

COVID-19

Weekly Science Review

August 8-14 2020

This weekly science review is a snapshot of the new and emerging scientific evidence related to COVID-19 during the period specified. It is a review of important topics and articles, not a guide for policy or program implementation. The findings captured are subject to change as new information is made available. We welcome comments and feedback at covid19-eiu@vitalstrategies.org.

The indirect impacts of COVID-19 on health and essential health services in sub-Saharan Africa

Main Message: The COVID-19 pandemic and response may have devastating effects on the health of people and their communities in sub-Saharan Africa. This is largely due to the impact of the pandemic on local health systems and, in particular, on essential health services. Although lessons may

be learned from the 2014 Ebola epidemic in West Africa, the COVID-19 pandemic presents unique challenges. The ways in which the COVID-19 pandemic may affect health can be viewed through the lens of health service supply and demand. The health effects of these impacts may be assessed several ways. One way is to look at the data that are currently available. Although available data are limited, they provide a snapshot of the challenges that health systems, care providers and patients in sub-Saharan Africa are experiencing.

Why focus on sub-Saharan Africa?

It has been challenging for health systems to respond to the needs of the local population during the pandemic. A health system's ability to support population health during the COVID-19 pandemic depends on **several factors**, including

1. the baseline burden of other diseases,
2. the local COVID-19 transmission scenario and
3. the health system capacity at baseline and as the pandemic evolves.

The global burden of disease **rests disproportionately on sub-Saharan Africa**, where there is a significant baseline burden of both communicable and noncommunicable diseases. Among communicable diseases, the incidence of three major global public health threats—HIV, TB and malaria—is **highest in sub-Saharan Africa**. There is also a high burden of vaccine preventable diseases such as measles, which continues to be an **important cause of death among young children**. In recent decades, as populations in sub-Saharan Africa have urbanized and lifestyles have changed, an “**epidemiologic transition**” to **an increasing burden of noncommunicable diseases** such as cardiovascular disease, chronic kidney disease, diabetes and cancer has been observed. As for the local COVID-19 transmission scenario in sub-Saharan Africa, **the direct impact**

of COVID-19 has been less dramatic than anticipated. There have been fewer cases than projected by many estimates and the **age-adjusted rate of death among cases is far lower than** COVID-19 case fatality rates in Europe and the United States. However, in part because of barriers to detecting and reporting COVID-19 cases and deaths, it remains unclear if sub-Saharan Africa is truly experiencing an attenuated epidemic; in addition, the direct effects of COVID-19 are dynamic and worsening. In sub-Saharan Africa, compared with other world regions, health systems that were **fragile at baseline** are being further weakened by the pandemic and the response, as discussed below. There is concern that the COVID-19 pandemic will **undo decades of progress toward decreasing the burden of HIV, malaria and TB** and other diseases.

What did we learn from Ebola and can this be applied to COVID-19?

The 2014 Ebola outbreak in West Africa had a **devastating impact on local health systems**. This contributed to negative effects on population health that may have outpaced the direct effects of Ebola itself. The Ebola epidemic in Guinea, Liberia and Sierra Leone may have resulted in the **loss of 10,000 lives to HIV, TB and malaria**—nearly as many as the number of deaths from Ebola itself. More than **500 health care workers died** from Ebola; in Liberia, that amounted to **8% of the entire health care workforce**. Indicators of maternal and child health such as antenatal care visits, deliveries in health facilities and rates of child vaccination **declined significantly during the Ebola epidemic**; in Sierra Leone, the decrease in use of essential reproductive and maternal health services resulted **in at least 3,600 additional maternal, neonatal and stillbirth deaths**. Reduced vaccination rates can contribute to outbreaks of vaccine-preventable diseases; in the Democratic Republic of the

Congo **measles outbreaks have caused more deaths than recent Ebola outbreaks**. After the 2014 Ebola epidemic ended, health system recovery was slow and, **by some measures, has been incomplete**.

