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World Health Organization Global Initiative for Emergency and Essential Surgical Care: 2011 and Beyond

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Introduction

The world's burden of surgical diseases is large and increasing. Unfortunately, <5 % of all surgical procedures are performed in countries ranked within the lowest one-third in terms of per-capita health expenditures [1]. The unmet need for surgical care results in unacceptable morbidity/mortality rates associated with a host of conditions (trauma, pregnancy-related complications, other emergencies). This is especially true for rural and marginalized populations in low- and middle-income countries (LMICs). Recognizing that variations in the spectrum of surgical diseases are observed among and within countries, “essential” surgery and anesthesia may be viewed as a core group of services that can be delivered within the context of universal access. These high-priority interventions are those for which: (1) there is a large public health burden; (2) the treatment is highly successful; (3) the treatment is cost-effective [2].

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To date, essential surgery and anesthesia have received minimal financial and political support as public health strategies because of the perception that the services are costly, are resource-intensive, require highly specialized training, and benefit only a fraction of the population relative to competing health interests. Evidence is amassing to refute these claims.

The World Health Organization (WHO) Global Initiative for Emergency and Essential Surgical Care (GIEESC) was launched in 2005. It is a global forum whose goal is to promote collaboration among a diverse group of stake-holders (individuals, institutions, societies, universities, ministries of health, other nongovernmental organizations) to strengthen the delivery of surgical services at the primary referral level in LMICs (http://www.who.int.surgery) [3–6]. The inaugural meeting was at WHO headquarters in Geneva, Switzerland in November 2005 [7], and subsequent biennial meetings were hosted by ministries of health in Dar es Salaam, Tanzania in September 2007) [8] and Ulaanbaatar, Mongolia in June 2009) [9]. There are currently more than 624 GIEESC members from 93 countries representing all six WHO regions. In all, 45 % of members are from LMICs. The LMICs with ≥10 GIEESC members are India, Nigeria, Ethiopia, Ghana, and Uganda.

The WHO GIEESC members have contributed to a number of activities aimed at strengthening the delivery of essential surgical services in LMICs. One component involved the implementation, local adaptation, and translation of training tools that were developed by the WHO's Emergency and Essential Surgical Care (EESC) project, which was initiated in the Clinical Procedures Unit of the Department of Essential Health Technologies in 2004 [3–6]. These training tools include the WHO Integrated Management of Emergency and Essential Surgical Care (IMSCStoolkit [10] and the Manual of Surgical Care at the District Hospital [11]. These materials have been introduced in 39 countries through collaborations with the respective Ministry of Health (MoH) and WHO country offices. The materials have been translated into Mongolian, Spanish, Chinese, Vietnamese, Korean, Dari, and Farsi.

A WHO situational analysis tool to assess the availability of EESC at the level of individual health facilities was developed in 2007. It was based on infrastructure, human resources, procedures, equipment, and supplies [12]. This questionnaire has now been utilized in more than 35 countries, and the data collected and entered in the WHO EESC Global Database has been published to highlight gross deficiencies in the availability of EESC [13–22]. The WHO EESC Global Database was created to facilitate data entry from different countries. The situational analysis tool has been integrated into the WHO's Service Availability Mapping (SAM) technology [23] with the goal of facilitating monitoring the availability of surgical services at the facilities level. This technology was introduced in Mongolia in 2009. Plans have been made to continue with a surgical module in the WHO's recent adaptation of facilities-based monitoring, Service Availability and Readiness Assessment (SARA). A planning tool was developed to assist policymakers integrate EESC into their national health plans.An online Global MedNet serves as a platform for online discussions and for posting announcements and materials related to GIEESC (http://www.who.int/ surgery/globalinitiative/en/).

Meeting Details

The 4th Meeting of the WHO GIEESC was convened at the University of California, San Diego School of Medicine (UCSD) on November 9, 2011. Close to 200 people from 20 countries were in attendance (Table 1). Overall goals for the meeting were to: (1) report progress and share future plans for LMICs during the next biennium; (2) build synergies with partners to promote the integration of EESC into primary health care, thereby strengthening health systems; (3) convene 10 committees to define priorities for carrying the GIEESC agenda forward (Table 2).

