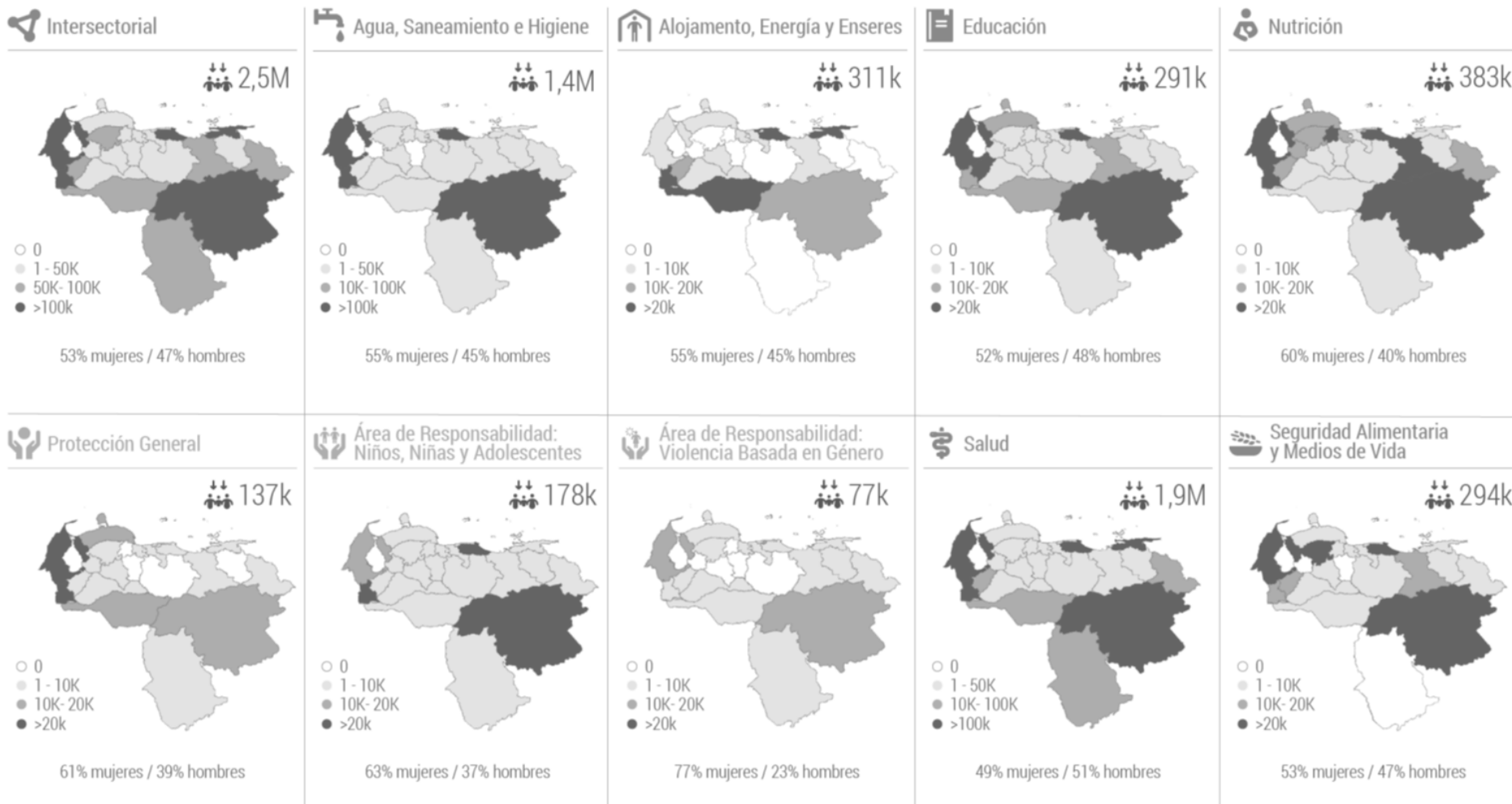


OCHA

## VENEZUELA 5W - PRESENCIA OPERACIONAL HUMANITARIA 2021

Personas alcanzadas por clúster / área de responsabilidad

hasta el 31 de julio de 2021





# VENEZUELA 5W - PRESENCIA OPERACIONAL HUMANITARIA 2021

Organizaciones por clúster / área de responsabilidad

hasta el 31 de julio de 2021

## Intersectorial



## Agua, Saneamiento e Higiene



## Alojamiento, Energía y Enseres



## Educación



## Nutrición



## Protección General



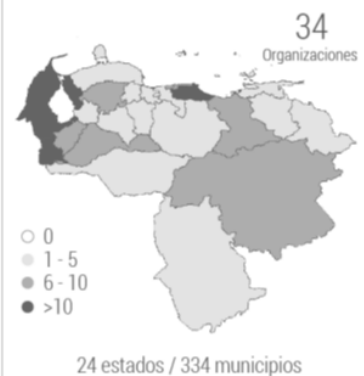
## Área de Responsabilidad: Niños, Niñas y Adolescentes



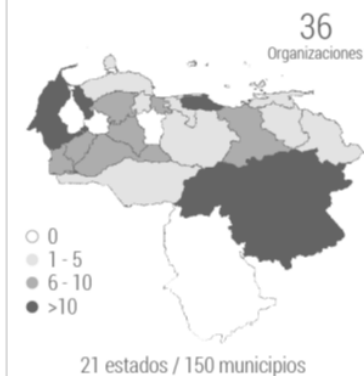
## Área de Responsabilidad: Violencia Basada en Género