The 2014 Ebola epidemic had the positive effect of **strengthening disease surveillance and epidemic response systems**. Some of the technical resources developed during Ebola and other epidemics in sub-Saharan Africa are being **adapted to the COVID-19** response. However, features of the COVID-19 pandemic may create a crisis beyond what has been experienced during other epidemics. For one, the geographic spread of COVID-19 is extensive. Health systems across the world, including in every country in sub-Saharan Africa, are confronting COVID-19. This is unlike the situation, for example, during the 2014 Ebola epidemic, when **multiple countries without Ebola cases were able to provide direct support** to affected West African countries. Second, the longevity of the COVID-19 pandemic may result in sustained health care disruptions. When restoration of services does occur, it may be within the context of a **“new normal,” characterized by ongoing risks of COVID-19 transmission**. Third, a significant proportion of people infected with the virus that causes COVID-19 are asymptomatic, and symptomatic COVID-19 patients are most infectious **early in the course of disease, including before symptoms develop**. It can be more straightforward to control disease spread when, as is the case for Ebola, symptomatic patients account for the majority of transmission. Finally, and perhaps most significantly, the measures taken by governments to control the COVID-19 pandemic have been more disruptive to society than measures taken during other epidemics. In sub-Saharan Africa, **a number of governments swiftly enacted stringent public health measures**. Particularly in fragile economies, such measures can have **significantly harmful unintended consequences** which include negative effects on health systems and population health.

What are potential direct and indirect effects of COVID-19 on health and health systems?



PPE training in Ethiopia

The direct health effects of the COVID-19 pandemic may be measured as the mortality (rate of death) or morbidity (consequences and complications of disease other than death) directly attributable to COVID-19. The extent of mortality due to COVID-19 can be challenging to quantify and **the morbidity due to COVID-19 is not yet fully understood**, but the indirect health effects of COVID-19 are more complex and difficult to measure. Indirect health effects include morbidity and mortality associated with non-COVID-19 conditions that **may have occurred at different rates if not for COVID-19** or may have had different outcomes if not for COVID-19. The health effects of some conditions may stretch decades into the future and morbidity and mortality may accrue downstream. For example, interruptions in HIV preventive and treatment services during the pandemic may lead to excess HIV infections. Someone who acquires HIV during the pandemic may, years later, transmit HIV to others and go on to develop AIDS; caring for that person may

ultimately have a negative impact on the health of family members.

Many of the indirect health effects of an epidemic are likely to be mediated by the effects of the pandemic and the response on health systems. Morbidity and mortality due to non-COVID-19 conditions may increase due to the impacts of the COVID-19 pandemic on prevention, diagnostic and treatment services. Disruption of critical disease prevention programs can have devastating downstream effects. Vaccination is a high-impact low-cost public health measure that saves millions of lives each year, and **interruptions in vaccination programs may lead to surges in cases of preventable diseases**. Other examples of critical disease prevention efforts are those focused on **HIV** (including antiretroviral treatment and diagnostic testing) and **malaria** (including insecticide treated net distribution and preventive treatment). Diagnostic resources may be **diverted to the COVID-19 response**, and there may be **shortages of diagnostic tests for non-COVID-19 diseases** as manufacturing companies and global supply chains prioritize COVID-19 diagnostics. The capacity to treat non-COVID-19 conditions may be limited if there is a shortage of health care workers. Health care workers may be **reassigned to the COVID-19 response**, **avoid work due to fear of infection**, or develop COVID-19 themselves. In Africa, **over 10,000 cases of COVID-19 among health care workers** have been reported.

In order to avert indirect morbidity and mortality during the COVID-19 pandemic, the World Health Organization (WHO) recommends that countries **identify health services that are essential in their setting and should be prioritized for continuation during the acute phase of the COVID-19 pandemic**. Each country will prioritize certain essential services based on its specific local disease burden, extent of COVID-19 spread, and health system capacity. WHO provides the following seven categories of high-priority services that countries should consider essential:

- Services that are critical to the prevention of communicable diseases, particularly vaccinations;

- Services related to reproductive health, including care during pregnancy and childbirth;
- Services for vulnerable populations, such as infants and older adults;
- Provision of medications, supplies and support from health care workers for the ongoing management of chronic diseases, including mental health conditions;
- Critical facility-based therapies (such as renal dialysis);
- Management of emergency health conditions and common acute presentations (such as heart attacks and injuries) that require time-sensitive intervention;
- Auxiliary services, such as basic diagnostic imaging, laboratory services and blood bank services.

Vaccination programs, antenatal care, maternity care and newborn services are likely to be a priority for most countries. Prevention and treatment services related to communicable diseases such as TB, malaria and HIV may be a priority for some. Others may prioritize cancer care and screening programs.

