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GLOBAL SURGERY POLICY

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Position Statement

ASSA believes that:

1. The health of people affected by surgically treatable conditions is a significant global health issue requiring urgent attention. Particular attention is required for the management and prevention of surgical disease and complications in low-income and middle-income countries (LMIC).
2. There are many barriers to accessing surgical care, and stakeholders in higher income countries (HIC) have a shared responsibility to contribute resources, collaborate with LMICs to empower local action, and to conduct research to address these barriers.
3. Disease management should involve evidence-based care addressing first the conditions with greatest need.
4. Changing the burden of disease requires further research and development of programs to encourage recruitment of surgical workforce, appropriate involvement of medical students, and production of long term infrastructure.
5. There should be a continuous effort to mitigate surgical, obstetric, and anesthetic shortage as one of the most unmet medical needs in LMICs.
6. Global surgery programs and policies should be underpinned by development and humanitarian aid principles including transparency, sustainability and capacity building.

Background

The Lancet defines global surgery as "an area of study, research, practice, and advocacy that seeks to improve health outcomes and achieve health equity for all people who need surgical and anaesthesia care, with a special emphasis on underserved populations and populations in crisis. It uses collaborative, cross-sectoral, and transnational approaches and is a synthesis of population-based strategies with individual surgical and anaesthesia care."(1)

By this definition, the field of global surgery targets a wide range of heterogeneous populations with different resource settings, access, training, and education contexts. For instance, both rural Australia and LMICs such as Papua New Guinea are underserved in regards to surgical access.(2) However, the patient populations, workforce, access, and training opportunities in these two examples are vastly different. Both require changes in policy to address a gap in surgical and anaesthesia care but different strategies will need to be implemented in each. In developing this global surgery policy, ASSA's position is turned towards the Australasian LMICs context, and a separate rural and remote surgery policy will address the unique challenges of rural surgery in Australasia.

Health inequity

The provision of safe and effective surgical care is a basic human right without which there cannot be equitable distribution of health.(3) Generally, LMICs experience more significant barriers to the treatment of surgical conditions than HICs,(1) with insufficient treatment availability and quality resulting in serious health, employment and economic consequences.(4) Inadequate access to emergency and essential surgical and anaesthetic care contributes to a disproportionate disease burden on LMIC health systems and economies compared to HICs.(4) Scaling up surgical care in LMICs to meet the standards of HICs has the potential to prevent 77.2 million disability-adjusted life years and tens of millions of deaths each year.(1)

While it is estimated that Western sub-Saharan Africa has the highest global surgical need, there is a significant volume of unmet surgical need per person in the Asia-Pacific region,(5) especially South Asia.(1,6) The Royal Australasian College of Surgeons (RACS) currently manages several programs in the Asia-Pacific region including Myanmar, Timor-Leste, Indonesia, Papua New Guinea, China, and the Pacific Islands.(7) In this region, there are interplays of cultural, financial and structural barriers preventing access to surgery.(8) For example, in a 2017 study in Cambodia, some of the main barriers to uptake of cataract surgery included cost, impact on work, poor understanding of the need for a procedure or what the procedure itself involves, and associated fear about outcome.(9) These factors were consistent across the South Asia region, replicated in other studies conducted in India and rural China.(9, 10) Additional barriers include transport, surgical workforce shortage and perception of poor surgical quality.(10) For example, places such as Papua New Guinea and Timor Leste experience transportation challenges having to navigate mountainous terrain with limited services and infrastructure.(11)

