



**SUPPORT
FOR PUBLIC
HEALTH:**

**Preparing
for the next
pandemic**

Building a new public health order for Africa—and a new approach to financing it

"One lesson we learned from the Ebola crisis is that the best way to minimize the damage from an outbreak is not to have one at all. Preparedness is key. But preventing future pandemics won't happen automatically. It requires collaborative effort to catch-up on years of underinvestment in our health systems. The technical know-how for building strong health systems to prevent diseases already exists. The challenge is to match that know-how with plain old vision—good governance and global cooperation."

Ellen Johnson Sirleaf, Former President of Liberia & Nobel Peace Prize Laureate

In the early autumn of 2020, Africa received positive press about its response to the SARS-CoV-2 (also known as COVID-19) pandemic.

Given the fragility of many of the continent's health systems, many had initially feared that the impact of SARS-CoV-2 would be devastating.⁴⁰ Indeed, Africa has the largest burden of endemic diseases in the world,⁴¹ and SARS-CoV-2 could abolish decades of progress in the fight against these diseases by disrupting health care provision and access to medications.⁴² In addition, as the world races for access to critical diagnostics, pharmaceuticals, and vaccines, protectionism

risks. With limited local manufacturing capacity, Africa is particularly vulnerable to such dynamics.

Thankfully, as of this fall, Africa had counted just about 1.5 million cases and 40,000 deaths⁴³—far, far fewer than other, often richer, regions of the world.⁴⁴ Public health experts largely attributed Africa's success so far to favorable socio-economic, demographic, and environmental factors, but also to rapid and determined political action. Indeed, many African countries were quick to introduce containment measures, such as lockdowns.⁴⁵ The continent has also been approach-

⁴⁰ "Africa Is Woefully Ill-equipped to Cope with COVID-19," *The Economist*, March 26, 2020.

⁴¹ John Nkengasong and Sofonias K. Tessema, "Africa Needs a New Public Health Order to Tackle Infectious Disease Threats," *Cell* 183, no. 2 (2020): 296-300.

⁴² Britta L. Jewell et al., "Potential Effects of Disruption to HIV Programs in Sub-Saharan Africa Caused by COVID-19: Results from Multiple Mathematical Models," *Lancet HIV* 7, no. 9 (2020): e629-e640.

⁴³ "Coronavirus Disease 2019 (COVID-19): Africa CDC Dashboard," *Africa CDC*, accessed January 1, 2021.

⁴⁴ Anne Soy, "Coronavirus in Africa: Five Reasons Why COVID-19 Has Been Less Deadly than Elsewhere," *BBC*, October 7, 2020.

⁴⁵ John Nkengasong and Sofonias K. Tessema, "Africa Needs a New Public Health Order to Tackle Infectious Disease Threats," *Cell* 183, no. 2 (2020): 296-300.

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ing the crisis largely as a bloc: Even before the first case was confirmed in sub-Saharan Africa, the health ministers of the member states of the African Union held an emergency meeting to prepare for the pandemic and, fewer than six weeks after the first reported case on the African continent in Egypt on February 14, released the Joint Africa Continental Strategy on COVID-19.

The African approach to COVID-19 has been anchored in collaboration and solidarity.

The African approach has been anchored in collaboration and solidarity. Successes include the Partnership to Accelerate COVID-19 Testing (PACT), launched by the African Union Commission (AUC) and the Africa Centres for Disease Control and Prevention (Africa CDC) in April 2020, which enabled Africa, initially shoved aside when global demand for diagnostics rose,⁴⁶ to increase the number of countries with testing capacity from two to 43 in three months,⁴⁷ procure more than 90 million test kits,⁴⁸ and train thousands of lab workers. Similarly, a shared effort among the AU, Africa CDC, UNECA, and the African Export-Import Bank to create the Africa Medical Supplies Platform led to pooled procurement of critical medical supplies, increasing countries' access to vital personal protective equipment regardless of the size of their market. The most recent example is the Trusted Travel Platform launched by AUC and Africa CDC in October 2020. The platform includes information on the latest travel restrictions and entry requirements and simplified health-related immigration processing for travellers and port officials, which will protect lives and livelihoods and help prepare for the implementation of the African Continental Free Trade Area (AfCFTA).⁴⁹

However, if we only look at SARS-CoV-2-related morbidity and mortality, we miss a large part of the pandemic's impact and of the underly-

ing vulnerabilities it exposes. **To address this multidimensional threat, Africa requires a new public health order**, including:

- 1. A strengthened Africa CDC and national public health institutions (NPHIs).** Africa CDC, through its Secretariat and Regional Collaborating Centers, provides national NPHIs with guidance on priorities and programs, integrates efforts, and drives standard-setting and surveillance. (For more on the role of national NPHIs, see the viewpoint on page 27).
- 2. Local production of vaccines, therapeutics, and diagnostics** that contributes to supply security, drives down procurement costs, and increases the speed of response to a local threat.⁵⁰ Such initiatives should be driven by strong private sector partners, with public support for the required capability building and other enablers, but also for the negotiation of contracts that are sufficiently large and long-term for the initiative to attract the required funding. An example of such a public-private partnership is the South African Biovac Institute.⁵¹
- 3. Investment in public health workforce and leadership programs.** A sufficiently large, well-prepared health workforce is key to any of the activities mentioned above. But the gaps are significant. For example, Africa requires 25,000 frontline epidemiologists and has about 5,000.⁵²
- 4. Action-oriented partnerships**—including between the public and private sector, donors and governments, and with public health institutions. Respectful partnerships are those that respect African-originated and -defined health priorities and solutions, and ensure that health programs are aligned with continental priorities such as the Agenda 2063.