It is important to note that some of the indirect effects of the COVID-19 pandemic on essential health services stem directly from public health recommendations. International guidance on [**delivering community-based health care in the context of COVID-19**](#) acknowledges that “certain activities may need to be ...modified where an alternative mode of delivery is safe or temporarily suspended where the risk of COVID-19 transmission is high.” Some examples of specific recommendations are to dispense multiple months of medication to patients with chronic conditions, to use communication technologies rather than in-person visits to maintain treatment support, to temporarily suspend some non-essential health campaigns and to restructure health visits so that infection prevention and control measures are incorporated. The wide range of strategies being used to mitigate the indirect health effects of the COVID-19 pandemic are beyond the scope of this summary.

How might COVID-19 affect health services?

The ability of a health system to adequately support population health during an epidemic is determined by both the supply of and the demand for health services. Decreased health service supply may appear to be the biggest, most critical issue, and may be financially and logistically daunting to rectify. However, decreased health service demand may be a more insidious and complex issue. Decreased demand may be due to changes in health seeking behavior that stem from loss of trust in the health system—that trust can be difficult to restore. The pandemic may exacerbate systemic societal inequalities that impede health care access; further entrenchment of such inequalities can have long-lasting effects. Below are some of the ways in which the COVID-19 pandemic may influence supply and demand, including examples from sub-Saharan Africa.

Factors that influence the supply of health services:

- Services may be reduced while the health system focuses on the care of COVID-19 patients if there are many cases.
- There may be shortages of medical supplies if resources are limited because of breakdowns in supply chains or because of diversions to assist the COVID-19 response.
- Triage to identify COVID-19 cases may divert patients away from necessary services.
- There may be shortages of health care workers if they:
 - are reassigned from regular duties to the COVID-19 response;
 - develop COVID-19 themselves;
 - need to quarantine after possible exposure;
 - cannot get to work due to transport or other restrictions;
 - suffer from burnout due to increased workloads or stress;
 - fear infection and so do not come to work or avoid caring for certain patients.

- The need for widespread infection control and prevention measures, including personal protective equipment (PPE), may disrupt care.
- The recommendation to practice public health and social measures such as physical distancing can lead to the curtailing or suspension of community health programs, particularly disease prevention programs.
- As economies struggle, there may be cuts in health care funding.

Factors that influence the demand for health services:

- Patients may fear accessing services due to the perceived risk of contracting COVID-19 at the point of health care.
- Public health and social measures to combat COVID-19, including transport restrictions, may reduce access to health care.
- Economic hardship can result in restricted access to health services if patients are unable to afford transport or elements of their health care.
- Uncertainty about the availability of health services may lead to long-term lack of confidence in the health system and negatively affect health seeking behavior.

This table includes some reported changes in health service supply and demand, and reported reasons for these changes, during the COVID-19 pandemic. Reports that include changes in both supply and demand may be listed more than once.

Supply

Health service type	Country or region	Changes reported during the COVID-19 pandemic and suggested reasons
<u>Child health</u>	Somalia	Large-scale community health campaigns that offered children measles and polio vaccines, vitamin A supplements and deworming tablets have been postponed.
<u>Clinical services</u>	Liberia, Nigeria, South Africa	Doctors Without Borders reports the reduction or suspension of several activities. In Liberia, pediatric surgeries have been postponed due to staffing shortages because of travel restrictions. In Nigeria, activities responding to lead poisoning have ceased. In South Africa, routine consultations for chronic conditions have been reduced.
<u>HIV prevention</u>	Malawi	The following services have been interrupted or suspended during the pandemic: voluntary medical male circumcision, HIV pre-exposure prophylaxis, TB preventive therapy, condom distribution, HIV viral load monitoring for stable patients, and patient support groups.
<u>HIV prevention and treatment</u>	Eswatini	Doctors Without Borders reports pausing HIV preventive activities and that the number of patients starting HIV treatment in their health facilities has dropped. They have received reports of health care workers without sufficient PPE avoiding patients due to fear of COVID-19.
<u>HIV treatment</u>	Kenya	The existing shortage of HIV care providers has increased for several reasons: clinics have reduced hours to ensure health care workers have time to travel home before curfew; volunteer health care workers are no longer permitted to support providers so the workload has fallen on doctors and nurses leading to burnout; and health care workers have been diverted to support the pandemic.