Representatives from 15 LMIC's participating in the WHO EESC program presented the challenges, progress, and future plans for implementing EESC in their countries. The information gathered on an additional 14 countries is summarized in Table 1. The challenges faced by this cohort were uniform and focused on the availability of services (infrastructure, physical and human resources). Difficult terrain and problems with transportation were cited as a challenge in several countries (e.g., Nepal, Pakistan, Somalia, Tanzania, Mongolia). Lack of trained caregivers was universally observed, as was the difficulty of retaining them after they were trained often because of insufficient remuneration and/or ill-equipped health facilities.

Implementation and scaling up of EESC activities has varied among countries. The teaching materials have been integrated into various curricula for medical students, doctors, nurses, and other health professionals. The latter include rural clinical health officers, surgical technicians, and doctors, health officers (Ethiopia), clinical officers (Malawi), medical school students (Uganda), medical graduates (Liberia), and surgical technicians (Mozambique). The 2 year degree program for doctors in surgery developed by the College of Surgeons in East, Central, and Southern Africa included the EESC teaching materials as well. The WHO Integrated Management for Emergency and Essential Surgical Care (IMEESC) programs and surgical care at the district hospital (SCDH) have also been utilized in primary health facilities in EESC countries. With regard to future plans, most of the countries focused on defining deficiencies in availability with the WHO's situational analysis tool, providing greater opportunities for EESC training by integrating these materials into existing curricula for different types of health providers, and conducting more training workshops.

After the presentations my the various countries, committees were assembled (Table 2) and were asked to reach consensus on priorities to define a road map for GIEESC over the next biennium. The activities of these committees include research (disease burden, service availability, outcomes of training initiatives, designing surgical metrics, refining data collection tools), developing and refining IMEESC tools, supporting training activities, developing low-cost technologies, finding avenues by which EESC may be integrated into primary health care, advocacy, promoting integration of EESC into national health plans, supporting development of a World Health Assembly resolution, and fund raising. Committee members will be elected every 2 years, with one member representing each of the six WHO regions. The committee chairperson will report back to the organizing

committee and present a summary of the committee's activities at the biennial WHO GIEESC meeting.

Discussion: The Way Forward

Collective action will be required to improve the delivery of surgical services at the district level in LMICs. Hence, the WHO GIEESC is growing in momentum. Committees have formed, and their actions will serve to move the agenda forward. The overall emphasis is to identify the appropriate mechanisms to promote availability of a core group of services to reduce the burden of death and disability due to surgical conditions, provide and adapt training programs in keeping with WHO surgical standards on the principles and techniques of essential surgery and anesthesia, support research to characterize the burden of surgical diseases and evaluate the impact of initiatives to reduce this burden, and promote advocacy and awareness of the importance of our quest. These points can collectively be addressed within the context of primary health care and strengthening health systems.

When considering ways to integrate surgical care at the primary referral level, we must first characterize the diverse barriers to the access, availability, and utilization of surgical services [24, 25]. Solutions require an integrated effort from individuals, organizations, and institutions in many sectors of each society. We might organize them based on an adaptation of the WHO's conceptual model of a health system, which focuses on the interaction between people (consumers, demand side) and the system (supply side). The supply side has been subdivided into six building blocks: (1) governance (stewardship, policies, regulation); (2) service delivery (effective, safe interventions); (3) human resources (number, distribution, skill mix); (4) information (production, analysis, dissemination); (5) medicines and technologies (quality, safety, cost-effectiveness); (6) financing (protection from personal catastrophic health expenditures) [26].

Barriers at the individual level (demand side) relate to the lack of utilization of existing services because of the population's reliance on traditional healers or other non-medical practitioners, level of education, religious and/or cultural beliefs, financial considerations (direct and indirect costs of seeking treatment), and even fear of anesthesia or surgery. Barriers at the system level (availability of services) can be categorized according to the six building blocks mentioned above. Issues related to governance include policies and regulations, resource allocation, inclusion of basic surgical care in national health plans, and the lack of a resolution at the World Health Assembly supporting essential surgical care as a key component for improved global health. Barriers with regard to service delivery include deficiencies in infrastructure, physical resources/supplies, human resources (absolute numbers of providers, urban versus rural distribution, skill set), and inadequate mechanisms for transportation and referral.

