Ebola: From Emergency to Recovery

Sheila Davis, DNP, ANP-BC, FAAN
Chief Nursing Officer
Chief of Ebola Response
Partners In Health
“Infectious diseases remain one of the biggest risks facing humankind. Few events are capable of equal damage to human lives and livelihoods. Yet the global community spends relatively little to protect populations from the risks of pandemics. Compared with other high profile threats to human and economic security—such as war, terrorism, nuclear disasters, and financial crises—we are underinvested and underprepared.”

Ebola Virus Disease – Previous Outbreaks

<table>
<thead>
<tr>
<th>Year</th>
<th>Cases</th>
<th>Deaths</th>
</tr>
</thead>
<tbody>
<tr>
<td>1976</td>
<td>318</td>
<td>280</td>
</tr>
<tr>
<td>1976</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>1995</td>
<td>315</td>
<td>250</td>
</tr>
<tr>
<td>2000-2001</td>
<td>425</td>
<td>224</td>
</tr>
<tr>
<td>2007</td>
<td>264</td>
<td>187</td>
</tr>
</tbody>
</table>

- **First outbreak of Ebola in Zaire**: 1976
- **Ebola Reston introduced into US quarantine facilities by monkey from the Philippines**: 1976
- **Outbreak in DRC Index patient worked in the forest adjoining the city**: 1995
- **Outbreak in Uganda associated with funeral attendance and caring for patients with Ebola without proper PPE**: 2000-2001
- **Outbreak in DRC Last confirmed case on 10/4 and last death 10/10**: 2007

**Outbreaks in other regions**:
- **Lab infection by accidental stick of contaminated needle**: 1976
- **Outbreak in Gabon in gold-mining camps in the rainforest**: 1996
- **Lab contamination in Russia**: 2001-2002
- **First outbreak reported in the Republic of Congo**: 2001-2002
- **Outbreak of a new strain of Ebola in western Uganda**: 2007
- **Ebola outbreak in West Africa, largest in history**: 2014

*As of July 18, 2015*
“We need you on the ground. The window of opportunity to contain this outbreak is closing. We need more countries to stand up, we need greater deployment, and we need it NOW.”

Dr. Joanne Liu
International President, Medecins Sans Frontieres
16 September 2014
http://www.msf.org/article/msf-presidents-remarks-un-special-briefing-ebola
Slow vs. Fast Response?

- Current (‘25th recorded’) outbreak of EVD thought to begin in 12/2013 in Guinea Rain Forest
- Patients not dx’d until epidemic among HCWs
- Cases in all 3 countries by 4/2014
- WHO warns against “over-reaction” in 4/2014
- MSF declares EVD “out of control” in 6/2014
- As of 10/2015
  - 28,539 cases
  - 11,298 deaths
  - 881 cases in HCW
  - 513 deaths in HCW
The first Ebola patient to be diagnosed in the U.S. died Wednesday (10/8/14).

Three days earlier, government health officials in Sierra Leone reported 121 Ebola deaths in a single day.

But Western media made little mention of the latter.

Emily Thomas Huffington Post

http://www.huffingtonpost.com/2014/10/08/ebola-illustration-andre-carrilho_n_5955192.html
Ebola Today

• Worldwide, there have been 28,646 cases of Ebola virus disease and 11,323 deaths as of March 27, 2016.

• New cases in Liberia mark the country’s third flare-up of Ebola virus disease since its original outbreak was declared over on 09 May 2015.
Ebola Virus Disease – West Africa Epidemic

- Initial Phase (December 2013 – March 2014)
  - First cases in remote rural areas of Guinea
  - Cases spread to Sierra Leone and Liberia
  - Lack of capacity of local governments and WHO to contain the outbreak

- Second Phase (April 2014 – June 2014)
  - Cases spread to the three capital cities
  - Initial response by international NGOs
  - MSF declares the epidemic “out of control”, failure of WHO to mobilize the global community

- Third Phase (June 2014 – December 2015)
  - Exponential increase in number of cases
  - Mobilization of global community
    - WHO Director General declares the Ebola outbreak a public health emergency of global concern
    - World Bank commits $200 million
    - Launch of the UN Mission’s for Emergency Ebola Response
    - U.S. Government commits $3.7 billion
Fourth, Fifth, Sixth.....Phases