Health service type	Country or region	Changes reported during the COVID-19 pandemic and suggested reasons
<u>Maternal health</u>	Zimbabwe	PPE shortages have resulted in health care worker strikes. Strikes have led to closure of some health centers and limited staffing at others. This has led to maternal and neonatal deaths.
<u>Maternal health</u>	Kenya	Health care workers have fled health facilities because of the fear of acquiring COVID-19. Organizations that rely on certain fundraising events that have been canceled are concerned they will eventually need to curtail services.
<u>Personal protective equipment</u>	Global	PPE shortages leave health care workers dangerously ill-equipped to care for people with COVID-19 and other patients. Shortages may occur due to exorbitant pricing, inadequate supply chains and increased global demand.
<u>Reproductive health</u>	Multiple countries in sub-Saharan Africa	Marie Stopes International reports that lockdowns have resulted in the closure of some clinics.
<u>Tuberculosis treatment</u>	South Africa	Tuberculosis treatment wards have been converted into COVID-19 treatment wards and TB patients have been discharged to their home.
<u>Vaccination</u>	Global	Many countries are at risk of vaccination stockouts due to vaccine shipments being delayed, largely because of the limited availability and increased cost of commercial flights and charters.
<u>Vaccination</u>	South Africa	Significant nationwide decreases in child vaccination rates during the pandemic due in part to vaccine shortages.
<u>Vaccination</u>	Global	Polio mass vaccination programs were suspended and are now being restarted.

Health service type	Country or region	Changes reported during the COVID-19 pandemic and suggested reasons
<u>Vaccination</u>	Global	Gavi, the Vaccine Alliance, reports suspension of routine immunization programs in multiple countries.

Demand

Health service type	Country or region	Changes reported during the COVID-19 pandemic and suggested reasons
<u>Clinical services</u>	Ethiopia	Interviews with care providers and patients indicate that clinic access has been limited because of reduced access to transportation due to poverty and movement restrictions. Women and children have been particularly affected. Although many health institutions remain open, some patients avoid facilities due to fear of contracting COVID-19, including women who have chosen to give birth at home without a skilled birth attendant during the pandemic.
<u>HIV prevention and treatment</u>	Kenya	Government HIV clinics have experienced a decline in female patient enrollment. This is in part because: COVID-19 has affected family income; public transportation has been more costly during the pandemic; and some cannot afford the masks required to access clinics. Patients also fear contracting COVID-19; some clinics rumored to have treated COVID-19 patients have had dramatically reduced numbers of patients.
<u>Maternal health</u>	Ethiopia, Kenya, Sierra Leone, Uganda and Zimbabwe	A series of news reports describe how travel restrictions during lockdowns have contributed to maternal and neonatal mortality.

Health service type	Country or region	Changes reported during the COVID-19 pandemic and suggested reasons
<u>Maternal health</u>	Kenya	According to the plaintiffs in a lawsuit against the government of Kenya, aspects of the pandemic response made health care inaccessible and this endangered pregnant women's lives.
<u>Reproductive health</u>	Zimbabwe, Sierra Leone and other countries in sub-Saharan Africa	Marie Stopes International reports that lockdowns have restricted access to care. In Zimbabwe, police have restricted access to reproductive care services by enforcing movement restrictions even though reproductive care services were deemed essential by the government. In Sierra Leone, movement restrictions put in place without warning and rumors in the community have limited access to care.
<u>Vaccination</u>	South Africa	Significant nationwide decreases in child vaccination rates during the pandemic are due in part to caregivers' inability to access services during lockdown and fear of contracting COVID-19 at a clinic.

The COVID-19 pandemic has also negatively affected the health of people and populations in ways that are not directly tied to health service provision. For example, **food insecurity**, which can have major health consequences, has been a concern across sub-Saharan Africa during the COVID-19 pandemic. A number of economic and societal changes related to the pandemic and response in sub-Saharan Africa disproportionately affect the health of vulnerable groups, including **women, girls, sex workers, migrant laborers** and others.

How may the indirect health effects of COVID-19 be measured? What do the data show?

There are several approaches to determining the indirect effects of the COVID-19 pandemic on health and health systems, three of which are outlined below. Each approach has benefits and drawbacks and may be more or less suited to answering different questions. Although the first two approaches, epidemiologic modeling and calculating excess mortality, are important techniques to estimate the health effects of an epidemic, the focus here will be on currently available data. This is because currently available data, although limited, provide an insight into the situation on the ground in sub-Saharan Africa in ways that modeling and excess mortality estimates do not.