## Salud



## Seguridad Alimentaria y Medios de Vida





# VENEZUELA 5W - PRESENCIA OPERACIONAL HUMANITARIA 2021

## Listado de organizaciones por estado y clúster / área de responsabilidad

hasta el 31 de julio de 2021

<p><b>Amazonas</b></p> <ul style="list-style-type: none"> <li>ACH, AVEC, FPM</li> <li>ASEINC, AVEC, UNICEF</li> <li>INN, UNICEF</li> <li>ASONACOP, UNICEF</li> <li>ACNUR, HIAS</li> <li>ACNUR, ASONACOP, HIAS, UNICEF</li> <li>DIRESA, MPPS, OPS, UNICEF</li> </ul>	<ul style="list-style-type: none"> <li>ACNUR, CISP, Caritas VEN, Consoven, FUNDEHULLAN, FUNVAPE, HIAS, INTERSOS, NRC, OIM</li> <li>ACNUR, HIAS, UNICEF</li> <li>CISP, Caritas VEN, FAO, FUNDEHULLAN, NRC, OIM</li> <li>ONUSIDA, CISP, Caritas VEN, MPPS, OIM, OPS, UNICEF</li> </ul>	<ul style="list-style-type: none"> <li>ASEINC, AVEC, FEVIC, FUNDAMAD, Fe y Alegria, SC, Superatec AC, UNICEF</li> <li>ACH, ACURN La Casa Grande, ADRA, ADRA VEN, Alimenta Solidaridad, CANIA, CESAP, Caritas VEN, DVC, FUNDANA, Fe y Alegria, INN, MPPS, Otro Enfoque, SC, UNICEF</li> <li>ACNUR, ASOVILUZ, CECODAP, Derechos, EXODO, FASH, FUNDANIL, FUNDANA, Fe y Alegria, Hogar Bambi, Otro Enfoque, PLAFAM, RCDB, RELAF, SC, Tinta Violeta, UCAB, UNICEF</li> <li>ACNUR, Aliadas en Cadena, Consoven, FUNVAPE, HIAS, UCAB, UNAIDS, Vivienda Popular</li> <li>ACH, ACNUR, ACTED, Aliadas en Cadena, Alimenta Solidaridad, CESVI, EXODO, FCI, FPM, FUNDANIL, FUNDANA, HIAS, PLAFAM, RCDB, SC, Tinta Violeta, UCAB, UNFFPA, UNICEF</li> <li>ACH, ACTED, ADRA, ADRA VEN, Alimenta Solidaridad, CESAP, Caritas VEN, Comunidad Activa, A.C., FAO, HEKS, HI, RCDB, SC, Sociedad Ético Cultural</li> <li>Acción Solidaria, DSDC, IMC, MPPS, ONUSIDA, OPS, UNFFPA, UNICEF</li> </ul>	<ul style="list-style-type: none"> <li>ADRA, ADRA VEN, Alimenta Solidaridad, De Familia a Familia, Fe y Alegria, Flor de Luz, INN, M4H, MAPANI, SC, UNICEF</li> <li>ASONACOP, CECODAP, De Familia a Familia, Derechos, Fe y Alegria, Otro Enfoque, RELAF, SC, UNICEF</li> <li>ACNUR, Aliadas en Cadena, FUNVAPE</li> <li>ASONACOP, Aliadas en Cadena, Alimenta Solidaridad, Movimiento Mujeres Por La Vida, Tinta Violeta, UNICEF</li> <li>ADRA, ADRA VEN, Alimenta Solidaridad, CESAP, FAO, Fe y Alegria, HEKS, M4H, SC, Sociedad Ético Cultural</li> <li>Caritas VEN, MPPS, OPS, SDS Trujillo, SPSS, Lara, UNICEF</li> </ul>	<p><b>Monagas</b></p> <ul style="list-style-type: none"> <li>ALINCA, UNICEF</li> <li>ASEINC, Fe y Alegria, UNICEF</li> <li>ALINCA, INN, UNICEF</li> <li>CECODAP, CODEHCU, Otro Enfoque, RELAF, UNICEF</li> <li>CODEHCU, UNICEF</li> <li>ALINCA, FAO</li> <li>MPPS, ONUSIDA, OPS, UNAIDS, UNICEF</li> </ul>	<ul style="list-style-type: none"> <li>RCDB, RET</li> <li>CISP, Corporsalud Táchira, Diócesis SC, MPPS, OIM, ONUSIDA, OPS, RET, UNAIDS, UNFFPA, UNICEF</li> </ul>
<p><b>Anzoátegui</b></p> <ul style="list-style-type: none"> <li>ACNUR</li> <li>ACEP, ALINCA, Alimenta Solidaridad, Fe y Alegria, M4H, SC, UNICEF</li> <li>ASEINC, AVEC, FUNDAMAD, Fe y Alegria, UNICEF</li> <li>ACEP, ALINCA, Alimenta Solidaridad, Caritas VEN, Fe y Alegria, INN, M4H, SC, UNICEF</li> <li>ASONACOP, CECODAP, Cátedra de la Paz, EXODO, Otro Enfoque, RCDB, RELAF, UNICEF</li> <li>Cátedra de la Paz, EXODO</li> <li>ASONACOP, Cátedra de la Paz, EXODO, Tinta Violeta, UNICEF</li> <li>ALINCA, Alimenta Solidaridad, FAO, M4H, RCDB, SC</li> <li>Caritas VEN, MPPS, OPS, SALUDANZ, UNFFPA, UNICEF</li> </ul>	<p><b>Bolívar</b></p> <ul style="list-style-type: none"> <li>ACNUR, Caritas VEN, FUNDARIARTE, HIAS, OIM</li> <li>ACNUR, ALINCA, AVEC, Caritas VEN, FUNDARIARTE, M4H, NRC, OIM, Póvil Caroni, RET, UNICEF</li> <li>ACNUR, ALINCA, ASEINC, AVEC, FUNDARIARTE, FUNDAMAD, Fe y Alegria, NRC, Superatec AC, UNICEF</li> <li>ALINCA, Caritas VEN, FUNDARIARTE, INN, ISPEB, M4H, MPPS, UNICEF</li> <li>ACNUR, ALINCA, ASONACOP, CODEHCU, FUNDARIARTE, IRFA, RCDB, RELAF, UNICEF</li> <li>ACNUR, Caritas VEN, FUNDARIARTE, Fe y Alegria, HIAS, IRFA, NRC, OIM</li> <li>ACNUR, ALINCA, ASONACOP, CODEHCU, FUNDARIARTE, HIAS, IRFA, Tinta Violeta, UNFFPA, UNICEF</li> <li>ADRA CAN, ADRA VEN, ALINCA, Caritas VEN, FUNDARIARTE, M4H, NRC, OIM, RCDB, RET</li> <li>FPM, ISPEB, MPPS, ONUSIDA, OPS, RET, UNAIDS, UNICEF</li> </ul>	<p><b>Falcón</b></p> <ul style="list-style-type: none"> <li>ACNUR, CRV, CRV Falcón</li> <li>ACNUR, CEPORAJUN, Caritas VEN</li> <li>ACNUR, ASEINC, AVEC, CEPORAJUN, CRV, Fe y Alegria, Superatec AC, UNICEF</li> <li>Caritas VEN, DVC, Fe y Alegria, INN, MPPS, SDS Falcón, UNICEF</li> <li>ASONACOP, CECODAP, Derechos, UNICEF</li> <li>ACNUR, CRV, CRV Falcón</li> <li>ACNUR, ASONACOP, CRV, EXODO, HIAS, UNICEF</li> <li>Alimenta Solidaridad, CEPORAJUN, Caritas VEN, FAO</li> <li>MPPS, OPS, SDS Falcón, SPSS, Lara, UNICEF</li> </ul>	<p><b>Mérida</b></p> <ul style="list-style-type: none"> <li>ACNUR, CISP, Diócesis SC, FUNDASEN, OIM</li> <li>ACNUR, CISP, Caritas VEN, Diócesis SC, M4H, OIM, UNICEF</li> <li>ASEINC, CISP, DVC, Fe y Alegria, UNICEF</li> <li>CISP, Caritas VEN, Corporsalud Mérida, FUNDAENSALUD, INN, M4H, MPPS, UNICEF</li> <li>ASONACOP, ASOVILUZ, CISP, Cátedra de la Paz, Derechos, INTERSOS, RCDB, RELAF, UNICEF</li> <li>ACNUR, CISP, Cátedra de la Paz, FUNVAPE, INTERSOS, SWW, UNAIDS</li> <li>ACNUR, CISP, Cátedra de la Paz, INTERSOS, MUDERES, SWW, UNICEF</li> <li>CISP, Caritas VEN, Diócesis SC, FAO, INN, M4H, OIM, RCDB</li> <li>CISP, Caritas VEN, Corporsalud Mérida, MPPS, OPS, SWW, UNAIDS, UNICEF</li> </ul>	<p><b>Trujillo</b></p> <ul style="list-style-type: none"> <li>ASEINC, Fe y Alegria, Superatec AC, UNICEF</li> <li>Caritas VEN, Corporsalud, Corporsalud Mérida, INN, MPPS, SDS Trujillo, UNICEF</li> <li>RELAF, UNICEF</li> <li>HIAS</li> <li>MPPS, ONUSIDA, OPS, SDS Trujillo, UNICEF</li> </ul>	<p><b>Yaracuy</b></p> <ul style="list-style-type: none"> <li>Caritas VEN</li> <li>ASEINC, Fe y Alegria, UNICEF</li> <li>Caritas VEN, INN, MPPS, UNICEF</li> <li>Otro Enfoque, UNICEF</li> <li>Alimenta Solidaridad, Caritas VEN</li> <li>MPPS, ONUSIDA, OPS, UNICEF</li> </ul>
<p><b>Apure</b></p> <ul style="list-style-type: none"> <li>ACNUR, Caritas VEN, HIAS, OIM</li> <li>ACNUR, AVEC, CISP, Caritas VEN, FUNREAHV, HEKS, OIM, UNICEF</li> <li>ACNUR, ASEINC, AVEC, CISP, Fe y Alegria, UNICEF</li> <li>Caritas VEN, INN, UNICEF</li> <li>ACNUR, ASONACOP, CISP, INTERSOS, RELAF, UNICEF</li> <li>ACNUR, CISP, Caritas VEN, HIAS, INTERSOS, OIM</li> <li>ACNUR, ASONACOP, CISP, HIAS, INTERSOS, UNFFPA, UNIANDES, UNICEF</li> <li>CISP, Caritas VEN, HEKS, NRC, OIM</li> <li>CISP, Caritas VEN, MPPS, OPS, UNICEF</li> </ul>	<p><b>Carabobo</b></p> <ul style="list-style-type: none"> <li>ACNUR, Vivienda Popular</li> <li>ACH, ACNUR, CESAP, Caritas VEN, FUDEF, ASEINC, Fe y Alegria, UNICEF</li> <li>ACH, CESAP, Caritas VEN, Fe y Alegria, INN, MPPS, UNICEF</li> <li>ACNUR, ASONACOP, ASOVILUZ, CECODAP, Derechos, Otro Enfoque, RCDB, UNICEF</li> <li>ACNUR, Consoven, FUNVAPE, Vivienda Popular</li> <li>ACH, ACNUR, ASONACOP, Aliadas en Cadena, FPM, Tinta Violeta, UNICEF</li> <li>ACH, Alimenta Solidaridad, CESAP, Caritas VEN, FAO, RCDB</li> <li>Caritas VEN, MPPS, OPS, UNFFPA, UNICEF</li> </ul>	<p><b>Guárico</b></p> <ul style="list-style-type: none"> <li>ACH, FUDEF, M4H</li> <li>ASEINC</li> <li>INN, M4H, MPPS, UNICEF</li> <li>Otro Enfoque, RELAF, UNICEF</li> <li>ACH, FAO, FUDEF, M4H</li> <li>MPPS, OPS, UNICEF</li> </ul>	<p><b>Miranda</b></p> <ul style="list-style-type: none"> <li>ACNUR, Fogones y Bandera, TECHO, Vivienda Popular</li> <li>ACH, ACNUR, ACTED, ADRA VEN, Afroamiga, CESAP, CF, COOPI, DVC, FUDEF, FUNDANIL, FUNDANA, HEKS, M4H, Otro Enfoque, Póvil Miranda, Proyecto Esperanza, RET, Sociedad Ético Cultural, TECHO, UNICEF</li> <li>ACNUR, AHPV, ASEINC, AVEC, Afroamiga, CF, FUNDAMAD, Fe y Alegria, Fogones y Bandera, Luz y Vida, SC, Superatec AC, UNICEF</li> <li>ACH, Afroamiga, Alimenta Solidaridad, CESAP, Caritas VEN, DVC, FUNDAENSALUD, FUNDANA, Fe y Alegria, INN, MPPS, Otro Enfoque, SC, UNICEF</li> <li>ACNUR, ASONACOP, ASOVILUZ, Afroamiga, CECODAP, Caca Umirame, Derechos, FUNDANIL, FUNDANA, Fe y Alegria, Luz y Vida, Otro Enfoque, RCDB, RELAF, SC, SDS Aldeas Infantiles, Tinta Violeta, UNICEF</li> <li>ACNUR, Consoven, FUNVAPE, Fogones y Bandera, FundAFID, HIAS, Luz y Vida, MPPS, ONUSIDA, UNAIDS, Vivienda Popular</li> <li>ACH, ACNUR, ACTED, ASONACOP, Afroamiga, Aliadas en Cadena, CESVI, Caca Umirame, EXODO, FCI, FPM, FUNDANIL, FUNDANA, HIAS, Luz y Vida, MUDERES, PLAFAM, SC, SDS Aldeas Infantiles, Tinta Violeta, UNFFPA, UNIANDES, UNICEF</li> <li>ACH, ACTED, AHPV, Acción Campesina, Alimenta Solidaridad, CESAP, Caritas VEN, EDEPA, FAO, Fe y Alegria, HEKS, HI, M4H, RCDB, SC, Sociedad Ético Cultural, TECHO</li> <li>Caritas VEN, FundAFID, IMC, MPPS, MPPS, Miranda, ONUSIDA, OPS, RET, UNAIDS, UNFFPA, UNICEF</li> </ul>	<p><b>Portuguesa</b></p> <ul style="list-style-type: none"> <li>ACNUR</li> <li>Caritas VEN, M4H</li> <li>FUNDAMAD, Fe y Alegria, UNICEF</li> <li>Caritas VEN, Corporsalud, Fe y Alegria, INN, M4H, MPPS, UNICEF</li> <li>ASOVILUZ, CECODAP, RELAF, UNICEF</li> <li>ACNUR, Consoven, FUNVAPE</li> <li>Caritas VEN, FAO, INN, M4H, NRC, OIM</li> <li>MPPS, ONUSIDA, OPS, UNAIDS, UNICEF</li> </ul>	<p><b>Zulia</b></p> <ul style="list-style-type: none"> <li>ACNUR, CRV, Caritas VEN, OIM, TECHO</li> <li>ACH, ACNUR, CEPIN, Caritas VEN, DVC, FUDEF, Fe y Alegria, M4H, NRC, OIM, PALUZ, RET, SC, UNICEF</li> <li>ACNUR, ASEINC, AVEC, CEPIN, CRV, Fe y Alegria, OIM, Plan, RET, SC, Superatec AC, UNICEF</li> <li>ACH, Alcaldía de Maracabo, Alimenta Solidaridad, CEPIN, Caritas VEN, Corporsalud, Corporsalud Mérida, DVC, Fe y Alegria, Funsamar, INN, M4H, MPPS, Malteser International, PALUZ, SAEZ, SAHEP, SC, UNICEF</li> <li>ACNUR, ASONACOP, CECODAP, CEPIN, Derechos, FCB, FRF, Fe y Alegria, IRFA, Otro Enfoque, RELAF, Rehabilitarte, SC, SDS Aldeas Infantiles, UNICEF</li> <li>ACNUR, Aliadas en Cadena, CRV, Caritas VEN, FCB, FRF, FUNVAPE, Fe y Alegria, HIAS, IRFA, NRC, OIM</li> <li>ACH, ACNUR, ASONACOP, Aliadas en Cadena, EXODO, FPM, HIAS, IRFA, S.J.R. Soy un Guardian, Tinta Violeta, UNFFPA, UNICEF</li> <li>ACH, Alimenta Solidaridad, CRV, Caritas VEN, FUDEF, Fe y Alegria, HI, HIAS, M4H, Mercy Corps, OIM, RET, SC</li> <li>Atrevanzando, CRV, Caritas VEN, MPPS, Malteser International, OIM, OPS, SAEZ, SAHEP, UNFFPA, UNICEF</li> </ul>
<p><b>Aragua</b></p> <ul style="list-style-type: none"> <li>ACNUR</li> <li>ACH, ACNUR, Caritas VEN, FUDEF</li> <li>ASEINC, Fe y Alegria, SC, Superatec AC, UNICEF</li> <li>ACH, Alimenta Solidaridad, CESAP, Caritas VEN, Fe y Alegria, INN, SC, UNICEF</li> <li>ASONACOP, ASOVILUZ, CECODAP, Derechos, Fe y Alegria, Otro Enfoque, RELAF, SC, SDS Aldeas Infantiles, UNICEF</li> <li>FUNVAPE</li> <li>ASONACOP, Alimenta Solidaridad, SOS Aldeas Infantiles, UNICEF</li> <li>Alimenta Solidaridad, FAO, SC</li> <li>MPPS, ONUSIDA, OPS, UNAIDS, UNICEF</li> </ul>	<p><b>Cojedes</b></p> <ul style="list-style-type: none"> <li>ASEINC</li> <li>Caritas VEN, INN, MPPS, UNICEF</li> <li>CECODAP, RELAF, UNICEF</li> <li>MPPS, ONUSIDA, OPS, UNAIDS, UNICEF</li> </ul>	<p><b>La Guaira</b></p> <ul style="list-style-type: none"> <li>ACNUR, Vivienda Popular</li> <li>ACNUR, Caritas VEN, DVC, Proyecto Esperanza, UNICEF</li> <li>Fe y Alegria, Superatec AC, UNICEF</li> <li>Caritas VEN, DVC, Fe y Alegria, INN, MPPS, UNICEF</li> <li>ACNUR, ASONACOP, ASOVILUZ, Otro Enfoque, RELAF, UNICEF</li> <li>ACNUR, FUNVAPE, Vivienda Popular</li> <li>ACNUR, ASONACOP, HIAS, UNICEF</li> <li>Alimenta Solidaridad, CESAP, Caritas VEN</li> <li>Caritas VEN, IMC, MPPS, MPPS La Guaira, OPS, UNICEF</li> </ul>	<p><b>Sucre</b></p> <ul style="list-style-type: none"> <li>ACNUR, Caritas VEN, OIM</li> <li>ACNUR, Caritas VEN, OIM</li> <li>ACNUR, ASEINC, AVEC, FUNDAMAD, Fe y Alegria, UNICEF</li> <li>ALINCA, Caritas Cariaco, Caritas VEN, FUNDAENSALUD, FUNDASALUD, INN, MPPS, UNICEF</li> <li>ASONACOP, ASOVILUZ, UNICEF</li> <li>ACNUR, Caritas VEN, Consoven, FUNVAPE, OIM</li> <li>ASONACOP, MUDERES, UNICEF</li> <li>ALINCA, Acción Campesina, Alimenta Solidaridad, Caritas VEN, OIM</li> <li>Caritas VEN, FUNDASALUD, IMC, MPPS, ONUSIDA, OPS, UNAIDS, UNICEF</li> </ul>	<p><b>Táchira</b></p> <ul style="list-style-type: none"> <li>ACNUR, CISP, Diócesis SC, FUNDASEN, HIAS, NRC, OIM, S.J.R.</li> <li>ACNUR, AVEC, CISP, Diócesis SC, FINAMPYME, FUNREAHV, Hidroven, NRC, OIM, RET, S.J.R., UNICEF</li> <li>ASEINC, AVEC, CF, CISP, Diócesis SC, Fe y Alegria, OIM, Plan, RET, UNICEF</li> <li>Alimenta Solidaridad, CISP, Corporsalud Mérida, Corporsalud Táchira, INN, INTERSOS, MPPS, SC, UNICEF</li> <li>ACNUR, ASEINC, ASONACOP, CECODAP, CISP, Derechos, INTERSOS, RCDB, RELAF, Rescate, S.J.R., UNICEF</li> <li>ACNUR, CISP, Diócesis SC, HIAS, INTERSOS, NRC, OIM, ONUSIDA, S.J.R., SWW, UNAIDS</li> <li>ACNUR, ASONACOP, CISP, HIAS, INTERSOS, S.J.R., SWW, UNFFPA, UNIANDES, UNICEF</li> <li>Alimenta Solidaridad, CISP, Diócesis SC, OIM,</li> </ul>	
<p><b>Barinas</b></p> <ul style="list-style-type: none"> <li>ACNUR, HIAS</li> <li>ACNUR, CISP, Caritas VEN</li> <li>ASEINC, Caritas VEN, FUNDAMAD, Fe y Alegria, OIM, Superatec AC, UNICEF</li> <li>Caritas VEN, DRSalud Barinas, FUNDEHULLAN, Fe y Alegria, INN, MPPS, UNICEF</li> <li>CISP, INTERSOS, Otro Enfoque, UNICEF</li> </ul>	<p><b>Distrito Capital</b></p> <ul style="list-style-type: none"> <li>ACNUR, Vivienda Popular</li> <li>ACH, ACNUR, ACTED, ADRA, ADRA VEN, CESAP, COOPI, Caritas VEN, DVC, FUDEF, FUNDANIL, FUNDANA, HEKS, COIUD, Otro Enfoque, Proyecto Esperanza, REDISALUD, Sociedad Ético Cultural, UNICEF</li> </ul>	<p><b>Lara</b></p> <ul style="list-style-type: none"> <li>ADRA, ADRA VEN, COOPI, Caritas VEN, HEKS, M4H, PALUZ, Sociedad Ético Cultural, UNICEF</li> <li>AHPV, ASEINC, Fe y Alegria, SC, Superatec AC, UNICEF</li> </ul>	<p><b>Nueva Esparta</b></p> <ul style="list-style-type: none"> <li>UNICEF</li> <li>FUNDAMAD, Superatec AC, UNICEF</li> <li>ALINCA, INN, UNICEF</li> <li>CECODAP, Otro Enfoque, RELAF, UNICEF</li> <li>ALINCA</li> <li>MPPS, ONUSIDA, OPS, UNAIDS, UNICEF</li> </ul>	<p><b>Portuguesa</b></p> <ul style="list-style-type: none"> <li>ACNUR</li> <li>Caritas VEN, M4H</li> <li>FUNDAMAD, Fe y Alegria, UNICEF</li> <li>Caritas VEN, Corporsalud, Fe y Alegria, INN, M4H, MPPS, UNICEF</li> <li>ASOVILUZ, CECODAP, RELAF, UNICEF</li> <li>ACNUR, Consoven, FUNVAPE</li> <li>Caritas VEN, FAO, INN, M4H, NRC, OIM</li> <li>MPPS, ONUSIDA, OPS, UNAIDS, UNICEF</li> </ul>	