This new public health order requires more predictable, long-term funding overall, joint priority-setting, and stronger mechanisms to manage the allocation of funds in line with continental aspirations.

⁴⁶ John Nkengasong, "Let Africa into the Market for COVID-19 Diagnostics," *Nature* 580 (2020): 565.

⁴⁷ Pascale Ondo et al., "COVID-19 Testing in Africa: Lessons Learnt," *Lancet Microbe* 1, no. 3 (2020): e103-e104.

⁴⁸ Giulia Paravicini, "African Countries Secure 90 Million Coronavirus Test Kits for Next Six Months," *Reuters*, June 4, 2020.

⁴⁹ "'Travel Pass' to accelerate AfCFTA implementation," *The Herald*, October 28, 2020.

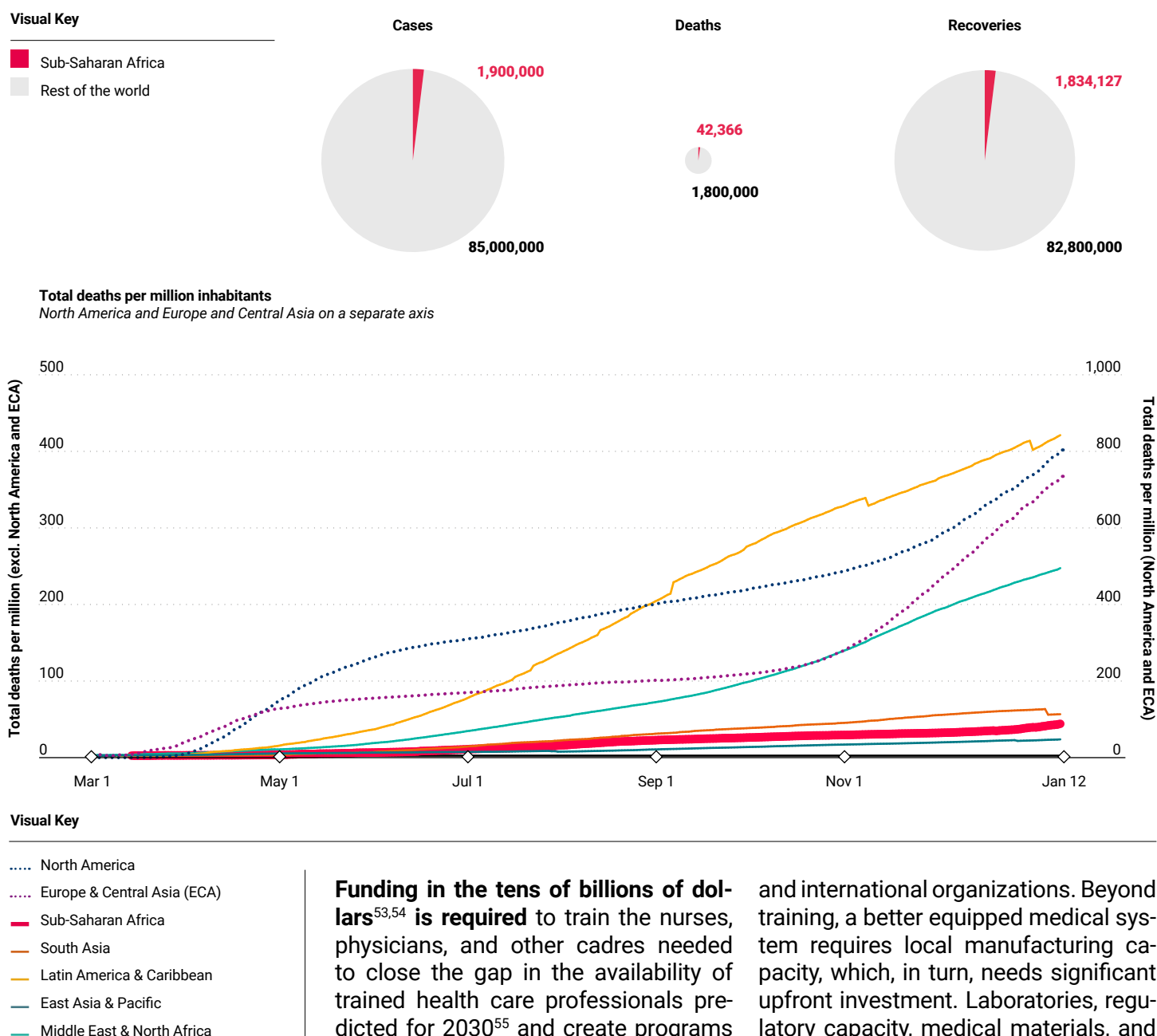
⁵⁰ Stanley Plotkin et al., "The Complexity and Cost of Vaccine Manufacturing - An Overview," *Vaccine* 35, no. 33 (2020): 4064-4071.

⁵¹ David R. Walwyn and Adolph T. Nkolele, "An Evaluation of South Africa's Public-Private Partnership for the Localization of Vaccine Research, Manufacture and Distribution," *Health Research Policy and Systems* 16, no. 1 (2018): 30.

⁵² Stanley Plotkin et al., "The Complexity and Cost of Vaccine Manufacturing - An Overview," *Vaccine* 35, no. 33 (2020): 4064-4071.

FIGURE 2.1 THE TRAJECTORY OF COVID-19 IN AFRICA AND THE REST OF THE WORLD

In defiance of early predictions that COVID-19 would severely affect sub-Saharan Africa due to weak health systems and challenges to social distancing, it seems that Africa has fared much better than the rest of the world in fighting the disease: To date, sub-Saharan Africa has had substantially fewer cases and deaths per million from COVID-19 than the rest of the world. The trajectory of the pandemic has also differed in Africa, with no substantial peaks or increases, unlike in North America and Europe, which have the highest death tolls per million inhabitants and are shown on a separate axis below.