A. Models

Epidemiologic modeling is a tool that can be used to predict the spread or impact of a disease. To create a predictive model, factors that may influence the outcome of interest are selected for inclusion in the model. Generally, models of the indirect health effects of the COVID-19 pandemic incorporate factors such as the type and duration of health service interruptions and the effects those interruptions may have. The values of those factors must be estimated as data are not yet available; there can be a fair amount of uncertainty in those estimates and small changes in included values can have large effects on model output. Thus, results must be interpreted with caution. Nonetheless, models are often **used to inform public health responses to epidemics**. Models of the potential indirect health effects of the COVID-19 pandemic and response have produced striking results:

- A **study that weighed the health benefits of maintaining childhood immunization programs in 54 African countries against the risk of acquiring COVID-19 during vaccine**

administration showed that for every one excess COVID-19 death (including among household members of vaccinated children) associated with exposure during vaccination, 84 deaths in children under five could be prevented by continuing with routine vaccinations.

- A **study on the potential impact of lockdowns on TB incidence and mortality** found that a three-month lockdown and 10-month period of service restoration could lead to a global excess of 6.3 million cases of TB and 1.4 million deaths from TB through the year 2025.
- A **study on the impact of potential disruptions in HIV services** suggested that a six-month disruption of antiretroviral therapy could lead to a two-fold increase in deaths (equating to 500,000 excess deaths) from AIDS-related illnesses in sub-Saharan Africa during 2020-2021.
- An **analysis of the impacts of disruptions in access to malaria control tools** showed that under the worst-case scenario (suspension of insecticide treated net campaigns and a 75% reduction in access to malaria medications), there would be 750,000 deaths from malaria in 2020 (twice the number of deaths from malaria in 2018).
- An **analysis of excess mortality from HIV, TB and malaria due to disruptions in health services** found that in high-burden settings, deaths from HIV, TB and malaria over five years may be increased by up to 10%, 20% and 36%, respectively, compared to if there were no COVID-19 pandemic. Over five years, this loss of life would rival the loss of life due directly to COVID-19.

B. Excess mortality estimates

Excess mortality is the rate of death beyond what would have been expected under “normal” conditions. Such estimates may provide a more complete picture of the pandemic’s impacts than official COVID-19 death counts. However, there are limits to the information that excess mortality estimates can provide. Although some excess deaths **have already occurred**, much of the excess mortality due to the pandemic may not occur for months or years; this is particularly true for diseases such as

HIV and TB and vaccine-preventable diseases. In addition, excess mortality estimates do not distinguish between the direct and indirect effects of the pandemic. Rather, such estimates are a combination of deaths due to COVID-19 that were not officially attributed to COVID-19 and deaths from other causes that would have occurred in different numbers without the pandemic. Lastly, excess mortality can only be calculated if accurate mortality data is available from previous years for comparison. Such **data are not available from many countries in sub-Saharan Africa.**

C. Available data

Health service data that are routinely collected can provide valuable information on the continuity of service delivery. However, data collection processes may also be impeded during the pandemic. Similar to WHO recommendations for identifying essential services, data collection and analysis can be focused on a **core set of indicators** to monitor the impact of the pandemic on health care. These include the total number of primary care visits, hospital discharges, facility births, new TB cases, number of health care workers with COVID-19, and other measures. Data collected during the COVID-19 pandemic should ideally be compared to aggregated data from the previous several years.

The table below highlights some of the currently available data on the effects of the COVID-19 pandemic on health and health services in sub-Saharan Africa. This is not a systematic review or synthesis of available data but rather a snapshot of some of the quantitative data that has been made public. Data from sub-Saharan Africa were sought but several sources of relevant data include global findings.

Disease or condition (location)	Data source, data collection method	Results
Communicable diseases		
<u>HIV and TB (South Africa)</u>	Gauteng Department of Health, review of treatment records between March and May	<ul style="list-style-type: none"> • 1,000 TB patients and 10,000 HIV patients failed to collect their medications during the time period studied. • The average percentage reduction in medication collection compared with previous time periods was 1.4% for TB and 19.6% for HIV.

