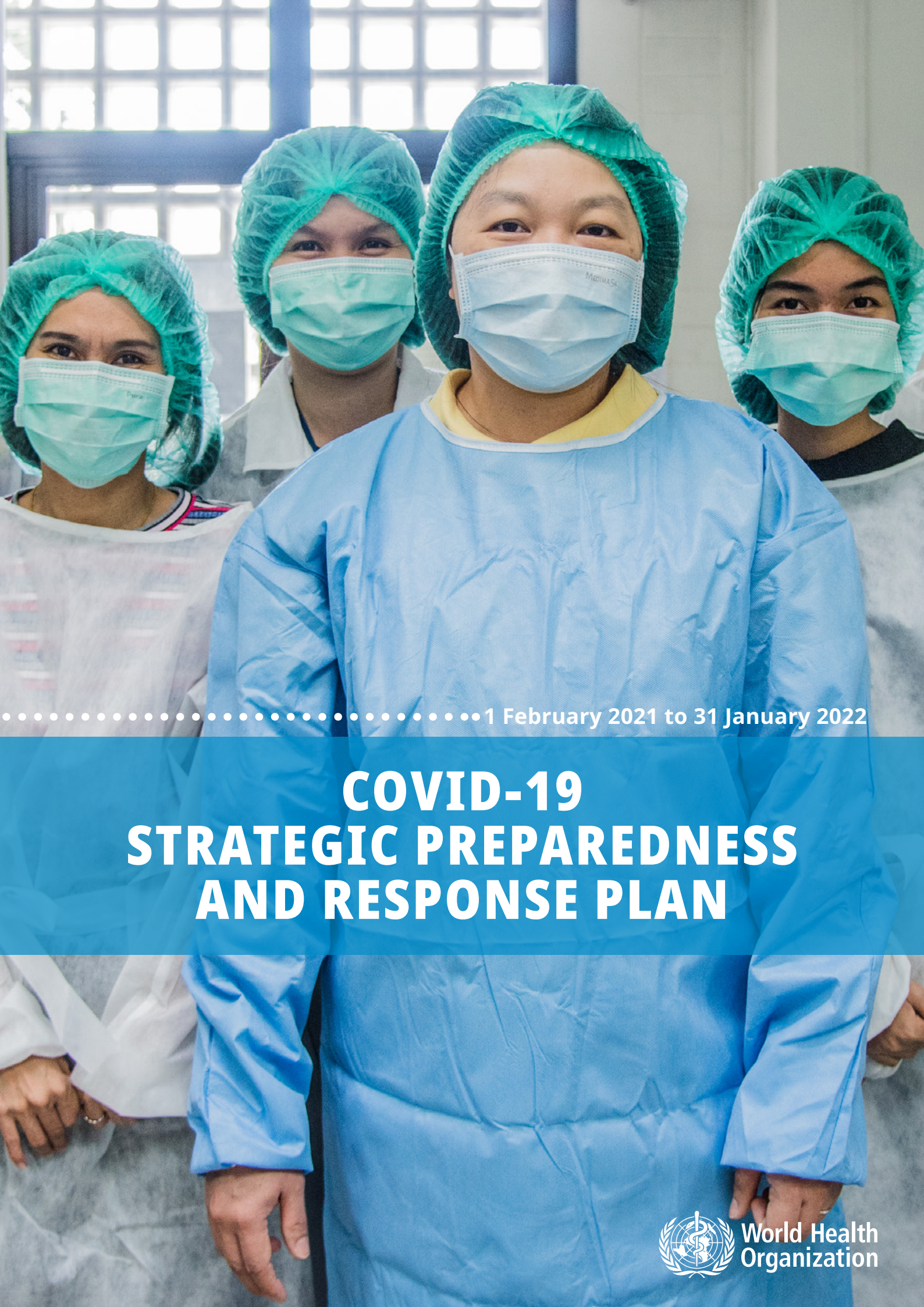

1 February 2021 to 31 January 2022

COVID-19 STRATEGIC PREPAREDNESS AND RESPONSE PLAN

World Health Organization

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COVID-19 Strategic preparedness and response plan

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FOREWORD FROM THE DIRECTOR-GENERAL

In a little over 12 months the pandemic has claimed more than 2 million lives and damaged the economic and social fabric of every society. Across the world the pandemic has thrown existing inequalities into stark relief. Progress towards the Sustainable Development Goals has stalled, and in some cases may have reversed. Up to 100 million people have slipped into extreme poverty – the first rise in global poverty in more than two decades.

Ending the devastation wrought by COVID-19 requires coordinated global action. In 2020, WHO's Strategic preparedness and response plan for COVID-19 set out the key actions at national, regional, and global levels needed to suppress transmission, protect the vulnerable, reduce mortality and morbidity, and accelerate the development of the tools the world needs to turn the tide against the disease. Over the past year WHO has been at the centre of an unprecedented global effort from partners, national authorities, communities and the private sector to put that plan into action.

Through 157 global, regional, and national offices, WHO has worked with a broad coalition of partners to generate evidence and leverage expertise to guide the response, coordinate direct operational and technical support to drive implementation at the national level, and put the mechanisms in place to learn and adapt to a dynamic and rapidly evolving situation. Crucially, the race to develop COVID-19 vaccines, diagnostics and therapies catalyzed by the *Global research roadmap* and the Access to COVID-19 Tools (ACT) Accelerator has delivered results with unprecedented speed.

The world now stands at a pivotal juncture: we need a new plan of action. The arrival of the first generation of safe and effective COVID-19 vaccines was a moment of enormous hope, but its arrival has coincided with the emergence of new challenges, many of which threaten to exacerbate existing inequities. WHO's *COVID-19 Strategic preparedness and response plan 2021,* and the accompanying *Operational planning guidelines,* set out the practical, coordinated action we must collectively take at the national, regional, and global level to overcome those challenges, address those inequities, and plot a course out of the pandemic.

The first *Strategic preparedness and response plan for COVID-19* united a global coalition of partners behind a common set of objectives. That solidarity and unity of purpose has given rise to incredible achievements over the past 12 months. Countries have been supported to transform national and subnational COVID-19 preparedness and response capacities. When these capacities have fallen short, WHO and partners have come together to deliver solutions. The work done to coordinate and accelerate the development of vaccines, therapeutics and diagnostics has paid off, but it is now vital that these tools are used strategically for the global good.

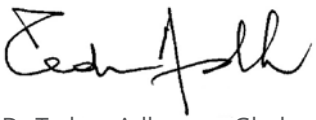
The COVID-19 pandemic is in many respects unprecedented, but in no respect was it unforeseen. As we focus on our immediate collective response, it is vital that we learn from the mistakes, missteps and missed opportunities of the past if we are to avoid repeating them. That means learning from the mistakes of the HIV pandemic, when it took four decades for the global poor to get access to the life-saving medicines that were available in high-income countries. It means learning from the H1N1 pandemic, when the poor gained access to life-saving vaccines only once the pandemic was over. And it means learning from the Ebola epidemic in West Africa, which demonstrated that many years of hard-won development gains can be undone by a large-scale epidemic when there is underinvestment in epidemic preparedness and readiness, and that epidemic control relies on effective community engagement and the trust communities have in the government and health services.

An uncoordinated, "me-first" approach to vaccination not only condemns the world's poorest and most vulnerable to unnecessary risk, it is strategically and economically self-defeating. Short-termism, and the pursuit of narrow national self-interest could have disastrous consequences in the medium term. The continued spread of SARS-CoV-2 around the world hastens the day that new variants of the virus will emerge with the potential to undermine the effectiveness of vaccines, therapeutics, and diagnostics; the restrictions needed to contain SARS-CoV-2 around the world will be unnecessarily prolonged, leading to increased human and economic suffering in every country, but hitting the poorest and most vulnerable hardest.

The COVID-19 pandemic is in many respects unprecedented, but in no respect was it unforeseen. As we focus on our immediate collective response, it is vital that we learn from the mistakes, missteps and missed opportunities of the past if we are to avoid repeating them.

A recent study commissioned by the International Chamber of Commerce concluded that even with high vaccine coverage in high-income countries, restricted coverage elsewhere would cost high-income economies an additional US$ 2.4 trillion in 2021 alone. Yet in the weeks since the first COVID-19 vaccines were approved, we have seen countries circumvent the ACT-Accelerator to make bilateral deals with manufacturers at the expense of the most vulnerable around the world. Vaccine equity is not just a moral imperative, it is a strategic and economic imperative. We call on all countries and partners to give greater priority to supporting the ACT-Accelerator reach its target to distribute 2 billion vaccine doses by the end of 2021, through sharing doses, funding the COVAX mechanism, and by supporting WHO to ensure that every country has the technical and operational capacity to vaccinate its most vulnerable groups.

The evidence is clear: solidarity, equity, and global leadership are the only routes out of the pandemic. WHO's contribution to the COVID-19 Strategic preparedness and response plan 2021, and the ACT-Accelerator within it, provides the foundation on which we can build an effective, equitable response together, and end the acute phase of the COVID-19 pandemic.



Dr Tedros Adhanom Ghebreyesus
WHO Director-General

ABOUT THIS DOCUMENT

WHO published the first COVID-19 Strategic preparedness and response plan (SPRP) on 4 February, 2020, four days after the Director-General declared the novel coronavirus outbreak a public health emergency of international concern (PHEIC), WHO's highest level of alarm under international law. As the COVID-19 pandemic evolved, the SPRP was updated in April 2020 to underline the importance of critical aspects of the public health response, and support countries to safely and sustainably transition out of the severe movement restrictions that had been put in place in some countries.

As we enter 2021, it is again important that we take stock of the evolving epidemiological situation around the world, including the emergence of SARS-CoV-2 variants of concern, review the lessons learned about the virus and our response, identify the gaps in our knowledge while anticipating the potential challenges ahead, and ensure a gender-responsive and equitable response based on a respect for human rights. We must adapt our strategic approach to COVID-19 at national and global levels to plan and support the rapid and equitable deployment of new tools such as rapid diagnostics and vaccines.

COVID-19 will not be the last health threat or emergency – many countries have already been forced to manage concomitant crises. The COVID-19 pandemic is a stark reminder that the costs of effective preparedness are dwarfed by the costs of a failure to prepare. The world now has an opportunity to build on progress made in 2020 and move towards a sustainable future of emergency preparedness and readiness built on a foundation of strong and resilient health systems.

This document, the **COVID-19 SPRP 2021** is intended to help guide the public health response to COVID-19 at national and subnational levels, and to update the global strategic priorities in support of this effort. This document was drafted based on the input of colleagues involved in the COVID-19 response across partners, response pillars, and at the national, regional, and global levels.

- **Part I** of this document gives a brief overview of the global epidemiological situation as we enter the first quarter of 2021, and summarizes the main challenges as we look forward.
- **Part II** sets out the strategic objectives for 2021, and describes the broad response strategy – from national level to global and regional coordination – through which we will achieve those objectives together: as individuals, families, communities, countries, regional and international organizations, and as partners, in solidarity.

In addition, this document is complemented by the **COVID-19 *Operational plan***, which sets out:

- updated *Operational planning guidelines to support country preparedness and response*, which set out the key actions and measures to be taken at national and subnational level to ensure a comprehensive and effective response to COVID-19, including the implementation of new vaccines, therapeutics, and diagnostics in every country and context, including the most challenging and under-resourced contexts;
- strategic global and regional priorities to support national efforts, organized by response pillar;
- global and regional support to accelerate equitable access to new COVID-19 tools;
- research and innovation priorities under each response pillar;
- key performance indicators for monitoring and evaluation.

PART I

SITUATION OVERVIEW

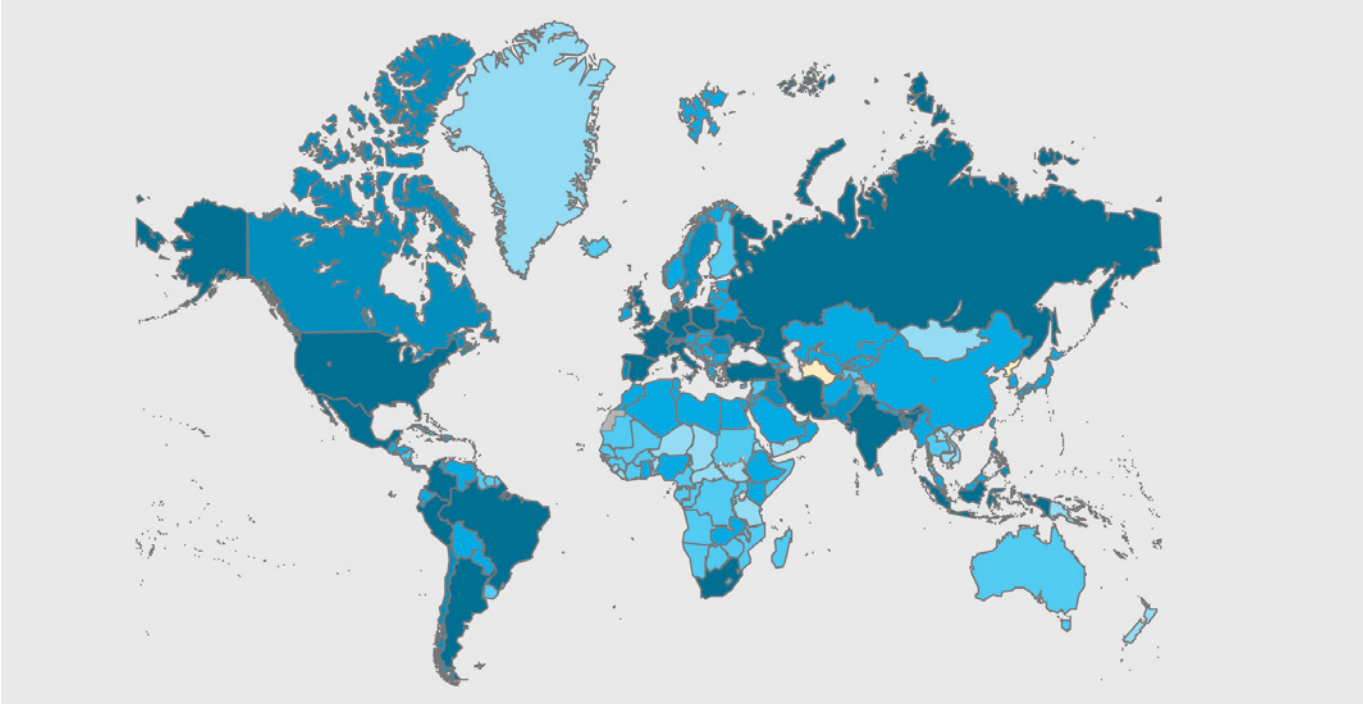
Epidemiological situation

COVID-19 has spread around the world, affecting every country directly or indirectly (figure 1). Its capacity for rapid spread means COVID-19 has sometimes overwhelmed even the most resilient health systems. As of 7 February 2021, more than 105 million cases had been reported worldwide, and more than 2.2 million people were reported to have died (figure 2). In addition, increasing indirect mortality has been documented worldwide as health systems disruptions associated with the pandemic and response measures have impacted care for other health conditions.

