The Contribution of Surgical Nongovernmental Organizations to Global Surgical Care: An Estimate of Annual Caseload

Nongovernmental organizations (NGOs) provide surgical care in low-income and middle-income countries; however, the quantity of operative procedures performed is unknown, making their contribution difficult to measure. Previous attempts at pooling the surgical caseload have been limited by either a reliance on only peer-reviewed publications or to US-based organizations. In 2016, Ng-Kamstra et al published a comprehensive database of surgical NGOs (s-NGOs), a collective term used by the authors to cover charitable and aid organizations providing surgical care in low-income and middle-income countries to promote collaboration between organizations and health systems. We aimed to survey these s-NGOs to estimate their contribution to global surgical delivery.

Methods | Ethical permission was provided by Oxford University Medical Sciences interdivisional research ethics committee on October 28, 2019. Using the article supplement of Ng-Kamstra et al, we looked for the most recent count of surgical operations on the websites and published reports of 403 organizations. If we were unable to obtain data, we emailed the organizations (using the email addresses in the article supplement and any we identified online). Collected data were subgrouped according to different operational models as outlined in the original article supplement. If an organization had neither a functioning website nor email address, they were excluded.

Results | Of the 403 organizations, only 374 (93%) were eligible. Two organizations reported they did not provide surgical care, 26 organizations were not contactable, and 1 organization was duplicated. We obtained annual caseload data from 122 organizations (33%); 100 from their respective websites and 22 from email contact. The combined annual caseload for the 122 organizations was 2,933,250 surgical procedures. Eighty-seven organizations provided data from either 2018 or 2019 (suggesting they are currently active), representing 2,114,534 surgical procedures (72%). The Table provides the breakdown according to the operational models.

Discussion | We only obtained conclusive data from 122 of 374 eligible organizations (33%). However, the operative caseload, even if only considering data provided from organizations who were still active in 2018/2019, is considerable and suggests there is a significant amount of surgical care by s-NGOs in addition to the local public or private health sector service practitioners.

### Table. Annual Surgical Caseload by s-NGOs Worldwide

<table>
<thead>
<tr>
<th>Organization category</th>
<th>Organizations, No.</th>
<th>Operative data, No. (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Recent</td>
<td>Any</td>
</tr>
<tr>
<td></td>
<td>(n = 2,114,534)</td>
<td>(n = 2,933,250)</td>
</tr>
<tr>
<td>Organization that performs only</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Short-term missions</td>
<td>6</td>
<td>38,975 (2)</td>
</tr>
<tr>
<td>Specialized surgical care</td>
<td>60</td>
<td>1,688,292 (80)</td>
</tr>
<tr>
<td>Organization that works in the humanitarian setting</td>
<td>15</td>
<td>310,798 (15)</td>
</tr>
</tbody>
</table>

Abbreviation: s-NGOs, surgical nongovernmental organizations.

a Annual estimates from 2018 or 2019.

b Annual estimates from most recent year (any year).

c This encompasses any organization that performs only 1 type of surgery (eg, obstetric, ENT, ophthalmic surgery).

d Of these, 2,284,927 cases (78%) were from organizations (20) who provide only eye surgery.
This study has a number of limitations. Our data source was compiled in 2015 and is no longer likely complete. Organizations were identified through English language searches only; therefore, s-NGOs based in countries whose home language was not English may have been excluded. We were only able to contact one-third of organizations in the database, and the total caseload of 2.9 million was likely an underestimation of the actual contribution by s-NGOs. In addition, our results demonstrate a high contribution by specialty surgery organizations (who only conduct 1-2 procedure types). Whether this is actually true or a bias of our low response rate is unknown. Additionally, we have no means of verifying the data provided by the organizations. Definitions of operation may not have been standard across organization, leading to underestimation or overestimation. Finally, our findings do not address the effect of this service delivery on the larger health sector, the training of local providers, or quality of the care delivered.

Despite these limitations, our findings provide irrefutable evidence that s-NGOs perform vast amounts of operations globally, emphasizing the need for their engagement with collecting data relevant to quality of perioperative care as per the Lancet Commission on Global Surgery.5

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Feasibility of Integration of Resident Surgical Evaluations Into the Electronic Medical Record

Evaluation of a resident’s surgical performance is key to the developing surgeon’s education; however, collecting surgical feedback can be problematic for residents and faculty members alike. This study aims to describe how a surgical evaluation tool can be presented to surgeons in a new way through integration into the electronic medical record.

Methods | This descriptive study was conducted in an academic safety-net hospital from February 2019 through June 2019. A novel tool was developed within the Epic electronic medical record (EMR) system that resulted in an in-basket message (Figure 1) to the faculty surgeon of record on case completion. The process was created by a physician builder in the EMR with the assistance of an EMR analyst; they required approximately 15 hours of personnel time to build and test this tool. The message contained a link to complete a surgical evaluation via Qualtrics (SAP), an outside survey platform. The evaluation tool consisted of the previously validated Zwisch5 scale, with 2 additional questions to allow free-text feedback on resident performance. When the evaluation was completed, an email was instantly generated to the operating resident, pro-