Disease epidemiology and treatment

There is a broad spectrum of global surgical needs, with procedure requirements highest for road injuries and falls, musculoskeletal disease and maternal-neonatal conditions.(4,5) In Southeast Asia, ophthalmic conditions such as cataracts contribute to a significant burden of treatable blindness, with Indonesia among numerous countries reporting low rates of cataract surgery and a shortage of resident ophthalmologists.(12) Major cataract programs that have been performed successfully in other countries such as India, are absent in this region.(12) In Vietnam, surgical-site infections are common surgical complications affecting 5-10% of patients despite infection-control programs.(13) This is thought to be due to inconsistent perioperative care, antibiotic prophylaxis and infection-control techniques.(13) Studies in Vietnam and Indonesia have also identified high rates of inappropriate antibiotic use on surgical wards, with pharmacist-led training decreasing error rates in post-operative wards.(13) In the South Asia region, surgical conditions such as cancer often present late with coexisting malnutrition.(6,14) Infectious diseases such as amoebic liver abscesses, and non-communicable diseases such as diabetes, hypertension and ischaemic heart disease increase the burden on surgical services by increasing surgical need, as well as risks of complication.(6,15) There is also a large burden of surgically manageable road traffic injuries due to large numbers of motor vehicles, unregulated traffic and poor safety measures.(6,16)

Development Principles in Global Surgery

Supported by both moral and economic arguments, global surgery is an indispensable part of international development efforts and commitments to universal health coverage.(1) Development and humanitarian aid principles such as transparency, sustainability and capacity building are particularly relevant to global surgery programs and policies.(17)

Capacity building and addressing workforce barriers

The surgical workforce is inadequately and inequitably distributed in many areas of the world.(18) LMICs represent nearly half the global population yet have only 20% of the surgical workforce, with Africa and

Southeast Asia particularly underserved.(18) Current data does not fully represent the health workforce, as many doctors who may not be licensed as surgeons frequently provide surgical and anaesthetic care.(18) Data suggests that the majority of surgical patients are either treated by non-specialists or are not treated at all.(18) Nevertheless, research shows countries with less than 20 specialist surgeons, anaesthetists, and obstetricians per 100,000 population have worse outcomes, and there is consequently a goal of 20 surgeons per 100,000 population by 2030.(1) As of 2015, this is equivalent to 1,272,586 new surgical workforce providers.(1) For this goal to be achieved, a significant service provision scale-up and capacity building program is required.

Capacity building refers to the bottom-up approach of developing health skills, services, resources and equipment within systems and institutions.(19) In the context of global surgery, this can be supported by prioritising the delivery of on-the-job training, formal and informal training workshops, train-the-trainer programs and providing continuing professional development opportunities.(17) Additionally, collaboration with in-country organisations and medical professionals is vital to ensure development partnerships are mutually beneficial and align with self-determined national health priorities in target regions.(17)

Task-shifting programs have had success in low resource countries, where responsibilities of highly qualified professionals are shifted to those with fewer qualifications, increasing access to care and reducing costs and training time.(20,21) Given proper training, supervision and frequent practice, mid-level operators such as general practitioners in some regions, can safely perform several essential surgical procedures.(22) However, formally structured programs are limited, without professionals to act as educators and supervisors.(1) Holmer et al.(18) identified an acute need to increase the number and distribution of the surgical workforce to address the growing burden of surgical disease. Additionally, there is a need for surgeons with a range of basic emergency skills to address the high proportion of emergency surgeries in first-level hospitals.(22) In South Asia, current practice involves sending large teams of healthcare workers with supplies to perform surgeries on patients in more remote areas at low or no cost, with some success.(6) However, this inadequately addresses the lack of established care systems, and involves potential complications and follow-up challenges for patients.(6)

To date global surgical efforts have centred around the idea of volunteer and mission-based efforts.(23) A more sustainable method would be to build an international relationship across disciplines.(23) “Twinning”, a constructive partnership between hospitals in developed and developing nations, has been identified as one such financially feasible and worthwhile global health endeavor.(24) Longitudinal relationships between academic surgical departments such as in “twinning” enable training opportunities in a variety of settings for doctors, who after returning to their respective countries can serve as the anchor for a more sustainable workforce and foster new research and innovation.(23) Other initiatives involving the development of long-term surgical training programs in countries of need have shown great success at increasing and retaining a large proportion of local surgeons.(25) An example is the Master of Medicine supported by RACS, delivered at Fiji National University School of Medicine and The University of Papua New Guinea.(25) Building a stronger local workforce through such structures can mitigate continual overreliance on external volunteers, and provides opportunities for research, education and clinical work.