Geographic variables are also important in many settings, as patients may need to travel for long distances, often over difficult terrain, to reach a health facility. Financing remains a challenge for health systems in general, and current levels of financial investments are insufficient to subsidize even basic health services let alone facilities-based services such as surgical and anesthestic care. Information may be viewed as a key link in a health system.

Significant deficiencies relate to a lack of data (few surgical metrics [27, 28], inadequate data regarding the burden of surgical diseases or service availability), and a lack of monitoring capabilities (service availability, quality and outcomes).

Although the perception of surgery and anesthesia in the global health community is certainly a barrier to EESC, current trends in health care programming may be advantageous to GIEESC and the surgical community. There has been a recent paradigm shift in global health programming, with the pendulum having swung from “vertical” (disease-specific) initiatives to “horizontal” initiatives, which aim to strengthen the health care system [26]. Similarly, there has been a resurgence of interest in “primary health care,” defined as “essential health care” based on practical, scientifically sound, socially acceptable methods and training made universally accessible in the Alma-Ata Declaration (1978) [29]. Surgical care is recognized as facilities-based service within this overall scheme [30].

Advocacy is crucial as the GIEESC moves forward. Also, we must recognize the importance of social and political variables in our efforts to advance surgical care. Political factors play an important role in determining the recognition (and resources) that public health initiatives receive [31–33]. Enormous financial resources have been allocated to selected diseases despite the fact that their contribution to the world's burden of disease is small. Shiffman commented that, “material factors such as morbidity and mortality and the availability of cost-effective interventions may not explain the variance and the levels of attention health issues receive” [32]. He and his colleagues developed a conceptual framework to explain political priority for global health issues based on the (1) power of the actors, (2) power of ideas portraying the issue (frames), (3) political contexts in which the actors operate, and (4) nature of the issue itself [32, 33]. We can anecdotally evaluate progress to date with EESC and GIEESC relative to Shiffman's framework. With regard to the power of the actors, the global surgical community has yet to coalesce into a unified front. Hedges et al. [31] stated that “organizational fragmentation within global surgery efforts impedes large scale action”. Framing the issue remains a challenge, as there has been a lack of concensus in defining “surgery”. From the standpoint of political context, the surgical community has been unable to successfully link surgical care with a “policy window” such as the Millenium Development Goals. Finally, the inability to capture the burden of surgical diseases with existing metrics has hindered our ability to draw attention to the magnitude of the problem and to facilitate comparison between the surgical burden and that of competing health priorities.

We envision the WHO GIEESC as a surgical and anesthetic policy community with the strength and dedication to push the agenda forward. There is a need to establish stronger collaborations and partnerships with civil society, ministries of health, and other entities focusing their efforts on strengthening health systems and implementing the primary health care model. Surgical care can be promoted within the context of health systems strengthening to help achieve the Millennium Development Goals. The recent emphasis on primary health care may offer a “policy window” as EESC is horizontal and resonates with the concept of strengthening both primary health care and health systems. Quantifying the burden or magnitude of surgical diseases requires additional data to demonstrate the cost-effectiveness of EESC, that EESC can improve outcomes, and that EESC should be scaled

up. The time is ripe for all those dedicated to reducing the morbidity and mortality associated with surgical diseases to unite and push this agenda forward.

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Table 1

Attendees at the 4th meeting of the WHO Global Initiative for Emergency and Essential Surgical Care (GIEESC)

Countries in attendance	Country reports	
	Country	Activities
Ghana	AFRO	
Nigeria	The Gambia	WHO tools incorporated into medical school curriculum
Solomon Islands		
Philippines		Work toward incorporating EESC into national health plan
Rwanda		
Malawi		
United Kingdom		
United States		Gap analysis for EESC performed
Canada		
Ireland		
Mozambique		
Liberia		
Switzerland		
Mongolia		
Ethiopia		
Senegal		
Zambia		
Pakistan		
Somalia		
The Gambia		
	Zambia	Best-practice protocols implemented at primary referral facilities
		EESC elements incorporated into medical school curriculum
		Incorporated EESC tools training into the new 2-year surgical training curriculum for general doctors
	Ghana	Situational analysis (33 hospitals)
		EESC integrated into first referral hospitals
	Mozambique	IMEESC used to train surgical technicians
	Tanzania	WHO/EESC collaborating center
		EESC in national health plan
		Established surgical task force
		Situational analysis completed
		Training workshops with MoH at district hospitals
	Kenya	IMEESC and SCDH distributed to district hospitals
		Situational analysis completed
	Malawi	EESC has been incorporated into training for medical and surgical officers
		IMEESC toolkit available at all district hospitals
		Situational analysis in progress
		Masters training program being developed