The pandemic continues to evolve. The number of cases and deaths globally continue to increase. In the most recent week for which data are complete (the week commencing 1 February 2021), almost 90 000 deaths were reported globally, and more than 3 million new cases (figure 2). However, these headline figures obscure marked variation amongst WHO regions (figure 3), amongst countries, and within countries. Trends in incidence and mortality are downwards or stable in many countries, but these trends may not reflect the real evolution of the epidemic in countries where testing capacity is limited. In countries experiencing rapid rises in incidence, capacities for case investigation, contact tracing, and quarantine are often put under additional pressure.

Males account for a higher proportion of deaths than females (57% of deaths but only 51% of cases), for reasons that are not completely understood, highlighting the need for sex-sensitive and gender-sensitive approaches to response. Women are at an increased risk of SARS-CoV-2 infection, and are often disproportionately affected by the social and economic implications of response measures. These impacts include, but are not limited to, a loss of sexual and reproductive health services, increased expectations to deliver unpaid care at home and in the community, and a steep rise in the incidence of gender-based violence. These periods of peak demand for social protection and refuge services coincide with periods that these services have been significantly curtailed due to COVID-19. In countries that report data disaggregated by social determinant of health such as ethnicity, occupation, education, living conditions, and income, there notable disparities in terms of exposure, vulnerability, access to health services, and health outcomes in the context of COVID-19.

Figure 1 Geographical distribution of reported COVID19 cases as at 13 February 2021



The boundaries and names shown and the designations used on this map do not imply the expression of any opinion whatsoever on the part of the World Health Organization concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. Dotted and dashed lines on maps represent approximate border lines for which there may not yet be full agreement.

Most COVID-19 cases are in younger adults, but the risk of death from COVID-19 increases steeply with age. Over 80% of deaths occur in individuals over the age of 65 years old, with a case fatality ratio of more than 10% in that age group. However, 16% of all deaths occur in individuals aged between 15 and 64 years old. Comorbidities including non-communicable diseases (NCDs) also significantly increase the risk of death, and there may be other factors that influence the outcomes of COVID-19 that are yet to be understood, especially in low-resource and humanitarian settings for which there is a lack of comparative data.

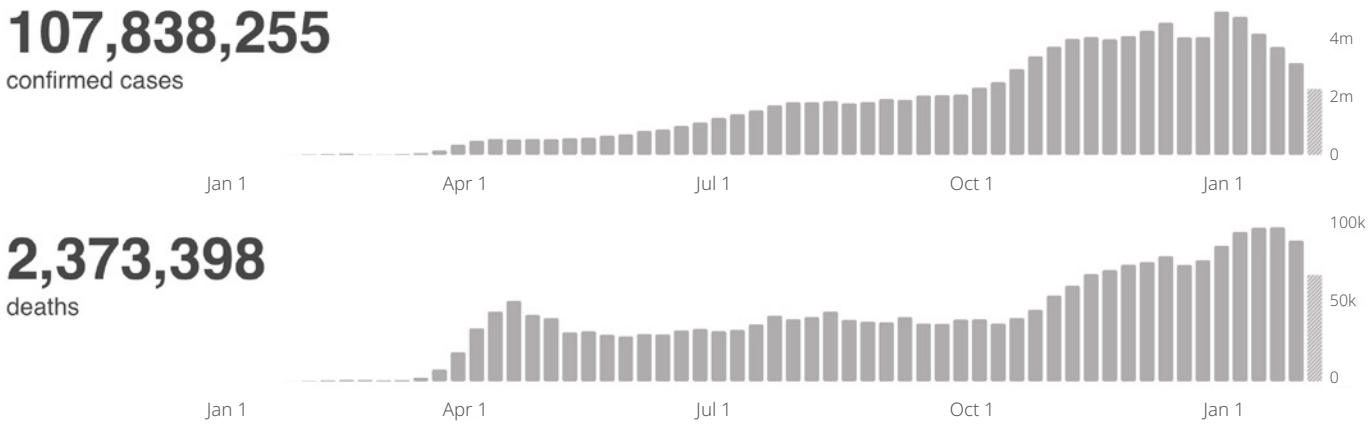
At the population level, the mortality rate increases with increasing COVID-19 incidence.

The best way to reduce mortality is therefore to suppress incidence. There is now growing evidence that a post-COVID-19 condition characterized by fatigue and cognitive impairments is not only affecting patients that have been hospitalized, but also a proportion of patients from every age cohort that had mild or moderate disease. In some cases this condition prevents patients from returning to their previous activities. The underlying mechanism of persistent or relapsing symptoms remains to be understood.

SARS-CoV-2 transmission is highly clustered, with the majority of transmission events estimated to come from a relatively small number of cases. Transmission mainly occurs among close contacts of infected persons in indoor spaces, and can be amplified in enclosed settings with poor ventilation. Secondary attack rates are higher in household settings (recent estimates from two meta-analyses suggest household secondary attack rate is approximately 17–21%), and outbreaks have been reported from a number of settings, including long-term living facilities, prisons, religions or social events, and food processing plants.

Health workers have been hit hard by COVID-19. Data from WHO's case database of 33 million records shows that health workers account for 7.7% of cases worldwide, although that figure masks wide variation amongst countries, and changes over time. Based on WHO data, in the first three months of the pandemic, health worker infections slightly exceeded 10% of reported cases, declining to less than 5% by early June 2020 and to approximately 2.5% by September 2020. In addition, the heavy burden placed on health workers involved in the response and within the wider health system has had a negative impact on their health and wellbeing.

Figure 2 Reported weekly COVID19 cases and deaths to 13 February 2021

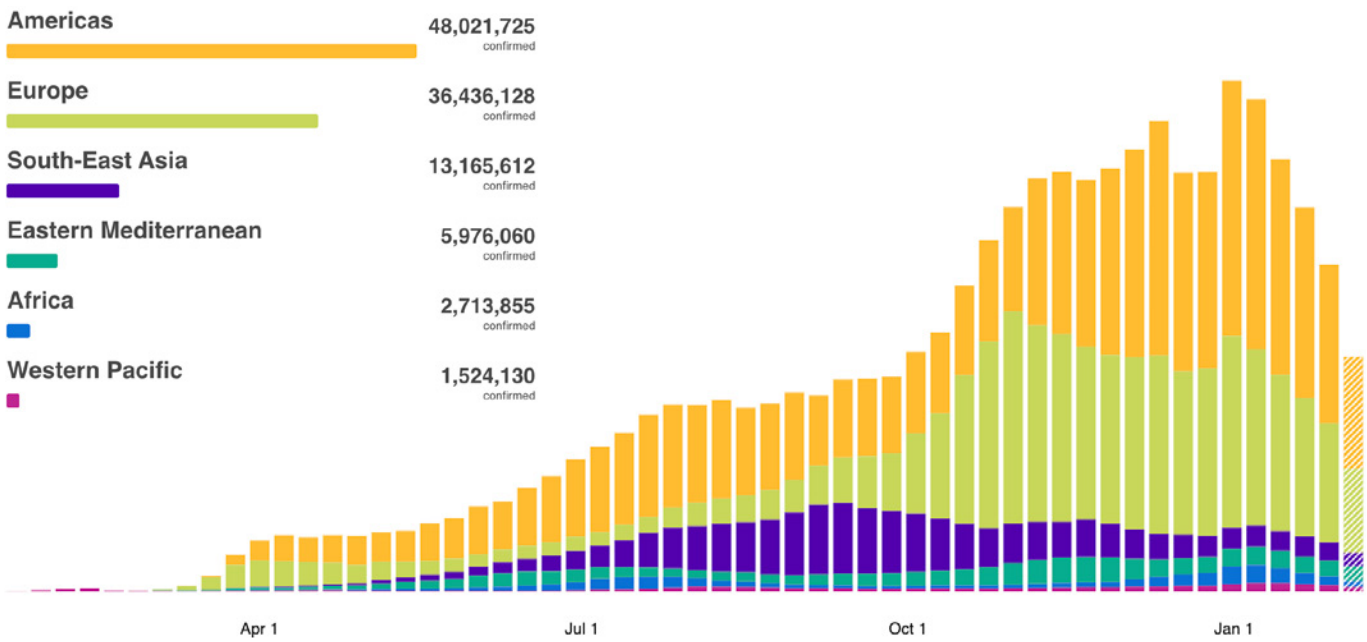


Dynamic and uneven epidemiology is driven by variations in response

The pattern of SARS-CoV-2 transmission in countries over time broadly resembles one of four scenarios, driven primarily by marked variation in the implementation of evidence-based public health and social measures (figure 4). The increase in transmission intensity observed during the final quarter of 2020 was driven primarily by increased social mixing precipitated by the premature, rapid and simultaneous (rather than step-wise) lifting of public health and social measures; a lack of critical resources for infection prevention, such as masks and water; and the absence of robust public health infrastructure to detect cases and quarantine and support contacts in order to break chains of transmission. Engagement with and empowerment of communities and individuals to manage their own risk by adjusting behaviours and following public health and social measures remains critical to the success of the response. However, misinformation, disinformation, a lack of context-appropriate and culturally-appropriate information, and inconsistent public messaging have, in some situations, undermined the effectiveness of evidence-based response measures and individual risk-reducing behaviours. The role of civil society organizations has proven pivotal in responding to COVID-19 and mitigating the impact of the pandemic.

Policies to mitigate the negative socio-economic impacts of public health and social measures also have an important role in supporting population compliance with, and the thus the success of, the response. For many populations living in situations characterized by poverty and vulnerability, the enforcement of strict public health and social measures in the absence of effective policies to counterbalance their negative impacts on economic, social and mental wellbeing may constitute an unsustainable and untenable burden.

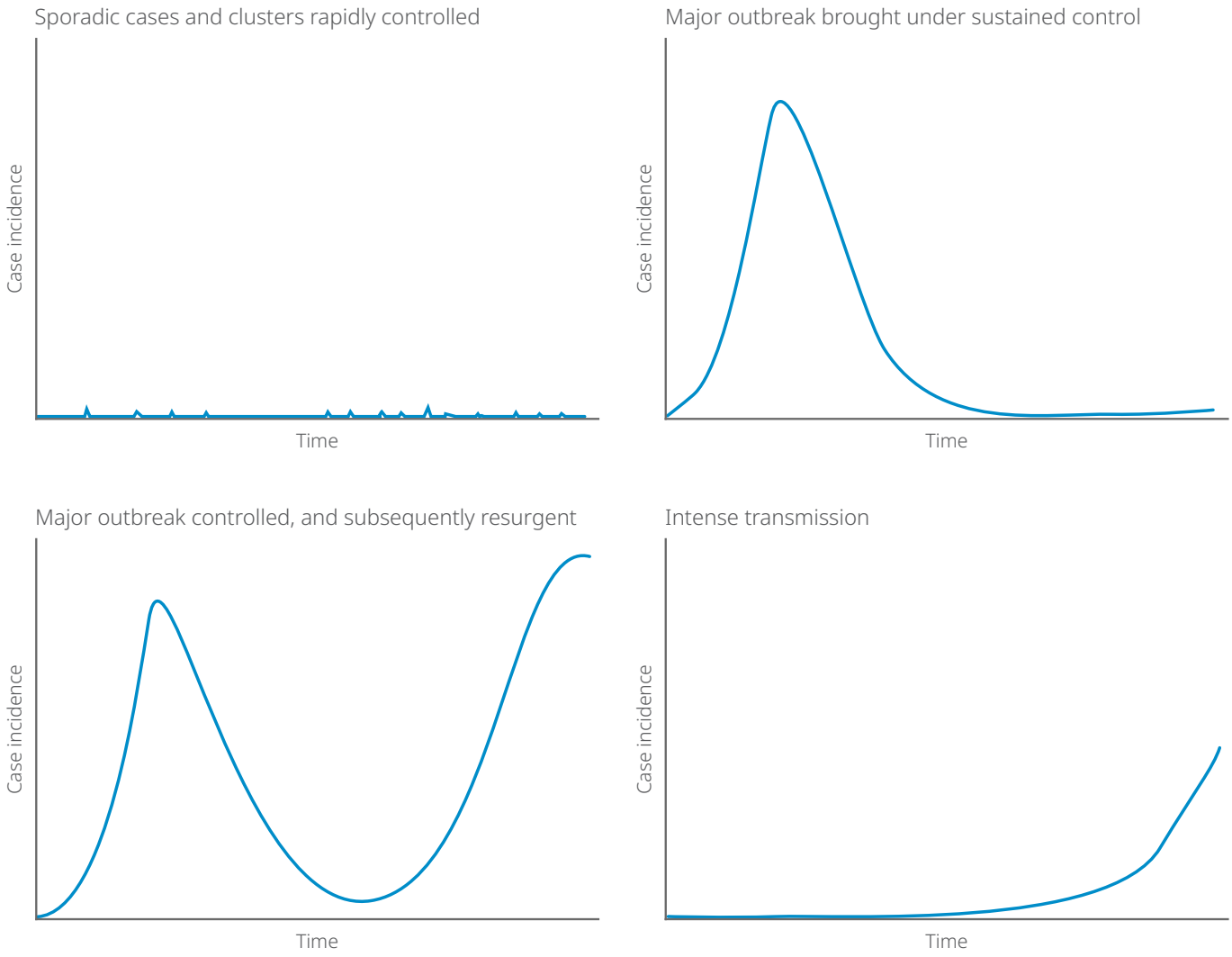
Figure 3 Weekly COVID19 cases to 13 February 2021 by WHO region



Transmission rates in low-resource and humanitarian settings are likely to be underestimated due to reporting limitations. In settings such as informal settlements and camps, living conditions including overcrowding, poor ventilation and limited access to water and sanitation can contribute to transmission. Health service disruptions in all settings, including essential sexual and reproductive health services, have been substantial, and barriers on both the supply and demand sides have increased, resulting in higher morbidity and mortality from all causes.

