**OBJECTIVE**

Research

“District 2005: AT What the to by common and maintenance of effective district surgical services requires:

Surgical Care (GIEESC)

- Appropriate
- Practical
- Personnel provide procedures, other quality Siaya Siaya quality reliable is catchment system, established the system, with continuing education and training for the medical and surgical care and management of surgical case. Dr. Paul Farmer

**JUSTIFICATION**

- "11% of the global burden of disease is attributable to conditions very likely to require surgery"
- "Surgery may be thought of as the neglected stepchild of global public health," Dr. Paul Farmer
- Africa has the highest ratio of surgical disability-adjusted life years per 1,000 population
- Reliable estimates of surgical burden, evaluations of the cost-effectiveness of surgical interventions, and protocols for building surgical capacity are scarce.

**RESEARCH QUESTION**

- What is the current overall capacity of the Siaya County Referral Hospital to provide the surgical care needed by the catchment population it serves?

**RESEARCH OBJECTIVES**

1. To assess the current capacity of Siaya County Referral Hospital to provide emergency and essential surgical care.
2. To identify gaps between the current provision of surgical care at Siaya County Referral Hospital and the surgical care needs of the catchment population it serves.
3. To determine the etiologies of any gaps that exist between provision of and need for surgical care at Siaya County Referral Hospital.

**OBJECTIVE 1: CAPACITY - METHODS**

- 2005: WHO established Global Initiative for Emergency and Essential Surgical Care (GIEESC)
- "District [first referral level] hospitals should be able to manage all common surgical and obstetric procedures. However, the establishment and maintenance of effective district surgical services requires:
  - Personnel with appropriate education and training
  - Practical continuing education programmes in clinical management to maintain quality of care
  - Appropriate physical facilities
  - Suitable equipment and instruments
  - A reliable system for the supply of drugs and medications, surgical materials and other consumables
  - A quality system, including standards, clinical guidelines, standard operating procedures, records and audits."

- VISIT: Site Visit of Siaya County Referral Hospital and other lower level facilities in Siaya County for baseline assessment of current surgical capacity.
OBJECTIVE 1: CAPACITY - RESULTS

Section A: Infrastructure
- Catchment population: 43,128
- Beds: 224
- Total Admissions in 2013: 8,816
- Total Outpatients in 2013: 52,415
- Average patient travel 3-5 nights to get to hospital - tools bodas
- 2 Major + 2 Minor Operating Theaters
- Water: plumbing throughout, supply unpredictable
- Electricity: daily outages with reliable back-up
- Anesthesiology: 3 functional with continuous intraportal vital monitoring
- Inconsistent access to/usage of management guidelines
- Access to High/low tests, x-rays, blood but shortage of vital monitoring equipment outside theatre

OBJECTIVE 1: CAPACITY - RESULTS

Section B: Human Resources
- Surgeons (qualified, i.e. consultants): 0
- Obstetricians/Gynaecologists (qualified): 1
- General doctors providing surgery (including obstetrics): 5 (medical officers)
- Clinical officers providing surgery: 1 (ophthalmology)
- Anesthesiologists: 2 (clinical officers)
- Nurse-Theatre: 5
- Midwives: 56
- Paramedics: 0
- Engineers/Repair technicians: 6

OBJECTIVE 1: CAPACITY - RESULTS

Section C: Interventions
Do you perform these procedures?

27. Resuscitation, surgery, burns, trauma, elective and emergency surgery, and procedures

<table>
<thead>
<tr>
<th>Procedure</th>
<th>Yes</th>
<th>No</th>
<th>Not sure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Haemorrhage plunge</td>
<td>Y</td>
<td>N</td>
<td>N</td>
</tr>
<tr>
<td>Corneal transplantation</td>
<td>Y</td>
<td>N</td>
<td>N</td>
</tr>
<tr>
<td>Cutaneous resection</td>
<td>Y</td>
<td>N</td>
<td>N</td>
</tr>
<tr>
<td>Tonometer</td>
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<td>N</td>
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SIAYA VS. MOH LEVEL 4/5 STANDARDS

Minimum Human Resources

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<thead>
<tr>
<th>Level 1</th>
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<tr>
<td>Medical officers</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>Anesthesiology</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>Nursing staff</td>
<td>10</td>
<td>30</td>
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<tr>
<td>Operating theatre</td>
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<td>1</td>
</tr>
<tr>
<td>Radiology</td>
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</tr>
<tr>
<td>Pathology</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>Laboratory</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>Gynaecology</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>Medicine</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>Orthopaedics</td>
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SIAYA VS. MOH LEVEL 4/5 STANDARDS, cont.