- December 2015- April 2016 and beyond
  - Numbers start to decline
  - All three West African countries have been declared “Ebola-free” but all three have had recurrence of cases
Ebola in HCW’s

• From 1 January 2014 to 31 March 2015, 815 confirmed and probable health worker EVD cases were recorded in the VHF database, with 328 in Sierra Leone, 288 in Liberia and 199 in Guinea.
• An additional 225 suspected cases were reported, with 117 from Liberia, 108 from Sierra Leone and none from Guinea. Suspected cases are not included in these analyses.
• 2/3 of infected HCW died.
# Ebola Virus Disease – West Africa Epidemic

## The Financial Cost of the Ebola Epidemic

**$4.3bn**

- The amount committed by external donors to fight Ebola in Sierra Leone, Guinea and Liberia so far.
- This is **15 times** the annual national health budgets of the three countries combined.

**$1.58bn**

- The 2012 gap in budgets to ensure essential healthcare for all the populations for all three countries.

**3x**

- The cost of dealing with this Ebola outbreak is nearly **three times** the annual cost of investing in building a universal health service in all three affected countries.

Save the Children, 2015. A wake-up call; lessons from Ebola for the world’s health systems
In the moment of crisis, the wise build bridges and foolish build dams.

—Nigerian Proverb
Our Mission

PIH delivers high-quality health care in some of the world’s poorest communities.

By pushing the boundaries of what’s possible in health care, PIH has a global impact.
Where We Work

- **Sierra Leone**: 1 woman dies in childbirth for every 7 women who survive.
- **Liberia**: 1 in 1,000 children die before age 5.
- **Russia**: 14.8 million people live with tuberculosis.
- **Lesotho**: 1 in 10 children dies before age 5.
- **Navajo Nation**: 45% of adults live below the poverty line.

**Factoids**:
- **Sierra Leone**: 1 in 700 children die before age 5.
- **Liberia**: 1 out of 10 health care facilities has clean water and electricity.
- **Russia**: 1 out of 50 people has diabetes.
- **Liberia**: 1 out of 10 health care facilities has clean water and electricity.
- **Malawi**: 1 out of 10 health care facilities has clean water and electricity.

**Statistics**:
- **Sierra Leone**: 1 in 700 children die before age 5.
- **Liberia**: 1 out of 10 health care facilities has clean water and electricity.
- **Russia**: 1 out of 50 people has diabetes.
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Our Approach
Model for comprehensive care guided by a preferential option for the poor: attend to people who suffer most from poverty and transform the system so that it serves them.
we go
we make house calls
we build health systems
we stay
Our Principles

**We go.** We travel to remote places where health care options are limited or barely exist.

**We make house calls.** We visit patients in their homes to deliver medication and guide them through treatment.

**We build health systems.** We work closely with national governments and other partners to improve and expand health services.

**We stay.** We make long-term commitments to the communities we serve.
5 Pillars of PIH’s Ebola Response

Direct effort and support of government

1. Stop transmission
2. Treat Ebola
3. Strengthen health systems
4. Train health professionals
5. Generate new knowledge

London Review of Books, Farmer 10/14
Sierra Leone
Sierra Leone

- Total population: 6.1 million
- Life expectancy: 46 years
- Under 5 mortality rate: 120 per 1,000
- Maternal mortality: 1,100 per 100,000
- Adult prevalence of HIV: 1.6%
- Population living below national poverty line: 53%
#Survivors Count
Scene from Freetown, Sierra Leone.

Photo by Rebecca E. Rollins / Partners In Health
Ebola survivors Momoh "Emoze" Kamara and Mohamed Nao wind through the streets of Freetown, Sierra Leone, after being hired as PIH community outreach staff.

Photo by Rebecca E. Rollins / Partners In Health
Maforki ETU-Port Loko
PIH nurse Cheedy Jaja prepares to enter an infectious area of Maforki ETU.

Photo by Rebecca E. Rollins / Partners In Health
A patient prepares to receive an IV at Maforki ETU.

Photo by Rebecca E. Rollins / Partners In Health
A PIH clinician pours oral rehydration solution. IV and ORS treatments are used simultaneously for each patient who is admitted to the ETU.

