

National Surgical, Obstetric, and Anesthesia Planning Intervention Toolkit

A Resource from the Program in Global Surgery and Social Change, Harvard Medical School

Domain: Improving the skills and quality of care of surgical providers in non-Bellwether procedures

(Supplementary to improving the skills and quality of care of surgical and anesthesia providers specifically in Bellwether procedures and anesthesia)

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Brief Synopsis

While the global focus on improving and increasing access to safe, affordable surgical care focuses on the Bellwether procedures, there is evidence of additional surgical training interventions that may be considered in augmenting surgical provision in LMICs.¹ As seen with the Bellwether procedure training, there is evidence of ongoing mission-based surgical training programs, but little evidence of their evaluation or impact.²

Interventions:

1. ReSurge plastic surgery training for clefts, burns, and hands

References:

1. Corlew, S. and V.Y. Fan, *A model for building capacity in international plastic surgery: ReSurge International*. *Annals of plastic surgery*, 2011. 67(6): p. 568-570.
2. ReSurge. *Annual Report 2016: A year of New Beginnings*. 2017; Available from: [http://www.resurge.org/graphics/PDFs/2016 annual report.pdf](http://www.resurge.org/graphics/PDFs/2016%20annual%20report.pdf).

Web link: http://www.resurge.org/impacting_the_world/resurge_global_training_program.cfm

Type: Global surgery training program in collaboration with mission-based surgical provision
Intervention description:

Surgeons and teams from HIC's train local providers in mission-based high-volume surgical camps. Focus on plastic and reconstructive surgery (clefts, burns, and hands). Formerly called Interplast, ReSurge works in 15 countries across South America, Africa, South and Southeast Asia, offering approximately 3000 surgeries annually, and has been in operation since 1969.

Outcome: No formal evaluation has been done. Annual reports on program outcomes does not refer to training impact or evaluation.²

Organization: ReSurge

Cost: Free for patients and training participants. Training participants may need to travel to the camp location.

Considerations: No impact or evaluation published and no information on quality assurance or curriculum. Training not certified or overseen by an internationally recognized certification or accreditation body.

2. Operation Smile, on-site plastic surgery training

References:

1. **Smile, O.** *Ethiopia Training Rotation*. 2015; Available from: <http://www.operationsmile.org/program/ethiopia-surgical-training-rotation-1>.
2. **Bermudez, L.E. and A.K. Lizarraga,** *Operation smile: how to measure its success*. *Annals of plastic surgery*, 2011. 67(3): p. 205-208.
3. **Magee, W.P., et al.,** *Effectiveness of International Surgical Program Model to Build Local Sustainability*. *Plastic Surgery International*, 2012. 2012: p. 6.

Web link: <http://www.operationsmile.org/approach/training-education>

Type: Global surgery training program in collaboration with mission-based surgical provision

Intervention description:

Mentoring training for surgeons from foreign teams during a high-volume surgical camp focused on cleft lip and palate. Operation Smile has developed a specialized surgical training program at Jimma University in Ethiopia, to train six general surgeons in specialized plastic surgery.¹ Operation Smile also brings LMIC physicians to the United States for ‘instructional exchange’ for further surgical training.² In recent years the majority of their surgical provision has shifted from foreign teams to local teams³ meaning previously they relied on foreign teams but in recent years have been training up more local teams to do the sponsored surgeries themselves.

Outcome: While surgical provision has been transferred over to local providers, there is no program evaluation data available.

Organization: Operation Smile

Cost: Unknown

Considerations: No impact or evaluation research on the training programs, no accreditation or certification body overseeing the quality of the training program.

3. Neurosurgery training program in Tanzania

References:

1. **Hartl, R.** *Mission in Tanzania - 2014 Update*. 2014; Available from: <http://weillcornellbrainandspine.org/sites/default/files/resources/2014-tanzania-update-r5-2014-06-24.pdf>.

2. Mitchell, K.B., et al., *Surgical education at Weill Bugando Medical Centre: supplementing surgical training and investing in local health care providers*. *Canadian Journal of Surgery*, 2013. 56(3): p. 199.
3. Kahamba, J.F., et al., *The Second African Federation of Neurological Surgeons Course in the East, Central, and Southern Africa Region Held in Dar es Salaam, Tanzania, January 2011*. *World Neurosurgery*, 2013. 80(3): p. 255-259.