Disease or condition (location)	Data source, data collection method	Results
HIV, TB and malaria (global)	The Global Fund, survey of programs across 106 countries	<ul style="list-style-type: none">• 85% of HIV programs reported disruption to service delivery• 78% of TB programs reported disruption to service delivery• 73% of malaria programs reported disruption to service delivery• Restrictions on gatherings and transport are the main reasons activities have been disrupted. Other causes of disruption include reluctance of health care workers to provide care to people with symptoms consistent with COVID-19 and clients not seeking care due to fear of COVID-19 or because of economic hardship.

Disease or condition (location)	Data source, data collection method	Results
<u>Tuberculosis</u> <u>(South Africa)</u>	National Institute of Communicable Diseases, South Africa, surveillance data from TB testing conducted from six weeks before national restrictions were introduced, through two weeks of physical distancing and five weeks of lockdown	<ul style="list-style-type: none">• During lockdown, there was a 48% average weekly decrease in the number of tests and a 33% decline in the number of positive tests.• There was a higher weekly test positivity rate during the lockdown period.

Disease or condition (location)	Data source, data collection method	Results
<p><u>Tuberculosis (20 countries with high burdens of TB)</u></p>	<p>Stop TB Partnership, survey of national TB programs in 20 high burden countries and paired survey of 16 communities in those countries</p>	<ul style="list-style-type: none"> • At least 40% of programs reported that TB facilities are being partially or completely used for the COVID-19 response. • All programs observed a decrease in the number of people accessing TB services. • Reasons for the decrease in clients included reduced access due to limited public transport and mandatory curfews, patient fear of contracting COVID-19 in health facilities, and lab staff being too overwhelmed with COVID-19 testing to conduct TB testing.

Disease or condition (location)	Data source, data collection method	Results
<p>Vaccinations (global)</p>	<p>World Health Organization, survey of immunization programs conducted in April (first Immunization Pulse Poll)</p>	<ul style="list-style-type: none"> • 64% of 107 responding countries reported disruptions or suspensions. • Reasons for decreased immunizations visits included physical distancing measures, difficulties accessing transportation and fear of COVID-19 transmission in health care facilities. • Most countries reported disruptions in the distribution of vaccine supplies within the country. • Over half of countries reported disruptions related to measles case detection, investigation and notification. Disruptions were related to shortages in lab personnel, issues transporting lab supplies/specimens and labs being converted to COVID-19 testing.

Disease or condition (location)	Data source, data collection method	Results
<p>Vaccinations (global)</p>	<p>World Health Organization, survey of immunization programs conducted in June (second Immunization Pulse Poll)</p>	<ul style="list-style-type: none"> • 53% of 129 country respondents (and 89% of African country respondents) reported moderate or severe service disruptions during March-April. • Reasons for disruptions included patient fear of exposure to COVID-19 during vaccination (48%) and interrupted access to vaccine services during lockdown (33%). • Reasons for limited availability of vaccines included insufficient PPE for health workers (49%), travel restrictions (40%) and reduced availability of health workers (43%).

Noncommunicable diseases

Disease or condition (location)	Data source, data collection method	Results
<p>Cardiology care (sub-Saharan Africa)</p>	<p>Original research study, survey of cardiology care providers across sub-Saharan Africa</p>	<ul style="list-style-type: none"> • 60 respondents (52% cardiologists, 48% medical interns or residents) from 14 countries reported that compared with pre-pandemic times, there was a significant reduction in cardiologists' working hours and a significant reduction in the number of patients consulted per week. • The majority of cardiology services (76.5%) and consulting programs (85%) were reconfigured to support COVID-19-related services.

Disease or condition (location)	Data source, data collection method	Results
<p><u>Noncommunicable disease services (global)</u></p>	<p>World Health Organization, survey of 155 country health ministries conducted in May</p>	<ul style="list-style-type: none"> • In 94% of responding countries, ministry of health staff working on noncommunicable diseases were partially or fully reassigned to support the COVID-19 response. • Treatment for the following conditions was disrupted: hypertension treatment (53% of countries), diabetes treatment (49% of countries), cancer treatment (42% of countries), and cardiovascular emergencies treatment (31% of countries). • Reasons for service reductions included decreased availability of public transport and lack of health care staff due to COVID-19 reassignments. • In 20% of countries reporting disruptions, there was a shortage of medical supplies. • 50% of countries reported postponements of public screening programs (for example for breast and cervical cancer).

