

The Surgical, Educational and Sustainability Outcomes of Short Term Surgical Trips in Otolaryngology- Head and Neck Surgery: A Systematic Review

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Background

- Five billion humans lack access to safe surgery, with 90% of that population residing in Low and Middle Income Countries (LMICs)
- Short Term Surgical Trips (STSTs) have long been utilized as a method of addressing unmet surgical needs
- Barriers to providing surgical care in LMICs can be considered surgical, educational, and sustainability centric
- Due to unknown burden of disease, lack of coordination, minimal academic financial support, and limited prospective research, net positive outcomes from STSTs compared to other platforms for surgical delivery in LMICs have been questioned

Research Objective

Explore the current body of literature to understand what has been reported for STSTs in OtoHNS in regards to surgical, educational, and sustainability-based outcomes

Methods

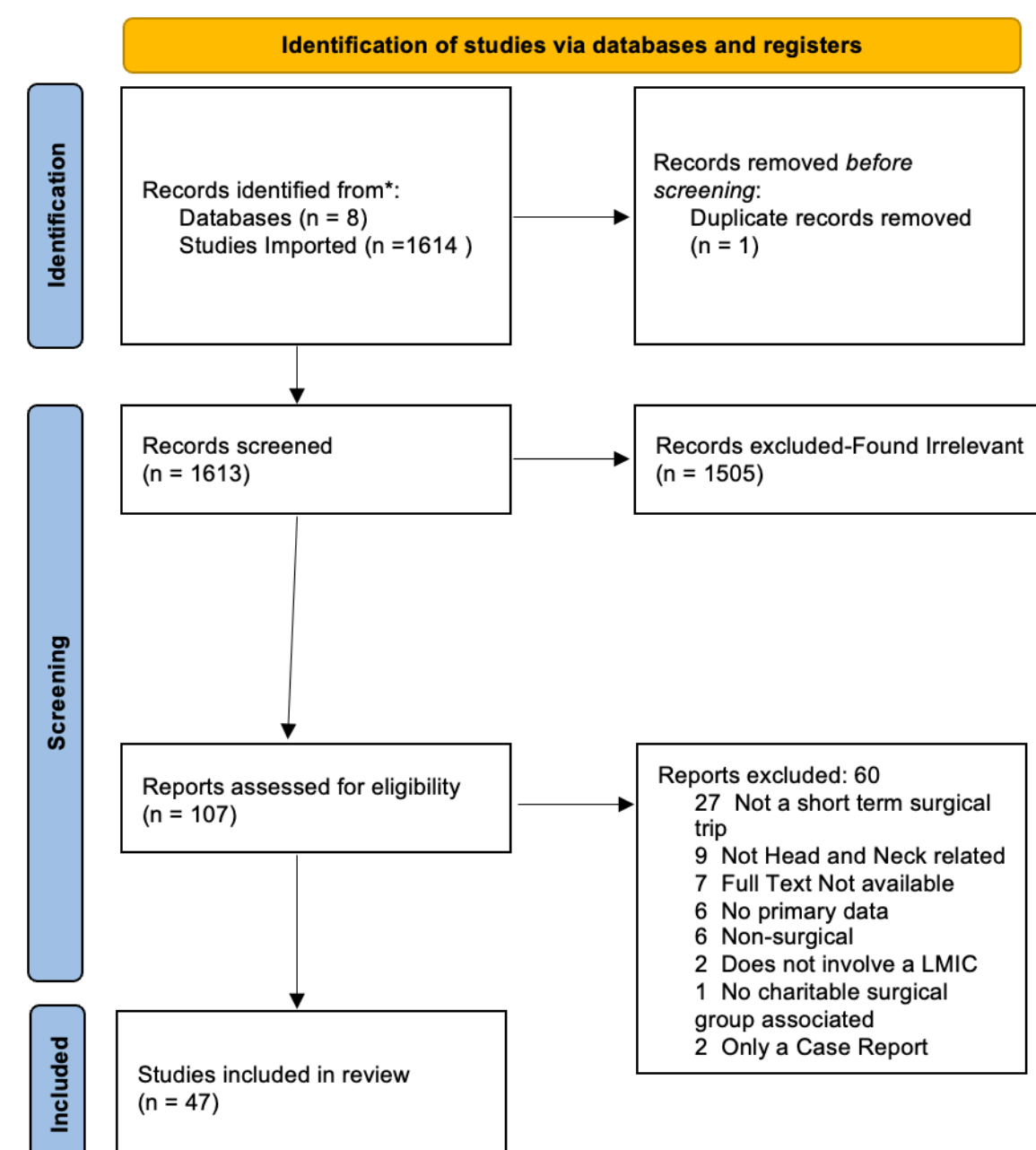


Figure 1. PRISMA flow diagram.

Results: Study Characteristics

- **Critical Appraisal and Assessing Quality** – Most studies showed adequate quality, but often lacked adequate follow-up.
- **Origin and Host Countries** – Origin countries spanned four continents, with the United States and the United Kingdom representing 65.9% of publications. Host sites spanned three continents, with Ethiopia and Uganda each serving as host in 10.6% of the publications.
- **Research and Authorship** – The majority of articles were retrospective analyses (45/57; 95.7%), and only two were prospective. IRB approval was obtained at HIC institutions in 15 (31.9%) articles, and LMIC institutions in 10 (21.2%) articles. Of 94 first and last authors, one first author and one last author were from LMICs.

Study Time Period	N=47		Surgical Outcomes		
1980s	1	2.1%	Total Patients	53931	
1990s	5	10.6%	Pos Outcomes	9/47	19.0%
2000s	15	31.9%	Neg Outcomes	18/42	38.2%
2010s	25	53.1%	Follow up	N=18	
2020s	1	2.1%	Immediate	5	27.7%
Types of Collaborations	N=47		<1 year	6	33.3%
Surgical	39	82.9%	>1 year	7	38.9%