Funding in the tens of billions of dollars^{53,54} is required to train the nurses, physicians, and other cadres needed to close the gap in the availability of trained health care professionals predicted for 2030⁵⁵ and create programs for public health policy professionals. Such programs must include support to public health professionals looking to gain additional degrees in health policy, but also opportunities to get exposed to public health policy work in national

and international organizations. Beyond training, a better equipped medical system requires local manufacturing capacity, which, in turn, needs significant upfront investment. Laboratories, regulatory capacity, medical materials, and mechanical components for medical tools all require funding.

First and foremost, funding for public health in Africa is the responsibility of the continent's political leadership.

Source

Max Roser et al., "Coronavirus Pandemic (COVID-19)," OurWorldInData.org, accessed January 14, 2021.

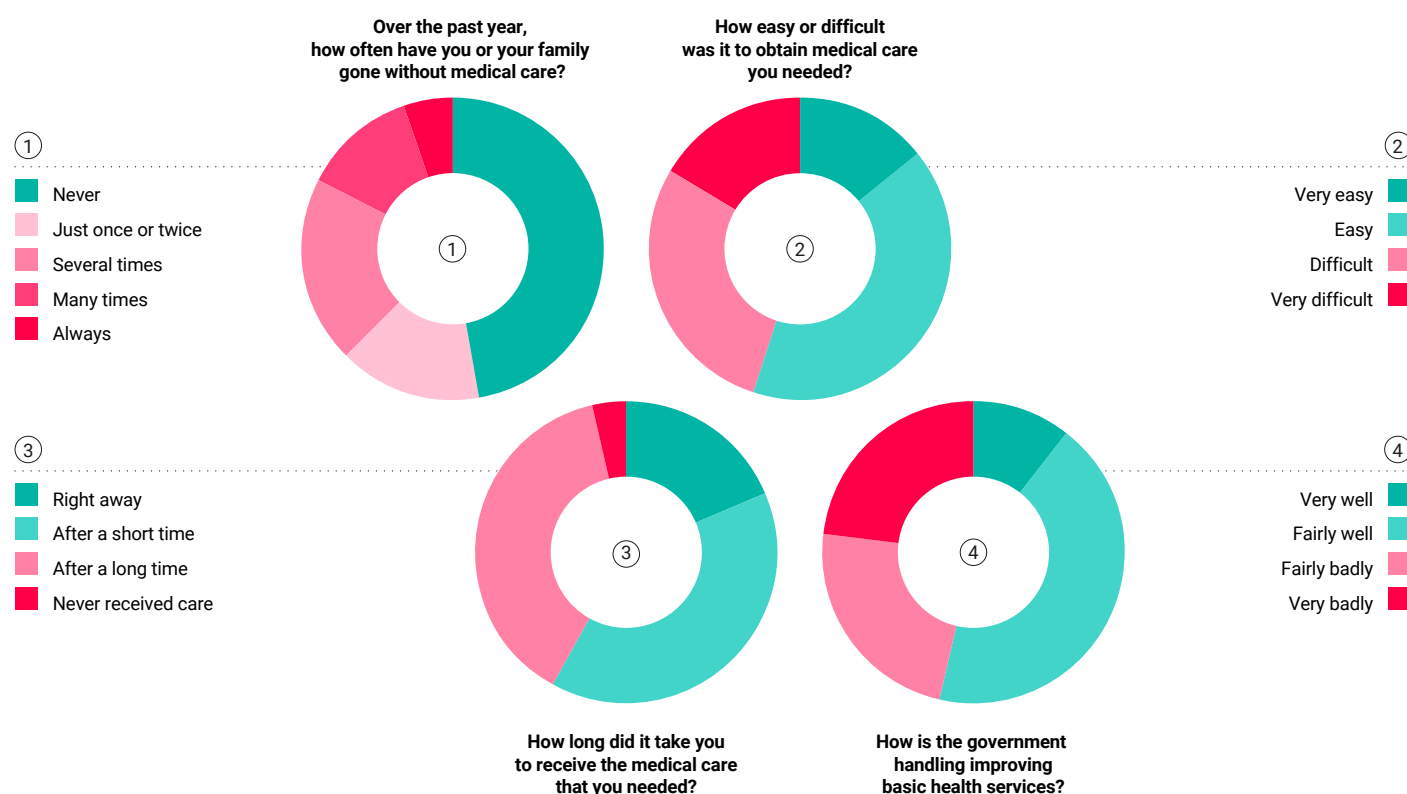
⁵³ Joses Muthuri Kirigia et al., "The Cost of Health Professionals' Brain Drain in Kenya," *BMC Health Services Research* 6 (2006): 89.

⁵⁴ Edward J. Mills et al., "The Financial Cost of Doctors Emigrating from Sub-Saharan Africa: Human Capital Analysis," *BMJ* (2011).

⁵⁵ World Health Organization, *Health Workforce Requirements for Universal Health Coverage and the Sustainable Development Goals* (Geneva: World Health Organization, 2016).

FIGURE 2.2
PERCEPTIONS OF HEALTH CARE IN AFRICA BEFORE COVID-19

Even before the COVID-19 pandemic, many Africans struggled to receive needed health care. In surveys undertaken by Afrobarometer from 2016 to 2018, more than 50 percent of respondents reported that they had gone without needed medical care at least once in the past year. When medical care was received, over 40 percent of respondents reported that it was difficult or very difficult to obtain care and that care was received after a long time—or never. Africans also express pessimism about the trajectory of health systems, with nearly 50 percent saying that the government is handling improving health services fairly badly or very badly.



Source

"R7 2016/18," Afrobarometer, 2019.

