

When All Else Fails:
Responding to a Cholera Outbreak
Sierra Leone 2012

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Objectives

- ❖ Describe Cholera and associated challenges
- ❖ Describe the Red Cross Emergency Response Unit system
- ❖ Describe my recent deployment as a community health delegate
 - ❖ Outbreak history
 - ❖ Current Status
- ❖ What can we learn from this experience?

What is Cholera?

Cholera

- ❖ Acute bacterial enteric illness
- ❖ Illness caused by an Enterotoxin
- ❖ Sudden onset, profuse painless watery stools (rice water stools)
- ❖ Nausea, profuse vomiting early
- ❖ Rapid dehydration, acidosis, circulatory collapse, renal failure, hypoglycemia in children

Acute Cholera

- ❖ Many cases can be mild or asymptomatic
- ❖ Severe cases can have high mortality rate
 - ❖ Case fatality rate of 50%
 - ❖ Death can occur within a few hours
- ❖ Clinical Case definition (WHO)
 - ❖ Acute watery diarrhea with or without vomiting in patient aged 5 or more

History of Cholera

- ❖ Seven pandemics over time.
 - ❖ First Pandemic 1817 – 23 India and Middle East to Mediterranean. Second Pandemic 1827 – 32 affected Russia, Europe and North America. Currently in the 7th Pandemic which started in 1961 in South Asia, reached Africa in 1971 and Americas in 1991
- ❖ Two strains – O1 and O139 cause significant outbreaks. The O139 is thought to be confined to South Asia
 - ❖ Variants of the O1 El Tor strain thought to be responsible for recent outbreaks in Africa and Haiti
- ❖ Cases reported to WHO: 2011 - 589 854 cases were notified from 58 countries, including 7816 deaths.
- ❖ Limitations in surveillance systems and fear of trade and travel sanctions affect reporting so the true burden of the disease is estimated to be 3–5 million cases and 100 000–120 000 deaths annually.

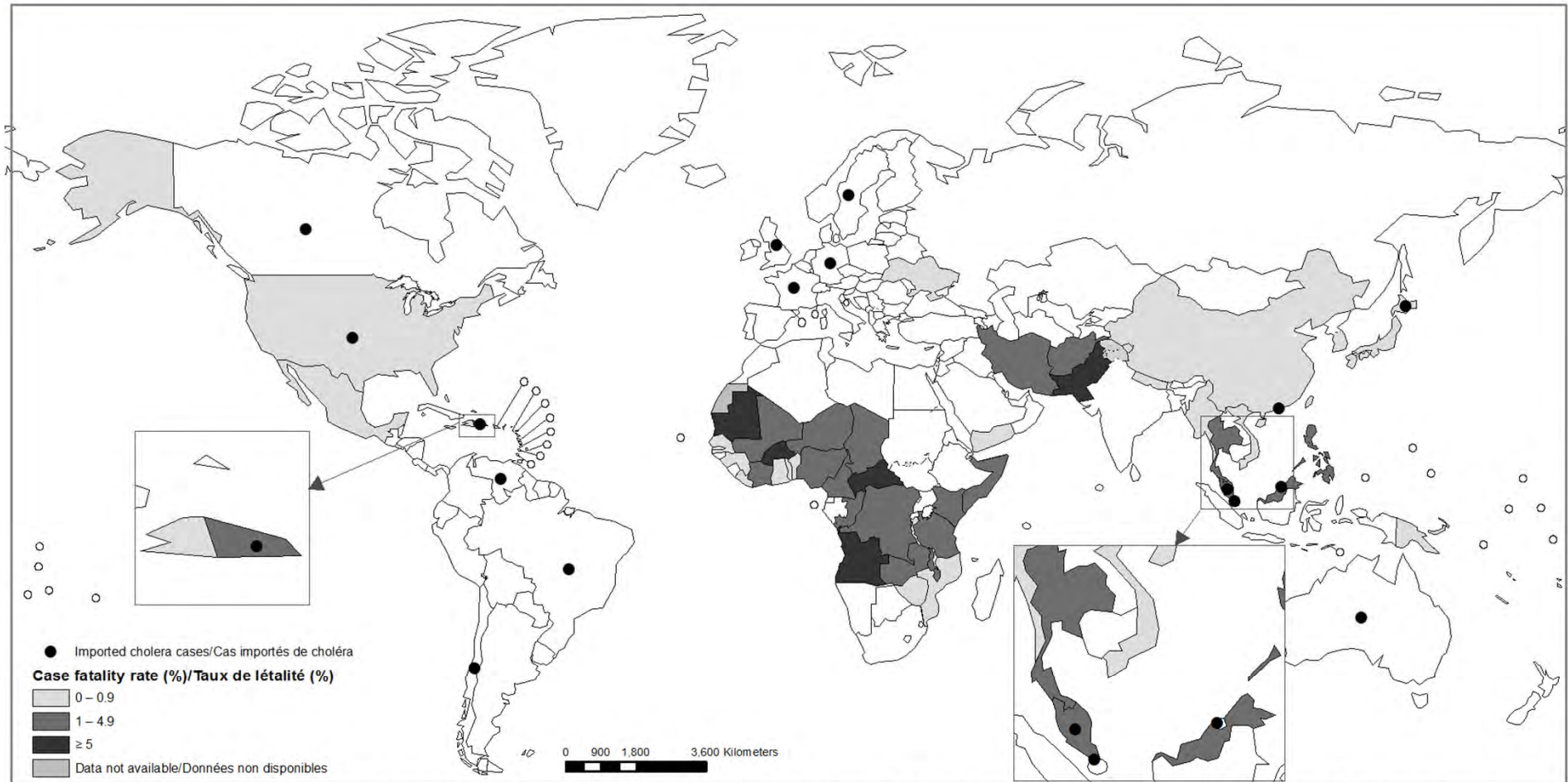
“Cholera thrives on disorganization.”

Since 2009 the UN Children's Fund (UNICEF), Action Against Hunger (ACF), the Guinean government, the European Union aid body ECHO, and the US Agency for International development (USAID) have taken steps to prepare for an outbreak - including setting up community detection sites, public information campaigns and drills.

"Cholera thrives on disorganization," said Christophe Valingot, water, sanitation, and hygiene (WASH) specialist with ECHO. "Cholera spreads very rapidly - it can go from 30 cases to several hundred cases per week in a very short period. When there is little to no preparation, we've lost the chance to avoid all those infections."

Source: <http://www.irinnews.org/Report/97157/Cholera-in-West-Africa-lessons-learned>

Countries Reporting Cholera 2011



The boundaries and names shown and the designations used on this map do not imply the expression of any opinion whatsoever on the part of the World Health Organization concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. Dotted and dashed lines on maps represent approximate border lines for which there may not yet be full agreement.

