Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

the reduction of cardiovascular disease burden in women worldwide. The Commission's recommendations on additional funding for women's cardiovascular health programmes, prioritisation of integrated care programmes, including combined cardiac and obstetric care, and strengthening of the health systems accords with efforts to bridge the gap for the world's worst off.[5] Such a shift in women's cardiovascular care would be a major step towards equity, social justice, and sustainable development.

I declare no competing interests.

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Disease surveillance for the COVID-19 era: time for bold changes

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The COVID-19 pandemic has exposed weaknesses in disease surveillance in nearly all countries. Early identification of COVID-19 cases and clusters for rapid containment was hampered by inadequate diagnostic capacity, insufficient contact tracing, fragmented data systems, incomplete data insights for public health responders, and suboptimal governance of all these elements. Once SARS-CoV-2 became widespread, interventions to control community transmission were undermined by weak surveillance of cases and insufficient national capacity to integrate data for timely adjustment of public health measures.[1,2] Although some countries had little or no reliable data, others did not share data consistently with their own populations and with WHO and other multilateral agencies. The emergence of SARS-CoV-2 variants has highlighted inadequate national pathogen genomic sequencing capacities in many countries and led to calls for expanded virus sequencing. However, sequencing without epidemiological and clinical surveillance data is insufficient to show whether new SARS-CoV-2 variants are more transmissible, more lethal, or more capable of evading immunity, including vaccine-induced immunity.[3,4]

Public health decision making relies on real-time, accurate surveillance.[5] As communities and economies struggle to recover from the consequences of these surveillance deficiencies, now is the time for countries and multilateral agencies to take a hard look at what failed and to act boldly to implement the necessary improvements to disease surveillance.

Future disease surveillance should comprise well integrated national systems based on five principles (table). First, a strong surveillance foundation should monitor the population in a systematic, consistent, and statistically sound way. Second, surveillance systems

	Benefits	Implementation requirement
Population-based	Denominators for mortality rates and disease burden	CRVS or sample registration system
Laboratory confirmation	Cases accurately tracked	Capacity to scale testing and sequence pathogens
Digital data	Systems interconnected and privacy protected	Unique health identifiers, standard metadata, web accessible
Data transparency	Visibility of all national threats by NPHIs and by WHO for transnational threats	Automated reporting to NPHI with a subset to WHO and regional bodies
Adequate financing	Sustainable country-owned systems	Invest US$1–4 per capita annually

CRVS=civil registration and vital statistics. NPHI=national public health institute.

Table: **Core principles for integrated disease surveillance**

must incorporate laboratory confirmation appropriately scaled for different diseases and risks. Third, surveillance systems must be digitised, with unique health identifiers to connect individual-level data and with privacy safeguards. Fourth, surveillance programmes must use standardised case definitions and common data elements, with appropriate access for the public, local and national health authorities, regional bodies, and WHO. Fifth, disease surveillance must be adequately financed.

Interpretation of disease surveillance data needs population representativeness, denominators, and historical baseline data. Civil registration and vital statistics (CRVS) systems are important for population estimation and understanding excess mortality but have historically taken years to build. Many countries that lack or have inadequate CRVS systems need to accelerate their development in alignment with the recommendations in the WHO *SCORE for Health Data Technical Package* report.[6] In the meantime, representative sample registration systems can provide denominator and mortality data and can be designed to support the development of CRVS systems. Such sample registration systems are established in several middle-income countries and are being implemented in some low-income countries, such as Mozambique and Sierra Leone.[7]

Multiple surveillance systems can be integrated on such a population-representative foundation, according to the priorities of the country and leveraging internal resources, such as surveillance programmes run by academic and non-governmental institutions. A fully integrated surveillance system could include integrated disease surveillance and response, including COVID-19 case reporting; pathology-based cause of death surveillance;[8] electronic health and laboratory record data transfer; serological surveillance; vaccine adverse events reporting; epizootic and food safety surveillance systems on the One Health model; participatory community surveillance; and disease-specific systems for HIV, tuberculosis, malaria, vaccine-preventable diseases, and many others. For data linkage it is crucial that all systems are digital and that unique health identifiers are assigned to everybody in the population. Privacy protection, including review by privacy watchdogs, must be established.

Surveillance data reviews should trigger rapid public health action locally. National public health institutes (NPHIs) should be charged with collating and analysing data nationally and coordinating or undertaking modelling of disease patterns and pathogen evolution to guide public health suppression measures, border policies, vaccine development and deployment, and treatment protocols. NPHIs should have the mandate and systems to share information about transnational health threats with international bodies under the International Health Regulations (2005), and these bodies must commit to full transparency of the data they receive. Additionally, NPHIs should monitor key performance indicators, such as time to detect, report, investigate, and control disease outbreaks.

Adequate financing and the creation of a sustainable market will be needed for the establishment and continual maintenance of surveillance infrastructure. Countries should expect to spend about US$1–4 per capita annually on disease surveillance infrastructure and personnel.[9] For low-income and middle-income countries, substantially more start-up investment is likely to be required to strengthen laboratory capacities, data systems, and human resource capacity, as part of larger investments in health systems strengthening; some of this cost will need to be met by donors and high-income countries. Dedicated investments will also be needed to ensure that high-risk populations, especially in humanitarian contexts, are not excluded from improved surveillance systems. The amounts are considerable but represent a small

proportion of the $249 per person average annual military spending and the more than $10 trillion in estimated economic costs from inadequate disease surveillance.[10]

Piecemeal, antiquated public health surveillance must be robustly transformed into a modern system. As the COVID-19 pandemic has shown, weak surveillance limits the ability of countries to detect and rapidly respond to health threats and harness the benefits from innovations such as pathogen genomic sequencing, mRNA vaccines, and novel antivirals. Bold changes to implement fully interconnected disease surveillance are needed to manage the risks posed by SARS-CoV-2 variants and future pandemics.

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From torture to ultraviolence: medical and legal implications

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Violent global conflict has forcibly displaced 79·5 million people worldwide, many of whom have experienced torture.[1] Although the systematic use of torture is not new, torture as experienced by refugees fleeing war and persecution has become increasingly brutal. Indeed, in many parts of the world, the purpose of torture is no longer to teach a lesson or to extract a confession, but to embody cruelty in its most extreme form.[2] When appealing for refuge, asylum seekers describe experiencing violence that exceeds the standard definition of torture.[3] Medical and legal communities have yet to adopt adequate language to describe this purposeful, extreme violence.

The World Medical Association Declaration of Tokyo defines torture as the "deliberate, systematic or wanton infliction of physical or mental suffering by one or more persons acting alone or on the orders of any authority, to force another person to yield information, to make a confession, or for any other reason".[4] Torture is the deliberate harm of a person by