Analysis of worldwide socio-behavioural data highlights several broad trends, including a decrease in confidence that individual actions can influence the control of the virus; increasing fatigue and accumulating health consequences related to health service disruptions as the pandemic becomes more protracted; increasing stress and other mental health consequences caused by uncertainty about the future, increasing economic pressures on households, and a reduction in trust of government responses. These trends indicate an increasing toll on the mental, social, and economic wellbeing of individuals and communities.

Figure 4 Epidemic curves in countries conform to four distinct patterns driven by variations in the implementation of public health and social measures



The epidemiological outlook for 2021 is uncertain

Looking ahead through 2021, substantial epidemiological uncertainties remain. Vaccines, where available, are likely to reduce severe disease and death, but their impact on the dynamics of transmission is still largely unknown. It is unlikely that vaccines will have a significant impact on the pandemic trajectory in the first half of 2021.

To date, there are hundreds of seroepidemiology studies of SARS-CoV-2 that have been published using a variety of methods and varying in quality. The duration of immunity is not yet completely understood; in most countries and communities, naturally acquired immunity is low, and may wane after several months, and there is therefore still a large global population susceptible to SARS-CoV-2 infection. WHO is working with more than 100 countries on standardized seroepidemiology study methodologies. With different levels and duration of immunity among different populations, we may see different epidemic cycles. High-transmission settings will continue to suffer the most marked impacts on health (direct and indirect), economy, and society.

Emergence of SARS-CoV-2 variants

Viruses constantly change through mutation, and so the continual emergence of new variants of SARS-CoV-2 has been expected. The vast majority of mutations are neutral, and have no measurable effect on transmission, or on the type and severity of clinical disease caused by infection. However, some mutations can arise that confer an adaptive advantage to the virus, giving rise to variants of concern. Such changes may enable the virus to spread more easily in certain conditions, may alter some of the clinical characteristics of the disease, and/or reduce the effectiveness of medical countermeasures including vaccines, therapeutics and diagnostics.

Throughout 2020 and during the first quarter of 2021, WHO has tracked and assessed the risk associated with the emergence of a number of specific mutations and variants of concern identified around the world. Research and modeling is ongoing to determine the impact of specific mutations and variants of concern on transmission; disease presentation and severity; and the potential impact on diagnostics, vaccines, and therapeutics. WHO is working with partners and through the SARS-CoV-2 Virus Evolution Working Group to track and assess the level of risk associated with mutations based on potential impacts on public health. It is clear that the longer and more widely SARS-CoV-2 circulates, the more opportunities it has to adapt, and the greater the threat to our ability to test, treat and vaccinate for COVID-19. In addition, mechanisms for the surveillance of mutations in susceptible animals and associated risks for people in contact with these animals have been promoted jointly by the WHO, the Food and Agriculture Organization, and the World Organisation for Animal Health.

Accelerated research and innovations

The *Global research roadmap*, launched in February 2020 and regularly updated since, provided the platform to launch what, in under a year, has become a global biomedical research effort unparalleled in history. Pre-empting the need to simultaneously stimulate large-scale production and put in place the capacity to ensure the global implementation of these tools, WHO and partners launched the Access to COVID-19 Tools (ACT) Accelerator in April 2020. In the final quarter of 2020 the world saw the first evidence that these efforts had borne fruit in the form of new vaccines and diagnostics with the potential to turn the tide of the pandemic.

A growing number of vaccines have now announced and published safety and efficacy results from phase 3 placebo-controlled trials. The efficacy of these products has far exceeded the minimum efficacy of 50% established by WHO in early 2020. WHO, through its Strategic Advisory Group of Experts on Immunization (SAGE), has issued recommendations for the use of several vaccines, and will continue to evaluate candidates on the basis of its population prioritization recommendations and ethical values framework for COVID-19 vaccines.

For therapeutics, the WHO-coordinated Solidarity Trial collects and analyses the results of clinical trials to provide evidence-based recommendations for the clinical management of patients. Interim results published in October 2020 that showed all four of the treatments evaluated (remdesivir, hydroxychloroquine, lopinavir/ritonavir and interferon) had little or no effect on overall mortality, initiation of ventilation, nor duration of hospital stay in hospitalized patients. Corticosteroids are the one treatment so far found to have a significant clinical benefit among patients with severe or critical disease in terms of reduced mortality. The Solidarity Trial continues to evaluate other treatments for inclusion, including newer antivirals, immunomodulators, and anti-SARS CoV-2 monoclonal antibodies.

PCR tests remain the gold standard of SARS-CoV-2 diagnostic testing for accuracy, but other types of tests have also been developed, including rapid antigen detection tests, which are faster, easier to administer (especially in remote locations) and considerably cheaper than laboratory-based molecular assays. Although they are not a replacement for PCR tests, they can be used in a variety of different settings, and provide an important boost to testing capacity. Three such tests have now received EUL from WHO.

The urgency and commitment with which the scientific community, supported by the global industry, rose to the challenge of developing vaccines, diagnostics and therapeutics in 2020 must now be matched by equally strong commitment from the global community to ensure these new technologies are distributed fairly and equitably to where they are needed most. Investments are also critical so that communities are adequately informed and engaged in a gender-sensitive, equity-oriented and inclusive manner. With communities fully engaged and actively participating through the full cycle of planning, delivery, and assessment for new biomedical tools, demand for these tools can be increased, leading to widespread and effective uptake and use. Research and innovations in diagnostics, therapeutics, and vaccines will continue to be critically important for reducing transmission, morbidity, and mortality in 2021, and their continued development must be accelerated.

Health systems require strengthening

Ending the COVID-19 pandemic means suppressing transmission and reducing morbidity and mortality in every country and in every context, no matter how challenging, through an evolving combination of preparedness, risk management, ensuring the safe delivery of high-quality health services, vaccination and other new tools, and the implementation of public health measures whilst strengthening public health capacities. Limiting the indirect health consequences associated with the pandemic context requires careful planning and coordinated action to ensure ongoing delivery of essential health services for all conditions. Based on experiences with prior emergencies, indirect morbidity and mortality may in the end exceed that from COVID-19 itself. Particularly in low capacity and humanitarian settings, effective delivery of services and interventions will require strategic shifts, investments, and partner support to foundational health system capacities including financing; data management, collection, and analysis; workforce planning, management and development; clinical care; logistics and supply chain management. WHO continues to work with countries across many programs to strengthen health systems, and the ACT-Accelerator Health Systems Connector provides a complementary anchoring framework through which these investments can be prioritized, coordinated, and delivered by a global coalition of partners. While the ACT-Accelerator is specifically oriented to the delivery of resources for COVID-19, with proper planning, many of the capacity gains associated with response efforts can be transmuted into longer-term gains in health system effectiveness and resilience, particularly in vulnerable settings. Overall, maintaining population trust in the capacity of the health system to safely and equitably meet essential needs and to control infection risk in health facilities is key to ensuring appropriate care-seeking behavior and adherence to public health advice. Robust and well-prepared health systems are capable of rapidly limiting direct mortality and potentially mitigating indirect mortality altogether.

Global collaboration and solidarity continues to be critical

The first Strategic preparedness and response plan helped to bring together a global coalition of partners, and that solidarity and unity of purpose has given rise to incredible achievements over the past 12 months. Countries have been supported to rapidly strengthen national and subnational COVID-19 preparedness and response capacities. When these capacities have fallen short, partners have come together to find and deliver solutions. Hundreds of millions of items of vital personal protective equipment reached health workers at the forefront of the response; vital medical supplies including oxygen and other essential medicines have been distributed to save lives; and international medical teams have supported more than 12 000 intensive care beds in health systems that might otherwise have been overwhelmed.

Crucially, the work done to coordinate and accelerate the development of vaccines, therapeutics and diagnostics has paid off. It is now vital that these tools are used strategically and equitably. An uncoordinated, “me first” approach to vaccination not only condemns the world’s poorest and most vulnerable to unnecessary risk, it is strategically and economically self-defeating. Communities must be consulted and should be actively involved in decision-making. Women, including from marginalized groups, must be meaningfully engaged at all level of decision-making. No community should be left behind. Short-term thinking, and the pursuit of narrow national self-interest could have disastrous consequences in the medium term. The continued spread of COVID-19 around the world hastens the day that new SARS-CoV-2 variants will emerge to undermine the effectiveness of vaccines, therapeutics, and diagnostics; the restrictions needed to contain COVID-19 around the world will be unnecessarily prolonged, leading to increased human and economic suffering in every country, but hitting the poorest and most vulnerable hardest. Up to 100 million people may have already slipped back into extreme poverty in 2020: the first rise in global poverty in more than two decades. A study commissioned by the International Chamber of Commerce concluded that even with high vaccine coverage in high-income countries, restricted coverage elsewhere would cost high-income economies an additional US$ 2.4 trillion in 2021 alone. The evidence is clear: solidarity and equity are the only routes out of the pandemic.

Key lessons and challenges for 2021

- **Epidemiology** is dynamic and uneven, in some contexts uncertain due to a lack of data, driven by variable public health responses and further complicated by variants of concern; however, many countries continue to suppress transmission using available tools.
- **Health care systems and workers** have saved countless lives but are under extreme pressure in many countries in terms of capacity and capabilities, financial resources and access to vital commodities and supplies including medical oxygen. Ensuring continuity of essential health services and building resilient health systems remains essential not only to mitigate the impact of COVID-19, but also to ensure readiness for other concurrent and future health emergencies. Leveraging and strengthening primary and emergency care ensures adequate and sustainable quality and distribution of a multidisciplinary workforce, providing high-quality and safe services for both COVID-19 case management and essential services.
- **Surveillance systems** are finding it hard to cope with high force of infection in some countries. Case and cluster investigations, contact tracing and supported quarantine of contacts remain insufficient in most countries; this is even more pronounced in settings where testing capacities are limited.
- **Communities** have experienced an erosion of social cohesion, limited access to education, and reduced income and security. They are struggling with the implementation and consequences of public health and social measures designed to limit transmission. Fear of infection, reduced ability to pay, and movement restrictions have contributed to significantly reduced utilization of health services in some contexts.
- **Public health and social measures** to control COVID-19 can have considerable social and economic costs, and must be risk-based, regularly reviewed on the basis of robust and timely public health intelligence, effectively communicated, and enabled by targeted measures to ameliorate the socio-economic costs of participation.
- **Global, regional, and national supply chains** and market mechanisms have been disrupted and unable to meet demand, with implications for the implementation of surveillance, infection prevention and control, case management, and the maintenance of essential health services.
- **The infodemic** of misinformation and disinformation, and a lack of access to credible information continue to shape perceptions and undermine the application of an evidence-based response and individual risk-reducing behaviours. However, empowered, engaged, and enabled communities have played a key role in the control of COVID-19.
- **Comprehensive preparedness** and emergency response systems to protect populations from disease outbreaks, natural and human-made disasters, armed conflict, and other hazards, remain fundamentally underinvested in many countries. The costs of effective preparedness are dwarfed by the costs of a failure to prepare.
- **Science** has delivered answers, evidence-based guidance and solutions including vaccines, new diagnostics, and therapeutics. Production of these tools is being scaled up, and strong mechanisms exist for equitable delivery. However, in some cases demand and utilization is suboptimal, and equity is under threat.

PART II

STRATEGIC PREPAREDNESS AND RESPONSE PLAN

Goal: End the COVID-19 pandemic, and build resilience and readiness for the future.

Strategic objectives

We collectively know much more now than we did one year ago. We have developed operational and scientific solutions, but the majority of countries have not yet applied that knowledge and those solutions comprehensively or consistently. In 2021 we must redouble our efforts and adapt our response and capacities to achieve six key strategic public health objectives:

- **Suppress transmission** through the implementation of effective and evidence-based public health and social measures, and infection prevention and control measures, including detecting and testing suspected cases; investigating clusters of cases; tracing contacts; supported quarantine of contacts; isolating probable and confirmed cases; measures to protect high-risk groups; and vaccination.

- **Reduce exposure** by enabling communities to adopt risk-reducing behaviours and practice infection prevention and control, including avoiding crowds and maintaining physical distance from others; practicing proper hand hygiene; through the use of masks; and improving indoor ventilation.

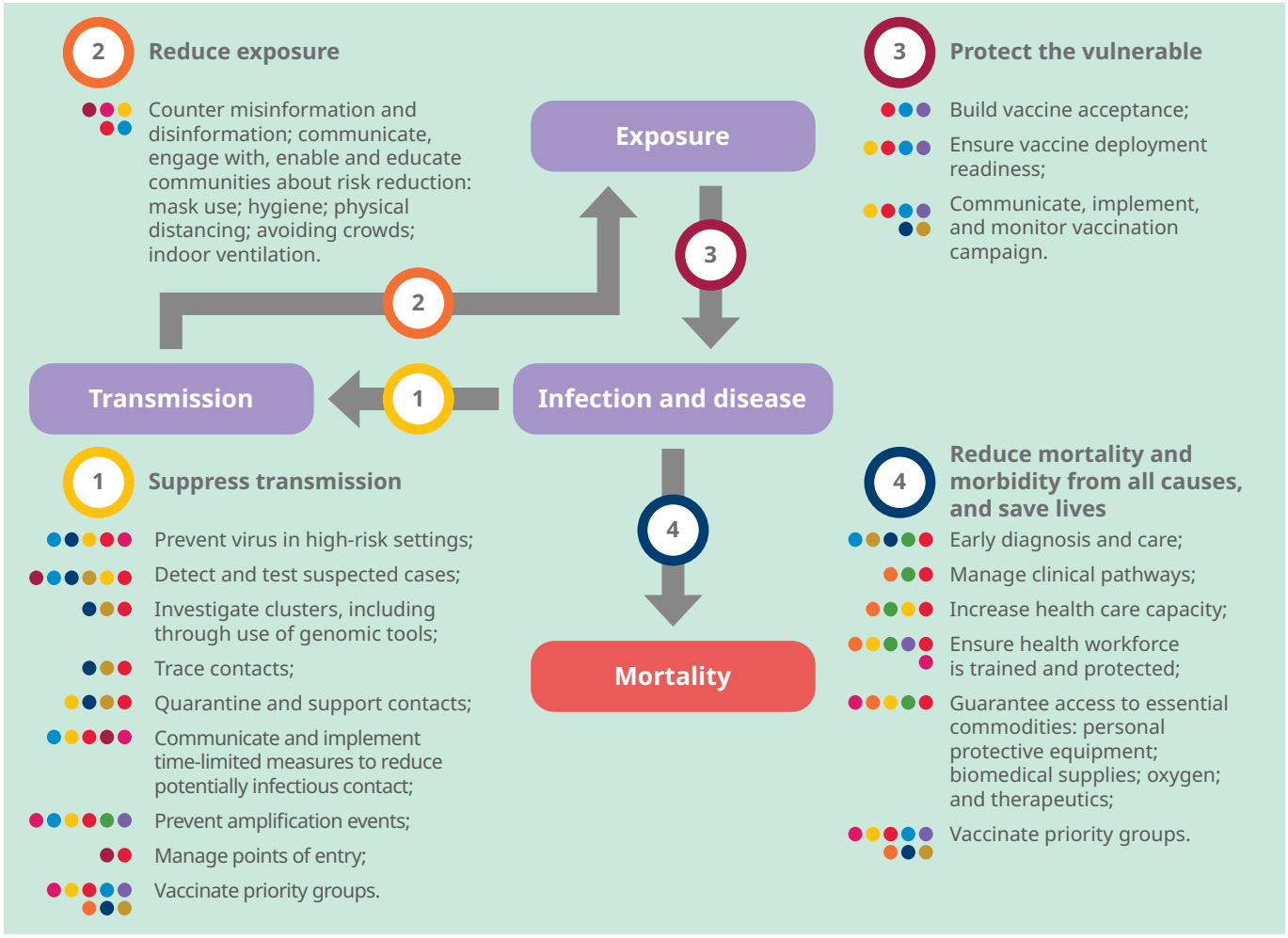
- **Counter misinformation** and disinformation by building resilience through managing the infodemic, communicating with, engaging, and empowering communities, enriching the information eco-system online and offline through high-quality health guidance, and by communicate risk and distilling science in a way that is accessible and appropriate to every community.

