

Pathology and laboratory medicine: the Cinderella of health systems



High-quality pathology and laboratory medicine (PALM) services are an integral part of health systems in high-income countries. New molecular diagnostic techniques, advances in precision cancer treatments, and population-based screening programmes for disease prevention or early detection have made PALM an even more important part of modern medicine and health care. And yet, even in high-income countries, the role of PALM is not well understood by the general public, and pathology remains a somewhat unpopular specialty in medicine. The UK's Royal College of Pathologists states on its website that more than two-thirds of people surveyed thought that pathologists are "working with the dead".¹ To challenge such preconceptions, the college highlights that pathologists are involved in more than 70% of all diagnoses made in the National Health Service and that there are many subspecialties within pathology.

It is perhaps then not surprising that little attention has been paid to PALM services in the global discussions on achieving universal health coverage by 2030 as part of the Sustainable Development Goals. None of the high-level declarations specifically mention PALM services—an important omission. *The Lancet's* three-part Series on PALM in low-income and middle-income countries (LMICs) aims to change this oversight.²⁻⁴ The first paper explains how PALM is a crucial and neglected part of health systems in LMICs, where it should serve as the foundation for safe, effective, and equitable health-care delivery, population health, and global health security.² Without a sustainable and high-quality PALM system, the rising burden of non-communicable diseases together with a still substantial burden of infectious diseases, increasing antimicrobial resistance, and outbreaks such as Ebola virus disease and Zika virus will almost certainly overwhelm health systems. Without the ability to screen for or diagnose early, for example, patients with cervical cancer, liver cancer, or colorectal cancer will present late with poor prognosis and treatment costs will be high. Cancer registries are still rare in many LMICs but are a vital next step for any concerted national cancer control strategy.^{5,6} Without

a functioning PALM system, cancer registries are not possible or are uninformative. The growing burden of diabetes is another example of a non-communicable disease where laboratory medicine is one of the fundamental important missing pieces for better control and treatment.⁷

The four key barriers to a good PALM system in resource-poor settings identified in the first paper are substantial. The second paper examines how to start to overcome these barriers and presents suggestions to address insufficient human resources and capacity, increase education and training, improve often inadequate infrastructure, and provide quality assurance.³ A PALM delivery package is suggested with four different but integrated tiers of services and measurable indicators to assess effectiveness. Such a system could form the scaffold for national laboratory strategic plans as a component of the national health plans. Ministries of Health need to understand that PALM is crucial for health systems strengthening, and ultimately cost-effectiveness. Currently, 40% of African countries have such a plan or are working on one.⁴ With the official opening of the Africa Centres for Disease Control and Prevention (Africa CDC) in Addis Ababa, Ethiopia, a little over a year ago, the time has come to accelerate efforts to

Published Online

March 15, 2018

[http://dx.doi.org/10.1016/S0140-6736\(18\)30457-4](http://dx.doi.org/10.1016/S0140-6736(18)30457-4)

See Online/Comment

[http://dx.doi.org/10.1016/S0140-6736\(18\)30308-8](http://dx.doi.org/10.1016/S0140-6736(18)30308-8) and [http://dx.doi.org/10.1016/S0140-6736\(18\)30310-6](http://dx.doi.org/10.1016/S0140-6736(18)30310-6)

See Online/Series

[http://dx.doi.org/10.1016/S0140-6736\(18\)30458-6](http://dx.doi.org/10.1016/S0140-6736(18)30458-6), [http://dx.doi.org/10.1016/S0140-6736\(18\)30459-8](http://dx.doi.org/10.1016/S0140-6736(18)30459-8), and [http://dx.doi.org/10.1016/S0140-6736\(18\)30460-4](http://dx.doi.org/10.1016/S0140-6736(18)30460-4)



Panos/Chris de Bode

create national PALM systems as the much needed basis for a well functioning health system. Its Director, John Nkengasong, in an accompanying Comment to the Series, sees an “opportunity to drive the laboratory medicine agenda in Africa”.⁸

The final Series paper⁴ highlights the lack of leadership within the PALM community and calls for strong advocacy and action at national and international levels. It issues eight recommendations, naming the key actors and identifying indicators to monitor progress. Like global surgery previously,^{9,10} PALM has for too long taken a quiet and polite backseat. Now is the time to step into the limelight and come to the ball. Isabelle Citron and colleagues¹¹ in their Series Comment welcome “the PALM community in planning, advocacy, and delivery of safe, affordable health care”. The road to universal health care that leaves no-one behind needs to have all actors working together to create sustainable health systems with particular attention to the crucial underpinning services that PALM provides. We urge all involved in health systems strengthening for universal health coverage to make a firm commitment to PALM.