In the 2001 Abuja Declaration, African governments committed at least 15 percent of their annual budgets to health. Since then, only a handful of countries have reached this goal, and overall funding has been inconsistent at best.⁵⁶ Policymakers must (re-)prioritize health to consistently reach the commitment of the Abuja Declaration. **Second, donor contributions are highly relevant, much appreciated, and will remain key in the foreseeable future.** To be effective, these funds need to be in line with national, regional, and continental public health priorities. They should also, where possible, take the form of co-financing to increase sustainability and contribute to the strengthening of public health institutions. **Third, the**

private sector is an important contributor, e.g., through public-private partnerships (PPPs), as a provider of low-cost, for-profit services⁵⁷ and expertise for newer areas, such as telehealth.

Investments in a new public health order pay off. Although estimates differ, there is widespread agreement that the return on investment in health is significant. The McKinsey Global Institute's recent estimate is one of the more conservative and expects a return of 2:1 to 4:1⁵⁸—an estimate that goes beyond money and includes fewer premature deaths, fewer poor health conditions, and extended participation in the labor market—all of which are valid goals in their own right.

⁵⁶ World Health Organization, *Public Financing for Health in Africa: From Abuja to the SDGs* (Geneva: World Health Organization, 2016).

⁵⁷ Pascal Fröhlicher and Carlijn Nouwen, "To Bring Universal Health Care to Africa, the Private Sector Must Get Involved," *World Economic Forum*, December 12, 2019.

⁵⁸ Jaana Remes et al., *Prioritizing Health: A Prescription for Prosperity* (New York: McKinsey & Company, 2020).

Investing in national public health institutes for future pandemics: Lessons from Nigeria

Through the tragic deaths of hundreds of thousands of people and the upending of our normal ways of life, the COVID-19 pandemic has revealed a global failure to invest in pandemic preparedness. Going forward, global and national leaders must consider strategies to build resilience to such crises, especially mechanisms for coordinated, well-planned responses led by national public health institutes (NPHIs).

Nigeria, in particular, has some of the largest burdens of public health challenges in the world. In between the 2014 Ebola crisis and the current COVID-19 pandemic, Nigeria has responded to large, multiple, and sometimes concurrent outbreaks of Lassa fever, yellow fever, meningitis, monkeypox, measles, and cholera. The combination of the country's tropical climate, population density, socioeconomic realities, and high cross-border movement provides a conducive environment for the emergence and re-emergence of infectious disease outbreaks.

In response to these ever-present threats, the Nigeria Centre for Disease Control (NCDC), as the country's national public health institute, leads the strengthening of its core health security capacity. Its key components include public health laboratory services, emergency response activities, disease surveillance, and risk communications (see Figure 2.3). Prior to the COVID-19 pandemic, we had already been building on lessons from responding to Ebola and subsequent outbreaks to strengthen our health security. For example, in 2016, the NCDC established a National Incident Coordination Center for coordination of outbreak preparedness and response activities, and followed this with the establishment of similar structures at the state level. Not only have such public health emergency operations centers enabled better coordination of public health emergencies, but also, and perhaps more importantly, they have strengthened the role of state governments in coordinating international partners supporting outbreak response. Then, in 2017, we operationalized the NCDC National Reference Laboratory and subsequent laboratory networks to reduce our dependence on other countries for disease diagnoses.

Nigeria, like most African countries, has recorded far fewer cases and deaths from COVID-19 compared to countries outside Africa. At the same time, to prepare for a potential outbreak, we have increased financing from the government and the private sector to scale up our country's health security capacity. Between February and October of 2020, we increased the number of molecular laboratories with capacity to test for the virus from five to 70. The initial five laboratories were part of the NCDC's network of laboratories for other diseases. We have successfully deployed the Surveillance Outbreak Response Management and Analysis System (SORMAS)—a digital tool for real-time disease reporting and surveillance—in all states and Local Government Areas. Prior to the COVID-19 pandemic, SORMAS had been deployed in 14 states with more than half of the states in Nigeria reporting outbreak data using Microsoft Excel.