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Data Source: The Global Task Force on Cholera Control/WHO
 Map Production: Public Health Information and Geographic Information Systems (GIS)
 World Health Organization

 **World Health Organization**

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Cholera Treatment

A – Oral Rehydration, at home

- focus on children

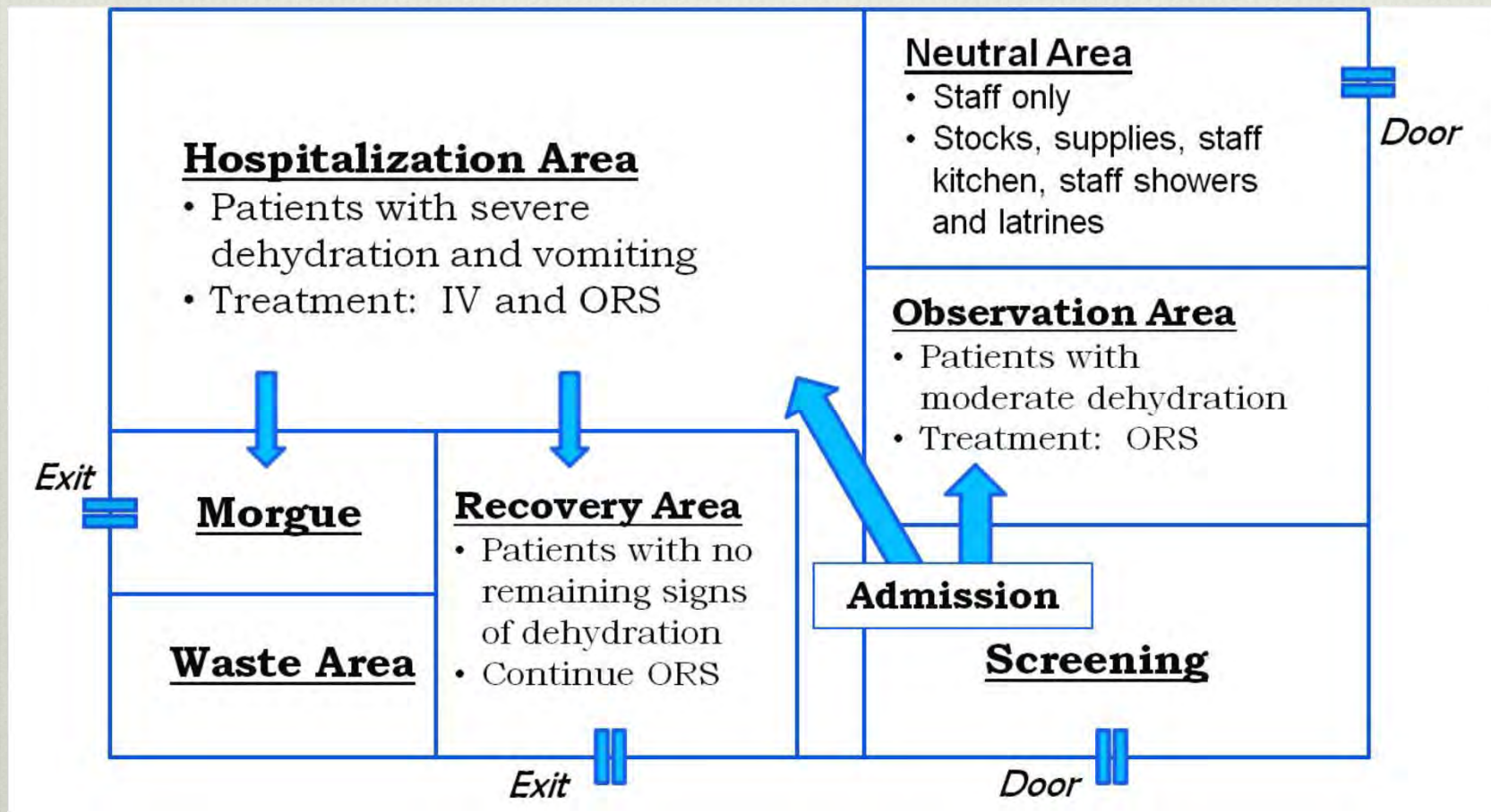
1. Give more fluids than usual
2. Give zinc sulfate 20 mg daily X 10-14 days
3. Continue to feed
4. Take to HCW if dehydration, etc, occurs

B – Monitored oral rehydration

C – Severe dehydration – IV fluid (Ringers)

❖ Antibiotics are secondary

Cholera Treatment Centre Layout



Canadian
Red Cross
HEALTH
EMERGENCY
RESPONSE
UNITS

- Basic Health
- Surgical



MAIN FEATURES OF ERUS



- ✓ Rapid Response Tools = Wheels Up in 24-48 hrs
- ✓ (from Toronto international Airport)
- ✓ Modular capacity = unit based on needs
- ✓ Core number of trained staff
- ✓ Self sustaining for at least one month in disaster affected areas (only needs: water source and fuel supply)

For the Deployment of Emergency Response Units

- Trigger mechanisms and line management
- Permission and protocols for out of country deployment:
 - Medical personnel permission to practice
 - Deployment and operation of medical devices, pharmaceuticals, and supporting infrastructure
 - Deployment and operation of vehicles, telecommunication and IT equipment

Red Cross Red Crescent EMERGENCY RESPONSE UNITS



RED CROSS RED CRESCENT MOVEMENT GLOBAL EMERGENCY RESPONSE UNITS

NS maintaining full ERUs	IT & Telecom	Water & sanitation (module 15)	Water & Sanitation (module 40)	Mass Sanitation (module 20)	Field Hospital	Rapid Response Hospital	Basic Health Care	Logistics	Relief	Base Camp	
Austria		X	X	X							
Benelux									X		
Canada						X	X				
Denmark	X							X	X	X	
Finland	X				X		X	X	X		
France		X	X				X		X		
Germany		X	X	X	X		X				
Italy										X	
Japan							X				
NZ RC	X										
Norway					X	X	X				
Spain	X	X		X			X	X	X		
Sweden			X	X							
Switzerland								X			
UK				X				X			
USA	X								X		
Total:	5	4	4	5	3	2	7	5	6	2	43

Several NS, including Australia, Croatia, Hong Kong and Macedonia regularly offer ERU trained HR for joint deployments.

Where is Sierra Leone?