Countries in attendance	Country reports	
	Country	**Activities**
	Sierra Leone	Additional training in EESC planned
	Liberia	EESC integrated into training manuals for task shifting
		MoH has expressed support for EESC training programs
	Sao Tome and Principe	Situational analysis in progress
	Nigeria	Situational analysis to be completed
	Uganda	EESC materials inserted into medical school curriculum
		Situational analysis in progress at district facilities
	Mali	WHO tools, IMEESC, SCDH translated into French
	Cote d'Ivoire	Development of French version of EESC training materials
	EMRO	
	Afghanistan	Situational analysis performed and published
		WHO training materials being translated into Dari and Pashto
		Training workshops held using WHO teaching materials
	Pakistan	Situational analysis performed in 18 district hospitals
		EESC workshops planned
		Pilot project involving King Edward Medical University and Foundation for Health Care Improvement to “uplift EESC” at six district hospitals
	Somalia	Situational analysis in progress
		Development of primary surgical care package based on WHO teaching materials
	Egypt	WHO–MoH workshop on EESC completed
	Oman	WHO–MoH facilitators meeting held
	Iran	Teaching materials being translated into Farsi
	EURO	
	Kyrgyzstan	Best practice protocols and equipment list being utilized
	Tajikistan	WHO–MoH workshop held using IMEESC toolkit
		Part of IMEESC toolkit translated into Russian
		SCDH being translated into Russian
	SEAR	
	Nepal	EESC introductory workshop held
	India	EESC workshops in Uttarakhand and Meghalaya
		Situational analysis in progress
	Democratic Republic of North Korea	Teaching materials translated into Korean
		EESC training the trainers workshop held
	Bangladesh	Situational analysis in progress
	Bhutan	
	Myanmar	Situational analysis completed, publication in process
	Maldives	EESC training workshop held with WHO–MoH
	Sri Lanka	Situational analysis completed and published
	Indonesia	National EESC training the trainers workshop held
	WPRO	

Countries in attendance	Country reports	
	Country	**Activities**
	Mongolia	EESC being scaled up; training completed for 187 doctors, 657 surgeons/ anesthesiologists, 29 midwives, and 50 nurses
		Situational analysis completed and published
		Number of surgical procedures has increased
		Mortality and complications have been reduced following implementation of EESC training
	Papua New Guinea	EESC workshop held
		EESC integrated into national health standards
		IMEESC toolkit used to upgrade training manual for rural health workers
	Solomon Islands	Plan to integrate EESC
	Vietnam	SCDH translated into Vietnamese
	China	EESC workshop held with WHO–MoH
		Translation of WHO teaching materials in progress
	Philippines	National EESC “training the trainers” workshop held
		WHO teaching materials disseminated to all district hospitals
	PAHO	
	Ecuador	Training tools translated into Spanish
	Guyana	EESC teaching materials utilized for basic surgical training

PAHO Pan-American Health Organization, *WHO* World Health Organization, *EESC*, Emergency and Essential Surgical Care, *IMEESC* Integrated Management for Emergency and Essential Surgical Care, *SCDH* Surgical Care at the District Hospital, *MoH* Ministry of Health