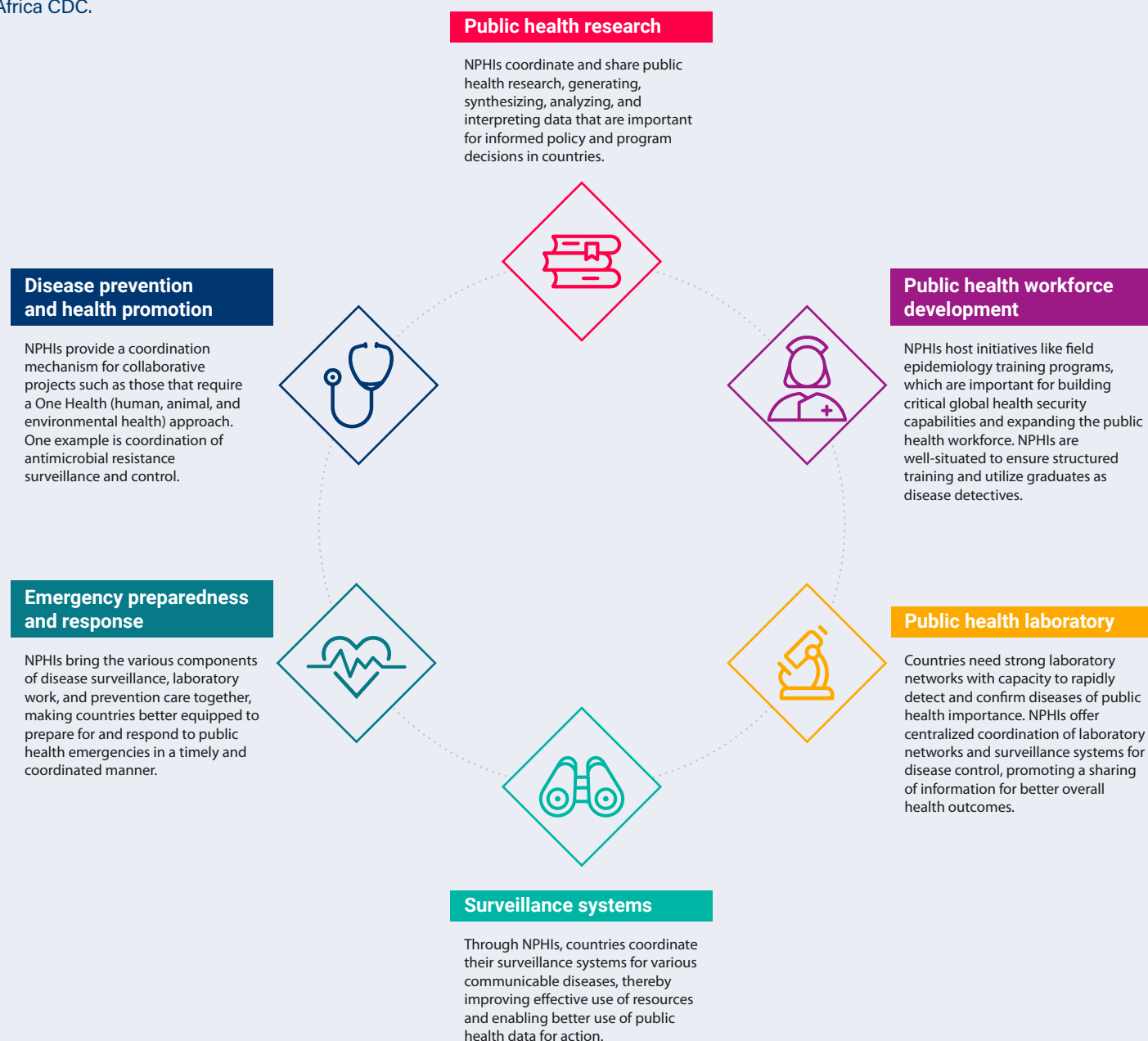
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FIGURE 2.3 NATIONAL PUBLIC HEALTH INSTITUTES COORDINATE A MULTIPLICITY OF EFFORTS AIMED AT KEEPING PEOPLE HEALTHY AND SAFE.

Countries like the U.S. and Brazil, who established NPHIs several decades ago, have benefited immensely from their capacity to coordinate health efforts from prevention to preparedness to emergency response. The West African Ebola outbreak five years ago was a turning point in Africa, spurring countries like Nigeria and Ethiopia, among others, to establish NPHIs as well as for Africa to create the continent-facing Africa CDC.



One key area of progress that has been made in Africa since the West African Ebola outbreak is the emergence and growth of the Africa Centers for Disease Control (ACDC). The ACDC has led several initiatives contributing to improved capacity in the NCDC as well as strengthened collaboration among countries in the region on managing risks and responses to health challenges. Epidemiologists from the NCDC are part of the ACDC's roster of personnel deployed during outbreak response activities in Africa. Through this effort, the growing capacity in Africa's health security is led by Africans. Furthermore, the ACDC has provided training opportunities for Nigerian epidemiologists, laboratory scientists, risk communications officers, and other public health officers. (For more on the role of the Africa CDC, please see page 23).

The growing capacity in Africa's health security is led by Africans.

COVID-19 is not the first pandemic of the 21st century, nor will it be the last. With climate change and several other environmental factors impacting the world today, vectors and animal reservoirs are spreading into new areas and having increased contact with humans, putting us at further risk. Given their immense potential to protect and heal, we should be building and strengthening these science-led organizations. The only way that we can control the next pandemic is by re-building, starting now, and investing in NPHIs.

VIEWPOINT

Navigating the complexities around a COVID vaccine in Africa

At the onset of the COVID-19 pandemic, African countries implemented social distancing measures that have helped reduce the spread of the virus. At the same time, the pandemic and many of the associated policies to protect people's health pulled many households on the continent into poverty and the sub-Saharan region into a recession.⁵⁹ These complex challenges now affect the ability of African countries to finance vaccine procurement and delivery, which are necessary to end the pandemic.

While a few wealthy countries have secured for themselves more than half of the world's promised doses of the leading COVID-19 vaccine candidates,⁶⁰ most African countries are relying on the COVAX facility—a co-financing vaccine procurement mechanism set up to ensure equitable access—to obtain the vaccines.

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While, so far, Gavi (the Vaccine Alliance) has secured some of these candidates for low-income countries and promised vaccines for 20 percent of those countries' populations, this amount will not be nearly enough, since vaccination of more than 50 percent of a population is required to attain a level of community immunity. In addition, costs go beyond just the dosage, and these countries will likely have to share part of the costs of the vaccine and its delivery. Notably, while the cost of vaccines such as Pfizer's and Moderna's ranges from about \$15 to \$25 per dose, AstraZeneca plans to sell theirs for as little as \$2.50 to ensure it is affordable to residents of poorer countries.⁶¹