Sierra Leone, West Africa

Google

Address



Google

Address



Sierra Leone

- ❖ Population: 5,485,998 estimated, 41.8% <15
- ❖ Capital: Freetown: 875,000
- ❖ Religion: Muslim 60%, Christian 10%, Indigenous 30%
- ❖ Maternal Mortality 890 deaths/100,000 live births
- ❖ Infant Mortality: 76.6 deaths/1000 live births
- ❖ Life expectancy at birth: 56.5 years
- ❖ Physicians: 0.016/1000 or 1.6/100,000
- ❖ HIV: adult prevalence 1.6%
- ❖ Human Development Index: 180 (Canada is 6th)









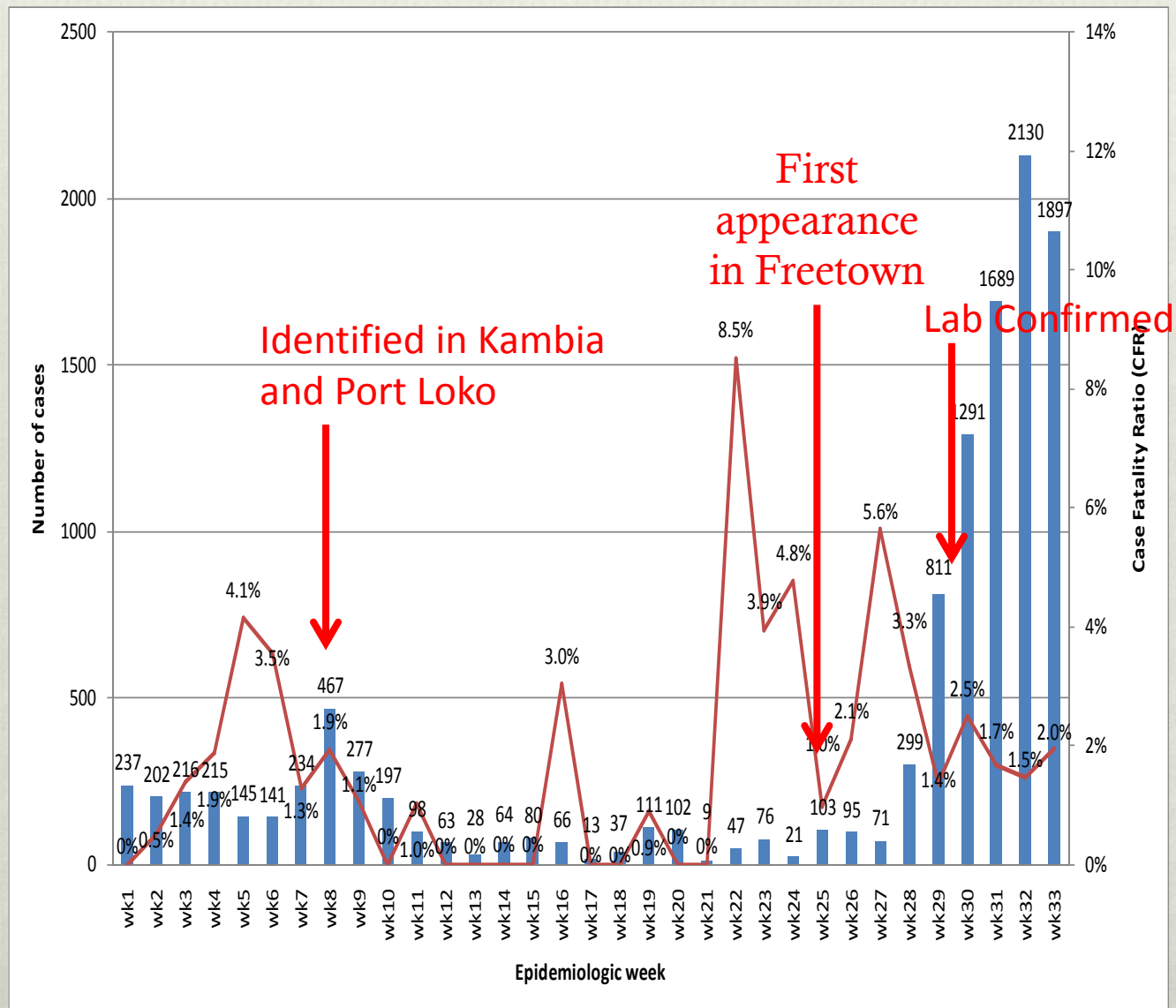








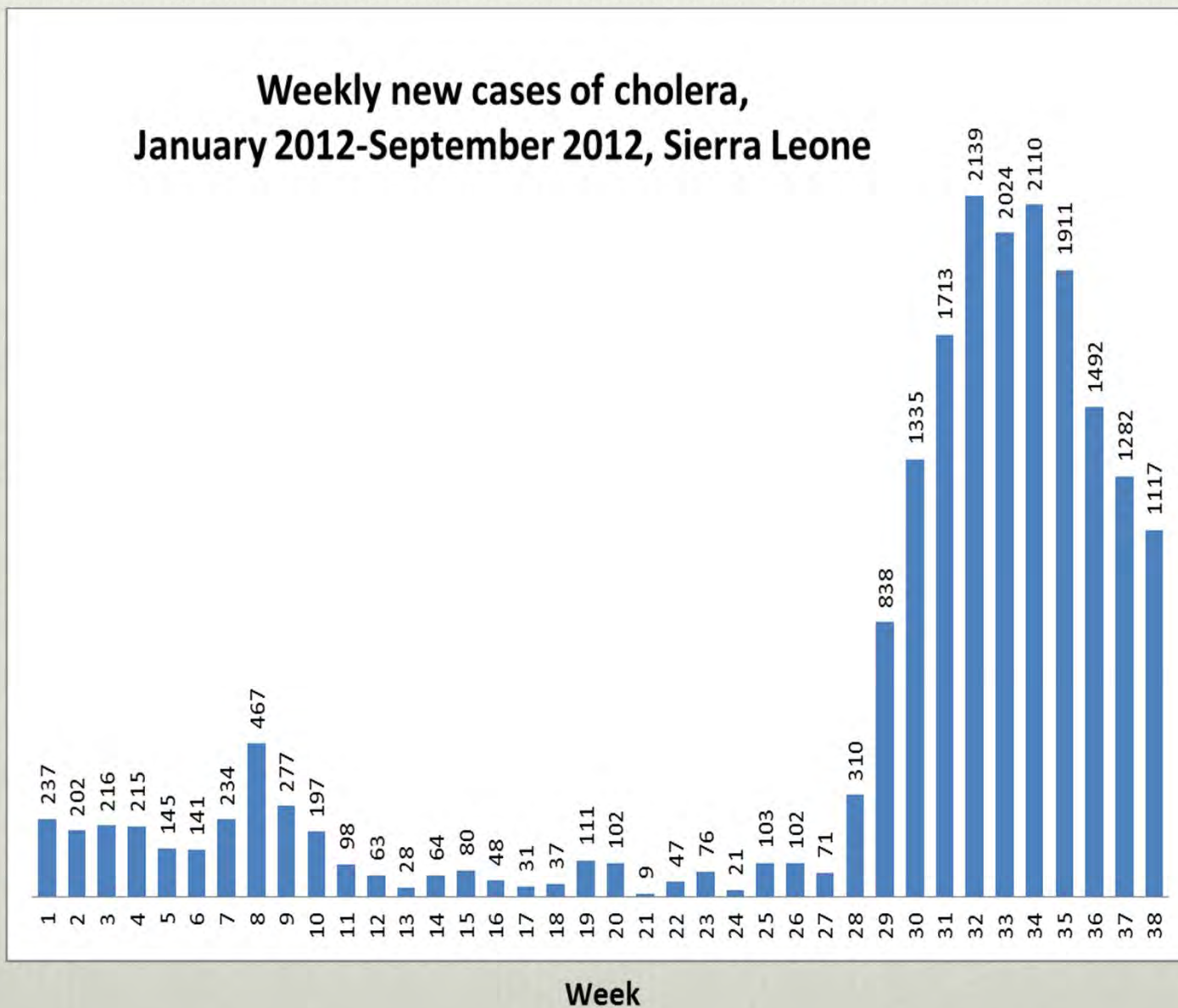
Sierra Leone: National Trend Weeks 1 to 33, 2012