Disease or condition (location)	Data source, data collection method	Results
<p>Primary care (South Africa)</p>	<p>Original research study, longitudinal cohort study of clinic visits from 60 days before through 35 days after the lockdown period</p>	<p>Among 36,291 individuals who had 55,545 clinic visits, there was no change in total visits per clinic per day between the periods before and during the lockdown with two exceptions: there was a reduction in pediatric clinic visits during the lockdown and there was an increase in HIV treatment visits immediately after the lockdown.</p>
<p>Reproductive health care (global)</p>	<p>International Planned Parenthood Federation, survey of national members</p>	<ul style="list-style-type: none"> • Across 64 countries, 5,633 clinics and community-based care outlets (14% of service delivery points available in 2018) closed because of issues related to the pandemic. The Africa region had the largest number of mobile clinics (447) close. • Member nations reported scaling down services related to the following: HIV testing (44 countries), contraceptive care (41 countries), gender-based violence (36 countries), and abortion care services (23 countries).

From the above table, it is apparent that available data on the indirect effects of the COVID-19 pandemic on health and health systems in sub-Saharan Africa are limited. The data lack both breadth and depth in their coverage of health conditions, health services and geographic area; data on a minority of suggested core indicators are available. The health effects of the changes that have already occurred are not yet apparent and the situation remains incredibly dynamic. Nonetheless, the data clearly show that the COVID-19 pandemic has already had a dramatic, measurable effect on the capacity of health systems to support population health. There is indeed cause for concern that the indirect effects of the COVID-19 pandemic on health and health services may outweigh the direct effects of the pandemic. This is likely to be particularly true in areas where the direct impact of COVID-19 is less severe and/or where there is a greater reliance on essential health services (e.g., where the risk of vaccine preventable diseases is greater, or where the burden of HIV, TB or malaria is high). As the pandemic continues to evolve, the necessity of pandemic response elements must be carefully weighed against their potential negative health effects. In addition, health service provision will need to be structured around the potentially continuing threat of COVID-19 transmission. The actions taken to address predicted or measured indirect health effects will determine, to a large extent, what the ultimate impact of the COVID-19 pandemic will be.

Weekly Research Highlights

[Convalescent Plasma Therapy on Patients with Severe or Life-Threatening COVID-19: A Metadata Analysis](#)

(Journal of Infectious Diseases, August 10)

Main message: Treatment options for patients who develop severe COVID-19 disease are limited. Based on experience with

other severe viral illnesses, passive immunization—**transfusing convalescent plasma** donated by patients who have survived COVID-19—may help some severely ill patients recover. Researchers reviewed data from nine published studies of convalescent plasma for the treatment of severe COVID-19 and conducted a meta-analysis of the data. Following a transfusion of plasma from a recovered donor, patients with severe COVID-19 showed improvement in terms of infection, inflammation and illness severity. Despite the encouraging findings, this study doesn't prove that convalescent plasma is an effective treatment nor identify which patients are most likely to benefit.

- Transfusion of convalescent plasma to treat SARS, H1N1, and Ebola patients suggested that passive immunization reduces viral load and improves clinical outcomes, reducing the number of deaths and length of stay in the intensive care unit (ICU) with minimal side effects. Although this approach has not been proven or approved for the treatment of severe COVID-19, the U.S. Food and Drug Administration has issued emergency guidance for the **investigational use of convalescent plasma** during the ongoing public health emergency.
- Researchers pooled data collected before and after convalescent plasma transfusion from 149 severely ill COVID-19 patients reported in nine different published studies and completed a random effects meta-analysis and metaregression. After receiving convalescent plasma, patients had reduced viral load (RR 0.13; 95% CI, 0.09 to 0.18) and C-reactive protein levels (ROM 0.11; 95% CI, 0.01 to 0.86), and showed clinical improvement, (ROM 0.53; 95% CI, 0.36 to 0.79) with minimal side effects.
- This analysis suggests that convalescent plasma may improve recovery in severely ill patients with COVID-19, even though not all of the included studies showed the same results. Combining data from multiple smaller studies allowed the researchers to make the most of limited data. However, the current meta-analysis did not include a comparison or control group of patients. Patients' laboratory and clinical parameters may have improved without the

plasma infusions and the apparent effect may have been due to other factors.