## ORGANIZACIONES POR CLÚSTER / ADR Y ESTADO

	Alojamiento, Energía y Enseres	Agua, Saneamiento e Higiene	Educación	Nutrición	Protección General	Protección AdR NNA	Protección AdR VbG	Seguridad Alimentaria y Medios de Vida	Salud	Total por Estado
Amazonas		3	3	2	2	2	4		3	11
Anzoátegui	1	7	5	10	10	2	6	7	3	28
Apure	4	8	6	3	6	6	8	5	2	20
Aragua	1	4	5	8	11	1	5	3	2	25
Barinas	2	3	7	7	5	10	4	6	3	22
Bolívar	5	11	10	8	9	8	10	11	3	32
Carabobo	2	5	3	7	9	4	8	6	2	26
Cojedes			1	4	3				2	8
Delta Amacuro		2	5	3	4	2	3	1	3	12
Distrito Capital	2	19	8	17	19	8	20	15	3	60
Falcón	3	4	8	7	4	3	6	4	4	23
Guárico		3	1	4	4			4	2	13
La Guaira	2	5	3	6	6	3	4	3	3	19
Lara		9	6	11	10	3	7	10	4	33
Mérida	5	7	5	8	10	7	8	8	3	29
Miranda	4	21	13	15	19	11	24	18	3	69
Monagas		2	3	3	5		2	2	2	11
Nueva Esparta		1	3	3	4			1	3	9
Portuguesa	1	2	3	7	4	3		6	2	18
Sucre	3	3	6	8	4	5	4	5	3	24
Táchira	8	12	10	10	13	11	11	6	4	40
Trujillo			4	7	3	1			4	15
Yaracuy		1	3	4	2			2	2	9
Zulia	5	14	12	19	16	12	14	13	4	54
	15	46	28	45	40	31	39	36	19	134

# Annex 2: LiST Model Impact Pathways and Model Rationale

## Impact Pathways

FIGURE 1: INTERVENTIONS FOR REDUCTION OF MATERNAL DEATHS

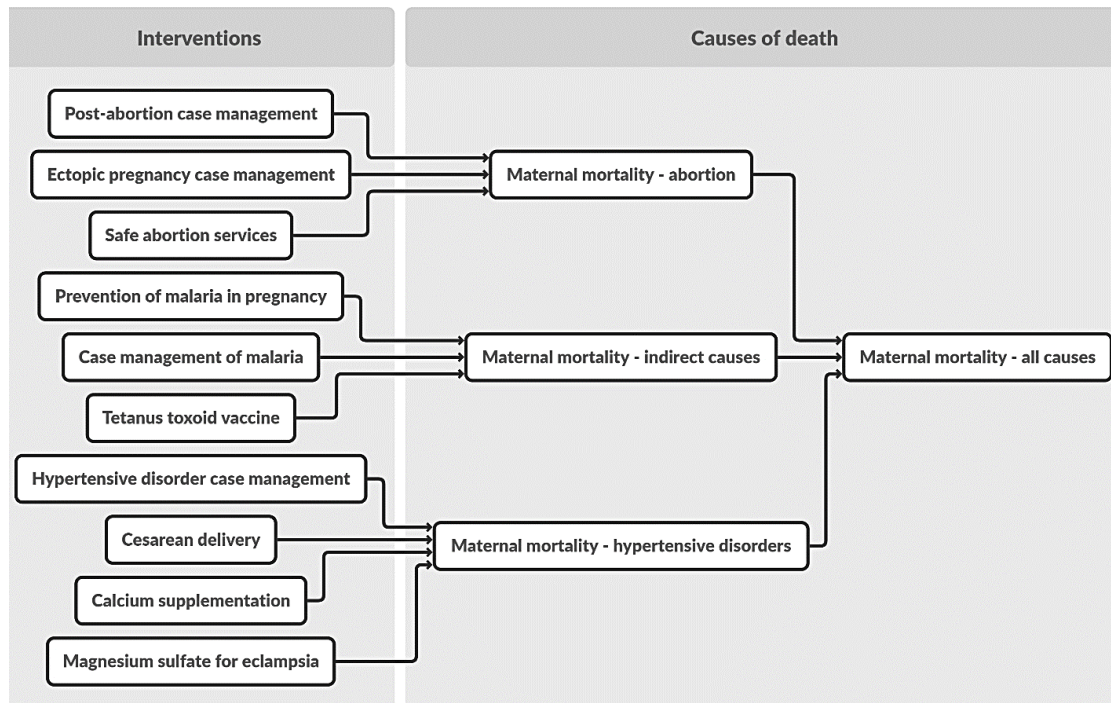
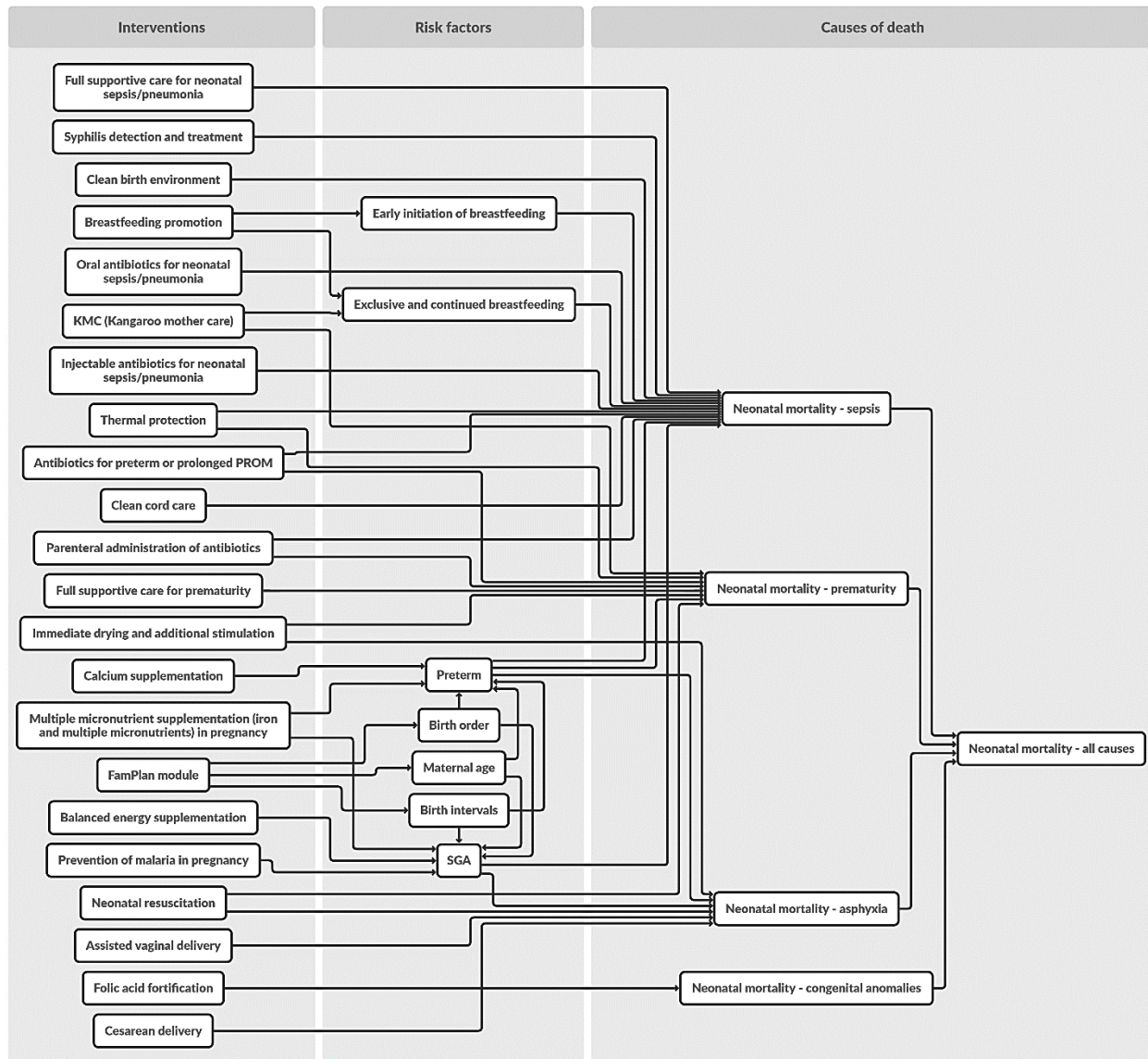
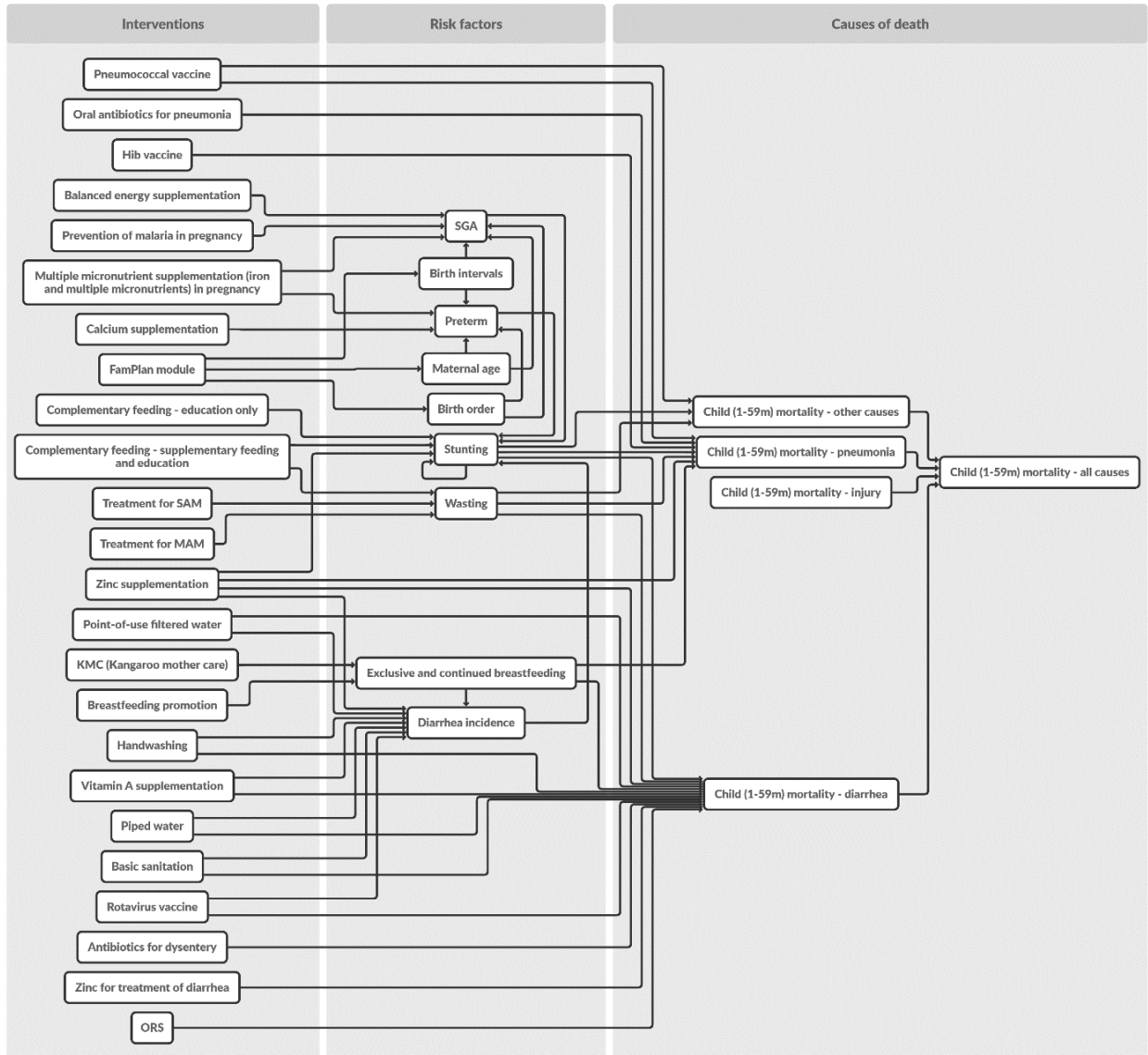