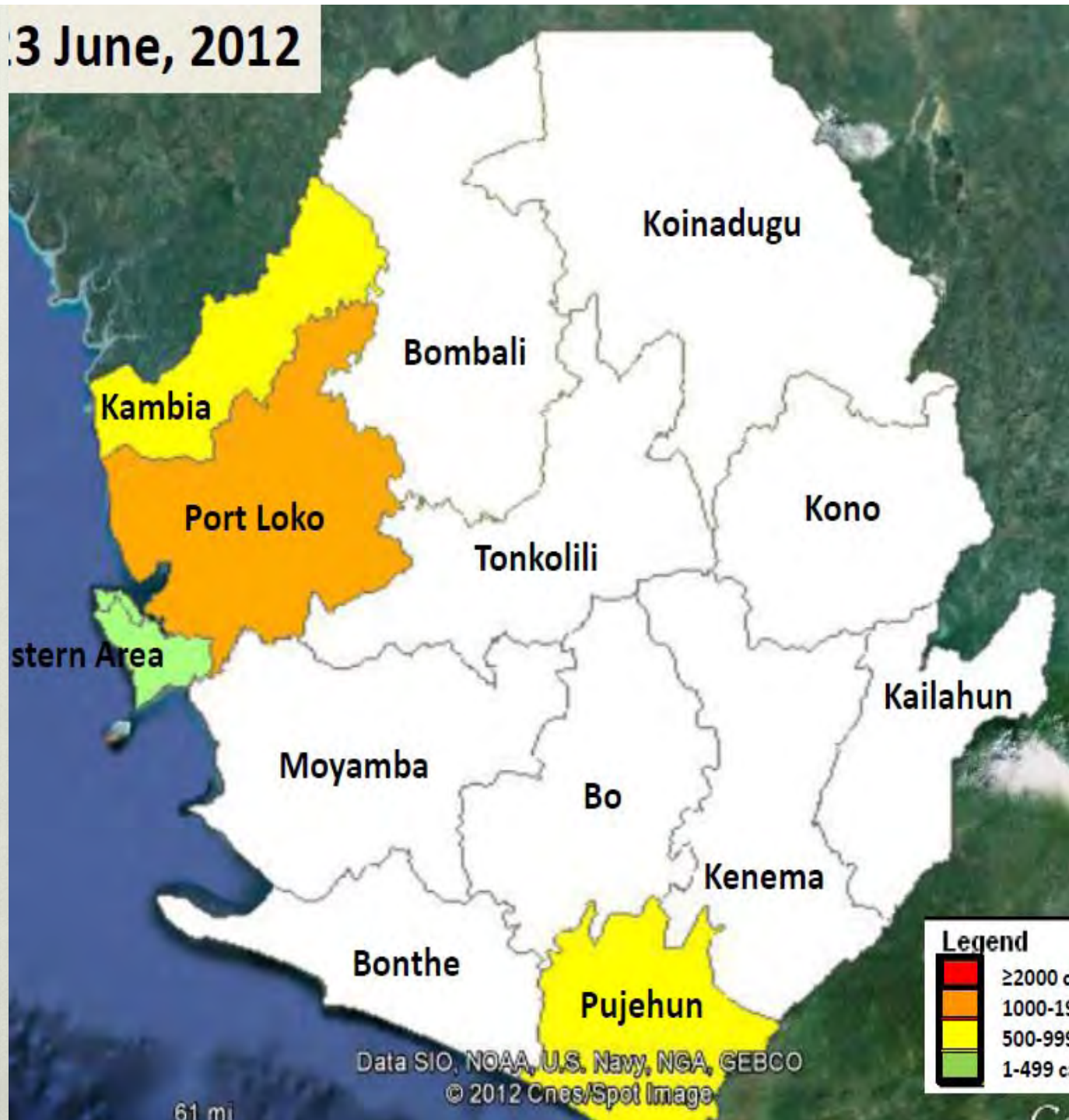
Cholera in Sierra Leone to Week 38

Number of cases

Weekly new cases of cholera,
January 2012-September 2012, Sierra Leone



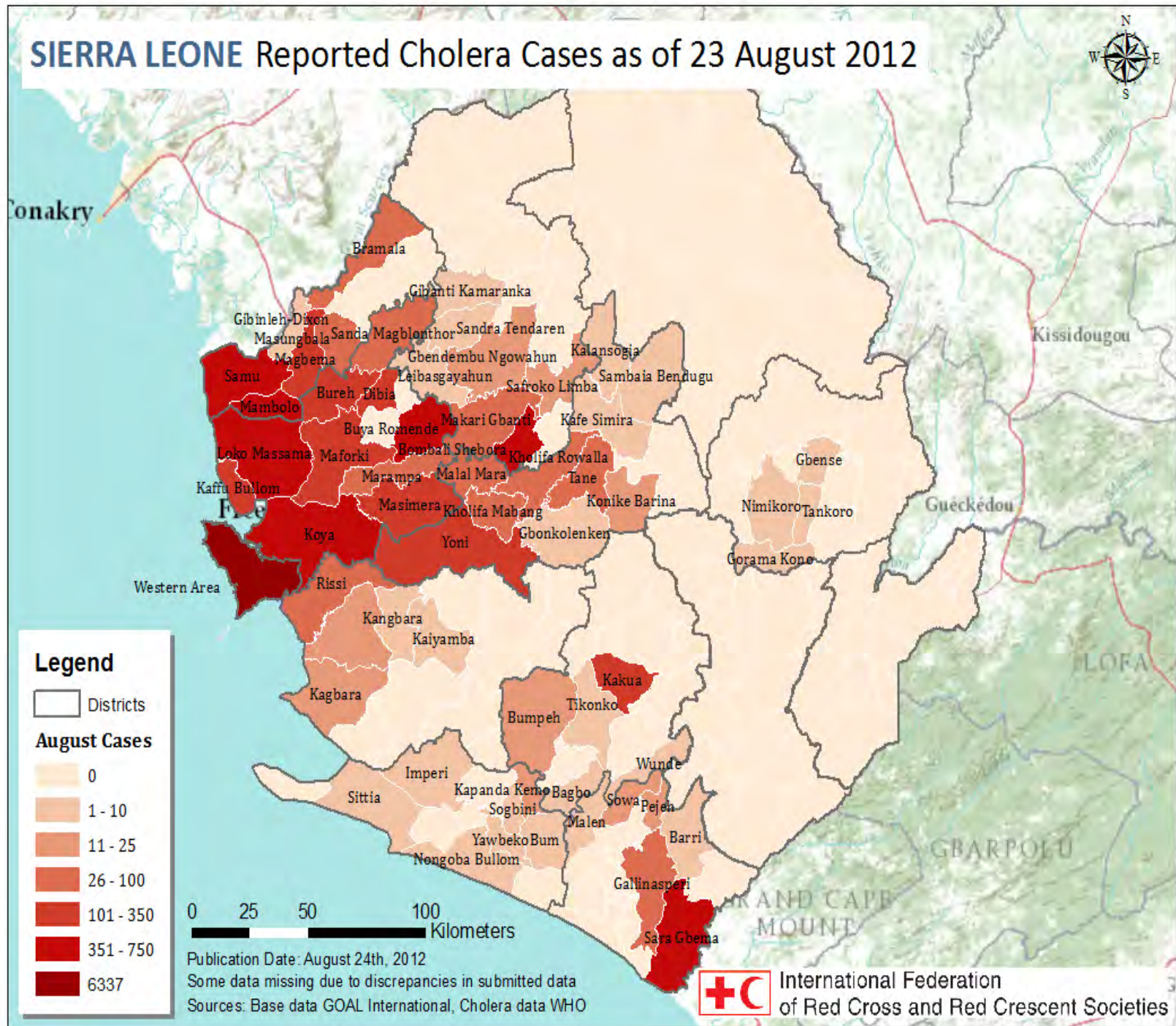
13 June, 2012



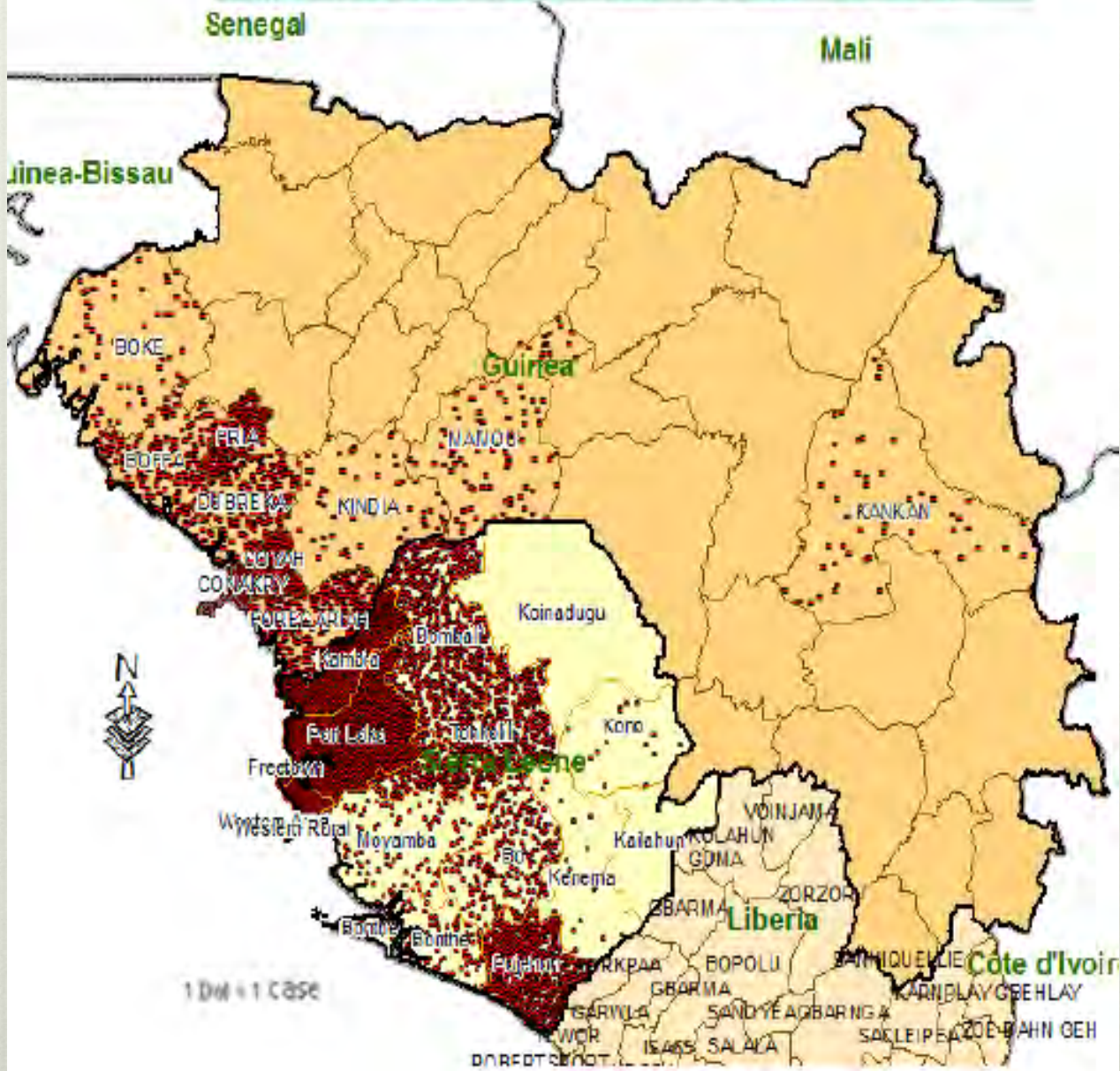
61 mi

Data SIO, NOAA, U.S. Navy, NGA, GEBCO
© 2012 Cnes/Spot Image

SIERRA LEONE Reported Cholera Cases as of 23 August 2012



Geographic distribution of cholera cases in Sierra Leone and Guinea



Sierra Leone: Cholera Attack Rates - Week 46 (as of 21 Nov 2012)