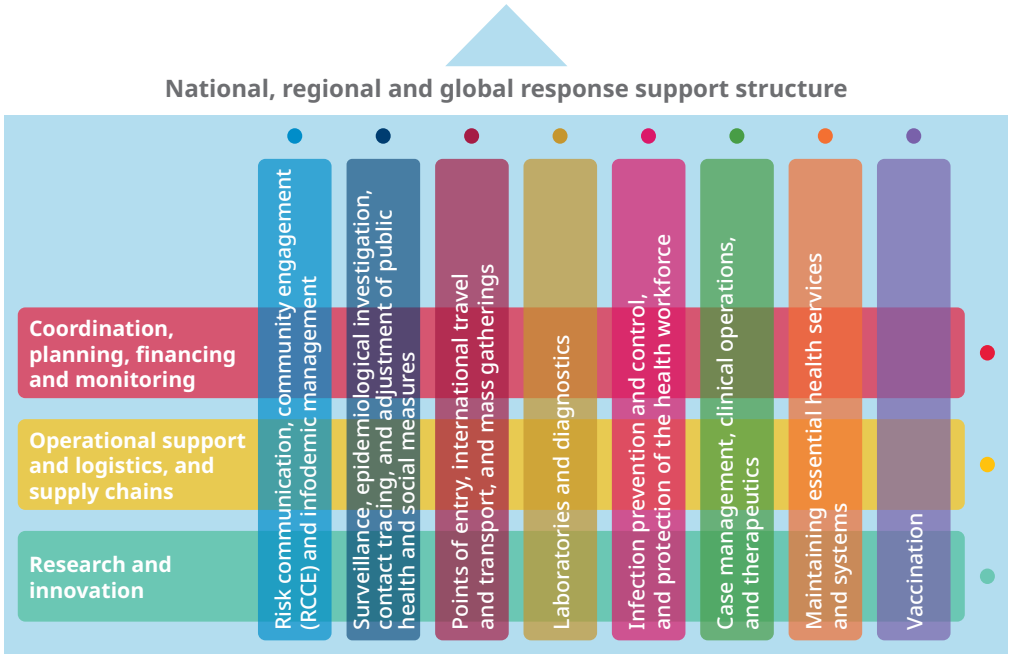
- **Protect the vulnerable** through vaccination, ensuring vaccine deployment readiness in all countries and all populations, by communicating, implementing, and monitoring COVID-19 vaccination campaigns, by engaging health workers, and by building vaccine acceptance and demand based on priority groups, taking into account gender and equity perspectives to leave no one behind.

- **Reduce mortality and morbidity from all causes** by ensuring that patients with COVID-19 are diagnosed early and given quality care; that health systems can surge to maintain and meet the increasing demand for both COVID-19 care and other essential health services; that core health systems are strengthened; that demand-side barriers to care are addressed; and by ensuring that all priority groups in every country are vaccinated.

- **Accelerate equitable access to new COVID-19 tools** including vaccines, diagnostics and therapeutics, and support safe and rational allocation and implementation in all countries.

Figure 5 Public health and social measures are supported by multiple response pillars





To achieve our collective strategic objectives we must intervene to break the cycle of transmission-exposure-infection-transmission/mortality. The key interventions and capacities to weaken and break each of the links in this chain are shown above under headings 1–4. The precise nature and form that these public health and social measures take will and should differ between countries, and between subnational areas within countries, according to context and capacities. However, all of these interventions and capacities must be underpinned and facilitated by a multi-disciplinary national and/or subnational response structure. The success of every intervention is supported and enabled by multiple pillars of the response. These national response structures are supported in turn by global operational and technical support platforms, including a cross-cutting research and innovation pillar at the global and regional level.

National-level preparedness and response

For the purposes of national level planning and coordination, the high-level COVID-19 SPRP 2021 retains the same core structure and rationale as the SPRP for 2020 (figure 5), with a number of key additions and adaptations in response to lessons learned over the past 12 months, and to address new challenges in the year ahead. These adaptations include the addition of vaccination as a vital tool to reduce morbidity and mortality; an emphasis on ensuring the capacities are in place in all countries to equitably deploy COVID-19 vaccines, novel diagnostic and therapeutics; a risk-management framework for SARS-CoV-2 variants; and an increased recognition that mental health and psychosocial support is an integral component in public health emergency response that must be addressed across a range of response pillars, including case management, risk communication and community engagement, and the maintenance of safe and accessible essential health services. We must adapt our collective response to face new threats, and we must do so with a renewed sense of urgency.

The inevitable evolution and emergence of new SARS-CoV-2 variants poses a significant risk of undermining the effectiveness of new vaccines even before they become widely available. The key to ending the pandemic lies in achieving the strategic public health objectives of this updated COVID-19 SPRP 2021 in every community in every country. The only effective response is a comprehensive response implemented by all countries with every tool at their disposal, backed by a global support system that ensures every country has every tool at their disposal, including vaccines.

COVID-19 has exposed systemic weaknesses in global and national health systems and health security mechanisms. We are now faced with a generational opportunity, and a moral obligation, to make investments in health systems and health security that will not only have immediate benefits in terms of COVID-19, but also lasting benefits in terms of our collective global health security, and an enduring improvement in the health and prosperity of societies.

Ending the COVID-19 pandemic means controlling transmission in every country and in every context, no matter how challenging. Ultimately we will bring about that control through an evolving combination of vaccination, other new technologies, and public health interventions, all of which have and will require investments in health system capacities that are foundational not only for health security, but also for universal health coverage and primary health care.

The key actions required to enable all necessary national preparedness and response interventions and capacities are set out in the *Operational planning guidelines to support country preparedness and response*. The updated guidelines, including the addition of the tenth pillar covering COVID-19 vaccination, are included in the *Operational plan* that complements this document.

The updated guidelines are also available on the COVID-19 Partners Platform. As of January 2021, more than 170 countries have national COVID-19 preparedness and response plans, and more than 125 countries are using the COVID-19 Partners Platform to do the following:

- update plans and progress pillar by pillar in line with the most recent guidance;
- collaborate with UN agencies and implementing partners to plan and coordinate key actions at national and subnational levels;
- engage with community-based and civil society organizations, including strengthening community-led research, response and inclusive participation in decision-making, planning, monitoring, and accountability processes;
- work collaboratively and transparently with donors to share plans and resource needs (in terms of finances, supplies, and personnel), and report key areas of progress and challenges.

Broader mechanisms currently in place to assess national preparedness capacities through the International Health Regulations (IHR; 2005) monitoring and evaluation framework are being adapted to further strengthen understanding of critical gaps in COVID-19 preparedness and response capabilities. A supplementary questionnaire on relevant capacities and indicators has been sent to IHR (2005) State Parties through the 2020 State Parties Annual Reporting (SPAR) process, and the results will be used to strengthen COVID-19 preparedness and response.

Within the framework of the COVID-19 SPRP 2021 and the *Operational plan,* WHO recommends that all countries conduct a substantive gender, equity and inclusion analysis, in line with existing human rights frameworks, to subsequently inform programming under the SPRP 2021. In line with WHO's commitment to gender equality, health equity and human rights, these dimensions should be mainstreamed in operations from the outset, from baseline assessment, design, planning and implementation to ensure gender-responsive and equity-oriented programming, monitoring, impact assessment and reporting. Successful implementation of the SPRP lies in meaningful participation, collaboration and consultation with subpopulations experiencing poverty and social exclusion, frontline workers including female healthcare workers, women-led organizations, affected communities including women and adolescent girls, and those facing vulnerabilities, discrimination and additional barriers to access services. This process should be done with a view to ensure linkages to other services, including safety and care, therapeutics and vaccines, with gender balance and inclusion approaches in participation and coordination structures.

Achieving the strategic public health objectives of the updated COVID-19 SPRP 2021 at the national level depends on the consistent and comprehensive implementation of context-appropriate public health and social measures at the local level, the introduction and deployment of new tools, and the simultaneous maintenance of essential health services and systems to reduce mortality from all causes, supported by a multi-disciplinary preparedness, readiness and response structure based on the following ten interconnected technical and operational pillars.

Within this framework, WHO recommends that all countries conduct a substantive gender, equity and inclusion analysis, in line with existing human rights frameworks, to subsequently inform programming under the SPRP 2021. In line with WHO's commitment to gender equality, health equity and human rights, these dimensions should be mainstreamed in operations from the outset, from baseline assessment, design, planning and implementation to ensure gender-responsive and equity-oriented programming, monitoring, impact assessment and reporting. Successful implementation of the SPRP lies in meaningful participation, collaboration and consultation with subpopulations experiencing poverty and social exclusion, frontline workers including female healthcare workers, women-led organizations, affected communities including women and adolescent girls, and those facing vulnerabilities, discrimination and additional barriers to access services. This process should be done with a view to ensure linkages to other services, including safety and care, therapeutics and vaccines, with gender balance and inclusion approaches in participation and coordination structures.

Pillar 1: Coordination, planning, financing, and monitoring

More than 170 countries now have a COVID-19 preparedness and response plan based on the nine operational and technical pillars set out in WHO's first Strategic Preparedness and Response Plan, with more than 180 countries reporting that they have a functional COVID-19 response coordination mechanism such as an Emergency Operations Centre (EOC; EOCs help facilitate information sharing for strategic decisions, including across EOCs within the global EOC-NET). The updated *Operational planning guidelines to support country planning* in the *Operational plan* that accompanies and complements this document will enable countries to adapt response plans for 2021, with WHO's support when required. In addition, the COVID-19 Partners Platform enables countries to work with WHO, UN partners, implementing partners and donors to plan, coordinate, and finance activities collaboratively in real time.

Pillar one plays a crucial role in ensuring coherence and operational alignment throughout all pillars of the response at national and subnational level, and serves as the platform for ongoing decision making and course correction on the basis of public health intelligence provided by a comprehensive monitoring system. At country level, a multisectoral, whole of government coordination mechanism and knowledge hub that brings together critical people and information is required to inform, monitor and review (including through intra-action reviews) national responses.

As the pandemic continues countries may need to re-orient budget processes and health financing arrangements to sustain the capacity to prevent, address and respond to COVID-19 and other health threats in the short, medium, and longer-term, while maintaining essential services. WHO and partners will support countries to a) identify and prioritize investments according to efficiency and impact; b) ensure that funds flow smoothly and managers are enabled to directly receive and flexibly use these resources to deploy tools; c) implement rapid resource mapping and expenditure tracking to support policy adaptation and bolster accountability; d) learning and knowledge sharing (using COVID-19 experience to advise on health investment).

Pillar 2: Risk communication, community engagement (RCCE) and infodemic management

Risk communication and community engagement including infodemic management are integral to the success of responses to health emergencies. The evidence is clear: communities play a role in preventing and controlling epidemics, and communities must be listened to in order to address demand-side barriers to health service utilization, and in order to inform measures to mitigate the socio-economic impact of COVID-19 control interventions. Engagement with communities via community-based and civil society organizations at the grassroots level is essential to find sustainable solutions and empower communities. Communities must be involved in co-designing solutions, and behavioral and social science as well as community feedback should guide the adaptation of those solutions over time. As we move to a critical phase of the response when vaccines and other biomedical tools become available, trust building, and engagement of communities becomes even more critical. As COVID-19 tools such as vaccines are rapidly and equitably deployed, sustaining healthy behaviors, removal and mitigation of demand-side barriers to health service access, and adherence to recommended public health and social measures will remain critical to suppressing transmission, reducing exposure, protecting the vulnerable, and reducing morbidity and mortality from all causes. Providing individuals and communities with actionable, timely and credible health information online and offline remains a key priority for successful implementation of activities across all pillars of the response.

Pillar 3: Surveillance, epidemiological investigation, contact tracing, and adjustment of public health and social measures

Disease surveillance and the public health capacities to identify, isolate and treat cases, trace and quarantine contacts, and implement and adjust public health and social measures, are the backbones of the COVID-19 response and the keys to suppressing transmission until vaccines are widely and equitably available. In the long term, these capacities may also be key to eliminate transmission and swiftly control reintroductions, in addition to having broader benefits for public health.

Public health intelligence about epidemiology, health system capacity and utilization, and risk factors and vulnerability provides the evidential basis for targeted interventions. The decision to introduce, adapt or lift public health and social measures should be based primarily on a situational assessment of the intensity of transmission and the capacity of the health system to respond, but must also consider the effects these measures may have on the general welfare of society and individuals. Data stratified by sex, age and other important factors are critical to identify trends, gaps, and disparities in order to adjust public health and social measures and adapt health systems to address disparities. Collection and analysis of disaggregated data is central to a Human Rights Based Approach to Data (HRBAD).