FIGURE 2: INTERVENTIONS FOR REDUCTION OF NEONATAL DEATHS



**FIGURE 3: INTERVENTIONS FOR REDUCTION OF CHILD DEATHS, 1-59 MONTHS OF AGE**





## Rationale for the Different Model Scenarios

### BASELINE

Rationale: The level of coverage for all interventions remains unchanged. This is the default counterfactual used to understand if no efforts were invested.

PERIOD	INTERVENTION
NA	NA

### NUTRITION INTERVENTION MODEL

Rationale: This model examines the impact of scaling up key interventions focused on improving nutrition.

PERIOD	INTERVENTION
Periconceptual	Folic acid fortification Iron fortification
Prenatal	Calcium supplementation Iron supplementation in pregnancy Multiple micronutrient supplementation in pregnancy Balanced energy supplementation
Postnatal	Promotion of breastfeeding
Infancy	Complementary feeding - education only Complementary feeding - supplementary feeding and education
Preventive	Vitamin A supplementation Zinc supplementation
Curative/Treatment	Zinc for treatment of diarrhea Vitamin A for treatment of measles

### MATERNAL HEALTH MODEL

Rationale: This model increases coverage of all interventions for maternal health which includes antepartum care (to reduce neonatal mortality) and intrapartum care (for maternal mortality) with coverage reaching 90% in 2030 as the targets.

PERIOD	INTERVENTION
Periconceptual	Folic acid fortification Safe abortion services Post abortion case management Ectopic pregnancy case management Iron fortification
Prenatal	TT - Tetanus toxoid vaccination Syphilis detection and treatment Calcium supplementation Iron supplementation in pregnancy Multiple micronutrient supplementation in pregnancy Balanced energy supplementation Hypertensive disorder case management Diabetes case management



Childbirth	Clean birth environment Immediate drying and additional stimulation Thermal protection Clean cord care MgSO <sub>4</sub> for eclampsia Antibiotics for preterm or prolonged PROM Parenteral administration of antibiotics Assisted vaginal delivery Parenteral administration of uterotonics Manual removal of placenta Removal of retained products of conception Induction of labor for pregnancies lasting 41+ weeks Cesarean delivery Blood transfusion
Curative/Treatment	Maternal sepsis case management

### VACCINES MODEL

Rationale: This model examines the impact that bolstering immunization alone could have on child health outcomes.

PERIOD	INTERVENTION
Immunization	DPT; Three doses H. influenzae type b; Three doses HepB; Three doses Pneumococcal; Three doses Rotavirus; Two doses Meningococcal A; Single dose Malaria vaccine; Three doses Measles; Single dose

### CHW/iCCM+ MODEL

Rationale: This model examines the impact of scaling up key interventions which could be delivered by community health workers as an alternative to facility-centered care. The list is extended somewhat beyond the typical interventions promoted as part of the traditional Integrated Community Case Management (iCCM) platform.

PERIOD	INTERVENTION
Prenatal	Calcium supplementation Iron supplementation in pregnancy Multiple micronutrient supplementation in pregnancy Balanced energy supplementation MgSO <sub>4</sub> for eclampsia Parenteral administration of uterotonics
Postnatal	Promotion of breastfeeding
Infancy	Complementary feeding - education only Complementary feeding - supplementary feeding and education
Preventive	Vitamin A supplementation Zinc supplementation ITN/IRS - Households protected from malaria
Curative/Treatment	Maternal sepsis case management ORS - oral rehydration solution Antibiotics for treatment of dysentery Zinc for treatment of diarrhea Oral antibiotics for pneumonia Vitamin A for treatment of measles ACTs- Artemisinin compounds for treatment of malaria

**SDG MODEL**

Rationale: This model increases coverage of all available interventions to universal coverage (90%) to see how much progress COULD be made toward 2030 SDG targets.