ERU Supplies



















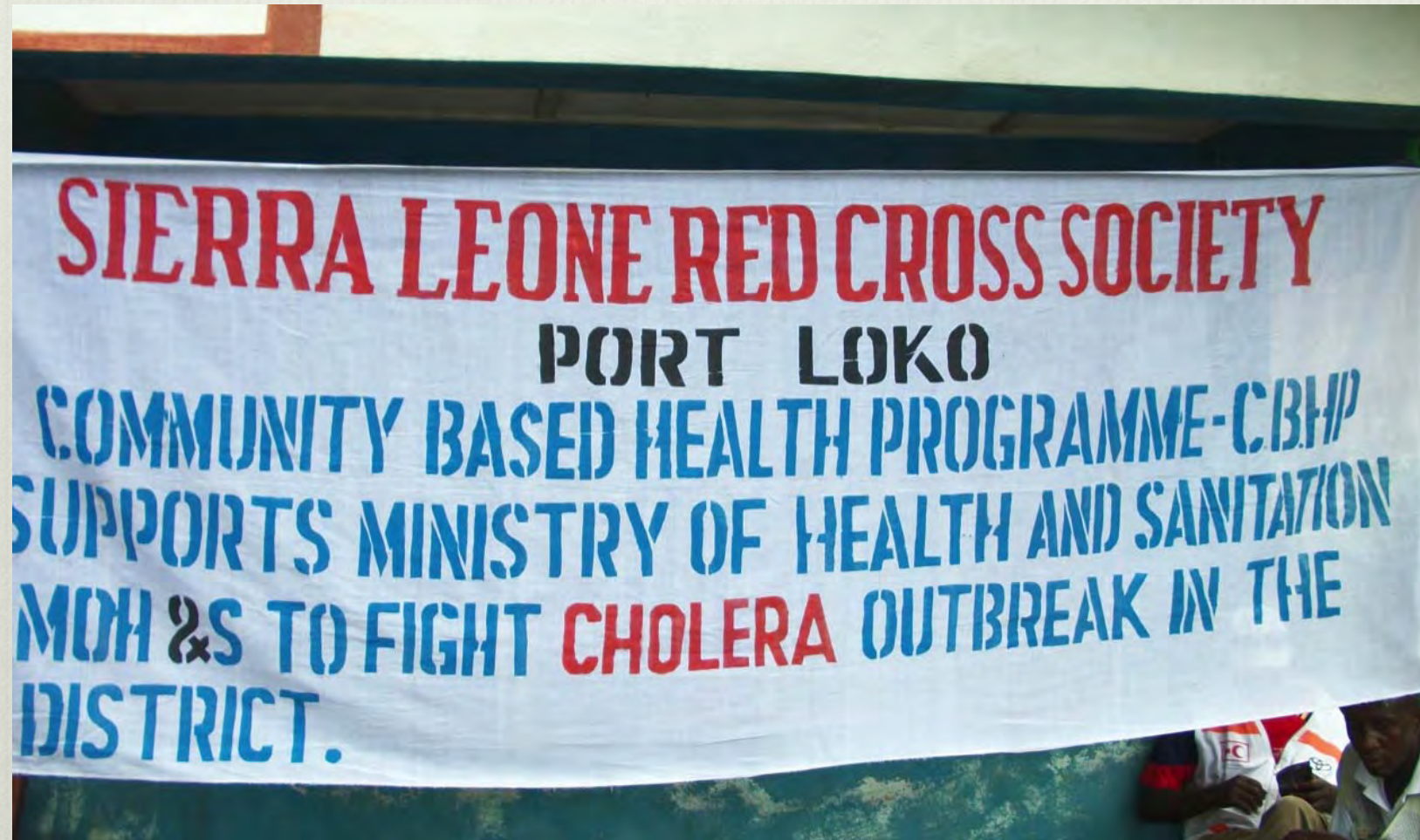








Community Based Response





ORS Kit



ORS kit



Issues

- ❖ Bleach, proper handling of dangerous chemical
- ❖ Reliance on outside help for “equipment” can foster dependence
- ❖ Boiling is easy, but fuel required

Local Red Cross Volunteers



Training Session – Port Loko





Role Play



Demonstration



6 Teaspoons Sugar, $\frac{1}{2}$ Teaspoon Salt,
3 Pints (1 litre) clean water





ORS issues

- ❖ Demonstrated to be life saving intervention
 - ❖ Bangladesh, elsewhere
- ❖ 3:8:1 vs 6:1/2:1
 - ❖ Lower osmolarity in modern ORS
- ❖ Concern about counterfeit ORS on the marketplace
- ❖ Importance of water source, volume

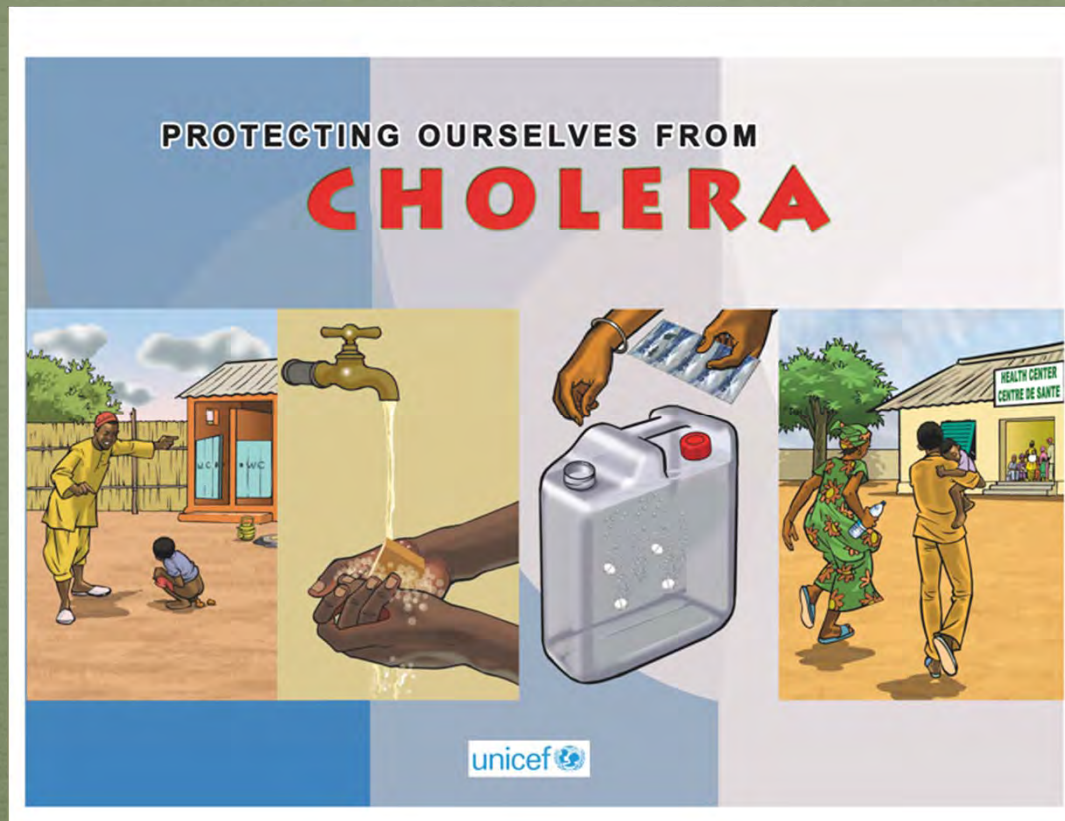
Epidemic Curve of Cholera - 5yr and above pts Aug 2012