Sustainability, cost-effectiveness and addressing financial barriers

In the context of international development, the principle of sustainability describes meeting the present needs without compromising the ability of future generations to meet their own. A sustainable healthcare system should be able to deliver high quality care and improved public health without exhausting natural or financial resources, or over relying on international actors.(26)

There are significant financial barriers to accessing surgical and anaesthetic care, with many people facing catastrophic expenditure from direct medical and non-medical costs such as transport, food,(1) and lost income.(8) These costs act as a deterrent, resulting in many people not seeking care or not continuing with advised treatment.(1) In several low-income countries, patient fees are used to finance the majority of costs

associated with care.(1) Strikingly, this occurs in both the public and private systems, even when taxation is used for health financing.(1) Other systemic issues include insufficient operating rooms, blood storage facilities, and hospitals with adequate surgical capacity.(1,6)

Without urgent improvements to current surgical care systems, LMICs have projected economic losses from surgical conditions in the trillions.(1) Surgery is a cost-effective public health measure,(20) allowing people to return to work and reducing the burden on family carers.(27) Based on estimates, improving surgical care has potential economic savings of 2% of the GDP of many LMICs.(1) A 2013 systematic review showed the most cost-effective interventions were cataract surgery, hernia repair, male circumcision, emergency caesarean section and cleft palate repair.(8) Cost-effectiveness ratios of many essential surgical interventions are comparable to other standard public health strategies in low-resource settings, such as aspirin and beta blockers for ischaemic heart disease,(1) oral rehydration therapy, Vitamin A supplementation, breast-feeding promotion, antiretroviral therapy for HIV,(8) and interventions for diseases such as LRTI, measles,(4) or malaria.(20) The majority of cost-effectiveness analyses have focused on individual surgical and anaesthetic procedures rather than considering a series of interventions in overall clinical care provision, with involvement of multidisciplinary teams, and pre- and post-operative care.(1) Therefore the full value of providing surgical services has not yet been captured, restricting policy-making decisions involving funding platforms of care.(1)

Current Australasian Global Surgery initiatives

RACS delivers a wide range of specialist health services, focusing on the Asia-Pacific region. This includes specialist medical education and training, clinical mentoring, service delivery by volunteer health professionals, and support for the development of National Surgical Plans. RACS Global Health funding is primarily sourced from the Australian Government's Department of Foreign Affairs and Trade (DFAT) and donations from the private sector.(28,29) RACS also provides a series of awards, fellowships, grants and scholarships to surgeons under the Global Health Scholarships Program to fund training opportunities and facilitate professional contact with medical personnel.(30) Other specialist medical colleges, such as the Royal Australian and New Zealand College of Obstetricians and Gynaecologists (31), Royal Australian and New Zealand College of Ophthalmologists,(32) and Australian and New Zealand College of Anaesthetists,(33) also maintain global health initiatives, including "twinning" programs.(34)

Australia and New Zealand also maintain deployable stand-by medical teams. The Royal Australian Army Medical Corps is managed by the Australian Defence Force (ADF) and includes Specialist Medical Officers and Medical Procedural Specialists such as surgeons and anaesthetists.(35) The ADF states these specialists may be called on to provide specialist health care services to humanitarian situations and major international activities, as well as military operation.(35) Additionally, Australian Medical Assistance Teams (AUSMAT) and the New Zealand Medical Assistance Team (NZMAT) managed by DFAT and the New Zealand Ministry of Foreign Affairs and Trade respectively, also provide stand-by medical capability.(36,37) These multidisciplinary health teams have the capacity to rapidly respond to national and international disasters in support of the local health response. Specialist AUSMAT and NZMAT training for surgeons and anaesthetists is now available through the National Critical Care and Trauma Response Centre.(36,38)

