Global Surgery 2030

Core indicators for monitoring universal access to safe, affordable surgical and anaesthesia care when needed

Indicator	Definition	Rationale	Data Sources	Responsible Entity	Comments	Target
Group 1: Preparedness for surgical and anaesthesia care						
Access to timely essential surgery	Proportion of the population that can access, within 2 hours, a facility that can do caesarean delivery, laparotomy and treatment of open fracture (the Bellwether procedures)	All people should have timely access to emergency surgical services. Bellwether procedure performance predicts accomplishment of many other essential surgical procedures; 2 hours is a threshold of death from complications of childbirth	Facility records and population demographics	Ministry of Health	Informs policy and planning regarding location of services in relation to population density, transport systems and facility service delivery	A minimum of 80% coverage of essential surgical and anaesthesia services per country by 2030
Specialist surgical workforce density	Number of specialist surgical, anaesthetic and obstetric physicians who are working, per 100 000 population	The availability and accessibility of human resources for health is a crucial component of surgical and anaesthesia care delivery	Facility records, data from training and licensing bodies	Ministry of Health, Ministry of Education	Informs workforce, training and retention strategies	100% of countries with at least 20 surgical, anaesthetic, and obstetric physicians per 100 000 population by 2030
Group 2: Delivery of surgical and anaesthesia care						
Surgical volume	Procedures done in an operating theatre, per 100 000 population per year	The number of surgical procedures done per year is an indicator of met need	Facility records	Facility, Ministry of Health	Informs policy and planning regarding met and unmet need for surgical care	80% of countries by 2020 and 100% of countries by 2030 tracking surgical volume; 5 000 procedures per 100 000 population by 2030
Perioperative mortality rate (POMR)	All-cause death rate prior to discharge among patients who have undergone a procedure in an operating theatre, divided by the total number of procedures, presented as a percentage	Surgical and anaesthesia safety is an integral component of care delivery; perioperative morality encompasses deaths in the operating theatre and in the hospital after the procedure	Facility records and death registries	Facility, Ministry of Health	Informs policy and planning regarding surgical and anaesthesia safety, as well as surgical volume when number of procedures is the denominator	80% of countries by 2020 and 100% of countries by 2030 tracking perioperative mortality; in 2020, assess global data and set national targets for 2030
Group 3: Impact of surgical and anaesthesia care						
Protection against impoverishing expenditure*	Proportion of households protected against impoverishment from direct out-of-pocket payments for surgical and anaesthesia care	Billions of people each year are at risk of financial ruin from accessing surgical services; this is a surgery-specific version of a World Bank universal health coverage target	Household surveys, facility records	Ministry of Finance, World Bank, WHO, USAID	Informs policy about payment systems, insurance coverage, and balance of public and private services	100% protection against impoverishment from out-of-pocket payments for surgical and anaesthesia care by 2030
Protection against catastrophic expenditure†	Proportion of households protected against catastrophic expenditure from direct out-of-pocket payments for surgical and anaesthesia care	Billions of people each year are at risk of financial ruin from accessing surgical services; this is a surgery-specific version of a World Bank universal health coverage target	Household surveys, facility records	Ministry of Finance, World Bank, WHO, USAID	Informs policy about payment systems, insurance coverage, and balance of public and private services	100% protection against catastrophic expenditure from out-of-pocket payments for surgical and anaesthesia care by 2030

*Access, workforce, volume, and perioperative mortality indicators should be reported annually. Financial protection indicators should be reported alongside the World Bank and WHO measures of financial risk protection for universal health coverage. These indicators provide the most information when used and interpreted together; no single indicator provides an adequate representation of surgical and anaesthesia care when analysed independently. USAID=US Agency for International Development. Equity stratifiers are listed in report's discussion. *Impoverishing expenditure is defined as being pushed into poverty or being pushed further into poverty by out-of-pocket payments. †Catastrophic expenditure is defined as direct out-of-pocket payments of greater than 40% of household income net of subsistence needs.*

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Template for a National Surgical Plan

Infrastructure

Components	Recommendations	Assessment Methods
Surgical facilities Facility readiness Blood supply Access and referral systems	• Track number and distribution of surgical facilities • Negotiate centralised framework purchase agreements with decentralised ordering • Equip first-level surgical facilities to be able to perform laparotomy, caesarean delivery and treatment of open fracture (the Bellwether Procedures) • Develop national blood plan • Reduce barriers to access through enhanced connectivity across entire care delivery chain from community to tertiary care • Establish referral systems with community integration, transfer criteria, referral logistics, protections for first-responders and helpful members of the public	• Proportion of population with 2 hour access to first-level facility • WHO Hospital Assessment Tool (eg, assessment of structure, electricity, water, oxygen, surgical equipment and supplies, computers and internet) • Proportion of hospitals fulfilling safe surgery criteria • Blood bank distribution, donation rate

Workforce

Components	Recommendations	Assessment Methods
Surgical, anaesthetic and obstetric providers Allied health providers (nursing; operational managers; biomedical engineers; radiology, pathology and laboratory technician officers)	• Establish training and education strategy based on population and needs of country • Require rural component of surgical and anaesthetic training programmes • Develop a context-appropriate licensing and credentialing requirement for all surgical workforce • Training and education strategy of ancillary staff based on population and needs of country • Invest in professional health-care manager training • Establish biomedical equipment training programme	• Density and distribution of specialist surgical, anaesthetic, and obstetric providers • Number of surgical, anaesthetic and obstetric graduates and retirees • Proportion of surgical workforce training programmes accredited • Presence of task sharing or nursing accredited programmes and number of providers • Presence of attraction and retention strategies • Density and distribution of nurses, ancillary staff including operational managers, biomedical engineers, and radiology, pathology and laboratory technicians

Service Delivery

Components	Recommendations	Assessment Methods
Surgical volume System coordination Quality and safety	• All first-level hospitals should provide laparotomy, caesarean delivery and treatment of open fracture (the Bellwether Procedures) • Integrate public, private, NGO providers into common national delivery framework; promote demand-driven partnerships with NGOs to build surgical capacity • Prioritise healthcare management training • Prioritise quality improvement processes and outcomes monitoring • Promote telemedicine to build system-wide connectivity • Promote system-wide connectivity for telemedicine applications, clinical support and education	• Proportion of surgical facilities offering the Bellwether Procedures • Number of surgical procedures done per year • Surgical and anaesthetic related morbidity and mortality (perioperative) • Availability of system-wide communication

Financing

Components	Recommendations	Assessment Methods
Health financing and accounting Budget allocation	• Cover basic surgical packages within universal health coverage • Risk pool with a single pool; minimise user fees at the point of care • Track financial flows for surgery through national health accounts • Use value-based purchasing with risk-pooled funds	• Surgical expenditure as a proportion of gross domestic product • Surgical expenditure as a proportion of total national health-care budget • Out-of-pocket expenditures on surgery • Catastrophic and impoverishing expenditures on surgery

Information Management

Component	Recommendations	Assessment Methods
Information systems Research agenda	• Develop robust information systems to monitor clinical processes, cost, outcomes and identify deficits • Identify, regulate, and fund surgical research priorities of local relevance	• Presence of data systems that promote monitoring and accountability related to surgical and anaesthesia care • Proportion of hospital facilities with high speed internet connections

The components addressing surgical care should be incorporated within a broader strategy of improvement of national health systems. NGO = non-governmental organization. WHO = World Health Organization

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