Web link: <http://weillcornellbrainandspine.org/mission-tanzania>

Type: Neurosurgery specialty training to increase the skills of local providers in neurological and spinal surgery and trauma response.

Intervention description:

Weill Cornell medical college sends mission teams for neurosurgery and trains local providers, and their most recent missions have been only educationally focused with no provision. They offer training courses in basic neurosurgical procedures using locally available equipment and resources, care and treatment for patients with traumatic brain and spine injuries, and other neurotrauma subjects. The most recent course had participants from Tanzania, Kenya, Uganda, Sudan, and South Africa. This organization has also overseen Essential Surgical Skills courses in Tanzania and helped facilitate the African Federation of Neurological Surgeons course.³

Outcome: No impact or evaluation of the training program has been published.

Organization: Weill Cornell medical college and the department of Neurological Surgery at New York-Presbyterian Hospital, in partnership with Bugando Hospital in Mwanza, Tanzania

Cost: Unknown.

Considerations: Requires a high level of collaboration between the local hospital, the foreign institution, and the funders of the program. Costs are likely very high for a low number of trainees. Participants may incur travel expenses. The training program is not certified or accredited by an internationally recognized certification body.

4. Neurosurgery training program in Uganda

Reference:

1. Fuller, A., et al., *Building neurosurgical capacity in low and middle income countries*. *eNeurologicalSci*, 2016. 3: p. 1-6.
2. Duke. *Impact of Infrastructure and Training on Neurosurgery Results at New Mulago Hospital*. 2017; Available from: <http://globalhealth.duke.edu/projects/impact-infrastructure-and-training-neurosurgery-results-new-mulago-hospital>.

Web link: <http://www.fiens.org/partner-programs/>
<http://www.dukeglobalneurosurgery.com/what-we-have-accomplished/>

Type: Surgical mission for neurosurgery provision with an educational/training component

Intervention description:

Neurosurgeons from Duke University have partnered with Mulago Hospital in Uganda to perform neurosurgery in biannual mission trips and train local providers, now including a neurosurgery residency program at Mulago for five students, and donations of specialty-specific medical equipment.

Outcome: The training program and investments have doubled the number of trained neurosurgeons in Uganda, and increased their annual volume three fold for neurosurgical procedures.

Organization: Duke University Neurosurgery Program at Mulago Hospital in Uganda
Cost: Duke has donated equipment valued at approximately \$6,000,000. It is unclear if the training program is free for participants or if they pay the national tuition requirements for specialty trainees.

Considerations: Sustainability of this program is at risk due to fluctuations in provision of required supplies and consumables, as well as trained biomedical technicians for maintenance and repair of the equipment. Investments also need to be made in nursing, sterilizing, and neuro ICU care for appropriate holistic patient care and outcomes. The authors note in this particular study that increasing surgical volume in neurosurgery has adversely affected other surgical departments, with regards to rooms/space needed, equipment provision, etc., and would need to be considered in any increase of surgical volume.

5. Fundamentals of Laparoscopic Surgery course

Reference: Okrainec, A., L. Smith, and G. Azzie, *Surgical simulation in Africa: the feasibility and impact of a 3-day fundamentals of laparoscopic surgery course. Surgical Endoscopy, 2009. 23(11): p. 2493.*

Web link: <https://www.flsprogram.org/international-fls-2/>

Type: 3-day practical simulation course

Intervention description:

3-day course measured by pre- and post-tests, using laparoscopic simulator to teach five standard tasks. It was piloted in Botswana in 2009 for surgical trainees and practitioners. FLS was developed ten years ago for American physicians and has been introduced in LMIC's over the last decade.

Outcome: Statistically significant improvement in knowledge as measured by test scores; no long-term follow-up.

Organization: Course developed by the Society of the American Gastrointestinal and Endoscopic Surgeons

Cost: Estimate of the total cost for the course: \$1900 Canadian dollars. Materials, including disposable instruments, were donated from industry sponsors.

Considerations: Endorsed by the American College of Surgeons.

Additional Resources:

A brief view of the state of international neurosurgery from the University of Denver (2008)³

References

1. Wright, I., I. Walker, and M. Yacoub, *Specialist surgery in the developing world: luxury or necessity?* *Anaesthesia*, 2007. **62**(s1): p. 84-89.
2. JHM *Mission to Africa*. Johns Hopkins Medicine NeuroNow, 2011.
3. Kumar, R., *A brief view of the state of international neurosurgery*. The Center for Global Health, University of Colorado, 2008.