Stopping the spread of SARS-CoV-2 means ensuring that all cases are promptly and effectively diagnosed, isolated and receive appropriate information and care, and that the close contacts of all cases are rapidly identified so that they can be quarantined and medically monitored for symptoms. For this to be successful, testing capacities need to be strengthened everywhere, including in low capacity and humanitarian settings. Sustained quarantine efforts are all the more important with the emergence of SARS-CoV-2 variants of concern. Case investigation, identification of the source of infection and monitoring of contacts is also critical to understanding transmission patterns, and are essential tools for post-introduction monitoring of COVID-19 vaccines. In addition, close links between national level surveillance structures and monitoring of health system capacity and performance in terms of all-cause mortality, and all-cause hospitalization and hospital occupancy are needed to calibrate the application of public health and social measures. This is particularly pertinent in settings where testing capacities are limited, and where disease surveillance is not optimal due to lack of resources, conflict and insecurity, humanitarian displacement and other factors.

It is important to increase sequencing of SARS-CoV-2 viruses within surveillance activities, as well as using strategic sequencing of targeted groups to better understand SARS-CoV-2 transmission and to monitor for the emergence of variants. Where possible, established systems such as the Global Influenza Surveillance and Response System (GISRS) should be leveraged, and Genomic Surveillance Regional Networks will be critical. A global risk monitoring framework is being developed and implemented that will use all available epidemiological, clinical and laboratory data to provide a dynamic assessment of mutations and variants of concern and recommended actions to take.

Transparent and timely sharing of information about the epidemiological situation and health system responses by all countries will facilitate a coordinated global effort to suppress transmission of SARS-CoV-2.

Pillar 4: Points of entry, international travel and transport, and mass gatherings

Risk mitigation measures that should always be in place include advice to travellers, including for self-monitoring of signs and symptoms; surveillance and case management at the point of entry and across borders; capacities and procedures for international contact tracing; and environmental controls and public health and social measures at points of entry and onboard conveyances. WHO will continue to support countries to ensure that these measures are in place, with an increasing emphasis on building capacity at points of entry and in border communities with benefits for international health security that extend beyond COVID-19. In addition, risk mitigation measures that should be implemented if necessary, based on a prior risk assessment, include exit and entry screening for signs and symptoms; targeted testing of international travellers; quarantine for international travellers (applied with respect for their dignity, human rights and fundamental freedoms), and selective travel restrictions. The use of testing in international travelers should be informed by a thorough risk assessment, in a targeted manner, andprovided resources are not diverted from high-risk groups and settings. WHO will continue to work with partner organizations representing aviation, maritime, border, trade and tourism sectors to develop guidance, joint statements of support, monitor the measures taken by governments and private entities that impact international travel and trade.

Mass gatherings can have a positive impact on psychological wellbeing, encourage healthy behaviours, and have substantial beneficial social and economic impacts on communities. The process of restarting mass gatherings should be driven by a thorough risk assessment that considers both the risk factors associated with an event and the organizers' capacity to mitigate them. As the level of risk is dynamic, a review of the risk assessment at regular intervals is required. Event planners should conduct the risk assessment in partnership with local and national public health authorities. It is vital that the results of the mass gathering risk assessment are clearly communicated to the public to build trust. WHO and partners will continue to support countries and event organizers to evaluate, mitigate and communicate the risk of SARS-CoV-2 transmission associated with mass gatherings, with the aim of facilitating evidence-based decision-making related to holding, postponing or adapting sports, religious, entertainment, and other events.

Pillar 5: Laboratories and diagnostics

Strategic diagnostic laboratory testing is one of the cornerstones of the management of the COVID-19 pandemic. Testing is critical to detect cases and investigate clusters of cases so that public health actions can rapidly be taken to isolate those infected, quarantine contacts and break chains of transmission.

By the second quarter of 2020 most countries and territories surveyed by WHO had capacity to test for the SARS-CoV-2 virus, leveraging the Global Influenza Surveillance and Response System and building additional capacities within existing global and regional networking initiatives (such as GISRS). In many countries, subnational level capacity is still limited and decentralized testing capacity needs to be strengthened within the framework of national laboratory networks, including in hard-to-reach low-capacity and humanitarian settings. Work is underway to integrate this capacity building into strengthened active and sentinel surveillance systems such as GISRS.

Operational and logistical support for laboratory supply chains should be sustained throughout 2021 and beyond, with scope broadened to include rapid antigen detecting tests (Ag-RDTs). Although PCR tests remain the gold standard for SARS-CoV-2 testing on account of their accuracy, Ag-RDTs are faster, easier to administer, and can supplement PCR testing and boost testing capacity in several settings across all countries.

Countries should also ensure that cost-effective strategies and mechanisms are in place to detect new variants through screening or sequencing methods, conducted domestically or through international reference laboratories, and that the sequence data are shared timely on publicly-accessible data platforms. In addition, WHO plans to facilitate virus sharing internationally by establishing a BioHub at a secure facility in Switzerland. This specimen repository aims to support collaboration across the global scientific community through the voluntary sharing of viruses.

Pillar 6: Infection prevention and control, and protection of the health workforce

Infection prevention and control (IPC) measures are among the most effective tools available to contain the spread of SARS-CoV-2, both in health facilities and in the community. As such, WHO's guidelines for countries have two main goals:

- to prevent the spread of SARS-CoV-2 infections during healthcare delivery in order to prevent health and long-term care facilities from amplifying the disease, protect health workers and patients, and maintain safe essential health services;
- to prevent the spread of SARS-CoV-2 in public and private communal settings through a comprehensive package of infection prevention and control and public health and social measures.

IPC is central to the COVID-19 response, but it also constitutes the foundations of safe essential health services and resilient communities and health systems, ensuring quality care, and protecting against anti-microbial resistance. The success of many IPC measures put in place for the response, in health facilities and communities, is dependent on sustained IPC programmes, local IPC guidelines, IPC training for health workers, implementation of IPC measures using a multi-modal strategic approach, monitoring and providing feedback on IPC measures, adequate patient to health worker ratio, access to IPC supplies and personal protective equipment (PPE), and access to safely managed water, sanitation, and hygiene (WASH). These are key pre-requisites not only for safe and resilient health system, but for healthy societies. As for all pillars of the response, a successful response to COVID-19 can and must lay the foundations for more sustainable strengthening of IPC capacity, fostering the implementation of IPC measures both at the national and facility levels and including through the Hand Hygiene for All initiative.

All health and social care workers (the majority of whom are women) must be protected, including those in the public, private, and voluntary sectors who deliver the diagnostic, treatment, and vaccine interventions for COVID-19, while maintaining essential health services. In addition to IPC, protecting the health workforce encompasses a wide range of issues including working conditions, remuneration, hazard pay, education and training, and mental health support.

Pillar 7: Case management, clinical operations, and therapeutics

The clinical characterization of COVID-19 continues to evolve. Of those infected that become symptomatic, about 80% of patients have mild or moderate disease, while approximately 15% of patients with COVID-19 develop severe disease that requires oxygen support, and 5% have critical disease with complications such as respiratory failure, acute respiratory distress syndrome, sepsis and septic shock, thromboembolism, and/or multi-organ failure. There is also growing evidence that a post-COVID-19 condition characterized by fatigue and cognitive impairments affects not only patients that have been hospitalized, but also those that had mild or moderate disease. In many cases this condition prevents patients from returning to their previous activities. The underlying mechanism of persistent or relapsing symptoms remains to be understood. Effective management of mild and moderate cases is also critical to ensure that resources are used appropriately. Antibiotics are widely used but seldom indicated in mild disease, and their use accelerates the development of antimicrobial resistance.

Effective case management now needs to emphasize the importance of saving lives in those that are at risk for death and those with severe or critical disease; and also to ensure quality of life in all patients, regardless of disease severity. It is therefore essential that WHO and partners continue to support countries: 1) ensure that they have access to state of the art, continually updated multidisciplinary guidance on all aspects of clinical care and safe clinical facilities and home care, and access to the tools, training and education resources that translate the guidelines into practice; and 2) ensure that health workers have access to the necessary quality assured therapies, training, equipment and supplies to provide quality and safe care. This should include access to multi-disciplinary care after acute illness in the case of possible post-COVID-19 conditions. Proper planning for surge response during periods of intense transmission should take into account the need to maintain essential health services.

Pillar 8: Operational support and logistics, and supply chains

Logistical and operational capacities at national level underpin every pillar of the public health response, from surging staff deployments, the procurement, safe storage and distribution of correctly specified essential supplies, and staff payments. The COVID-19 supply chain system (CSCS) was established in 2020 to provide countries with essential supplies for COVID-19 response, and will continue to support the coordination of multiple-channel procurement and distribution through the identification of demand, demand aggregation, forecasting, certification, market scanning, sourcing, allocation and delivery of essential supplies to where they are needed most at national and subnational level. As COVID-19 vaccines are rolled out, cold chain support for storage and safe distribution will be required in many low income and low-capacity settings.

National COVID-19 supply chains, including those for highly specialized products, must be able to respond rapidly to changing and geographically variable patterns of demand, maintaining sufficient resilience to avoid shortages of essential medicines and health products for all health services. WHO and partners will continue to support countries to strengthen capacity to meet specialized supply chain needs, including for PPE and oxygen, through tools, frameworks, guidance, and technical and operational support.

Pillar 9: Maintaining essential health services and systems

COVID-19 has presented all countries and health systems with the challenge of caring for those with COVID-19, while simultaneously adapting to ensure safe delivery of essential health services for all conditions. Complicating this challenge, the response to the virus has often led to disruptions to supply chains, shortages of PPE, reduced staffing, and lowered capacity at health care facilities, while also posing challenges to health sector budgets and overarching health system governance. The diversion of health system resources coupled with public health and social measures to address COVID-19 care has led to a protracted and persisting disruption of essential health services, including reduced access to health facilities; reduced ability to pay for services; reduced staffing available to provide care; disrupted supply chain systems for essential medical supplies; and lowered service capacity at health care facilities. At the same time, misinformation has often contributed to changes in health-seeking behaviours and altered perceptions of health facilities, and reduced demand for health services. All of the above factors have the potential to severely disrupt the delivery of health care for all conditions, and require systematic and coordinated action to mitigate.

The ongoing situation presents an opportunity to leverage current investments for long-term health system strengthening, both for immediate benefits in terms of COVID-19, and also building sustainable health system resilience. This also extends to ensuring that investing in long-term health systems strengthening efforts, including essential public health functions, is done via multi-sectoral, whole-of-society approaches at the national and subnational levels.

Prioritization of services remains necessary, as many countries face second and third waves of SARS-CoV-2 transmission. To do this, efforts to strengthen primary health care by tackling demand and supply-side barriers faced by populations in accessing services and adhering to treatment (including referrals) is required. This must be backed with continued focus on strengthening the ongoing capacity of systems' governance, health information systems, health financing, human resources, and health products and essential medicines.

The evolving pandemic context, including prolonged suspension of certain services requires that health facilities continually rebalance care for patients with severe COVID-19 with other ongoing needs for hospitalization and ICU care. Services considered elective a year ago may now be considered necessary and life-saving. A year into the response, concerns over protection for health workers, including from the risks of burn out, have become even more pressing. It will be crucial in 2021 and beyond that the drive to deploy COVID-19 vaccines is anchored in and strengthens existing immunization programme capacities.

Pillar 10: Vaccination

Safe and effective vaccines for COVID-19 are now available and, if distributed equitably, promise to be powerful tools in the global effort to control the COVID-19 pandemic. Their availability, accessibility, and deployment are the highest health, social, economic, and political priorities for virtually every country, agency, business and community around the world. Since January 2020 WHO has worked with international partners, and through the ACT-Accelerator since April 2020, to coordinate and accelerate the research and development, manufacture, regulatory evaluation/in-country authorization, allocation, and country readiness to deploy vaccines at a scale and pace that has never been attempted before.

The vaccination rollouts throughout 2021 will be some of the most complex immunization programmes in history, involving the simultaneous use of vaccines with different properties in a wide variety of contexts against an ever-changing landscape of viral transmission and disease incidence. WHO will continue to work with all stakeholders to support countries to prepare for and respond to the challenges. Partner coordination in support of the vaccine access, optimal use and delivery will be more important than ever, and is a key role for WHO. The Partner Platform is operational for countries to upload their National Vaccine Deployment Plan, as well as their needs for technical assistance and funding gaps for the delivery of COVID-19 vaccines.

The establishment of the COVAX Facility of the ACT Accelerator was a landmark achievement in 2020. In 2021, WHO and partners in the ACT Accelerator require the resources to meet the operational costs of vaccination to ensure that COVID-19 vaccines reach all populations, including those populations that are the most challenging to reach such as migrants, those affected by humanitarian crises, indigenous and afrodescendant populations, taking into account gender, human rights, and equity considerations.

The complex organizational needs for the ambitious global mass vaccination activities that need to take place successfully in 2021 cannot be overstated. Having access to vaccines is not enough. Country health systems will require accountability, good management, human and financial resources, a resilient, well-trained and well-supervised workforce, and good data systems to monitor and track implementation and adjust the strategy as necessary. WHO's Guidance for Conducting a Country COVID-19 Intra-Action Review (IAR), which was developed to guide countries to conduct periodic reviews of their national and subnational COVID-19 response, will be adapted to include vaccination.

The vaccine programme rollout will begin in 2021, but it will not end for the foreseeable future. Rather, 2021 will set the stage for additional vaccine rollout and programme adaptations in 2022 and 2023 as products continue to be developed and refined in response to changes in SARS-CoV-2. Rapid learning synthesis, knowledge sharing and adjustment will be a hallmark of 2021 vaccine deployment, and WHO's critical technical and leadership role to support countries and the global community through this dynamic year will influence the trajectory of the pandemic.

Adapting the response to changing and special contexts

WHO will continue to take action with partners at the global, regional, and national level to support countries, according to their needs and, at their request, to deliver an effective public health response. In some cases, national authorities will be able to implement the measures needed to prepare for and respond to COVID-19 and concurrent emergencies with minimal support. In other cases, WHO and partners must continue to be ready to strengthen capacities at national and subnational levels. WHO calls on partners to continue their incredible work to support all countries to suppress transmission, reduce exposure, protect the vulnerable, and reduce mortality and morbidity from all causes, with particular emphasis on the targeted support required to implement an effective and balanced public health response, including vaccination, in low-capacity and humanitarian contexts.

Key to the success of national COVID-19 response plans is the ability to monitor the implementation and impact of response measures at national and subnational levels to ensure that those measures adapt quickly to dynamic changes in transmission context, socio-economic and cultural contexts, public attitudes, and health system capacities. Actions and measures outlined in the *Operational planning guidelines to support country preparedness and response* across all pillars speak to the need to support countries to more accurately gauge, report, and adapt their own dynamic capacities for implementation, and provide agile and targeted support for rapid ameliorative action where gaps are identified.