Directions for medical education

Overseas global surgery placements

Medical placements in LMICs can serve as educational experiences for medical students with an interest in global surgery. These placements are often initiated by students from high resource settings seeking to better understand how other health systems operate and serve diverse communities,(39) and such exposure to global health helps to instill a unique worldview. However, various ethical issues impact student placements in low resource settings, such as language and cultural barriers and trainee inexperience which can lead to diagnostic and treatment delays and errors.(40,41) The lack of diagnostic tools and resources

also limits the professional ability of volunteers, which is exacerbated by student inexperience, who may be practicing beyond their scope.(41) Student safety may be compromised due to the increased exposure to infectious diseases such as hepatitis, HIV and tuberculosis.(40) The transient nature of such placements leads to a lack of continuity of care that places a subsequent burden on local health staff and the overstretched health system.(40,41) This lack of continuity leads to gaps in services, with local staff needing to cope with after-care and complications of the transiently increased volume of interventions brought about by the volunteers.(40,41)

Medical curriculums

While there are frequent calls for increased teaching of global health topics at Australasian medical schools, there is currently limited research on the extent to which this occurs.(42,43) Students are reported to be dissatisfied with their global health teaching and opportunities.(44) There is also a paucity of research on global surgery in medical education specifically, with most of such studies being conducted at medical schools in the US. A study conducted at Johns Hopkins University revealed that current perceptions of global surgery among medical students are mixed, and most do not receive formal education.(44) The majority of students failed to identify that 'trauma results in more deaths worldwide than obstetric complications of HIV/AIDS, tuberculosis, and malaria combined'.(45) A significant proportion of students believed that practicing in a surgical field was least amenable to pursuing a global health career, citing barriers such as length of training, lack of medical resources in LMICs and lack of established career tracks for global surgery.(45)

An emerging subspecialty

Despite little formal education in global surgery, there is growing interest in the topic amongst surgical residents and medical students.(46) As a result, there is an increased need for more formalized programs ranging from medical school, up to fellowship training, and recognition of global surgery as its own relevant subspecialty within surgery.(46) Trainees interested in building long-term careers in global surgery are limited in opportunities for training and experience, such as by institutional relationships with hospitals lacking services.(46) Despite a focus on capacity building efforts, in the short term there is a growing cohort of doctors interested in global surgery work who could meet immediate requirements for surgical providers in low resource settings.(47)

Research in global surgery

Research is a major component of global surgery, critical for evidence-based policy decisions.(48) With many global health projects requiring international cooperation and large amounts of capital, it is important to justify recommendations, reduce sunk costs and address global variation in social and disease factors.(49) Despite this, a particular concern in global surgery research is the lack of full time academics due to insufficient funding and surgeons willing to take up full time research.(50) Research output relating to developing countries, including clinical trials and systematic reviews, is insufficient and declining.(48,51) Within the Asia-Pacific, there is limited evidence on the current state of surgical care, due to health system and health status diversity across and within countries.(52) The complexity of defining and capturing surgical care in research is also a limitation to determining surgical need.(5) Although this gap could be partly addressed by new medical graduates, there are currently little opportunities for medical students to become involved with global surgery research.

Research challenges and ethical issues

Research challenges in LMICs include the apparent lack of financial and human capacity, significant ethical and regulatory obstacles, perceived absence of a supportive research environment, operational barriers, and numerous competing demands on researchers.(51) Though there are significant potential benefits to international collaboration including improved generalisability, increased rates of recruitment, and financial

savings,(51,53) this brings up its own ethical dilemmas, such as how to deal with the disproportionate benefits of global surgery research between the HIC and LMIC collaborator. Consequences of this unequal relationship include limitations to research impact and undermining of the LMIC collaborators career.(50) To try and ensure meaningful collaboration, different journals have trialled various approaches, such as waiving fees for papers with lead authors from LMICs, or only publishing papers if one of the authors is from the country of research.(50,53) It is important for medical students and junior doctors to work along this same line of logic and participate in global surgery projects only if there is meaningful local collaboration.