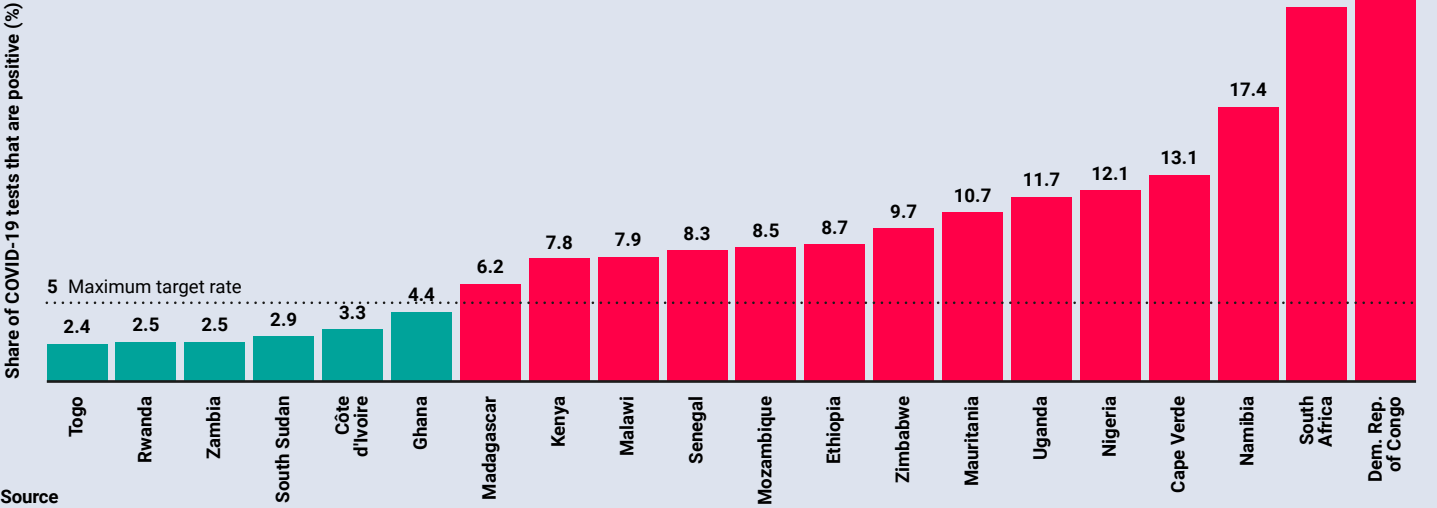
⁵⁹ "World Bank Confirms Economic Downturn in Sub-Saharan Africa, Outlines Key Policies Needed for Recovery," *World Bank*, October 8, 2020.

⁶⁰ "Small group of rich nations have bought up more than half the future supply of leading COVID-19 vaccine contenders," *Oxfam International*, September 17, 2020.

⁶¹ Danica Kirka, "3rd major COVID-19 vaccine shown to be effective and cheaper," *AP News*, November 23, 2020.

FIGURE 2.4
TESTING FOR COVID-19 IN AFRICA

Although Africa has handled the COVID-19 pandemic well so far, with relatively few deaths and cases per million, testing rates on much of the continent remain low, and testing is inequitably distributed. Among countries for which data on test positive rates is available, seven countries out of 18 had a positive rate above the maximum target rate of 5 percent recommended by the World Health Organization. The data may be deceiving, though: A scarcity of tests means that officials are more likely to test patients they already suspect have COVID-19. Furthermore, the eight countries that test the most in Africa account for nearly 75 percent of all tests on the continent.



Max Roser et al., “Coronavirus Pandemic (COVID-19),” OurWorldInData.org, accessed January 13, 2021.



Note

Due to limited data, figure does not include Algeria, Sudan, the DRC, Burkina Faso, Somalia, Sierra Leone, Chad, Comoros, and Tanzania.

Source

“COVID-19 Coronavirus Pandemic,” Worldometers.info, accessed January 13, 2021.

Complicating this task are challenges in the continent with cold-chain sufficiency and “last mile” delivery, especially in rural areas. The primary health care center, which is the last level of the cold chain system in most African countries, usually lacks personnel and technical capacity, and many are located in rural, hard-to-access, or remote areas that lack the infrastructure necessary for vaccine delivery.

Indeed, some of the successful COVID-19 vaccines will require ultra-cold temperatures for storage, but most African countries have never deployed vaccines with such needs and don’t have the infrastructure to support that ultra-cold storage. Other complex challenges, such as vaccine hesitancy⁶² and armed conflicts in several countries, can hinder widespread COVID-19 immunization on the continent too.

About 22 African countries can be said to have a working cold-chain system for routine vaccines stored at the regular 2°C to 8°C temperature. They have achieved the Global Vaccine Action Plan target of 90 percent or greater cover-

⁶² Jeffrey V. Lazarus et al., “A global survey of potential acceptance of a COVID-19 vaccine,” *Nature Medicine* (2020).

age of routine vaccines.⁶³ However, most countries with larger populations or economies on the continent, such as Angola, the Democratic Republic of the Congo (DRC), Ethiopia, Nigeria, South Africa, and Tanzania, have yet to achieve that 90 percent coverage goal.⁶⁴ Still, in response to past disease outbreaks and with support from the World Health Organization and Gavi, low-vaccine coverage countries like Nigeria and the DRC have implemented successful vaccination strategies. Just recently, Nigeria was able to eradicate wild polio,⁶⁵ and Ebola outbreaks were stopped in the DRC with a vaccine that requires ultra-cold storage.⁶⁶

For equitable access to COVID-19 vaccines in Africa, a good strategy will actually be to improve on approaches that have already worked on the continent.

So, for equitable access to COVID-19 vaccines in Africa, a good strategy will actually be to improve on approaches that have already worked on the continent. At the same time, wealthy countries and donor organizations should continue to support African countries with vaccine donations and “last mile” delivery technologies such as the Artek—a high-tech, insulated reusable container that can keep a vaccine at ultra-cold temperature for up to a week without electricity and be moved around easily in difficult terrains—used for Ebola vaccination in the DRC. In the northeast of Nigeria, where the Boko Haram insurgency is active, the use of security personnel to support vaccine deployment led to an increase in the number of communities and households accessed by polio vaccination teams.⁶⁷

African governments should already be organizing effective vaccine awareness campaigns and community engagement to combat vaccine misinformation and hesitancy.