*Photo by Rebecca E. Rollins / Partners In Health*
Government Hospital Port Loko
PIH clinician Dr. Regan Marsh cares for Ebola survivor Mariatu, 9.

Photo by Rebecca E. Rollins / Partners In Health
Jariuatu
PIH Key Initiatives:
Staff, Stuff, Space & Systems

1) Safe Triage & Isolation
2) Health Provider Capacity-Building & Support
3) Infection Prevention & Control
4) Disease Prevention and Surveillance
5) Infrastructure & Supply Chain
6) National Planning
7) Build Health Systems
8) Quality health care
Ebola: The Missing Staff, Stuff, Space, and Systems

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<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Port Loko Govt.</td>
<td>200</td>
<td>No</td>
<td>No</td>
<td>Interrupted</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Hospital</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Princess Christian</td>
<td>120</td>
<td>Interrupted</td>
<td>Interrupted</td>
<td>Interrupted</td>
<td>0</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>Maternity Hospital</td>
<td></td>
<td></td>
<td></td>
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<td></td>
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</tr>
</tbody>
</table>

“In our needs assessment of government hospitals in Sierra Leone, a profound lack of protective supplies and equipment was documented. Items such as gloves, eye protection, and aprons were routinely in short supply. We found that government facilities were unacceptably deficient in protective supplies, whereas nongovernmental, private facilities were fully stocked.”


Two Tasks, One Team
Respond to Ebola, Build/Rebuild Health Systems

Weekly admissions at facilities offering basic surgical services in Sierra Leone, 2014


“In a comparison of present-day Sierra Leonean and US Civil War hospitals, the US Civil War facilities are equivalent and in many ways superior.”

<table>
<thead>
<tr>
<th>Procedure</th>
<th>Sierra Leone public hospitals (2008)</th>
<th>US Civil War field hospitals (1864)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Basic suturing</td>
<td>Common</td>
<td>Common</td>
</tr>
<tr>
<td>Wound debridement</td>
<td>Common</td>
<td>Common</td>
</tr>
<tr>
<td>Closed fracture management</td>
<td>Common</td>
<td>Common</td>
</tr>
<tr>
<td>Open fracture management</td>
<td>Rare</td>
<td>Common</td>
</tr>
<tr>
<td>Limb dislocation management</td>
<td>Rare</td>
<td>Common</td>
</tr>
<tr>
<td>Amputation</td>
<td>Rare</td>
<td>Common</td>
</tr>
<tr>
<td>Foreign body removal</td>
<td>Rare</td>
<td>Common</td>
</tr>
<tr>
<td>Chest tube insertion</td>
<td>Rare</td>
<td>Common</td>
</tr>
<tr>
<td>Laparotomy</td>
<td>Rare</td>
<td>Rare</td>
</tr>
</tbody>
</table>

Disruption of Essential Maternal and Child Health Services in Port Loko District, Sierra Leone

<table>
<thead>
<tr>
<th>Category</th>
<th>October 2013</th>
<th>October 2014</th>
<th>Percentage Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Deliveries in a health facility per 1,000 population</td>
<td>3.42</td>
<td>1.74</td>
<td><strong>49.1%</strong></td>
</tr>
<tr>
<td>Malaria cases treated per 1,000 population</td>
<td>8.27</td>
<td>3.27</td>
<td><strong>60.5%</strong></td>
</tr>
<tr>
<td>Respiratory infections treated per 1,000 population</td>
<td>18.88</td>
<td>6.87</td>
<td><strong>63.6%</strong></td>
</tr>
</tbody>
</table>

Impact of Ebola Epidemic on Maternal Mortality in West Africa


Would you go here?
Pleebo Health Center: Harper, Liberia
TB

- In US: 1 out of 21,276 suffers from TB
- In Haiti: 1 out of 410 suffers from TB
- In Liberia: 1 out of 196 suffers from TB
Health Is A Human Right
Koidu General Hospital: Kono, Sierra Leone
Maternity Ward: Before and After
#PovertyMakesYouSick
The “survivors’ tree,” a mango tree outside Maforki ETU, where each discharged patient ties a piece of cloth around a branch to celebrate his or her recovery.

Photo by Rebecca E. Rollins / Partners In Health
we go
we make house calls
we build health systems

we stay