Map of Services

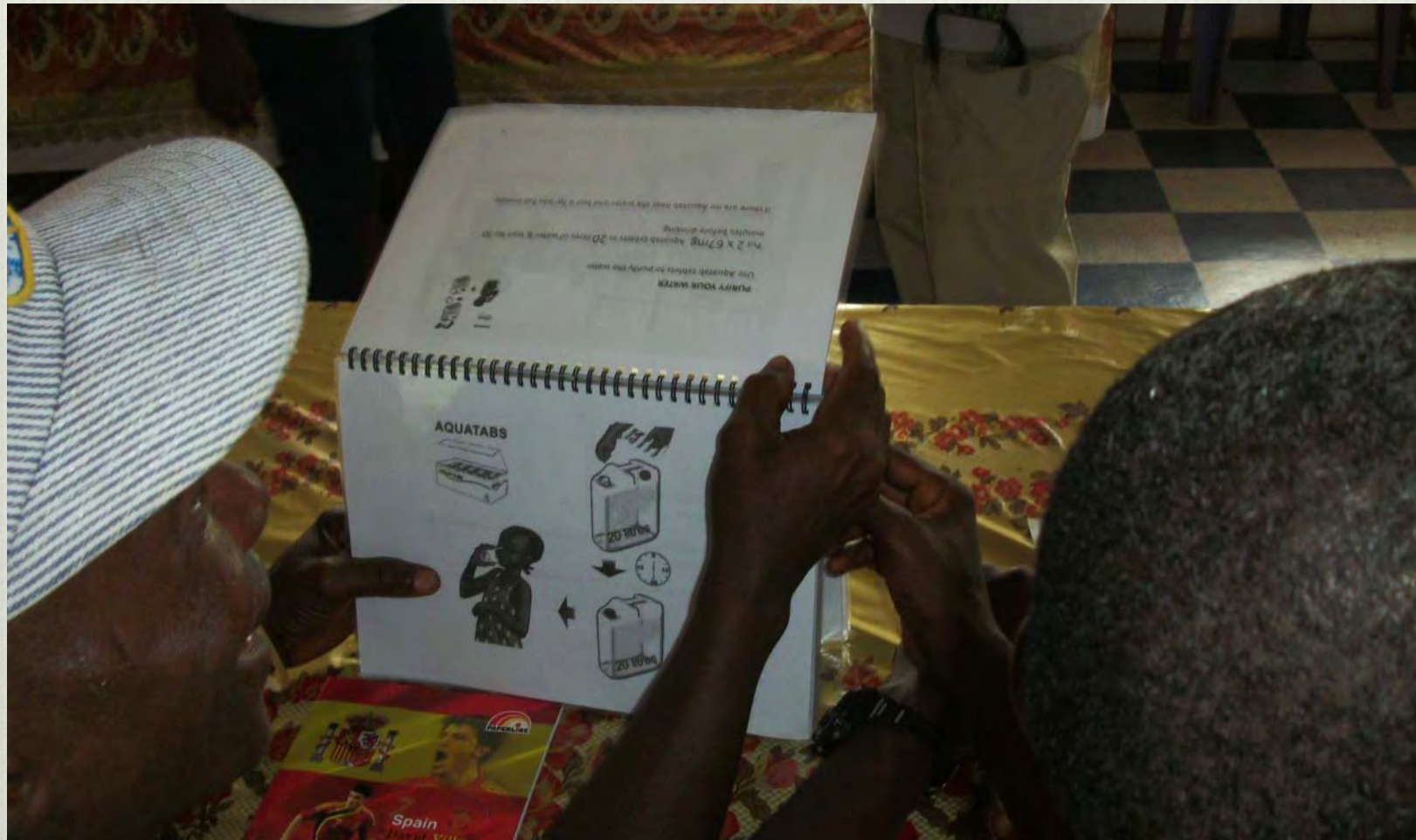




Educational Materials

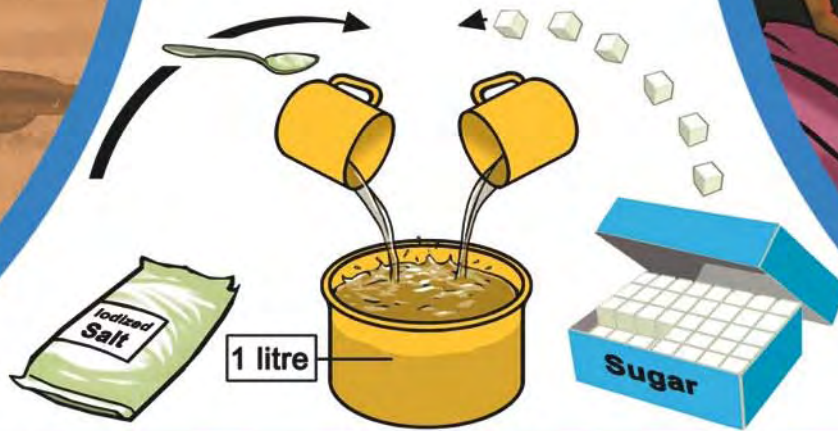
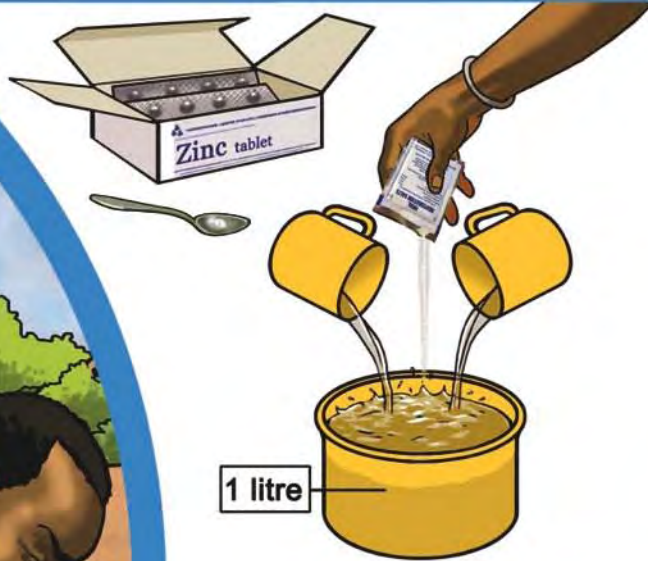