The need for precision when targeting COVID-19 interventions is particularly important in low-capacity and humanitarian contexts, in which COVID-19 public health and social measures must be carefully adapted to context-specific and evolving needs often at local scale, against a backdrop of limited public health information, difficult access, and in humanitarian settings, conflict, insecurity and displacement, with health systems that were often inadequate to meet basic health needs before the pandemic.

In humanitarian settings, COVID-19 actions need to be integrated into broader humanitarian operations. Public health and social measures for COVID-19 in these settings need to be balanced against other risks affecting communities, such as lack of income, access to basic services and social nets, and food insecurity. Whilst poorly implemented measures can increase risks of COVID-19 transmission, inadequately adapted interventions can have adverse impacts on overall public health and a range of far-reaching economic, social, and political consequences, including increased gender-based violence, increased violence against children, and social unrest. As far as possible, public health and social measures should be accompanied by efforts to mitigate social and economic impact and effects on other lifesaving assistance and development efforts. Interventions in these contexts should be pragmatic, and leverage the strengths of the local structures and systems, notably through social mobilization and strong community engagement. Providing support to communities in these settings will be a key priority for WHO and global partners in 2021.

As the duration of the pandemic has extended to over one year, the initially temporary suspensions of certain health services implemented at the beginning of 2020 by many countries have become unfeasible and unsustainable. The updated *Operational planning guidelines to support country preparedness and response,* and other WHO guidance, sets out the steps to ensure the adaptation of services based on all-cause mortality, and take into account the need to stop and start services at short notice in response to dynamic changes in transmission and COVID-19 caseload in hospitals. These dynamic changes can impact health workforce availability, readiness and sustainability in particular, as several COVID-19 response activities require surge capacity (among which are clinical care, contact tracing and now vaccination). COVID-19 response activities and investments may be negatively affected by pre-pandemic deficits and misdistribution of health workers. It is important that surge strategies and capacities include provisions to ensure that essential health services are maintained and bounce back rapidly wherever they have been severely affected by the pandemic, and that actions be taken to build back better.

The balancing of COVID-19 mitigation strategies with the provision of non-COVID-19 health services is arguable most complex in low-capacity and humanitarian settings. In all these settings, COVID-19 has caused significant disruptions in service delivery and utilization, further weakening already fragile and often fragmented systems and decreasing access to life saving health services. In 2021 WHO will support the competent authorities to set public health priorities based on a comprehensive assessment of morbidity and mortality risks and the health needs of vulnerable and at-risk populations. Where needed, WHO will work through Inter-Agency Standing Committee (IASC) humanitarian programming to access hard to reach populations, and areas not under government control.

Support for national preparedness and response

Translating knowledge into coordinated action

To end the COVID-19 pandemic the world must come together. The UN system, national governments, international partners and the private sector must continue to combine their collective strengths to deliver the knowledge, support and tools that all countries need to end the acute phase of the COVID-19 pandemic and build a safer, more resilient and better prepared world.

In our efforts to meet these strategic objectives we must ensure that we strengthen national capacities for emergency risk management, readiness, and the resilience of essential health services, recognizing that the goals of health security, universal health coverage, and primary health care are indivisible.

To achieve these goals, we must strengthen and sustain the dynamic multi-agency, multi-partner system that translates knowledge into coordinated action through four interlinked coordination, leadership and support processes (figure 6):

1. generating high-quality evidence and leveraging expertise;
2. shaping the response through authoritative, accessible, evidence-based guidance and tools;
3. implementation and operational support;
4. monitoring, feedback, learning and knowledge sharing.

As a technical organization with convening power, access to world-leading expert networks, collaborating centres, and collaborative research and innovation platforms such as the *R&D blueprint for research in epidemics,* WHO works with partners to generate high-quality evidence and leverage a broad range of global expertise to rapidly issue authoritative, accessible guidance for all technical and operational areas of the response.

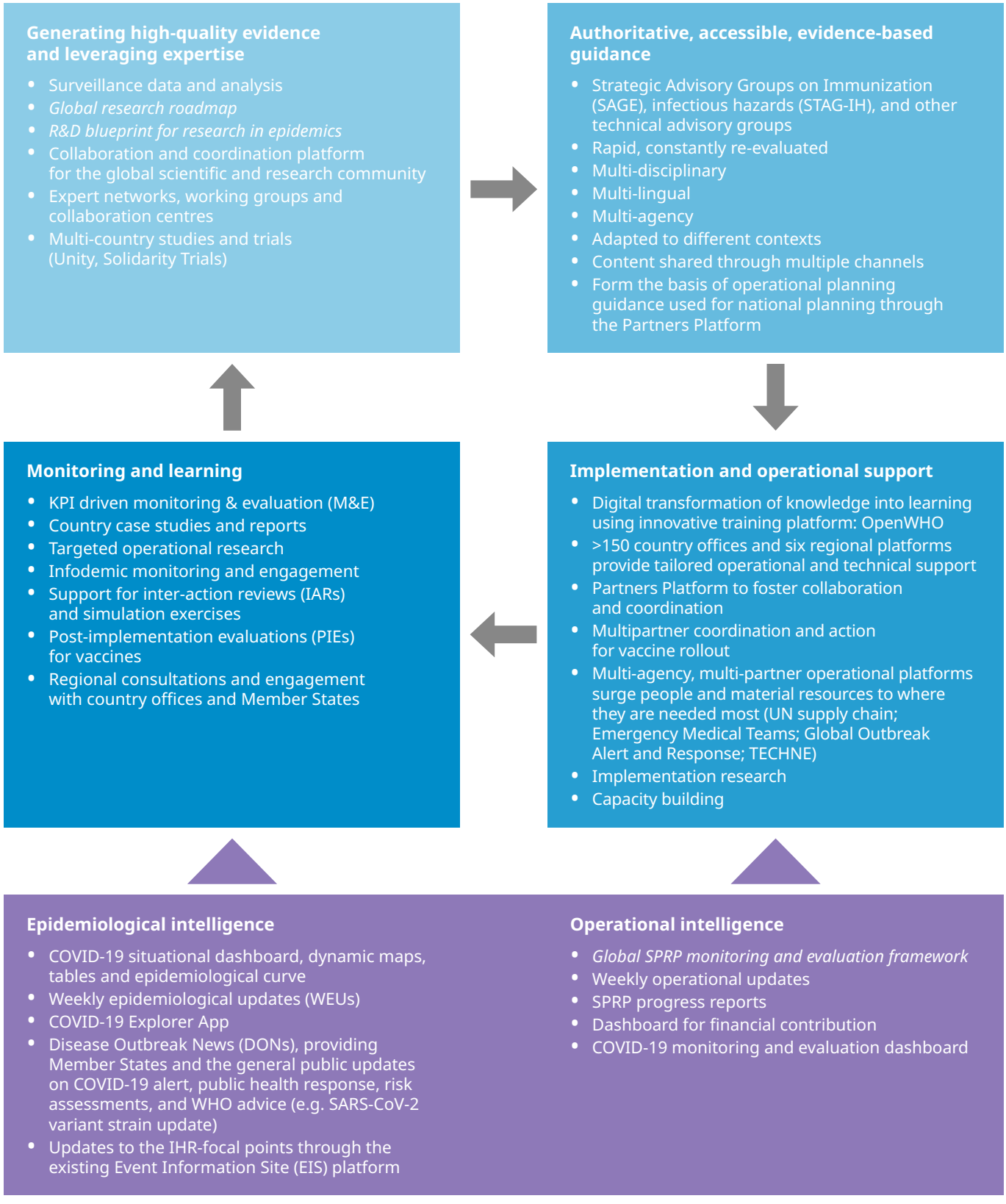
Through strong coordination between UN agency national and regional offices around the world, multi-agency and multi-partner operational platforms, regional and national public health and scientific institutes, communities, donors, and private sector organizations, the world has come together to provide direct technical and operational support to countries to implement national COVID-19 plans.

Through the process of listening to communities online and offline, partners, and countries; through systematic monitoring and evaluation and intra-action reviews; and through targeted operational research, the world has come together to create a system able to gather, generate and analyse the quantitative and contextual public health intelligence we need to inform a continual refinement and evolution of the global, regional, and national response to COVID-19. The adoption of digital technologies and innovation, such as social listening, has enabled us to better understand information voids, and understand the concerns of citizens in the digital world.

This global dynamic system of support and response is driven by public health and operational intelligence. WHO, countries, and partners will continue to provide up-to-date information and analysis on the evolving global epidemiological COVID-19 situation, and maintain a set of global indicators and reporting structures to support: strategic thinking, operational tracking, and real-time decision-making based on evidence and transparency amongst stakeholders involved in the response (figure 6).

Technical and operational underpinning is provided by a global Incident Management Support Team (IMST) structure, steered by WHO but which draws extensively on partner expertise, participation, and leadership. The IMST is activated across all three levels of the UN system, from global agency headquarters through regional offices and an operational footprint in every country. In order to best support countries, this global IMST structure mirrors the 10-pillar structure that should underpin response at national level, with the addition of a cross-cutting research and innovation pillar. Inter-agency and inter-partner coordination is augmented by several high-level coordination mechanisms, described below. Strategic priorities for global support in 2021 under each of the WHO-partner IMST pillars are described in the *Operational plan* that accompanies this document.

Figure 6 WHO's technical and operational platforms harness capacities within and outside the organization to produce a dynamic, adaptive system that transforms knowledge into coordinated action



Global and regional coordination

COVID-19 is a crisis that touches every aspect of every society, and our collective response must continue to encompass that broad range of needs and requirements on a global scale. Effective coordination, planning, and monitoring at the global, national, and subnational levels ensures that those needs and requirements are met as efficiently and as comprehensively as possible with every resource at our disposal.

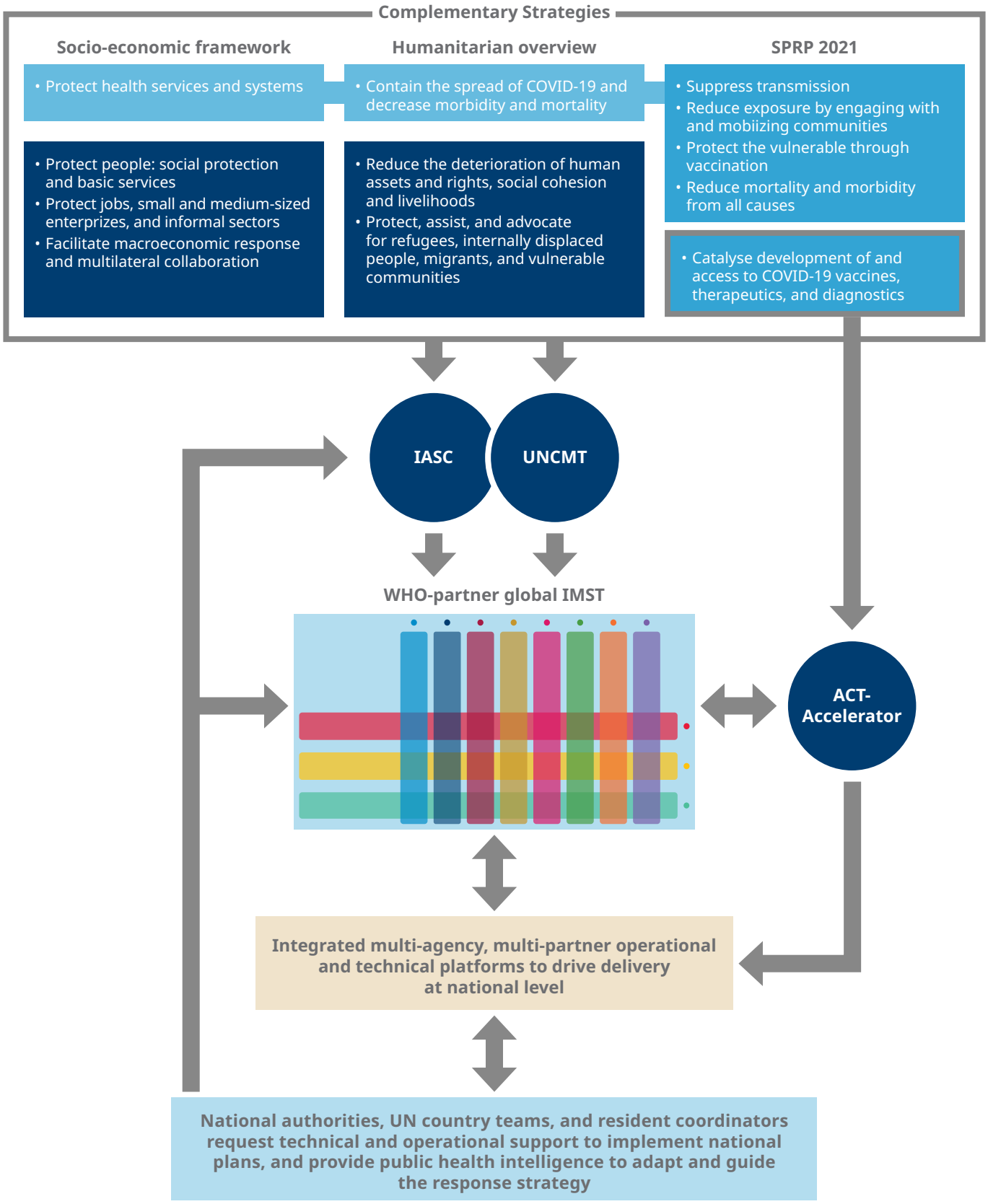
At the global level, meeting the challenge of COVID-19 has meant bringing the entire United Nations system together to coordinate a response that reflects the full spectrum of its capabilities. WHO has been at the forefront of that coordination process, leading the UN Crisis Management Team (UNCMT). The UNCMT brings the collective strengths of 23 UN entities under one response umbrella, with action coordinated under three distinct but complementary strategies (figure 7).

- The *Strategic preparedness and response plan,* updated in this document (COVID-19 SPRP 2021), guides the comprehensive health response at national level, supported by a global network of partners led by WHO, and working to support countries, including by catalysing the development of and ensuring access to vaccines, diagnostics, and therapeutics.
- The *Global humanitarian overview 2021,* to coordinate the wide-ranging effort to address the devastating socioeconomic, humanitarian and human rights aspects of COVID-19.
- The socio-economic framework to respond to the profound social and economic implications of the COVID-19 pandemic, and catalyse a process of recovery and renewal guided by the Sustainable Development Agenda.