PERIOD	INTERVENTION
Periconceptual	Folic acid fortification Safe abortion services Post abortion case management Ectopic pregnancy case management Iron fortification
Prenatal	TT - Tetanus toxoid vaccination Syphilis detection and treatment Calcium supplementation Iron supplementation in pregnancy Multiple micronutrient supplementation in pregnancy Balanced energy supplementation Hypertensive disorder case management Diabetes case management
Childbirth	Clean birth environment Immediate drying and additional stimulation Thermal protection Clean cord care MgSO <sub>4</sub> for eclampsia Antibiotics for preterm or prolonged PROM Parenteral administration of antibiotics Assisted vaginal delivery Parenteral administration of uterotonics Manual removal of placenta Removal of retained products of conception Induction of labor for pregnancies lasting 41+ weeks Cesarean delivery Blood transfusion
Postnatal	Neonatal resuscitation Full supportive care for prematurity Full supportive care for neonatal sepsis/pneumonia Promotion of breastfeeding
Infancy	Complementary feeding - education only Complementary feeding - supplementary feeding and education
Immunization	DPT vaccine; Three doses H. influenzae type b vaccine; Three doses HepB vaccine; Three doses Pneumococcal vaccine; Three doses Rotavirus vaccine; Two doses Meningococcal A vaccine; Single dose Malaria vaccine; Three doses Measles vaccine; Single dose
WASH	Basic sanitation Point-of-use filtered water Piped water Hand washing with soap Hygienic disposal of children's stools
Preventive	ITN/IRS - Households protected from malaria Vitamin A supplementation Zinc supplementation

Curative/Treatment	Maternal sepsis case management ORS - oral rehydration solution Antibiotics for treatment of dysentery Zinc for treatment of diarrhea Oral antibiotics for pneumonia Vitamin A for treatment of measles ACTs- Artemisinin compounds for treatment of malaria
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## References

- <sup>1</sup> Refugees and Migrants from Venezuela [Internet]. Regional Inter-Agency Coordination Platform for Refugees and Migrants from Venezuela. 2021. Available at: <https://www.r4v.info/en/refugeeandmigrants>
- <sup>2</sup> Page KR, Doocy S, Reyna Ganteaume F, Castro JS, Spiegel P, Beyrer C. Venezuela's public health crisis: a regional emergency. *Lancet*. 2019;393(10177):1254-1260.
- <sup>3</sup> Garcia J, Correa G, Rousset B. Trends in infant mortality in Venezuela between 1985 and 2016: a systematic analysis of demographic data. *Lancet Glob Health*. 2019;7(3):e331-e336.
- <sup>4</sup> Grillet ME, Hernandez-Villena JV, Llewellyn MS, et al. Venezuela's humanitarian crisis, resurgence of vector-borne diseases, and implications for spillover in the region. *Lancet Infect Dis*. 2019;19(5):e149-e161.
- <sup>5</sup> Doocy S, Page KR, de la Hoz F, Spiegel P, Beyrer C. Venezuelan Migration and the Border Health Crisis in Colombia and Brazil. *Journal on Migration and Human Security*, 2019. <https://doi.org/10.1177/2331502419860138>
- <sup>6</sup> UN News. One in three Venezuelans not getting enough to eat. February 2020. Available at: <https://news.un.org/en/story/2020/02/1058051>.
- <sup>7</sup> PAHO WHO. PAHO's response to maintaining an effective technical cooperation agenda in Venezuela and neighboring member states. 162nd Session of the Executive Committee; June 18-22, 2018; Washington, D.C., USA 2018. Available at: [https://www.paho.org/hq/index.php?option=com\\_docman&view=download&category\\_slug=162-en-9841&alias=45491-ce162-inf-22-epaho-tc-respond-491&Itemid=270&lang=en](https://www.paho.org/hq/index.php?option=com_docman&view=download&category_slug=162-en-9841&alias=45491-ce162-inf-22-epaho-tc-respond-491&Itemid=270&lang=en).
- <sup>8</sup> Emergencia Humanitaria Compleja en Venezuela-Derecho al Agua. October 2018. Available at <https://cepaz.org/wp-content/uploads/2018/11/Reporte-Nacional-EHC-y-Derecho-al-Agua-October-2018-1.pdf>.
- <sup>9</sup> Venezuela (Bolivarian Republic of) [Internet]. World Health Organization. 2021. Available at: <https://covid19.who.int/region/amro/country/ve>.
- <sup>10</sup> Taylor L. Covid-19: Venezuela's doctors refuse to be gagged. *BMJ*. 2020;371:m3938.
- <sup>11</sup> Life Expectancy at birth, total (years) - Venezuela, RB [Internet]. The World Bank. 2019. Available at: <https://data.worldbank.org/indicator/SP.DYN.LE00.IN?locations=VE>.
- <sup>12</sup> Report on the Situation of Malaria in the Americas. Regional Malaria Program, PAHO; 2017. Available at: <https://www.paho.org/en/node/57635>
- <sup>13</sup> Women on the Edge 2019: Women's Rights in the Face of the Worsening Complex Humanitarian Emergency in Venezuela. Caracas, Venezuela: Asociación Civil Mujeres en Línea, Asociación Venezolana para una Educación Sexual Alternativa (AVESA), Centro de Justicia y Paz (CEPAZ), Centro Hispanoamericano de la Mujer FREYA; May 2019.
- <sup>14</sup> Gobierno Bolivariano de Venezuela. Boletín epidemiológico, semana epidemiológica 52. December 2016. Available at: <https://www.ovsalud.org/descargas/publicaciones/documentos-oficiales/Boletin-Epidemiologico-2016.pdf> (accessed Nov 29, 2018).
- <sup>15</sup> Venezuela (Bolivarian Republic of) [Internet]. UN Inter-agency Group for Child Mortality Estimation 2020. Available at: [https://childmortality.org/data/Venezuela%20\(Bolivarian%20Republic%20of\)](https://childmortality.org/data/Venezuela%20(Bolivarian%20Republic%20of)).
- <sup>16</sup> Encuesta Nacional de Condiciones de Vida. Caracas, Venezuela: UCAB Instituto de Investigaciones Económicas y Sociales (IIES); 2020.
- <sup>17</sup> Liu L, Oza S, Hogan D, et al. Global, regional, and national causes of under-5 mortality in 2000-15: an updated systematic analysis with implications for the Sustainable Development Goals. *Lancet* 2016. Available at: <https://www.ncbi.nlm.nih.gov/pubmed/27839855>.
- <sup>18</sup> The Global Health Observatory. Maternal and Child Health and Health Financing Indicators: Venezuela (Bolivarian Republic of) [Internet]. World Health Organization. 2019. Available at: [https://www.who.int/data/gho/data/countries/country-details/GHO/venezuela-\(bolivarian-republic-of\)?countryProfileId=4a40ac55-971f-412f-ad07-5e9b669a3de0](https://www.who.int/data/gho/data/countries/country-details/GHO/venezuela-(bolivarian-republic-of)?countryProfileId=4a40ac55-971f-412f-ad07-5e9b669a3de0).
- <sup>19</sup> UNFPA. Humanitarian Response in Venezuela. UNFPA; 2021. Available at: [https://reliefweb.int/sites/reliefweb.int/files/resources/2021\\_unfpa\\_humanitarian\\_plan\\_in\\_venezuela\\_.pdf](https://reliefweb.int/sites/reliefweb.int/files/resources/2021_unfpa_humanitarian_plan_in_venezuela_.pdf)
- <sup>20</sup> Say L, Chou D, Gemmill A, et al. Global causes of maternal death: A WHO systematic analysis. *Lancet Global Health* 2014; 2(6): e323-33.