Sabine Kleinert, Richard Horton
The Lancet, London EC2Y 5AS, UK

We declare no competing interests. We are grateful to the US National Cancer Institute, National Institutes of Health, for financial support to the initial writing

meeting and the peer-review meeting. We thank Kenneth Fleming for leading this Series and all authors and peer reviewers for drafting and refining the Series papers.

- 1 Royal College of Pathologists. Discover pathology. What is pathology? 2018. <https://www.rcpath.org/discover-pathology/what-is-pathology.html> (accessed Feb 11, 2018).
- 2 Wilson ML, Fleming KA, Kuti M, Looi LM, Lago N, Ru K. Access to pathology and laboratory medicine services: a crucial gap. *Lancet* 2018; published online March 15. [http://dx.doi.org/10.1016/S0140-6736\(18\)30458-6](http://dx.doi.org/10.1016/S0140-6736(18)30458-6).
- 3 Sayed S, Cherniak W, Tan SY, et al. Improving pathology and laboratory medicine in low-income and middle-income countries: roadmap to solutions. *Lancet* 2018; published online March 15. [http://dx.doi.org/10.1016/S0140-6736\(18\)30459-8](http://dx.doi.org/10.1016/S0140-6736(18)30459-8).
- 4 Horton S, Sullivan R, Flanigan J, et al. Delivering modern, high-quality, affordable pathology and laboratory medicine to low-income and middle-income countries: a call to action. *Lancet* 2018; published online March 15. [http://dx.doi.org/10.1016/S0140-6736\(18\)30460-4](http://dx.doi.org/10.1016/S0140-6736(18)30460-4).
- 5 Allemani C, Matsuda T, Di Carlo V, et al. Global surveillance of trends in cancer survival 2000–14 (CONCORD-3): analysis of individual records for 37 513 025 patients diagnosed with one of 18 cancers from 322 population-based registries in 71 countries. *Lancet* 2018; published online Jan 30. [http://dx.doi.org/10.1016/S0140-6736\(17\)33326-3](http://dx.doi.org/10.1016/S0140-6736(17)33326-3).
- 6 Znaor A, Eser S, Anton-Culver H, et al. Cancer surveillance in northern Africa, and central and western Asia: challenges and strategies in support of developing cancer registries. *Lancet Oncol* 2018; **19**: e85–92.
- 7 Jaffar S, Gill G. The crisis of diabetes in sub-Saharan Africa. *Lancet Diabetes Endocrinol* 2017; **5**: 574–75.
- 8 Nkengasong JN, Yao K, Onyebujoh P. Laboratory medicine in low-income and middle-income countries: progress and challenges. *Lancet* 2018; published online March 15 [http://dx.doi.org/10.1016/S0140-6736\(18\)30310-6](http://dx.doi.org/10.1016/S0140-6736(18)30310-6).
- 9 Meara JG, Leather AJM, Hagander L, et al. Global surgery 2030: evidence and solutions for achieving health, welfare, and economic development. *Lancet* 2015; **386**: 569–24.
- 10 Biccadd BM, Madiba TE, Kluyts H-L, et al. Perioperative patient outcomes in the African Surgical Outcomes Study: a 7-day prospective observational cohort study. *Lancet* 2018; published online Jan 3. [http://dx.doi.org/10.1016/S0140-6736\(18\)30001-1](http://dx.doi.org/10.1016/S0140-6736(18)30001-1).
- 11 Citron I, Sonderman K, Meara JG. Pathology and laboratory medicine in partnership with global surgery: working towards universal health coverage. *Lancet* 2018; published online March 15. [http://dx.doi.org/10.1016/S0140-6736\(18\)30310-6](http://dx.doi.org/10.1016/S0140-6736(18)30310-6).