Table 2

Ten committees appointed to define priorities to carry the GIEESC agenda forward

Committee	Objectives	Action items
Organizational planning	Define GIEESC organizational structure, governance, monitoring	Develop terms of reference
		Present and review draft terms of reference to established committees within 6 months
		Each chairperson reports to the organizational planning committee
		Report to WHO EESC annually
		Coordinate GIEESC committees' activities and report to the biennial WHO GIEESC meeting (2013)
Finance and resource mobilization	Ensure ongoing financial viability of GIEESC	Fund-raising to meet the $300,000 USD annual goal necessary to support the WHO GIEESC Secretariat
		Identify and develop other sources of revenue to support GIEESC activities globally
		Organize physician dues and contributions, with the committee to set voluntary contribution levels; develop a mechanism for collecting contributions
		Engage academic institutions to leverage GIEESC serving as a clearing house for research and volunteer activities such as Health Volunteers Overseas
		Leverage with other campaigns and identification of synergies (e.g., Decade of Road Safety)
		Engage foundations and institutions with a consistent outreach and marketing effort with a potential consortium of manufacturers
		Work with other committees for strategic planning and required budgets for program building
Education and training	Promote educational and training activities of GIEESC	Update WHO IMEESC toolkit and WHO manual SCDH in compliance with WHO guideline review
		Adaptation of WHO tools to meet local needs (e.g., translations, develop primary surgical care packages)
		Standard training curriculum and training course based on the WHO IMEESC toolkit to be developed and adapted to meet LMICs' needs
Burden of surgical diseases	Generate evidence from GIEESC community to quantify the burden of surgical diseases	Facilitate existing burden of surgical disease assessment with EESC global database and research activities of GIEESC members (efficacy/effectiveness, potential complications of treatment, cost-effective analyses)
		Develop synergy with disease control priorities for developing countries network
Surgical mission and partnerships	Coordinate global surgical activities and partnerships of WHO GIEESC members	Update online directory/database in WHO GIEESC MedNet
		Support requests from WHO country offices, MoH, and health facilities in LMICs
		Develop database of WHO GIEESC members' activities to identify synergies and maximize utilization of organizational resources (catalog GIEESC member activities, track needs of LMICs, prepare calendar of active and future projects)
EESC as part of health systems strengthening	Promote integration of EESC services into primary health care and health systems	Develop set of indicators for surgical care within the WHO health systems framework
		Increase collaborative activities with relevant WHO departments
		Survey LMICs' health plans on the integration of surgical care into primary health systems
Anesthesia and health systems strengthening	Promote and generate evidence for anesthesia services as part of the primary health care package	Advocate for anesthesia as an essential component of EESC
		Promote locally driven assistance in anesthesia education

Committee	Objectives	Action items
		Develop minimum WHO anesthesia guidelines
		Incorporate minimum requirements for physical resources utlizing IMEESC toolkit
		Update anesthetics in the WHO essential medicines list
		Incorporate WHO standards including into education and training activities
		Pilot local anesthesia education initiatives in five LMICs
		Support appropriate training for providers
Research and publications	Identify research priorities Promote generation of scientific evidence and publications	Establish a coordinating body
		Develop guidelines for accessing WHO EESC global database
		Develop a section of the website to list current and future research projects
		Prioritize areas of research
		Update situational analysis tool
Technology and technology transfer	Support technology and technology transfer needs in LMICs	Monitor technology development through MedNet
		Develop a strategy for continued assessment and enhancement of GIEESC web presence
		Support technology transfer activities to enhance global surgical education, training, and research
		Advocate for educational outreach regarding existence of new technologies
		Create database/searchable website on technology linked with MedNet and the main GIEESC website
		Advocate for low-cost pricing for technologies
		Appropriate training of any introduced new technologies
		Summarize studies and trials on the ground on transfer of new technologies
		Support technology transfer for training/education initiatives
		Develop an online clearing house of available online curricula (content), courses for anesthesia and surgical care (district level)
		Develop curriculum/course provided free or at low cost for LMICs (e.g., of existing WHO IMEESC toolkit)
		Promote translation of tools into local languages
		Develop partnerships with training institutions and hospitals for transfer of technologies (e.g., telemedicine)
Advocacy	Advocate for the importance of delivery of emergency and essential surgical care (EESC) locally, nationally, and internationally	Define objectives (EESC, disaster management)
		Raise public awareness of preventative and curative aspects of surgical care
		Identify partners to promote EESC (institutions, health authorities, parliaments, societies, NGOs, foundations, and civil society) at the international, national, and local levels
		Identify specific advocacy tools
		Act as a liaison between working groups and the public

LMICs low and middle income countries, *NGOs* nongovernmental organizations