The COVID-19 SPRP 2021 is health focused, but both the *Global humanitarian overview 2021* and the *Socio-economic framework* also contain key strategic objectives related to health, embedded in a multisectoral approach. Four interconnected, multi-agency, multi-partner and multi sectoral coordination mechanisms have been established to support the delivery of these strategies at national level (figure 7):

- The **UN Crisis Management Team** (UNCMT) brings together 23 UN entities to coordinate a comprehensive whole-of-UN response. Global coordination is guided by feedback and direction from regional offices, Resident Coordinators and multi-agency UN Country Teams (including representation from WHO Country Offices and partner agencies) in more than 136 countries, working in concert with implementing partners and donors to support national authorities.
- The members of the **Inter-Agency Standing Committee** (IASC), which encompasses the breadth of humanitarian system, coordinate multi-sectoral action under the umbrella of the *Global humanitarian overview 2021* (replacing the previous *Global humanitarian response plan*) to address the most urgent humanitarian health, protection and socioeconomic needs caused by the pandemic. Health sector specific contributions to the response to COVID-19 are coordinated with humanitarian health partners under the health cluster, or its equivalent
- The **Access to COVID-19 Tools (ACT) Accelerator,** launched in April 2020 by WHO and partners, is a special project that brings together the expertise of leading public health agencies, donors, and private sector partners to focus on a specific and urgent strategic objective of the SPRP: to accelerate the development of COVID-19 vaccines, diagnostics and therapeutics, and ensure equitable access to these new tools. The workstreams of the ACT-Accelerator are integrated with the WHO-partner incident management structure (figure 8), and nested within the broader SPRP2021 to ensure that access to new products is married with their safe, equitable, and effective implementation by and within strong and resilient national health systems able to provide essential services.
- The **UN country teams,** under the leadership of UN Resident Coordinators, coordinate support from all UN agencies and key partners to governments for the five pillars of the UN framework for the immediate socio-economic response. The UNCMT coordinates with UN country teams in 136 countries to facilitate joint action by UN entities and international agencies in support of national authorities.

Figure 7 Global preparedness and response support coordination structure



Beneath these coordination mechanisms are a number of integrated multi-agency, multi-partner platforms that support the implementation of national COVID-19 preparedness and response plans through the provision of technical guidance and support, the direct deployment of surge technical and operational capacity (table 1), financing, essential supplies and material resources, and solutions for collaborative planning and coordination.

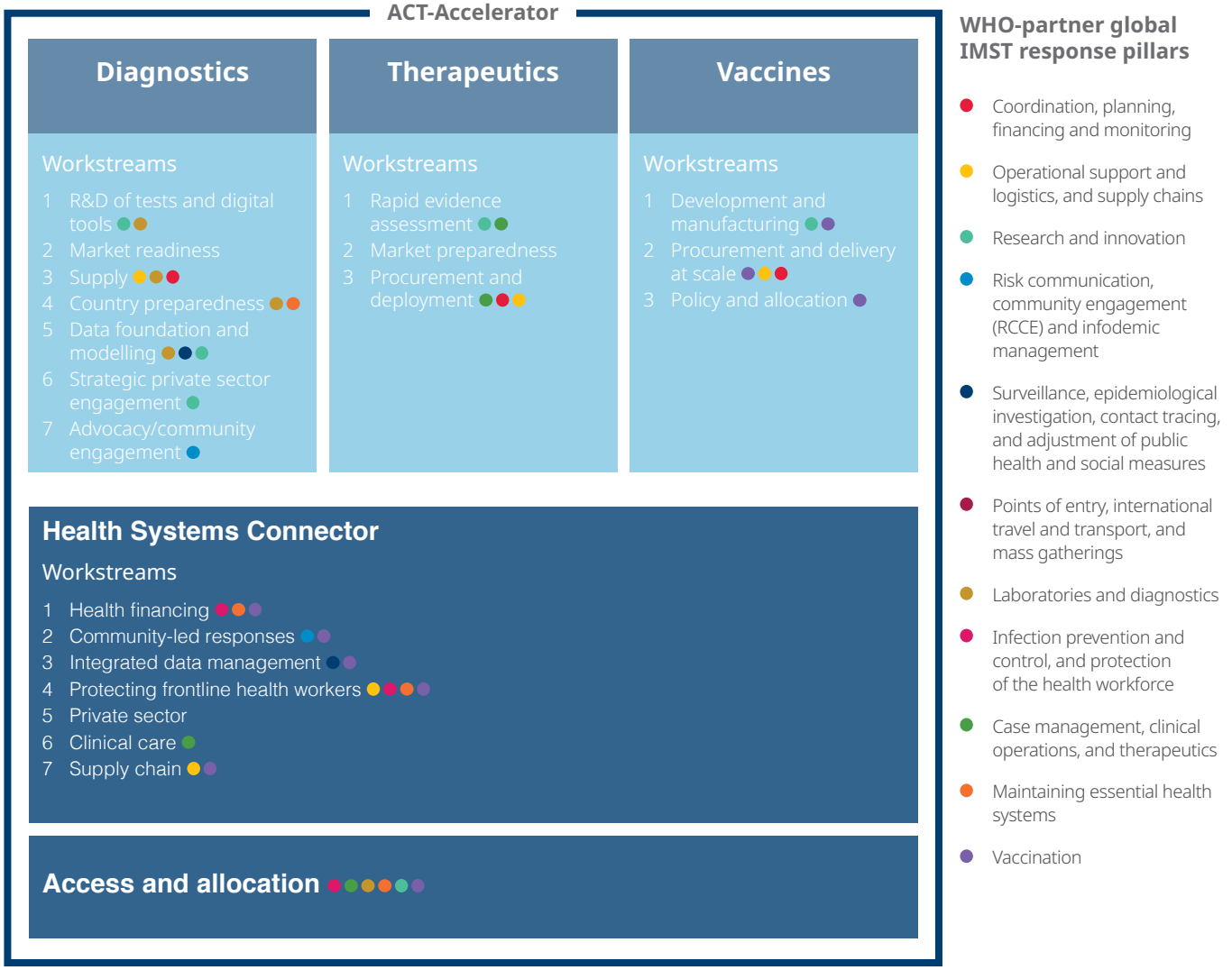
Surge support will continue to be channeled primarily via two established WHO-partner emergency platforms – the Emergency Medical Teams (EMT) initiative and the Global Outbreak Alert and Response Network (GOARN). Access to a well-trained, rapidly deployable, certified and largely self-sufficient surge emergency health workforce has been vital for many countries that found health services overstretched, and in some cases overwhelmed, by rapid COVID-19 transmission.

In addition, the Supply Chain Task Force, co-chaired by WHO and WFP, was convened to establish an integrated COVID-19 Supply Chain System (CSCS). The Supply Chain Task Force includes representation from a broad range of participating organizations whose complementary core strengths gives the CSCS enormous power as a complete end-to-end service that incorporates demand forecasting, technical specification and quality assurance, purchasing consortia to combine collective purchasing and areas of market expertise, and logistical knowhow and scale. Maintaining the supply chain is a continual and dynamic process, which will take an extra dimension of complexity during 2021 as a new generation of rapid diagnostics continues to be rolled out in countries, alongside the first generation of COVID-19 vaccines. Many of the vaccines are likely to present substantial additional challenges due to their requirements for a seamless cold chain from production facility to point of administration. Supporting the establishment a robust, resilient, and equitable distribution chain for these new technologies will require further evolution of the CSCS, guided by the recommendations of the CSCS review undertaken in late 2020.

Table 1 Key operational support platforms and partnerships

Coordination	COVID-19 Partners Platform
Operational support and logistics, and supply chains	COVID-19 Supply Chain System
Training	OpenWHO
Surge health emergency workforce	Global Outbreak Alert and Response Network (GOARN); Emergency Medical Teams (EMTs)
Public health intelligence	Epidemic Intelligence from Open Sources (EIOS)
Risk communication, community engagement, and infodemic management	EPI-WIN; COVID-19 RCCE Collective Service
Research and innovation	R&D blueprint; ACT-Accelerator

Figure 8 The ACT-Accelerator structure is integrated with the global WHO-partner IMST to ensure access and equitable delivery of vaccines, therapeutics, and diagnostics to countries



The ACT-Accelerator is a collaboration of leading public health agencies and other partners designed to accelerate the development of COVID-19 vaccines, diagnostics and therapeutics, and ensure equitable access to these new tools around the world.

WHO co-convenes the **Health Systems Connector (HS-C)** with the World Bank and Global Fund. The HS-C focuses on cross-cutting aspects of health systems and capacities to enable the rapid uptake and delivery of COVID-19 tools as they become available, including the identification of health system bottlenecks and responding to country demands in accessing and utilizing COVID-19 tools. Together with the Coalition for Epidemic Preparedness Innovations (CEPI), Gavi, the Vaccine Alliance, WHO also co-convenes the **Vaccine Delivery Pillar (Covax),** which aims to scale up the delivery of 2 billion vaccine doses to 98 self-financing and 92 lower-income economies during 2021. The **Therapeutics Pillar,** co-convened by Unitaid, and the Wellcome Trust, with WHO leading on policy and regulatory work, and the Global fund leading work on procurement and deployment, prioritizes intensified research efforts to expand the portfolio of effective treatments, support countries to optimize clinical care and introduce new tools, and procure available therapeutics, including medical oxygen. The **Diagnostics Pillar** is co-convened by the Foundation for Innovative New Diagnostics (FIND) and The Global Fund, with WHO leading on regulatory, policy and product allocation, and aims for all countries to be able to deploy affordable, quality and rapid point-of-care tests that are easy to use.

WHO plays a vital role in coordinating the overall work of ACT-A, running the ACT-A Hub and leading the Access and Allocation work stream. Across the product pillars WHO supports research and development, generates essential norms and standard, develops critical policy and technical guidance, ensures regulatory capacity building and pre-qualification services, and provides deep technical assistance for national readiness. Each work stream under each ACT-Accelerator pillar is integrated with the WHO-partner incident management support team (IMST) structure at global, regional and country level to support the equitable delivery and effective implementation of new diagnostics, vaccines, and effective therapeutics (colour coded above). The *Operational plan* sets out the priority areas under each WHO-partner IMST pillar that contributes to the end-to-end goals of the ACT-Accelerator, from product development to delivery on the ground. UNICEF is a cross-cutting partner, providing programmatic support and procurement supplies for countries across all ACT-Accelerator pillars, and is embedded within the WHO-partner IMST.

Research and innovation

Research, science and innovation will continue to be a critical lever for action in responding to the pandemic in 2021. WHO convened the first global forum of international scientists on COVID-19 on 11–12 February 2020. The forum gave rise to the COVID-19 *Global research roadmap* that set out nine key thematic areas to prioritize for accelerated research:

1 viral natural history, transmission and diagnostics;

2 virus origin, and management measures at the human-animal interface;

3 epidemiological studies and modelling;

4 clinical characterization and management;

5 infection prevention and control, including protection of health care workers;

6 candidate therapeutics;

7 candidate vaccines;

8 ethical considerations for research;

9 integrating social sciences in the outbreak response.

Progress in many of these areas has been rapid, with research results directly feeding into WHO technical guidance materials, and key ongoing research priorities in these thematic areas are now integrated within the *Operational plan* under each preparedness and response pillar (see the *Operational plan* that accompanies this document). In addition, new priority areas for research have arisen as the pandemic has evolved.

Most recently, the emergence of SARS-CoV-2 variants of interest and concern has necessitated a coordinated approach to research on the potential impact of known and possible future variants on transmission dynamics, clinical severity, accuracy of diagnostics, and the efficacy of vaccines. Throughout 2021 this coordinated research will contribute a vital stream of data within a risk-monitoring framework for SARS-CoV-2 variants, which will in turn inform regular WHO rapid risk assessments and further accelerated research and development efforts for vaccines, therapeutics, and diagnostics.

Initial efforts catalysed by the *Global research roadmap* resulted, in record time, in the development of safe and effective vaccines and diagnostics, and the confirmation that one existing therapeutic (dexamethasone) is effective in hospitalized patients with severe disease. Coordinated and accelerated work to support the research, development, regulatory approval, allocation and implementation of each product group must continue throughout 2021, coordinated through the ACT-Accelerator mechanism. High-level strategic research and innovation priorities for each product group are detailed in table 2.

Throughout 2020, countries have received comprehensive support for the implementation of the *Global research roadmap;* the coordination and harmonization of local research; the development of evidence research synthesis and packaging, and stakeholder-engagement processes to understand and shape policy, practice, and political and systemic dynamics; and the development and/or implementation of national research ethics policies in the context of the pandemic, including:

1 how to conduct timely yet rigorous ethics review and oversight of COVID-19-related research, avoiding duplications and adjusting as needed to the restrictions posed by the pandemic that impact not only on committees' procedures but also on informed consent processes;

2 ensuring the ethical use of unproven interventions for COVID-19 outside of research;

3 conducting adequate ethics oversight of COVID-19 research in response to rapidly emerging evidence that can impact on the ethical acceptability of studies being conducted.

Table 2 Strategic research and innovation priorities 2021

	Research	Innovations
Vaccines	• Research and track new SARS-CoV2 variants and evaluate their impact on existing vaccine efficacy and future vaccine development. • Continue critical research on vaccines currently being deployed or in Phase 3 clinical evaluation, including post-marketing safety surveillance and post-implementation vaccine effectiveness. • Intensify research on additional vaccine candidates in clinical development to identify most promising candidates to evaluate for potential deployment, including researching those with clear programmatic benefits (single dose, thermostable, easier routes of administration) • Implement Solidarity Vaccine Trial to fast track clinical evaluation of new promising vaccine candidates that can respond to current supply shortfalls.	• Develop and implement a framework for transparent and equitable allocation of available vaccine supply globally. • Ensure regulatory preparedness for deploying unlicensed vaccines, and reduce complexities for vaccine access and delivery in countries with reliance on emergency use listing and prequalification before introduction. • Reduce process complexities for vaccine manufacturing by developing harmonized regulatory standards, indemnification/liability, labelling, supply chain optimization and streamlined procurement mechanisms. • Address vaccine hesitancy, misinformation and other demand-side issues impacting vaccine uptake. • Promote technology transfer to low-income and middle-income countries with the potential capacity to accelerate global production of COVID-19 vaccines.
Treatments, case management and IPC	• Intensify research on novel/repurposed therapeutics and expand the therapeutics portfolio with consideration of new and emerging virus variants. • Sustaining efforts to rapidly evaluate the effectiveness of priority therapeutics through expansion of the Solidarity Therapeutics Clinical Trial platform in 30 countries. • Reduce knowledge gaps in the understanding of SARS-CoV-2 modes of transmission and translate evidence into guidance on effective prevention measures.	• Ensure access to quality, safe and effective therapeutics through alignment of regulatory requirements and standardized product evaluation processes. • Continue advancing PPE innovations and the research agenda on oxygen and respiratory support to better understand oxygen use for COVID-19, as well as interventions that may reduce need for invasive mechanical ventilation. • Use social sciences research to better understand how to enhance acceptability of and adherence to case management, IPC, and public health measures.
Diagnostics, laboratory and surveillance	• Accelerate evaluation studies to assess potential impact of SARS-CoV-2 variants on performance of existing diagnostic tests, ensuring they remain accurate in the detection of the circulating SARS-CoV-2 variants, and support development of specific tools for accelerated novel variants detection. • Conduct implementation research to optimize the use of new or novel tests in different contexts, such as for Ag-RDTs, and contribute to acceleration of equitable access to new COVID-19 tools. • Monitor the implementation of Ag-RDTs for COVID-19 to assess field performance, acceptability, feasibility and/or impact, and inform and optimize settings for most effective utilization. • Continue implementing standardized epidemiological investigation protocols, such as the Unity sero-epidemiology studies.	• Increase sequencing capacities of SARS-CoV-2 variants within surveillance activities, building on the existing influenza surveillance network and GISRS, as well as using strategic sequencing of targeted groups to better understand SARS-CoV-2 transmission and for dynamic assessment of variants of concern. • Catalyse the availability of low-cost, digitally connected sequencing solutions. • Transparent and timely sharing of information about the epidemiological situation and health system responses by all countries will facilitate a coordinated global effort to interrupt transmission and minimize negative consequences of the pandemic and response efforts.