- 21 Turkewitz, J., *Childbirth in Venezuela, Where Women's Deaths Are a State Secret*, in *The New York Times*. 2020.
- 22 Martinez M. Inside the Colombian 'war hospital' treating Venezuela's pregnancy crisis 27 November 2019. Available at: <https://www.thenewhumanitarian.org/news-feature/2019/11/27/Venezuela-Colombia-pregnant-women-birth-reproductive-rights-migration-Cucuta-maternal-care-migrants-refugees>.
- 23 Romo A. Pregnant women flee lack of maternal health care in Venezuela 23 July 2019. Available at: <https://www.unhcr.org/en-us/news/stories/2019/7/5d3723374/pregnant-women-flee-lack-maternal-health-care-venezuela.html>.
- 24 Global Health Estimates 2019: Deaths by Cause, Age, Sex, by Country and by Region, 2000-2019. Geneva, World Health Organization; 2020.
- 25 Venezuela (Bolivarian Republic of) [Internet]. IHME. 2020. Available at: <http://www.healthdata.org/venezuela>.
- 26 WHO Vaccine-Preventable Diseases: Monitoring System. 2020 Global Summary [Internet]. World Health Organization. 2020. Available at: [https://apps.who.int/immunization\\_monitoring/globalsummary/countries?countrycriteria%5Bcountry%5D%5B%5D=VEN&commit=OK](https://apps.who.int/immunization_monitoring/globalsummary/countries?countrycriteria%5Bcountry%5D%5B%5D=VEN&commit=OK).
- 27 Paniz-Mondolfi AE, Tami A, Grillet ME, et al. Resurgence of Vaccine-Preventable Diseases in Venezuela as a Regional Public Health Threat in the Americas. *Emerg Infect Dis*. 2019;25(4):625-632.
- 28 PAHO. Epidemiological Update Diphtheria 22 September 2020. Available at: [https://iris.paho.org/bitstream/handle/10665.2/53106/EpiUpdate22September2020\\_eng.pdf?sequence=1&isAllowed=y](https://iris.paho.org/bitstream/handle/10665.2/53106/EpiUpdate22September2020_eng.pdf?sequence=1&isAllowed=y).
- 29 PAHO. Epidemiological Update Measles and Diphtheria. 1 February 2021. Available at: [https://iris.paho.org/bitstream/handle/10665.2/53240/EpiUpdate1February2021\\_eng.pdf?sequence=1&isAllowed=y](https://iris.paho.org/bitstream/handle/10665.2/53240/EpiUpdate1February2021_eng.pdf?sequence=1&isAllowed=y).
- 30 PAHO. Epidemiological Update Diphtheria 25 June 2021. Available at: <https://iris.paho.org/handle/10665.2/50483>.
- 31 PAHO. Measles Outbreak in Venezuela is Under Control. Jan. 2020. Available at: [https://www3.paho.org/hq/index.php?option=com\\_content&view=article&id=15705:measles-outbreak-in-venezuela-is-under-control&Itemid=1926&lang=en](https://www3.paho.org/hq/index.php?option=com_content&view=article&id=15705:measles-outbreak-in-venezuela-is-under-control&Itemid=1926&lang=en).
- 32 PAHO. Epidemiological Update Measles 1 March 2021. Available at: [https://iris.paho.org/bitstream/handle/10665.2/53379/EpiUpdate1March2021\\_eng.pdf?sequence=1&isAllowed=y](https://iris.paho.org/bitstream/handle/10665.2/53379/EpiUpdate1March2021_eng.pdf?sequence=1&isAllowed=y).
- 33 Grillet ME, Moreno JE, Hernandez-Villena JV, et al. Malaria in Southern Venezuela: The hottest hotspot in Latin America. *PLoS Negl Trop Dis*. 2021;15(1):e0008211
- 34 Report on the Situation of Malaria in the Americas. Regional Malaria Program, PAHO; 2017.
- 35 PAHO. Malaria Epidemiologic Update. June 2020. Available at: <https://www.paho.org/en/documents/epidemiological-update-malaria-10-june-2020>.
- 36 UNAIDS. Venezuela Country Overview. 2020. Available at: <https://www.unaids.org/en/regionscountries/countries/venezuela>.
- 37 UNAIDS. 90-90-90: An Ambitious Treatment Target to Help End the AIDS Epidemic. Available at: <https://www.unaids.org/en/90-90-90>.
- 38 PAHO, WHO, UNAIDS, Gobierno Bolivariano de Venezuela. Plan Maestro para el fortalecimiento de la respuesta al VIH, la tuberculosis y la malaria en la República Bolivariana de Venezuela desde una perspectiva de salud pública. Available at: [https://www.paho.org/disasters/dmdocuments/Plan%20Maestro\\_VIH\\_TB%20MAL%202018%20VEN.PDF](https://www.paho.org/disasters/dmdocuments/Plan%20Maestro_VIH_TB%20MAL%202018%20VEN.PDF)
- 39 Incidence of tuberculosis (per 100,000 people) – Venezuela, RB [Internet]. The World Bank. Available at: [https://data.worldbank.org/indicator/SH.TBS.INCD?locations=VE&name\\_desc=false](https://data.worldbank.org/indicator/SH.TBS.INCD?locations=VE&name_desc=false).
- 40 Ranzani OT, Pescarini JM, Martinez L, Garcia-Basteiro AL. Increasing tuberculosis burden in Latin America: an alarming trend for global control efforts. *BMJ Glob Health*. 2021;6(3).
- 41 Arenas-Suarez NE, Cuervo LI, Avila EF, Duitama-Leal A, Pineda-Pena AC. The impact of immigration on tuberculosis and HIV burden between Colombia and Venezuela and across frontier regions. *Cad Saude Publica*. 2021;37(5):e00078820
- 42 Taylor L. The Venezuelan health-care workers secretly collecting COVID stats. *Nature*. 2021;597(7874):20-21.
- 43 Taylor L. Covid-19: Venezuela's doctors refuse to be gagged. *BMJ*. 2020;371:m3938.
- 44 PAHO. Epidemiological Update Coronavirus disease (COVID-19). 21 August 2021. Available at: [https://iris.paho.org/bitstream/handle/10665.2/54717/EpiUpdate21August2021\\_eng.pdf?sequence=1&isAllowed=y](https://iris.paho.org/bitstream/handle/10665.2/54717/EpiUpdate21August2021_eng.pdf?sequence=1&isAllowed=y)
- 45 Medicos Unidos Venezuela. <https://twitter.com/MedicosUnidosVe/status/1359897361636610048> / 3.



- <sup>46</sup> Medicos Unidos Venezuela. <https://twitter.com/medicosunidosve/status/1437821124755312647?s=24>.
- <sup>47</sup> Our World in Data. University of Oxford. GCDL. Available at [https://ourworldindata.org/covid-vaccinations?country=OWID\\_WRL](https://ourworldindata.org/covid-vaccinations?country=OWID_WRL).
- <sup>48</sup> Berg R, Schulz J. Venezuela Is Without a Vaccination Plan Foreign Affairs. 29 July 2021 Available at: <https://foreignpolicy.com/2021/07/29/venezuela-vaccines-covid-pandemic-maduro-protest/>.
- <sup>49</sup> PAHO. First COVAX shipment of COVID-19 vaccines arrives in Venezuela. 7 September 2021. Available at: <https://www.paho.org/en/news/7-9-2021-first-covax-shipment-covid-19-vaccines-arrives-venezuela>.
- <sup>50</sup> Observatorio Venezolano de Servicios Públicos. OVSP. 2020. Available at: <https://www.observatoriovsp.org/ovsp-756-de-los-usuarios-que-opinaron-negativamente-sobre-el-servicio-de-agua-lo-hicieron-por-la-inconstancia-o-la-falta-del-suministro/>.
- <sup>51</sup> HumVen. Impacto de la Emergencia Compleja Humanitaria en Venezuela con la Pandemia de COVID. June 2021. Available at: <https://humvenezuela.com/wp-content/uploads/2021/09/Informe-HumVenezuela-junio-2021.pdf>.
- <sup>52</sup> Encuesta Nacional de la ONG Medicos Unidos de Venezuela sobre Capacidades del Sistema de Salud para Afrontar la Posible Epidemia de Covid-19 en Nuestro País. 8 March 2020.
- <sup>53</sup> Medicos por la Salud. Encuesta Nacional de Hospitales 2019. Available at: [https://2479be6a-2e67-48df-9858-103ea763ef46.filesusr.com/ugd/0f3ae5\\_bb11695325ef4dde8026e9cd5409298d.pdf](https://2479be6a-2e67-48df-9858-103ea763ef46.filesusr.com/ugd/0f3ae5_bb11695325ef4dde8026e9cd5409298d.pdf)
- <sup>54</sup> Souquett Gil M. More than 4,000 people died due to lack of medicine and equipment in hospitals, according to the ENH 2019. Available at: <https://efectococuyo.com/salud/mas-de-4-000-personas-murieron-por-falta-de-medicinas-y-equipos-en-hospitales-segun-la-enh-2019/>
- <sup>55</sup> Schulman S. Venezuela's doctors and patients share tales of despair and dismay. 5 December 2018. Available from: <https://www.thenewhumanitarian.org/special-report/2018/12/05/venezuela-health-crisis-doctors-and-patients-share-tales-despair-and-dismay>.
- <sup>56</sup> France24 News. More than half Venezuela's doctors emigrated since 2012: NGOs. 2018. Available at: <https://www.france24.com/en/20181011-more-half-venezuelas-doctors-emigrated-2012-ngos>.
- <sup>57</sup> The International Committee of the Red Cross. Venezuela: making access to healthcare a priority. 18 September 2019. Available at: <https://www.icrc.org/en/document/venezuela-making-access-health-care-priority>.
- <sup>58</sup> Portillo Z. Venezuela: science 'brain drain' threatens future of research. 2019. Available at: <https://www.scidev.net/global/news/venezuela-science-brain-drain-threatens-future-of-research/>.
- <sup>59</sup> Sinovsky NS. Trasplantes de organos en Venezuela: de un orgullo a una tragedia [Internet]. 2020. (Accion Solidaria). Available at: <https://accionesolidaria.info/articulo08/>
- <sup>60</sup> CEPAZ. A 4 anos de la suspension del Programa de Procura de Organos y Trasplantes en Venezuela [Internet]. Jun 1, 2021. Available at: [https://cepaz.org/documentos\\_informes/a-4-anos-de-la-suspension-del-programa-de-procura-de-organos-y-trasplantes-en-venezuela/](https://cepaz.org/documentos_informes/a-4-anos-de-la-suspension-del-programa-de-procura-de-organos-y-trasplantes-en-venezuela/)
- <sup>61</sup> Informe sobre el Impacto de la Suspension del Programa de Procura de Organos (SPOT) y los Trasplantes de Medula Osea en los Ninos, Ninas y Adolescentes en Venezuela [Internet]. Caracas, Venezuela; 2021 Aug. (Prepara Familia). Available at: <https://preparafamilia.org/wp-content/uploads/2021/09/Informe-sobre-el-Impacto-de-la-Suspensio%CC%81n-del-Programa-de-Procura-de-O%CC%81rganos-y-Los-Trasplantes-de-Me%CC%81dula-O%CC%81sea.pdf>
- <sup>62</sup> Agelvis B. The Children of Venezuela waiting for bone marrow transplants Jun 2019. Available at: <https://www.efe.com/efe/english/destacada/the-children-of-venezuela-waiting-for-bone-marrow-transplants/50000261-3993497>.
- <sup>63</sup> Ordonez IL. Los trasplantes con organos de cadaveres pasaron de 345 a cero en Venezuela. 2019 Jun 10; Available at: <https://contrapunto.com/nacional/los-trasplantes-con-organos-de-cadaveres-pasaron-de-345-a-cero-en-venezuela/>
- <sup>64</sup> Garcia Cano R, Arraez JP. Transplant-Waiting Children Victims of Venezuela's Crises. 2021 Nov 19; Available at: <https://www.usnews.com/news/world/articles/2021-11-19/transplant-waiting-children-victims-of-venezuelas-crises>
- <sup>65</sup> Trasplantados A. Entre 2016 y 2021, ATV ha registrado la muerte de 113 personas trasplantadas por intermitencia de su tratamiento y atención oportuna. Muertes evitables ante la inacción del Estado Venezolano [Internet]. 2021. (Twitter.com). Available at: <https://twitter.com/amigostrasplant/status/1468344967055687682>

