Rebuilding Health Systems in rural Sierra Leone after the Ebola Epidemic

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PARTNERS IN HEALTH
### CDC Statistics: Ebola epidemic, W Africa

<table>
<thead>
<tr>
<th>Country</th>
<th>Total Cases (Suspected, Probable, and Confirmed)</th>
<th>Laboratory-Confirmed Cases</th>
<th>Total Deaths</th>
</tr>
</thead>
<tbody>
<tr>
<td>Guinea</td>
<td>3814</td>
<td>3358</td>
<td>2544</td>
</tr>
<tr>
<td>Sierra Leone</td>
<td>14124</td>
<td>8706</td>
<td>3956</td>
</tr>
<tr>
<td>Liberia</td>
<td>10678</td>
<td>3163</td>
<td>4810</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>28616</strong></td>
<td><strong>15227</strong></td>
<td><strong>11310</strong></td>
</tr>
</tbody>
</table>

Health Systems: the WHO Framework

System building blocks

- Leadership/governance
- Health care financing
- Health workforce
- Medical products, technologies
- Information and research
- Service delivery

Goals/outcomes

- Improved health (level and equity)
- Responsiveness
- Financial risk protection
- Improved efficiency

The Sierra Leonean Health System
Port Loko Government Hospital, 2014

- Intermittent electricity
- No running water
- No indoor plumbing
- 1 Operating theatre
- Minimal laboratory
- No x-ray
- Frequent stock-outs of essential medications and supplies
- Staffing shortages
# Health Indicators, 2013

<table>
<thead>
<tr>
<th></th>
<th>Sierra Leone</th>
<th>Liberia</th>
<th>Guinea</th>
<th>United States</th>
</tr>
</thead>
<tbody>
<tr>
<td>Child Mortality (per 1000 live births)</td>
<td>161</td>
<td>71</td>
<td>101</td>
<td>7</td>
</tr>
<tr>
<td>Maternal Mortality (per 100,000 live births)</td>
<td>1100</td>
<td>640</td>
<td>650</td>
<td>28</td>
</tr>
<tr>
<td>Lifetime Maternal Death Rate</td>
<td>1 in 19</td>
<td>1 in 33</td>
<td>1 in 31</td>
<td>1 in 1786</td>
</tr>
</tbody>
</table>
Comparison of Surgical Care Deficiencies between US Civil War Hospitals and Present-Day Hospitals in Sierra Leone

Joseph Crompton · T. Peter Kingham · T. B. Kamara · Murray F. Brennan · Adam L. Kushner

Table 1 Demographics of Sierra Leonean government hospitals and US civil war hospitals in Pennsylvania

<table>
<thead>
<tr>
<th></th>
<th>Sierra Leone government hospitals (2008)</th>
<th>US civil war general military hospitals (Pennsylvania) (1864)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hospitals</td>
<td>10</td>
<td>18</td>
</tr>
<tr>
<td>Hospital beds (total)</td>
<td>1,353</td>
<td>18,709</td>
</tr>
<tr>
<td>Patients (per year/ institution)</td>
<td>306</td>
<td>745</td>
</tr>
</tbody>
</table>

Table 3 Demographics of personnel working in Sierra Leonean hospitals compared to US civil war hospitals

<table>
<thead>
<tr>
<th></th>
<th>Sierra Leone government hospitals (2008)</th>
<th>US civil war general military hospitals (1864)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medical health Professionals</td>
<td>59</td>
<td>13,000</td>
</tr>
<tr>
<td>Surgeons</td>
<td>10</td>
<td>5,000</td>
</tr>
<tr>
<td>Anesthesiologists</td>
<td>1</td>
<td>None</td>
</tr>
</tbody>
</table>
Ebola’s Perfect Storm

Samuel Aranda for The New York Times
Impact of the Ebola Epidemic

• **Human resources**
  - 6.9% of Sierra Leonean health work force died
  - 513 health workers in West Africa died
  - Diversion of staff into the emergency response

• **Health delivery**
  - Vaccine campaigns suspended
  - Community health activities diminished
  - Decreased antenatal care, facility-based deliveries, c-section
  - Decreased hospitalizations, care for malaria, HIV and TB, services for NCDs

• **Supplies**
  - Disruption of supply chain
  - Stock outs of essential medications and supplies
  - Near elimination of blood transfusion services

• **Social impact**
  - Reduced trust in health system
  - Lost education

• **Economic impact**
  - >$1.6 billion GDP forgone in all 3 countries
  - Job losses, formal and informal sectors
Transforming an Emergency Response into Health Systems Strengthening
The Partners In Health Framework

1. Staff: trained human resources, sufficient quantity
2. Stuff: equipment, supplies, medications
3. Spaces: infrastructure, ORs, warehouses
4. Systems: ‘the glue’
Human Resources

• **Quantity**
  - Hired key positions in line with MOH priorities
  - Anesthetists, midwives --> CHWs

• **Quality**
  - Trainings and continuing education for all cadres
  - Supervision and feedback
  - QI projects

• **Staff Satisfaction**
  - Patient outcomes
  - Compensation with performance-based payment
  - Improved environment
Stuff: Medications, Supplies & Equipment
Infrastructure

- Electricity: 99.5% power at KGH
- Water and Sanitation improved
- IPC & Waste management
- Wards cleaned, repainted, rebuilt
- 2 ORs re-opened
- Maternity waiting home built

✓ Safe environment for staff & patients
Creating Systems

- Community Health Workers
- Lab & Radiology
- Supply Chain
- Clinical Care guidelines
- Referral systems
- Hospital operations
## Preliminary Outcomes

<table>
<thead>
<tr>
<th></th>
<th>Pre-Ebola Nov 2012 – Aug 2013</th>
<th>After Intervention Nov 2015 – Aug 2016</th>
<th>% Increase</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pediatric + Maternity Admissions</td>
<td>2447</td>
<td>3518</td>
<td>44%</td>
</tr>
<tr>
<td>Hospital-based Deliveries</td>
<td>458</td>
<td>814</td>
<td>78%</td>
</tr>
</tbody>
</table>
Key Lessons

1. Building strong health systems builds resilience and flexibility
2. Partner with local and national Ministry of Health – align strategy and interventions
3. Seek input and listen to local stakeholders and MOH
4. Create trust through durability and duration
5. Invest in people
<table>
<thead>
<tr>
<th>$4.3bn</th>
<th>The amount committed by external donors to fight Ebola in Sierra Leone, Guinea and Liberia so far. This is <strong>15 times</strong> the annual national health budgets of the three countries combined.</th>
</tr>
</thead>
<tbody>
<tr>
<td>$1.58bn</td>
<td>The 2012 gap in budgets to ensure essential healthcare for all the populations for all three countries.</td>
</tr>
<tr>
<td>3x</td>
<td>The cost of dealing with this Ebola outbreak is nearly <strong>three times</strong> the annual cost of investing in building a universal health service in all three affected countries.</td>
</tr>
</tbody>
</table>
Thank You