



Infrastructure		
Components	Recommendations	Assessment Methods
Surgical facilities Facility readiness Blood supply Access and referral systems	<ul style="list-style-type: none"> <li>Track number and distribution of surgical facilities</li> <li>Negotiate centralised framework purchase agreements with decentralised ordering</li> <li>Equip first-level surgical facilities to be able to perform laparotomy, caesarean delivery and treatment of open fracture (the Bellwether Procedures)</li> <li>Develop national blood plan</li> <li>Reduce barriers to access through enhanced connectivity across entire care delivery chain from community to tertiary care</li> <li>Establish referral systems with community integration, transfer criteria, referral logistics, protections for first-responders and helpful members of the public</li> </ul>	<ul style="list-style-type: none"> <li>Proportion of population with 2 hour access to first-level facility</li> <li>WHO Hospital Assessment Tool (eg, assessment of structure, electricity, water, oxygen, surgical equipment and supplies, computers and internet)</li> <li>Proportion of hospitals fulfilling safe surgery criteria</li> <li>Blood bank distribution, donation rate</li> </ul>
Workforce		
Components	Recommendations	Assessment Methods
Surgical, anaesthetic and obstetric providers Allied health providers (nursing; operational managers; biomedical engineers; radiology, pathology and laboratory technician officers)	<ul style="list-style-type: none"> <li>Establish training and education strategy based on population and needs of country</li> <li>Require rural component of surgical and anaesthetic training programmes</li> <li>Develop a context-appropriate licensing and credentialing requirement for all surgical workforce</li> <li>Training and education strategy of ancillary staff based on population and needs of country</li> <li>Invest in professional health-care manager training</li> <li>Establish biomedical equipment training programme</li> </ul>	<ul style="list-style-type: none"> <li>Density and distribution of specialist surgical, anaesthetic, and obstetric providers</li> <li>Number of surgical, anaesthetic and obstetric graduates and retirees</li> <li>Proportion of surgical workforce training programmes accredited</li> <li>Presence of task sharing or nursing accredited programs and number of providers</li> <li>Presence of attraction and retention strategies</li> <li>Density and distribution of nurses, ancillary staff including operational managers, biomedical engineers, and radiology, pathology and laboratory technicians</li> </ul>
Service Delivery		
Components	Recommendations	Assessment Methods
Surgical volume System coordination Quality and safety	<ul style="list-style-type: none"> <li>All first-level hospitals should provide laparotomy, caesarean delivery and treatment of open fracture (the Bellwether Procedures)</li> <li>Integrate public, private, NGO providers into common national delivery framework; promote demand-driven partnerships with NGOs to build surgical capacity</li> <li>Prioritise healthcare management training</li> <li>Prioritise quality improvement processes and outcomes monitoring</li> <li>Promote telemedicine to build system-wide connectivity</li> <li>Promote system-wide connectivity for telemedicine applications, clinical support and education</li> </ul>	<ul style="list-style-type: none"> <li>Proportion of surgical facilities offering the Bellwether Procedures</li> <li>Number of surgical procedures done per year</li> <li>Surgical and anaesthetic related morbidity and mortality (perioperative)</li> <li>Availability of system-wide communication</li> </ul>
Financing		
Components	Recommendations	Assessment Methods
Health financing and accounting Budget allocation	<ul style="list-style-type: none"> <li>Cover basic surgical packages within universal health coverage</li> <li>Risk pool with a single pool; minimise user fees at the point of care</li> <li>Track financial flows for surgery through national health accounts</li> <li>Use value-based purchasing with risk-pooled funds</li> </ul>	<ul style="list-style-type: none"> <li>Surgical expenditure as a proportion of gross domestic product</li> <li>Surgical expenditure as a proportion of total national health-care budget</li> <li>Out-of-pocket expenditures on surgery</li> <li>Catastrophic and impoverishing expenditures on surgery</li> </ul>
Information Management		
Component	Recommendations	Assessment Methods
Information systems Research agenda	<ul style="list-style-type: none"> <li>Develop robust information systems to monitor clinical processes, cost, outcomes and identify deficits</li> <li>Identify, regulate, and fund surgical research priorities of local relevance</li> </ul>	<ul style="list-style-type: none"> <li>Presence of data systems that promote monitoring and accountability related to surgical and anaesthesia care</li> <li>Proportion of hospital facilities with high speed internet connections</li> </ul>

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