Flip charts



Issues: Literacy, Language





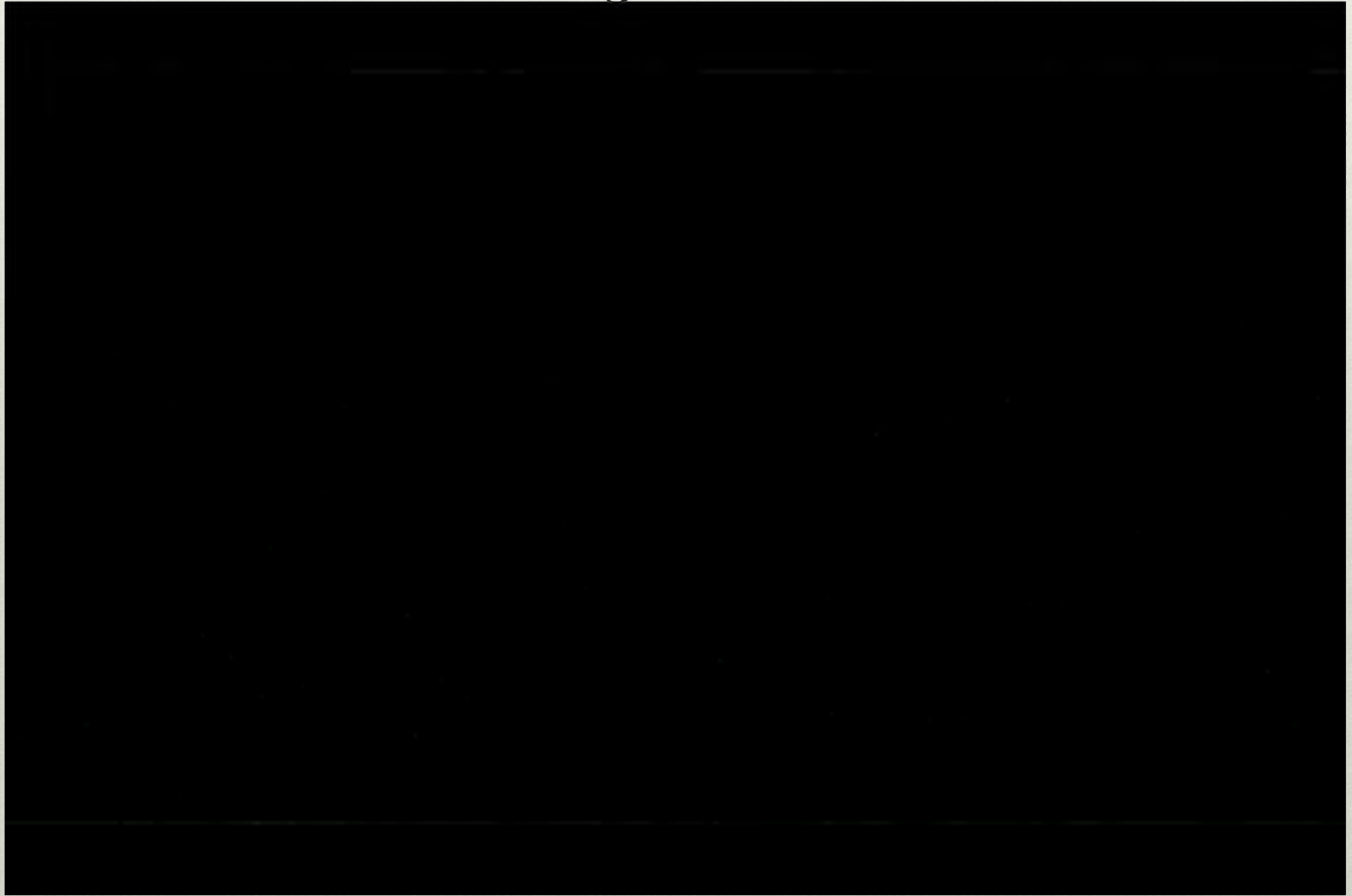




Video



The Story of Cholera

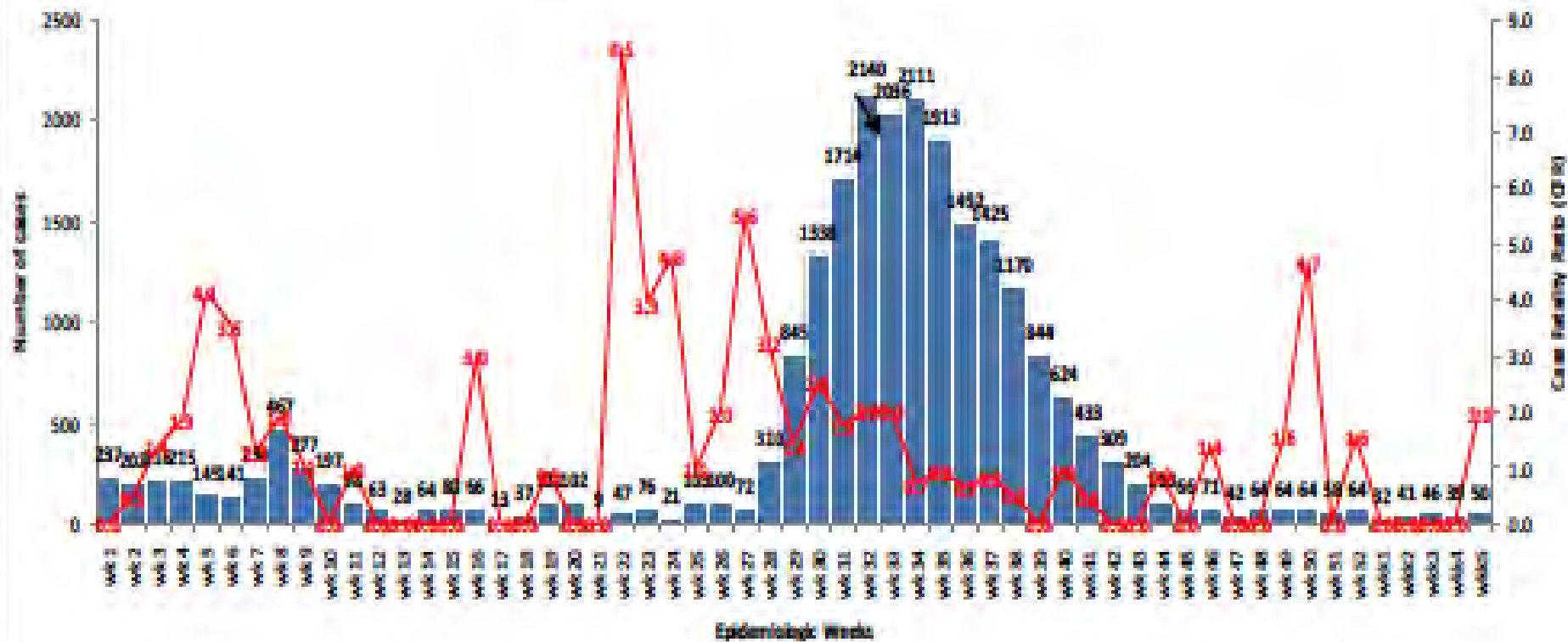




Current Status

- ❖ ERU teams in country until October 17 2012
- ❖ Reached 1,131,613 people through surveillance, health promotion and social mobilization, provision of ORS and water and sanitation hardware
- ❖ Sierra Leone Red Cross
 - ❖ 108 surveillance volunteers trained
 - ❖ 539 community volunteers
 - ❖ 419 Oral Rehydration points
- ❖ Activities on going, developing TERA SMS surveillance and communication system within the Red Cross

Sierra Leone: Cholera trends January 2012 to February 2013



Since January 2012:

- Reported Cases 23,009
- Deaths 300
- Case fatality rate 1.29/100 cases

What have we learned?

- ❖ We know how to prevent and treat cholera
- ❖ We DO need to respond in a timely manner
- ❖ A community based approach incorporating prevention messages will reach more people than a fixed site providing treatment alone

Key Messages

- ❖ Hygiene Promotion = prevention
- ❖ ORS = early treatment
- ❖ Treatment is not sophisticated but needs to be systematic
- ❖ Keep it simple, local languages, simple tools
- ❖ Build community capacity to respond to an emergency