Association Between Youth Smoking, Electronic Cigarette Use and Coronavirus Disease 2019

(Journal of Adolescent Health, Aug. 11)

Main message: The results of an online survey show that among adolescents and adults 13 to 24 years old, COVID-19 was five to seven times more common for those who reported ever using or recently using tobacco cigarettes (smoking) or electronic cigarettes (vaping). In this age group that has typically been described as lower risk for symptoms and serious illness from COVID-19, targeted messaging and education to more accurately portray risks may be necessary. This study's results support the association between vaping and COVID-19, and that use of e-cigarettes, alone or dual use of e-cigarettes and tobacco cigarettes, is a risk factor for COVID-19 among adolescents and young adults.

- From May 6-14, 2020, researchers recruited 4,351 adolescents and adults 13 to 24 years old from across the U.S. to participate in an online survey about smoking, vaping and COVID-19. Through quota sampling, the researchers were able to balance race, age and gender breakdown and select for a 50/50 breakdown of ever-vapers vs never-vapers. They used weighting to achieve representative estimates in their statistical calculations. Participants who reported both smoking and vaping were labeled dual-users. They performed multivariable logistic regression to test associations between vaping, smoking and COVID-19.
- People who reported ever being a dual-user were seven times more likely than never-users to test positive for COVID-19. Similarly, recent dual-users (dual use within the past 30 days) were 6.8 times more likely than never-users to test positive for COVID-19 compared to never-users. Ever-vapers

were five times more likely than never-users to test positive for COVID-19. No statistically significant relationship was observed between smoking alone and a positive COVID-19 test, however, ever-smokers were more likely to be tested than never-users.

- This study shows association, but not a causal relationship between vaping and COVID-19. Other factors that increased the likelihood of a positive COVID-19 test were higher background test positivity for COVID-19, being underweight, being Hispanic or other/multiracial, being male or nonbinary gender, and having a mother who completed post-secondary education.

Mental Health, Substance Use, and Suicidal Ideation During the COVID-19 Pandemic — United States, June 24-30, 2020

(MMWR, Aug. 14)

Main message: According to the results of an online survey, during the last week of June 2020, U.S. adults reported significantly elevated levels of depression, anxiety, increased stress or trauma, substance use, suicidal ideation and trauma- and stressor-related disorder (TSRD) related to the COVID-19 pandemic compared to levels from a year prior. Young adults were by far the most likely to report an adverse mental health or behavioral outcome. Ethnic/racial minorities, workers in essential sectors and unpaid adult caregivers also reported disproportionately worse outcomes. There is ongoing need for intervention to prevent and address adverse mental health outcomes associated with the COVID-19 pandemic. These findings highlight some of the broader impacts of the COVID-19 pandemic on overall health.

- From June 24-30, 2020, researchers invited 9,896 adults to participate in an online survey about mental health. Overall, 5,412 participants completed the survey, some of whom had

been invited to participate in an earlier iteration in April. Sampling methods were used to obtain a group of adults representative of the U.S. population with regards to age group, gender and race/ethnicity. Standardized survey tools were used to assess symptoms of anxiety, depression, and TSRD in addition to other questions about substance use as a means of coping and suicidal ideation.

- Forty-one percent of all respondents reported any adverse mental or behavioral health condition during the last week of June 2020. The most commonly reported symptoms were related to depression and anxiety (31% of respondents). Among those 18-24 years old, 75% reported at least one mental or behavioral health symptom, as did 52% of those 25 to 44 years old. Males were more likely to report suicidal ideation in the previous 30 days. Black people were also more likely to report suicidal ideation and were more likely to have increased substance use to cope with COVID-19-related stress.
- This survey collected self-reported symptoms and used instruments that have been validated to assess for mental health and behavioral adverse events. It was not designed to diagnose anxiety, depression, or any other mental health condition. Further studies may be necessary to gain more insight into the causes of these findings (e.g. financial staring vs social disconnectedness). Addressing ongoing mental health impacts of the pandemic and preventing additional adverse outcomes should be part of a larger response plan.
- If you or a loved one is experiencing increased stress, please find resources for healthy ways to cope and help in a crisis [here](#).

Suggested citation: Cash-Goldwasser S, Kardooni S, Kachur SP, Cobb L, Bradford E and Shahpar C. Weekly COVID-19 Science Review August 8-14 2020. Resolve to Save Lives. 2020 August 19. Available from

<https://preventepidemics.org/coronavirus/weekly-science-review/>