ICU
MANAGEMENT & PRACTICE

Epidemic Preparedness and Rapid Identification of Pathogens

In recent years, infectious disease outbreaks have occurred with increasing frequency. Even though significant progress has been made to identify potentially dangerous pathogens, a lot still needs to be done. In particular, diagnostics can play an important role in controlling epidemics.

There is a need to develop and deploy diagnostics that can identify pathogens quickly and accurately. Diagnostic tests that help guide clinical management and public health measures are needed. Prevention and control strategies can thus be better informed, and it would be easier to identify at-risk populations, attack rates and control interventions that would work best.

We've already seen this happen with COVID-19. The outbreak began in Wuhan, China, and within days, the sequence of the virus was published. This allowed scientists to develop molecular assays. Compared to the SARS outbreak, there was greater access to data related to the coronavirus and key information for test development. Protocols for detecting SARS-CoV-2 were developed and shared within days. However, a lot more could have been done. The WHO Research and Development BluePrint meeting in Geneva in February acknowledged the fact that sole reliance on molecular testing was not sufficient to fight the COVID-19 epidemic. Finding more accessible testing modalities and mobilising research on rapid point of care diagnostics for use at the community level was identified as a top priority.

Some obstacles to disease preparedness include political instability and lack of cooperation. But epimedics require a holistic, multi-stakeholder response. That is why there is a need to strengthen the healthcare system and integrate diagnostics to create a comprehensive pandemic preparedness plan. There is also a need for sample sharing across borders, as this can help implement a quick and effective response to an emerging illness. In addition, public-private partnerships are also important as they can build capacities and improve infrastructures. An example is China's response to COVID-19, which was much better than its response to SARS. This was because of greater national and international coordination.

Researchers have proposed a model for a global network of country-owned biobanks with standardised methods for the collection and characterisation of specimens and pathogens. This could accelerate diagnostics development and evaluation of diseases that could have epidemic potential. The network should ideally operate on the principles of transparency, access, ethics and respect.

A sustainable biobanking mechanism should be established using the principles outlined by the Nagoya Protocol, a UN Treaty on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization. By adapting the principles of this international agreement, there should be a global consensus and commitment to sharing specimens and virus strains. There should be faster data analysis, coordinated technical support, data sharing in a real-time and greater focus on research and innovation.

Source: The Lancet
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