At the same time, African governments should already be organizing effective vaccine awareness campaigns and community engagement to combat vaccine misinformation and hesitancy. They should also commit sufficient resources, such as deploying security personnel to accompany immunization workers to security-compromised areas, to ensure vaccine access in all areas as well.

⁶³ The percentage of children receiving the routine diphtheria, tetanus and pertussis (DTP3) vaccines is usually used as a measure the strength of a country's immunization system (see “Immunization,” *UNICEF Data*, July 2020).

⁶⁴ “Immunization,” *UNICEF Data*, July 2020.

⁶⁵ “Polio is no longer endemic in Nigeria – UN health agency,” *Africa Renewal*, August 25, 2020.

⁶⁶ Uwagbale Edward-Ekpu, “A successful Ebola vaccine delivery shows how a Covid-19 vaccine would work in Africa,” *Quartz Africa*, November 23, 2020.

⁶⁷ Loveday Nkwogu, “Impact of engaging security personnel on access and polio immunization outcomes in security-inaccessible areas in Borno state, Nigeria,” *BMC Public Health* 18, no. 4 (2018).

FIGURE 2.5
HOW HAVE MOVEMENT PATTERNS CHANGED DURING THE PANDEMIC?
SUB-SAHARAN AFRICA VS THE WORLD

The initial shock of the lockdowns from March to May seems to have impacted people around the world in similar ways, with movement in residential places spiking, and movement in all other areas precipitously dropping. As of December 2020, mobility data show that movement in sub-Saharan Africa in most domains have returned to pre-pandemic levels. For many other countries in the world, however, movement in areas like retail, transit, and places of work have not rebounded in the same way, instead leveling off below that of pre-pandemic times.



Visual Key

- Rest of the world
- Sub-Saharan Africa

Note

The sub-Saharan Africa category is the median of eight countries. Angola, Benin, Botswana, Burkina Faso, Cameroon, Cape Verde, Côte d'Ivoire, and Gabon. The "rest of world" category is the median for 35 countries from all six continents and all four World Bank income groups.

Source

Google, "COVID-19 Community Mobility Reports," accessed December 8, 2020.

Preventing the next pandemic: Addressing antibiotic resistance

After their introduction more than 80 years ago, antibiotics saved millions of lives, transforming health care. Now, though, the ubiquitous use of these “wonder drugs” has led to the natural selection of antibiotic-resistant bacteria—a threat to the very gains once made. Frighteningly, the spread of antibiotic resistant bacteria today is a silent pandemic that could undermine health systems the world over. Already, antibiotic resistance has been estimated to claim more than 750,000 lives every year.⁶⁸ Some of the most dire consequences of this phenomenon could be for the poorest and most vulnerable people in countries that never had adequate access to antibiotics to begin with.

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In Nigeria, for instance, prompt access to effective antibiotics could potentially avert an estimated 49,407 under-5 pneumonia deaths annually.⁶⁹ Due to lack of data for other diseases, experts estimate that this number is likely the tip of the iceberg. For example, data on neonatal sepsis deaths in Nigeria suggest 19,400 cases were attributable to pathogens resistant to first-line antibiotics. This stands in stark contrast to the 1,342 Nigerian deaths known to be caused by COVID-19 thus far.⁷⁰

The COVID-19 pandemic has revealed that reliance on individual national mechanisms, legislation, and strategies is insufficient.

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The “ticking timebomb” of antibiotic resistance has emerged under two classic market failures. On the demand side is the tragedy of the commons—the mis- and overuse of antibiotics as a public good. On the supply side is the lack of incentives to develop new antibiotics caused by scientific challenges, high drug development costs, and short drug lifespan due to development of resistance, which call for new business models.^{71, 72} While wealthier countries have been able to kick the can down the road by switching to more expensive antibiotics, already-fragile health systems in Africa will be stretched beyond breaking point as the switch from first-line antibiotics adds a median overall cost of \$700 per infection.⁷³

In recognition of the serious health challenges imposed by antimicrobial resistance (including viral and parasitic infections), African national and regional leadership has

⁶⁸ Dag Hammarskjöld Foundation and ReAct, 2019, When-the-Drugs-Don't-Work-Antibiotic-Resistance-as-a-Global-Development-Problem-Feb-2019.pdf (reactgroup.org)

⁶⁹ Laxminarayan et al., “Access to Effective Antimicrobials: A Worldwide Challenge,” *The Lancet* 387, no. 10014 (2016): 168-75.

⁷⁰ As of January 9th, 2021: <https://coronavirus.jhu.edu/region/nigeria>.

⁷¹ Anthony D. So and Tejen A. Shah, “New Business Models for Antibiotic Innovation,” *Uppsala Journal of Medical Sciences* 119, no. 2 (2014): 176-80.

⁷² Priya Sharma and Adrian Towse, *New Drugs to Tackle Antimicrobial Resistance: Analysis of EU Policy Options* (London: Office of Health Economic, 2010).

⁷³ Sujith Chandy et al, High cost burden and health consequences of antibiotic resistance: the price to pay. *The Journal of Infection in Developing Countries* 2014, 8(9):1096-102.

Funding remains a critical issue as the costs of implementing national action plans, including disease control and prevention, are high.

created action plans to combat the problem.⁷⁴ However, funding remains a critical issue as the costs of implementing national action plans, including disease control and prevention, are high. For example, implementation of Zimbabwe's plan is estimated at \$44.6 million over 5 years.⁷⁵

Moreover, the COVID-19 pandemic has revealed that reliance on individual national mechanisms, legislation, and strategies is insufficient for combatting such a microscopic foe. Furthermore, as with climate change, the potential costs of antibiotic resistance are highly uncertain and potentially catastrophic. Both raise questions of intergenerational equity as countries that "polluted" the least will pay the highest price as antibiotics lose their effectiveness. Lessons from climate change models could serve as examples for transformation of health and agriculture systems towards sustainable use of antibiotics while securing access in less developed countries.