Opportunities for research

Medical students and junior doctors participating in global surgery projects have an opportunity to improve their understanding of the global healthcare system while also conducting essential research. Best practice guidelines for global health research recommend HIC involvement for the provision of technical and methodological support, and local LMIC involvement to guide research objectives to ensure results are applicable, sustainable and relevant to the regional context.(49) Local awards, formal recognition, partnerships, and research help desks have also been suggested to improve the willingness, motivation, and productivity of LMIC research.(54) Medical students could potentially reduce some of the barriers to global surgery research through the development of research networks and support between their tertiary education provider and placement service provider while on clinical electives abroad.

Policy

ASSA calls upon:

1. The Australian and New Zealand Federal, State and Territory Governments to:
    a. Build relationships with international health institutions to support growth of the global surgical workforce.
    b. Provide central documentation of international surgical efforts to reduce redundancy and improve awareness of opportunities for collaboration between health systems.
    c. Prioritise the provision of grant funding that:
        i. Enables international collaboration with research institutions in Southeast Asia and the Asia-Pacific to identify regional data on disease prevalence, current practice, surgical infrastructure and workforce, training, and surgical outcomes.
        ii. Supports research projects with meaningful local collaboration and/or providing technological and methodological support to researchers in LMIC countries.

2. Health systems, actors, and institutions to:
    a. Take a capacity-building approach to collaborating with LMIC health systems, by prioritising longitudinal relationships where possible and placing surgical capacity at the core of health systems.
    b. Promote collaboration between non-government organisations, national health systems and global health policymakers.
    c. Urgently increase the number and distribution of the international surgical workforce to address the growing burden of surgical disease.
    d. Encourage greater participation in global surgery research, especially through collaborative networks, by:
        i. Establishing more full-time research positions in global surgery.
        ii. Actively seeking partnerships with LMIC research institutions, universities and researchers, to reduce regulatory obstacles.
        iii. Working with other pharmaceutical companies, universities, and LMICs to provide awards and opportunities for outstanding researchers.

iv. Prioritising research into identified gaps, such as systematic reviews of LMIC papers, with comparison to HIC papers to improve generalisability, factors affecting surgeon participation in global surgery research, and globally applicable cost-effective treatments.
v. Establishing essential information as a base for further research including population characteristic differences, pathophysiological differences, presentation time frame, and distance from care.

3. Medical schools, universities and health education providers to:
    a. Facilitate greater student participation in ethical global surgery research projects with demonstrated benefits for both the LMIC and HIC populations.
    b. Educate students about the importance of undertaking ethical elective placements in low resource settings and ensure that prospective clinical elective placements are ethically sound prior to approving student travel.
    c. Enable exchange training opportunities between HICs and LMICs for students and junior doctors.
    d. Provide opportunities for students to upskill in the provision of culturally-sensitive healthcare in diverse communities.
    e. Provide evidence-based and well-integrated education regarding global surgery, including:
        i. Definition of global surgery.
        ii. The surgical burden of disease worldwide.

4. Student Unions, Medical Student Societies and Student Global Health Groups to:
    a. Facilitate shared viewpoints, experience, collaboration, research, and innovation around global surgery with other medical unions or societies outside of their state and country.
    b. Advocate for the integration of evidence-based global surgery concepts in medical education.

5. Medical Students to:

    a. Consider the ethics of undertaking clinical placements in low resource settings.
    b. Seek opportunities to conduct research in collaboration with supervising clinicians and researchers.
    c. Participate in global surgery projects only if there is meaningful local collaboration.

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