Strategic global and regional support for health system resilience

In 2020, a coalition of international, regional, and national partners rapidly established international coordination to deliver strategic, technical, and operational support through existing and newly created mechanisms and partnerships. This effort aimed to support the scaling up of preparedness and response operations at national level across the nine major pillars of the public health response. In 2021, global and regional support from WHO and partners must evolve to reflect the evolving needs and capacities of countries, respond to the emerging challenges of this new phase of the pandemic at community level, and realize the full potential of new vaccines, therapeutics and diagnostics that are now becoming available. Many countries also face concurrent health emergency risks, and must build towards being better prepared to address them during the pandemic and beyond.

The *Operational plan* that accompanies this document sets out the key regional and global strategic priorities to support and strengthen national authorities to implement the key actions set out in the *Operational planning guidelines for country preparedness and response*. The overarching theme running through these priorities is the need to ensure that they are achieved through strengthened and integrated national and subnational health systems, rather than parallel and vertical efforts. Investments in health systems and health security vital not only to mitigate the impact of COVID-19, but also to strengthen risk management, preparedness, and readiness to respond to all health needs, threats, and hazards from all causes.

Ending the COVID-19 pandemic means controlling transmission in every country and in every context, whilst setting priorities for managing COVID-19 and regular health services based on context-specific analyses of all-cause mortality risk, no matter how challenging. Ultimately we will bring about that control through an evolving combination of high-quality health services, vaccination and the implementation of other new tools, and public health interventions, all of which have and will require investments in health system capacities and community readiness and resilience that are foundational for both health security and for universal health coverage. The *Operational plan* that accompanies this document contains key national measures and critical global and regional support mechanisms to strengthen health system functions that are not only vital for COVID-19 preparedness and response, but which also have much broader utility, such as investing in national capacities for essential public health functions, including those under the International Heath Regulations; coordination mechanisms; financing; data management, collection, and analysis; workforce planning and protection, management and development; safety of service delivery; supply chain management and access to essential medicines and commodities; and supply chain resilience.

In addition, the *Operational plan* sets out key research and innovation priorities under each operational and technical pillar of the global IMST necessary to support the effective implementation of national COVID-19 action plans, and sets out the contributions that each of those pillars will make to accelerating equitable access to new vaccines, therapeutics and diagnostics in alignment with the goals of the ACT-Accelerator (figure 8).

Matching these priorities with concerted and coordinated global and regional action will be the key to achieving our collective strategic objectives of suppressing transmission, reducing exposure, protecting the vulnerable, reducing morbidity and mortality from all causes, and accelerating equitable access to new vaccines, therapeutics, and diagnostics.

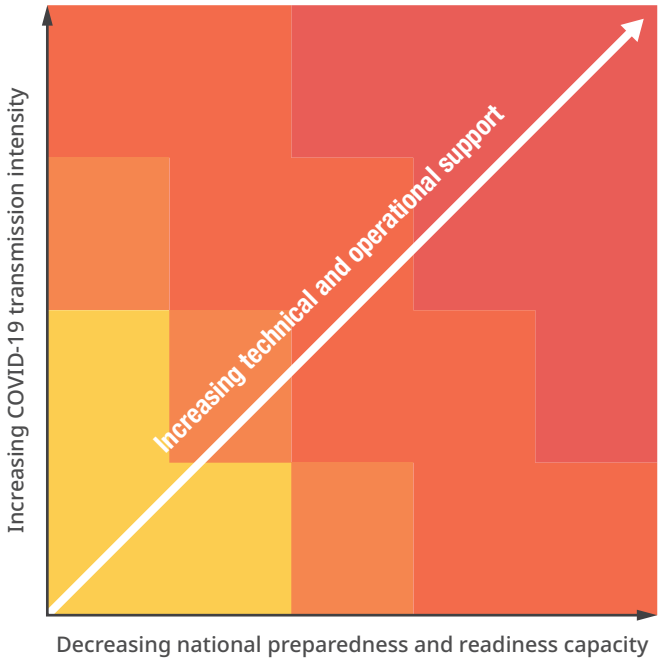
Prioritizing support to countries

All countries receive support from the global IMST, but not all countries need the same support, and these needs can change radically over time (figure 9). At the outset of the COVID-19 pandemic in early 2020, decisions on how to allocate and target support to countries was based on a combination of epidemiological data and baseline quantitative and contextual information about the preparedness and response capacities of countries derived from a range of existing peer review and self-evaluation tools. In 2021, this situation has changed. Decisions about when and where support is needed, real-time strategic planning and adjustment, coordination, and evidence-based decision making are based on access to quality and timely operational and situational tracking data at national and subnational levels (figure 6). This public health intelligence system will evolve during 2021 through the revision of the *COVID-19 Monitoring and evaluation framework*, which will regularly track and publish updated key performance indicators aligned with national and global priority actions outlined in the *Operational plan* that accompanies this document. This is a vital tool for coordinating support at the national level and directing global and regional support to where it is needed most, but 2021 will see a greater emphasis on monitoring at the subnational level to better capture and address disparities in capacities, risks, and vulnerabilities within national borders to support vulnerable communities. This will require close collaboration between national and local authorities and community partners and stakeholders through a whole-of-society approach.

Targeted and, where required, comprehensive support will continue to be provided to countries to plan and implement COVID-19 vaccination, informed by additional key performance indicators pertinent to vaccination included in the revised monitoring and evaluation framework.

Special attention will be given to countries with fragile, conflict affected and vulnerable settings. They are likely to have low capacity to manage the control of the epidemic and address disruptions in service delivery. Furthermore, through the existing humanitarian programming channels, support will be given for vulnerable populations that might otherwise not benefit from government programs, as they live in hard to reach areas, or areas not under government control.

Figure 9 Prioritization of operational support



WHO increases the degree of technical and operational support available to countries on the basis of their position on a spectrum of COVID-19 transmission risk and their preparedness and readiness capacities. Countries with uncontrolled community transmission and low preparedness and readiness capacities are given the highest priority for the greatest degree of support, which may include WHO and implementing partners acting as provider of last resort for essential health services and commodities.

Building for the future

The COVID-19 pandemic is in many respects unprecedented, but in no respect was it unforeseen. As we focus on our immediate collective response, it is vital that we learn from the missteps and missed opportunities of the past if we are to avoid repeating them.

In the immediate future that means learning from the mistakes of the HIV pandemic, when it took decades for the global poor to get access to the life-saving medicines that were available in high-income countries. It means learning from the H1N1 pandemic, when the poor only gained delayed access to life-saving vaccines. It means learning from the Ebola epidemic in West Africa, that demonstrated that decades of hard-won development gains can be undone by a large scale epidemic when there is underinvestment in epidemic preparedness and readiness, and that epidemic control relies on effective community engagement and the trust communities have in the government and health services.

COVID-19 vaccines are powerful tools with enormous positive potential. How we use these tools is a choice that can be made on the basis of moral imperatives, economic considerations, or according to narrow national self-interest. In all three cases, the logic of reason leads us to the same conclusion: equity and solidarity must win out. An uncoordinated, "me-first" approach to vaccination not only condemns the world's poorest and most vulnerable to unnecessary risk, it is strategically and economically self-defeating. As a recent study commissioned by the International Chamber of Commerce concluded, even with a high degree of vaccine coverage in high-income countries, restricted coverage elsewhere would cost high-income economies an additional US$ 2.4 trillion in 2021 alone. The pursuit of short term and narrow self-interest is the road to prolonging the pandemic, the restrictions needed to contain it, and human and economic suffering. Vaccine development in response to a pandemic should have global governance for its allocation based on needs, and ensuring licensing of production so that low-income countries can also afford them.

The choices we make today will have repercussions beyond the COVID-19 pandemic. Through its devastating impact on at-risk groups, COVID-19 has exposed the truth that national health security is dependent on a complex network of interdependent and intersecting factors. Community vulnerability; the preparedness, readiness, and resilience of and equitable access to the health system; healthy ageing; health nutrition; the burden of non-communicable diseases; and the social determinants of health all exert their own share of influence. Addressing these points of vulnerability in a comprehensive and coordinated manner means increased investment, but more importantly it means committing to evidence-based approaches to policy, regulation, and taxation, which cut across sectors and are fully owned by all stakeholders. These approaches will vary from country to country depending on social, political and economic systems, but what should not vary is their foundation in science and their common goal of addressing inequities for the good of the entire population.

Over the course of the pandemic, many valuable adaptations in essential health services have been made to address disruptions. Reviewing and institutionalizing these adaptations can result in a more resilient path to the goal of universal health coverage on which socioeconomic recovery depends.

A similar logic holds true if we turn our attention to the international system of pandemic preparedness and response. The risk of another emergency of the same scale as COVID-19 and of even greater severity is real; the devastating toll of COVID-19 must mark a turning point in the way we prepare for, prevent, and respond to health emergencies. Collectively, we must take the path of sustained, considered and concerted action now if we are to achieve global health security and avoid the catastrophic impact of global health emergencies in the future. This collective action should be guided by the work of the Independent Panel for Pandemic Preparedness and Response, the Review Committee on the Functioning of the International Health Regulations (2005) during the COVID-19 Response, and the Independent Oversight and Advisory Committee of the WHO Health Emergencies Programme, who will report their final conclusions in May 2021. Several facts, however, are already clear.

COVID-19 surprised even some of the world's richest and most powerful nations. It caught them unprepared and revealed a collective failure to invest in emergency preparedness. Neither individual governments nor the global community can entirely prevent health emergencies. But we can be much better prepared and better aligned in our response through more effective multisectoral, multidisciplinary, and transnational collaboration on preparedness and response at the community, local, national, and regional and global levels.

Mechanisms such as the Universal Health and Preparedness Review can bring nations and stakeholders together in solidarity to support effective international cooperation to strengthen emergency preparedness, foster exchange of best practices, identify new and emerging issues, promote accountability, and ensure efficient targeting and use of investments through a system of peer review. All countries should take the necessary steps to improve national health security: health systems can be strengthened and made resilient for health emergencies by adopting a primary health care approach and investing in essential public health functions such as surveillance, contact tracing, quarantine, and risk communication. Communities must be engaged for effective implementation of preparedness and response plans, the building of trust and the protection of vulnerable groups. These goals can only be achieved through a gender-responsive approach that ensures access to accurate and reliable information and which empowers people to protect themselves and others.

COVID-19 is just the latest infectious disease to demonstrate the need for an enhanced global early warning, alert and emergency response system under WHO's leadership. The global interconnectedness that has defined the first part of the 21st century increases vulnerability to infectious pathogens with the potential for rapid spread, but that connectedness can become a source of strength, and nowhere more so than in the sphere of public health intelligence. An interconnected, distributed global system for public health intelligence with WHO at its centre has the potential to revolutionize our ability to predict, rapidly detect and communicate emerging outbreaks, preventing localized outbreaks from escalating into epidemics and, beyond that, into international public health emergencies.

A revitalized and re-engineered global early warning and alert system would function as the sensory organs of a broader system able to coordinate a rapid, sustained and agile emergency response at the regional and/or global levels, including rapid multi-agency response to a novel zoonotic disease. It is not possible to predict with precision exactly what form the next pathogen with pandemic potential might take, but we can be sure that an effective response to this putative disease X will depend on achieving the same strategic objectives that should guide the global response to COVID-19: suppressing transmission, reducing exposure, reducing morbidity and mortality, and accelerating research, innovation, and equitable access to new tools and technologies.

The lessons learned, and the capacities and platforms that have been rapidly scaled during the COVID-19 response provide us with a template for the future. Building on the success of the UN Supply Chain System for COVID-19 would provide the world with an end-to-end supply chain and logistics mechanism integrated with networks of technical expertise able to specify the necessary commodities for different response contexts, and capable of the rapid quality assurance, prioritization and delivery of vital commodities rapidly to those who need them most, as well as implementing market intelligence and demand early warning mechanisms to alert suppliers.

Expanding and strengthening expanding the Global Outbreak Alert and Response Network and Emergency Medical Teams initiatives can provide countries with access to a global health emergency surge workforce that is rapidly deployable nationally, regionally and globally to detect and respond to health emergencies.

Investing in an evidence-based approach to building resilience to misinformation and disinformation of the type that has continually undermined national COVID-19 response measures will build community resilience and engagement before, during, and after health emergencies. The combination of the phenomenal success of the effort to develop medical countermeasures to COVID-19 and the challenges now emerging in ensuring equitable access highlight the need to continue to strengthen our ability to rapidly and fairly deploy vaccines, therapeutics, and diagnostics. Investing in the readiness, education and learning of the health workforce improves population health and resilience, and builds resources in every community to prevent and respond to epidemics.

We must stay the course, and continue to build public health capacities in all countries, to consistently and strategically use all available public health tools and new tools to prevent as many infections and save as many lives as we possibly can. Novel virus variants and global fatigue from 14 difficult months of this pandemic present new challenges, and we must remain vigilant, steadfast, and determined to do all we can to protect our loved ones. We must learn the lessons of this pandemic now and, in so doing, ensure that the lasting legacy of COVID-19 is an interconnected global system that is better prepared to predict, prevent, respond to and recover from health emergencies in the only way that makes sense: together, in solidarity.

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