- <sup>66</sup> Nunez Rabascall A. Transplants in Venezuela: A Struggle from Surgery to Medicine Jan 2020. Available at: <https://dialogo-americas.com/articles/transplants-in-venezuela-a-struggle-from-surgery-to-medicine/#.YepD0P7MJPY>.
- <sup>67</sup> Bellorin-Font E, Carlini RG. Kidney disease in Venezuela: the impact of a lingering humanitarian crisis. 2021 Feb 4;(17):507–8. Available at: <https://www.nature.com/articles/s41581-021-00403-9>
- <sup>68</sup> Ulmer A. With medicine running out, Venezuelans with transplants live in fear. 2018 Feb 20; Available at: <https://www.reuters.com/article/us-venezuela-transplants/with-medicine-running-out-venezuelans-with-transplants-live-in-fear-idUSKCN1G41FR>
- <sup>69</sup> Ordonez IL. Se pudo evitar la muerte de 111 personas trasplantadas en Venezuela, segun Codevida y ATV. 2021 Dec 16; Available at: <https://cronica.uno/se-pudo-evitar-la-muerte-de-111-personas-trasplantadas-en-venezuela-segun-codevida-y-atv/>
- <sup>70</sup> Trasplantados A. 2.620 personas en hemodialisis estan en riesgo por la escasez de bicarbonato, material indispensable para su tratamiento: 450 en Tachira 370 en Falcon 960 en Lara 200 en Bolivar 650 en Carabobo [Internet]. 2021. (Twitter.com). Available at: <https://twitter.com/amigostrasplant/status/1468345424708882432>
- <sup>71</sup> CONVITE. Rapid needs assessment of older people Venezuela. Nov. 2019. Available at: <https://reliefweb.int/sites/reliefweb.int/files/resources/Rapid%20needs%20assessment%20of%20older%20people%20in%20Venezuela.pdf>
- <sup>72</sup> Boletín Epidemiológico No. 6, Año 3 - Primer trimestre: enero - marzo 2021. Caritas Venezuela; 2021. Available at <http://caritasvenezuela.org/wp-content/uploads/2021/06/BOLETIN-EPIDEMIOLOGICO-1ER-TRIMESTRE-2021-r-PARA-WEB-comprimido.pdf>
- <sup>73</sup> Core Indicators 2019: Health Trends in the Americas. Washington, D.C.: PAHO; 2019.
- <sup>74</sup> Scenarios in Women's, Newborns', Children's, and Adolescents' Health in the Americas in the Context of COVID-19. Washington, D.C.: PAHO; 2021.
- <sup>75</sup> Turkewitz J, Herrera I. Venezuelan Women Lose Access to Contraception, and Control of Their Lives. 2021. Available at: <https://www.nytimes.com/2021/02/20/world/americas/venezuela-birth-control-women.html>.
- <sup>76</sup> El Aborto Desde la Escucha. Feministas en Acción Libre y Directa por la Autonomía Sexual y Reproductiva (FALDAS-R); 2019.
- <sup>77</sup> Condiciones de vida de los venezolanos: entre emergencia humanitaria y pandemia. Encuesta Nacional de Condiciones de Vida 2021. Caracas, Venezuela: UCAB Instituto de Investigaciones Económicas y Sociales (IIES); September 2021.
- <sup>78</sup> The Burden of Mental Disorders in the Americas: Venezuela (Bolivarian Republic of) country profile. PAHO; 2019. Available at: <https://www.paho.org/en/documents/mental-health-country-profile-venezuela>
- <sup>79</sup> Venezuela's quarantine has increased anxiety, depression in some children: NGO. 2020. Available at: <https://www.reuters.com/article/us-health-coronavirus-venezuela-idINKCN250307>.
- <sup>80</sup> Kohut M, Casey N. Inside Venezuela's Crumbling Mental Hospitals. 2016. Available at: <https://www.nytimes.com/2016/10/02/world/americas/inside-a-dysfunctional-psychiatric-hospital.html>.
- <sup>81</sup> Casey N. At a Loss for Meds, Venezuela's Mentally Ill Spiral Downward. 2016. Available at: <https://www.nytimes.com/2016/10/02/world/americas/venezuela-mental-health-medicine-shortages.html>.
- <sup>82</sup> Krygier R, Faiola A. Locked up naked on a soiled mattress: Venezuela's mental health nightmare. 2019. Available at: [https://www.washingtonpost.com/world/the\\_americas/locked-up-naked-on-a-soiled-mattress-venezuelas-mental-health-nightmare/2019/11/27/e465f16c-0020-11ea-8341-cc3dce52e7de\\_story.html](https://www.washingtonpost.com/world/the_americas/locked-up-naked-on-a-soiled-mattress-venezuelas-mental-health-nightmare/2019/11/27/e465f16c-0020-11ea-8341-cc3dce52e7de_story.html).
- <sup>83</sup> WFMH Declaration on the Mental Health Crisis in Venezuela - World Federation for Mental Health. 2020. Available at: <https://wfmh.global/wfmh-declaration-on-the-mental-health-crisis-in-venezuela/>.
- <sup>84</sup> Bolivarian Republic of Venezuela: World Food Programme; 2021. Available at: <https://www.wfp.org/countries/venezuela-bolivarian-republic>.
- <sup>85</sup> Global Report on Food Crises 2021. Rome: FSIN and Global Network Against Food Crises; 2021.
- <sup>86</sup> Herrera-Cuenca M, Landaeta Jimenez M, Sifontes Y. Challenges in Food Security, Nutritional, and Social Public Policies for Venezuela: Rethinking the Future. *Frontiers in Sustainable Food Systems*. 2021;5.

- 
- <sup>87</sup> Food Security Cluster 2020. Venezuela gap analysis. Available at URL: <https://fscluster.org/venezuela/document/dashboards-2020-analisis-de-brechas>
- <sup>88</sup> Prevalence of underweight, weight for age (% of children under 5) - Venezuela, RB [Internet]. The World Bank. Available at: <https://data.worldbank.org/indicator/SH.STA.MALN.ZS?locations=VE>.
- <sup>89</sup> The State of Food Security and Nutrition in the World 2020. Rome: FAO, IFAD, UNICEF, WFP, WHO; 2020. Available at: <https://www.fao.org/3/ca9692en/online/ca9692en.html>
- <sup>90</sup> Raffalli S and Villalobos C. Recent Patterns of Stunting and Wasting in Venezuelan Children: Programming Implications for a Protracted Crisis. *Frontiers in Sustainable Food Systems*. 13 May 2021.
- <sup>91</sup> Reporte Mensual Clúster de Nutrición Clúster de nutrición Venezuela; Jun-Jul 2021. Available at: [https://reliefweb.int/sites/reliefweb.int/files/resources/reportes\\_nc\\_junio\\_julio.pdf](https://reliefweb.int/sites/reliefweb.int/files/resources/reportes_nc_junio_julio.pdf)
- <sup>92</sup> Clúster de nutrición Venezuela 2021 [Internet]. Clúster de nutrición Venezuela. 2021. Available at: <https://app.powerbi.com/view?r=eyJrIjoiOTVINWEwNDctZTMxYy00MTcwLTlkZjQtNzk1ZmE1NGM2OTU2IiwidCI6IjZlMzZjYTM4LTlxMjAtNDI3OS1iNTBjLWQ2ODQzOGUwZWFiNiIsImMiOiIj>
- <sup>93</sup> Global Humanitarian Assistance Report 2021. Development Initiatives. Global Humanitarian Assistance; 2021. Available at: <https://devinit.org/resources/global-humanitarian-assistance-report-2021/>
- <sup>94</sup> About Venezuela: OCHA; 2020. Available at: <https://www.unocha.org/venezuela/about-venezuela>.
- <sup>95</sup> Venezuela 5W - Humanitarian Operational Presence 2021. OCHA; 2021 10 September 2021. Available at: [https://reliefweb.int/sites/reliefweb.int/files/resources/2021-ve00-5w\\_5pager\\_en\\_0.pdf](https://reliefweb.int/sites/reliefweb.int/files/resources/2021-ve00-5w_5pager_en_0.pdf)
- <sup>96</sup> Walker N, Tam Y, Friberg IK. Overview of the Lives Saved Tool (LiST). *BMC Public Health*. 2013;13 Suppl 3:S1.