

Essential medicines and essential diagnostics: a package deal

For more than 40 years, WHO has published Model Lists of Essential Medicines. This year, for the first time, WHO published the latest edition of the essential medicines list¹ simultaneously with a Model List of Essential In Vitro Diagnostics.² This landmark development signals the vital importance of linking use of medicines with diagnostic tests to advance the Universal Health Coverage (UHC) agenda.³

All efficient and responsive health systems need both diagnostics and drugs. They are a package deal. Unfortunately, most governments, health agencies, and financial donors in low-income and middle-income countries have traditionally prioritised medicines, with little investment in diagnostics.³

Without dependable tests, primary care providers have no choice but to rely on empirical therapies, resulting in the widespread use of antibiotics and other drugs. This tendency is illustrated in standardised patient studies in multiple countries, which show that care providers rarely asked for any diagnostic testing.⁴ Instead, they relied heavily on polypharmacy for several conditions. Underdiagnosis is also evident in analyses of cascades of care for common conditions such as tuberculosis, HIV, diabetes, and hypertension, which show that diagnosis is consistently the weakest link in health system performance.³ When health systems neglect diagnostics, they cannot adequately respond to growing threats such as antimicrobial resistance, non-communicable diseases, and pandemics.³

Acknowledging these concerns, WHO released the first Model List of Essential In Vitro Diagnostics in 2018 and updated the list in 2019. The second essential diagnostics list² has 122 test categories, including 46 general tests

(eg, for haemoglobin, blood glucose, bilirubin) and 69 specific tests (eg, for HIV, tuberculosis, malaria, hepatitis B and C, syphilis, human papillomavirus, leishmaniasis, dengue, zika, and influenza). In addition, the list includes tests for several noncommunicable diseases (eg, cancers, diabetes, and hypothyroidism). Although the essential diagnostics list is rapidly growing, it still has a long way to go before it can adequately support the use of all the drugs included in the essential medicines list.⁵

The various editions of the WHO Model List of Essential Medicines has been adopted and adapted by more than 150 countries, which have developed their own national lists and used them to improve the access to, and affordability and quality of medicines. We hope countries will do the same with the essential diagnostics list.

Another strategy to ensure the availability of essential tests is to have them explicitly defined, costed, and incorporated into global and national UHC intervention packages. The *Lancet* Commission on diagnostics intends to present a comprehensive, evidence-based, and costed package for diagnostic service delivery that could be adapted by countries for effective UHC.⁶

Innovation along with research and development are crucial for the development and implementation of platform technologies that can deliver a range of essential tests, so that health systems do not need to invest in separate technologies for each test or condition. Innovation is also key for improving service delivery. To take tests close to homes and communities, we need to exploit approaches such as digital applications, home-based sample collection, self-testing, and testing in communities via providers such as lay health workers and pharmacies. Because not all tests can be delivered close to home, countries need to invest in tiered, connected laboratory networks and optimise their use to deliver as many essential tests as possible at the lowest expense to

the health system, while maintaining quality.

In summary, the time has arrived for health systems to pivot from syndromic management to precision therapy guided by tests. The simultaneous release of both lists by WHO is a welcome development to advance this agenda.

All authors were members of the WHO Strategic Advisory Group of Experts on In Vitro Diagnostics Group that developed the Essential Diagnostics List. They are also commissioners for the *Lancet* Commission on diagnostics. MP serves on the scientific advisory committee of the Foundation for Innovative New Diagnostics (FIND), Geneva.

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- 1 WHO. World Health Organization Model List of Essential Medicines. 21st list 2019. July 9, 2019. <https://apps.who.int/iris/bitstream/handle/10665/325771/WHO-MVP-EMP-IAU-2019.06-eng.pdf?sequence=1&isAllowed=y> (accessed July 27, 2019).
- 2 WHO. Second WHO Model List of Essential In Vitro Diagnostics. https://www.who.int/medical_devices/publications/Standalone_document_v8.pdf?ua=1. July 9, 2019 (accessed July 23, 2019).
- 3 Pai M, Boehme C, Kickbusch I. Diagnostics are essential for universal health coverage to succeed. May 20, 2019. <https://www.statnews.com/2019/05/20/diagnostics-universal-health-coverage-succeed/> (accessed July 24, 2019).
- 4 Das J, Woskie L, Rajbhandari R, Abbasi K, Jha A. Rethinking assumptions about delivery of healthcare: implications for universal health coverage. *BMJ* 2018; **361**: k1716.
- 5 Schroeder LF, Guarner J, Amukele TK. Essential diagnostics for the use of World Health Organization essential medicines. *Clinical chemistry* 2018; **64**: 1148–57.
- 6 Wilson ML, Atun R, DeStigter K, et al. The *Lancet* Commission on diagnostics: advancing equitable access to diagnostics. *Lancet* 2019; **393**: 2018–20.



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