Pathology and laboratory medicine in partnership with global surgery: working towards universal health coverage

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Pathology and laboratory medicine (PALM) is the backbone of high-quality care across many specialties, particularly surgery. In surgery, PALM provides the cross-match to keep patients with bleeding ectopic pregnancies alive, the histopathology that differentiates a benign colonic polyp from a malignancy, the biochemistry that allows safe titration of anaesthetics, and the forensic pathology that quantifies the burden of disease.

PALM and surgery, which both require substantial capital and infrastructure, share similarities as to the next phases of their expansion. Investment in equipment can only be cost-effective when the equipment is co-located with a well trained staff and a functioning supply chain to keep the equipment in use. All too often in low-income and middle-income countries (LMICs), patients remain in need while analysers sit idly without reagents, or operating theatres are vacant without surgeons or equipment as coordination is lacking to simultaneously bring together these building blocks. Both specialties will benefit from delivery science research that addresses best practices for equipment standardisation, procurement, training, and service contracts, and the strengthening of biomedical engineering services. As the surgery community has found, getting from here to there will require PALM to coordinate the workforce, supplies, equipment, training, and the information and governance systems with national level planning.[1]

Strategic national planning in PALM and surgery must also include leveraging the fast pace of technology innovation. Technology in LMICs often undergoes so-called leapfrogging, in which new technologies are rapidly adopted without going through linear intermediary steps.[2] In this *Lancet* Series on PALM in LMICs,[3–5] Shahin Sayed and colleagues[4] describe how point-of-care testing with HIV and malaria is likely to prove a leapfrog technology that could be adopted in areas where no testing previously existed without a traditional laboratory testing phase. Similarly, in Mongolia, open surgical techniques are being leapfrogged in favour of direct adoption of cost-effective laparoscopic surgeries.[6] PALM and the surgical, anaesthesia, and obstetrics communities encourage industry to recognise the large potential markets in LMICs and collaborate in research, development, trialling, and adopting new disruptive technologies.[5] Workforce expansion in LMICs will also entail leapfrogging with the training of cost-effective task shifters, such as laboratory technicians, cancer histopathology technicians, nurse anaesthetists, and surgical officers.[7,8]

PALM and surgery seek resources not only for the community level but also for higher levels of care such as district and regional hospitals. Certain services within laboratory testing, pathology, and surgery are not needed at all levels of care, instead judicious deployment at specific levels of care and a functioning referral system are required. Working together, PALM and surgery and anaesthesia can shine a spotlight on the district hospital—a crucial but often neglected phase of the health-care system caught between a decentralisation agenda focused on the community and a super-specialisation agenda focused on national hospitals. The challenges that PALM and surgery face in advocating for resources are similar given their cross-cutting nature and the breadth of diseases served, including cancer, heart disease, tuberculosis, trauma, and obstetrics. Both specialties are also excellent vehicles for health systems strengthening and can contribute to public health priorities, including the Sustainable Development Goals,[9] non-communicable disease control, and universal health coverage.[10] At the

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same time, their breadth makes definition difficult and therefore advocacy challenging. PALM can learn from surgical advocacy and define attainable targets around which to unite and coordinate efforts, much like the surgery community defined six key indicators to monitor national level surgical capacity.[1] As with all aspects of health care, the private sector has to be part of the solution in both these specialties to expand access. Well regulated private entities can provide services directly to patients and thus offload the public sector that is often resource constrained.[11] Coordinating and regulating public and private services to ensure improved access to high-quality care for all patients, independent of ability to pay, will be necessary steps for these services to expand worldwide.

The surgery community welcomes the PALM community in planning, advocacy, and delivery of safe, affordable universal health care.

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