Minimum Physical Infrastructure

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<tbody>
<tr>
<td>Water/Ventilator</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Basic medical</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Irrigation/vent</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Operating theatre</td>
<td>2</td>
<td>4 (1 Gya; 2 general; 1 emergency)</td>
</tr>
<tr>
<td>Operating theatre</td>
<td>1</td>
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<td>1</td>
</tr>
<tr>
<td>Orthopaedics</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>

Frequent Shortages:
- Map
- Ear protection
- Incontinence pants
- Oxygen
- Resuscitator bag valve & mask (adults + pediatrics)
- Blood pressure measuring equipment for children
- Surveyors for children
OBJECTIVE

"What do you think of caring for surgical patients?" (rank top 5 out of 12 choices)

Teaching
Likely
Top 81.0%
78.8%
75.7%

OBJECTIVE 2: GAPS - RESULTS

- Total of 76 Referrals Out of Siaya County Referral Hospital in 2013 for Likely Surgical Interventions
- At least 75% of those cases were referred to Jaramogi Oginga Odinga Teaching and Referral Hospital (JOOTRH) in Kisumu (73.1 km)

OBJECTIVE 3: CAUSES OF GAPS - METHODS

- Developed an 8-question survey to administer to hospital staff (goal 10-15) involved in the care of surgical patients

OBJECTIVE 3: CAUSES OF GAPS - RESULTS

- “Do you experience any constraints in caring for surgical patients?”
  - 78.8% of respondents circled “Yes”
- “What are the biggest problems experienced by Siaya District Hospital in caring for surgical patients?” (rank top 5 out of 12 choices)
  - 83.3% respondents chose “not enough consultant surgeons” as their #1 biggest problem
- Top 3 Problems
  1. not enough consultant surgeons
  2. lack of equipment
  3. not enough healthcare support staff (including nurses, clinical officers, etc.)
  4. not enough anaesthesiologist/anesthetists
  5. lack of diagnostics (labs, imaging, etc.)

OBJECTIVE: CAUSES OF GAPS - RESULTS

- “Do you refer any surgical cases to a higher-level facility?”
  - 100% of respondents circled “Yes”
- “If yes, what is the primary reason you refer?” (select 2 out of 6 choices)
CONCLUSIONS

- Surgical Capacity
  - Siaya County Referral Hospital has decent capacity for most aspects of basic emergency and essential surgical care
  - Significant insufficiencies exist in infrastructure (consistent water supply and use of management guidelines), human resources (consultant surgeons, MDs, theatre nurses), and equipment (in supplies [soap, pediatric equipment] that prevent it from achieving an appropriate level of care)
- Gaps between Surgical Provision & Need
  - With more than 3000 surgeries performed in 2012, Siaya demonstrates clear need for trained surgeons (especially in General, Urologic, Orthopedic, OB/GYN, and Ophthalmic surgeries)
  - Majority of the cases referred out of Siaya for likely surgical intervention are trauma-related

RECOMMENDATIONS

- Ensure the Fundamentals
  - Consistent water and soap supply
- Institutional Employment of Management Guidelines, especially for Emergencies
  - FAST Exam training for abdominal trauma
- Consider acquisition of a CT scanner and necessary support (e.g., head trauma)
- Standardize, and if possible Digitize, Documentation of Surgical Cases
  - ICD-10 coding
  - Ensuring patient ID, team, age, surgery type, indication, etc. are always documented
- Maintain a Standardized, and if possible Digitized, Record of ALL Referrals
  - Currently non-urgent outpatient referrals for likely surgical conditions are not being documented

CONCLUSIONS, continued

- Causes of Gaps
  - vast majority of hospital staff agree we face constraints in caring for surgical patients
  - the biggest issue they experience is not having enough consultant surgeons with the appropriate level of knowledge and experience
  - 1st the primary reason we have to refer
  - 2nd most common reason we refer is not having an ICU

RECOMMENDATIONS, continued

- Work with County Officials and the Ministry of Health
  - To develop methods of incentivizing surgeons to come and to stay working at Siaya County Referral Hospital
  - To develop programs of rotating consultant surgeon coverage (e.g., borrowing a surgeon for 3 months at a time)
  - To determine if there is a national shortage of consultant surgeons and if so, developing programs to train more surgeons
  - To develop more robust mentorship programs to ensure adequacy and competency in training of Medical Officers despite training site

- Longer-Term Goals:
  - Consider provisions for providing more-intensive level of perioperative monitoring (towards an Intensive Care Unit)

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