Ensuring access to *effective* antibiotics for future generations must be a critical part of rebuilding global health systems.

Ensuring access to *effective* antibiotics for future generations must be a critical part of rebuilding global health systems. The solution must be global and collaborative, and the time to act is now.

⁷⁴ On September 20, 2020, the African Union Heads of States and Governments endorsed a common position on antimicrobial resistance. As of November 2020, 33 African countries have National Action Plans on Antimicrobial Resistance.

⁷⁵ Mirfin Mpundu, "Moving from paper to action – The status of National AMR Action Plans in African countries," accessed December 7, 2020.

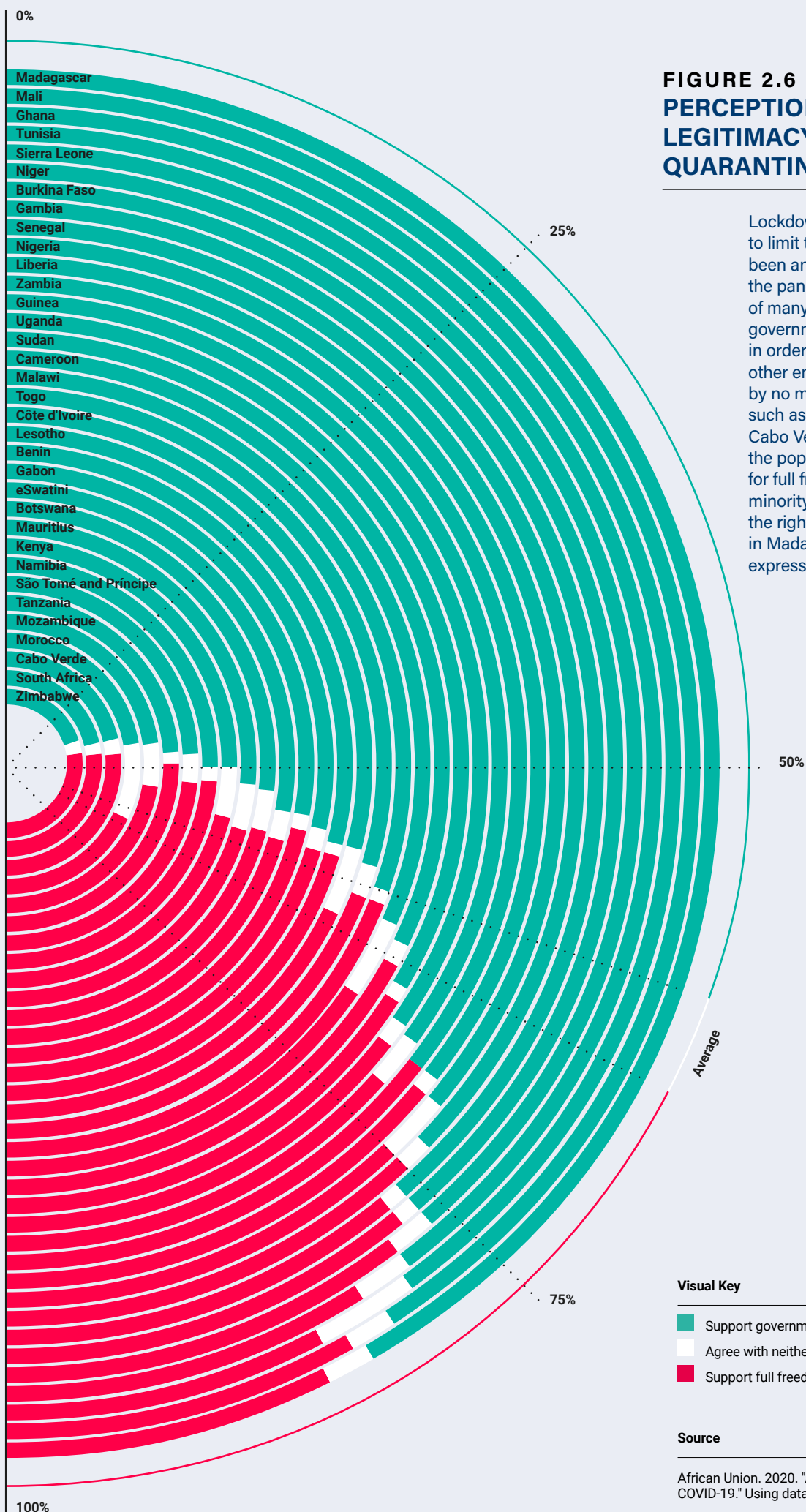


FIGURE 2.6
PERCEPTIONS OF THE
LEGITIMACY OF COVID-19
QUARANTINE AND LOCKDOWN

Lockdowns imposed by the government to limit the spread of COVID-19 have been an important tool for combatting the pandemic worldwide. The citizens of many African countries support the government's right to restrict movement in order to deal with a public health or other emergency, but this opinion is by no means unanimous. In countries such as Zimbabwe, South Africa, and Cabo Verde, more than 50 percent of the population has expressed support for full freedom of movement, and only a minority agree that the government has the right to restrict movement. People in Madagascar, Mali, and Ghana have expressed quite the opposite sentiment.

Visual Key

- Support government right to restrict movement
- Agree with neither/don't know
- Support full freedom of movement

Source

African Union. 2020. "Africa's governance response to COVID-19." Using data from Afrobarometer, 2020.