Educational	10	21.2%	HIC Residents Included	8/47	17.0%
Sustainability	12	25.5%	Donations Supplied	4/47	8.5%
Humanitarian	4	6.5%	Study Type	N=47	
Academic	15	31.9%	Retrospective	45	95.7%
Charitable	28	59.5%	Prospective	2	4.2%
Subspecialties	N=47		IRB Inclusion	N=47	
Cleft lip/palate	14	29.7%	HIC Institution	15	31.9%
Otology	11	23.4%	LMIC Institution	10	21.2%
Head and Neck	9	19.1%	First Authorship	N=47	
Facial/Recon	8	17.0%	HIC 1st Author	46	97.8%
General	3	6.3%	LMIC 1st Author	1	2.1%
Airway	1	2.1%	Last Authorship	N=47	
			HIC Last Author	46	97.8%
			LMIC Last Author	1	2.1%

Table 1. Results of data extraction.

Results: Outcomes

- **Surgical**
 - Of the 54,931 (range 2-36,384) patients operated on, 1,511 complications (2.6%) were documented with one mortality (0.027%)
 - Negative outcomes likely underrepresented, as only 38.2% (n=18) of papers mentioned negative outcomes
 - Only 26 papers (55%) reported that patients were seen in follow-up with range of one day to five years
 - Common complications: postoperative hemorrhage, flap failure, fistula formation, persistent tympanic membrane perforation
 - Only 9/47 (19%) papers specifically described positive outcomes
- **Educational**
 - Ten of 47 (12.2%) included education as a primary aim, and two of the studies (10.6%) were solely focused on education
 - Despite heterogeneous outcomes data, all found learners to benefit from interventions
 - Only eight (17%) mentioned that HIC residents were included in LMIC work
- **Sustainability**
 - Twelve of 47 (25.5%) articles included sustainability as a primary aim
 - Only four articles listed donated supplies
 - Only 15 (32%) articles specifically mentioned bringing large teams of physicians, nurses, anesthesiologists, and other supporting roles

Conclusions

- Over last three decades of Oto-HNS STSTs to LMICs, most have focused on surgical procedures with very few documenting long-term follow-up
- Most have neglected impact of educational and sustainability-focused interventions
- Review of outcomes data can help identify factors that contribute to a strong short term global surgery program focused on surgical, educational, and sustainability-focused goals