Improving surgical quality in low-income and middle-income countries: why do some health facilities perform better than others?

Shehnaz Alidina
Interest in surgical quality in sub-Saharan Africa has skyrocketed

Evidence on how to improve quality is still nascent

We explored factors driving performance in the Safe Surgery 2020 intervention in Tanzania
Safe Surgery 2020

Implemented in 10 health facilities in Tanzania’s Lake Zone over 12 months

Changing culture
• Leadership Training

Capacity Building
• Anesthesia, sterilization, data quality training
• Facility Accelerator Fund

Facilitating sustainability
• Mentorship

Goals:
• Increase adherence to surgical quality processes
• Reduce rates of postsurgical infections

Longitudinal, mixed-methods evaluation
### Methods - Step 1: Identify Positive Deviants

<table>
<thead>
<tr>
<th>Facility</th>
<th>Baseline</th>
<th>Endline</th>
<th>Average improvement in percentage points</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Higher-performing facilities</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Facility 1</td>
<td>19%</td>
<td>95%</td>
<td><strong>76</strong></td>
</tr>
<tr>
<td>Facility 2</td>
<td>18%</td>
<td>92%</td>
<td><strong>74</strong></td>
</tr>
<tr>
<td>Facility 3</td>
<td>13%</td>
<td>73%</td>
<td><strong>60</strong></td>
</tr>
<tr>
<td><strong>Lower-performing facilities</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Facility 8</td>
<td>8%</td>
<td>39%</td>
<td><strong>31</strong></td>
</tr>
<tr>
<td>Facility 9</td>
<td>14%</td>
<td>44%</td>
<td><strong>30</strong></td>
</tr>
<tr>
<td>Facility 10</td>
<td>15%</td>
<td>34%</td>
<td><strong>19</strong></td>
</tr>
</tbody>
</table>
Methods - Step 2: Distinguish Higher- & Lower-Performing Facilities

- 108 interviews at 1, 6 & 12 months
- Grounded theory analysis
  6 major themes
- Compare higher & lower performers in each theme
- Develop theory about how positive deviants achieve top performance
Major Emergent Themes

**Theme 1:** Pre-intervention context

**Theme 2:** Engagement with SS2020 intervention

**Theme 3:** Teamwork and communication

**Theme 4:** Collective learning

**Theme 5:** Leadership engagement

**Theme 6:** Perceived impact and beyond SS2020
Theme 1: Pre-Intervention Context

Prior culture of teamwork and organizational learning

**Higher Performer**

“We work as a team. If there was an issue, team members came together, suggested solutions and picked ones which scored highest and were easiest to implement.”

Anaesthetist, Facility 2

**Lower Performer**

“Everyone is focused on their own jobs. If I am busy, the nurse or surgeon can see that the BP is low. But they say this is the anaesthetist’s job. If patients suffer, they will blame me. But they were in the room and did not say anything.”

Anaesthetist, Facility 8
Theme 2: Engagement with Safe Surgery 2020 Intervention

**Changing Culture**
Leadership & SSC training

**High:** Place importance on teamwork & communication  
**Low:** Place importance on surgical practices

**Building Capacity**
Clinical, anesthesia, sterilization & data quality trainings

**High:** Engage in data monitoring and use early on  
**Low:** Understand the importance of data later on

**Facilitating Sustainability**
Multimodal mentorship (in-person, tele-mentoring and WhatsApp)

**High:** Engage early & move towards sustainability  
**Low:** Still embedding learning from leadership & capacity building interventions
"The surgeon was looking for the defective part. I told him what he was trying to remove was part of the intestine. The surgeon asked if I had more knowledge than him. He said as a surgeon he knew the difference. After opening, he realized he had cut the intestine."

Nurse, Facility 9

"Since I am controlling the checklist, I say attention please and read the points. Then all staff answer according to the questions asked. The doctor waits for me because he trusts that I will remind him if he has forgotten something. There is trust."

- Anaesthetist, Facility 1

"The surgeon was looking for the defective part. I told him what he was trying to remove was part of the intestine. The surgeon asked if I had more knowledge than him. He said as a surgeon he knew the difference. After opening, he realized he had cut the intestine."

Lower Performer
Theme 4: Collective Learning

High:
- Prioritize knowledge translation to non-trainees
- Prioritize collective learning
- Recognize the importance to data at midline

Low:
- Want to speed SS2020 implementation by trainees only
- Prioritize individual learning
- Recognize importance of data at endline
“I monitor daily reports. Every morning we have reports from each department, they tell us how many surgeries they have done and how. I also speak with dissenters. There is a very stubborn nurse who does not like the SS2020 changes. So, I insisted that she attend the training.”

Medical Officer-in-Charge, Facility 2

“\textit{I am too busy to check if one-third files aren’t available or one-third aren’t documented. I ask them to come to me with specific problems. They were having problems with purchasing antibiotics so I intervened.}”

Medical Officer-in-Charge, Facility 10
Theme 6: Perceived Impact

Higher Performers
SS2020 helped to overhaul surgical systems by:
• Strengthening teams
• Promoting data-driven decisions
• Encouraging collective learning

Lower Performers
SS2020 helped to:
• Improve infrastructure
• Improve clinical knowledge
• Change surgical practices
Theory of Change

Starting organizational context
• Physical
• Cultural
• Learning

Evolution of Organizational Learning

Engagement with Interventions

Immediate changes in surgical practice and culture

Sustainable changes in surgical practice and culture

Evolution of Organizational Culture
Non-technical Skills are Critical for Improving Surgical Quality
THANK YOU!