

# Addressing the Cholera Epidemic

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# Outline of Presentation

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- Introduction
- Past and current cholera outbreaks
- Response Measures
- Outbreak Investigation findings
- Challenges
- Key Interventions to address cholera outbreaks

# Introduction

- Cholera: an acute bacteria enteric disease caused by vibrio cholera, characterized by profuse painless watery stools
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- Transmission is oral fecal and largely associated with poor hygiene, environmental sanitation and poor communities
  - About 4 million case worldwide each year with over 100, 000 deaths
  - In 2012, all the regions in Ghana (except Upper West) were involved in a protracted Cholera outbreaks that started in December 2010
  - Cholera has become endemic in most coastal regions of Ghana: GAR,CR,WR over the years

# Cholera Epidemics-1

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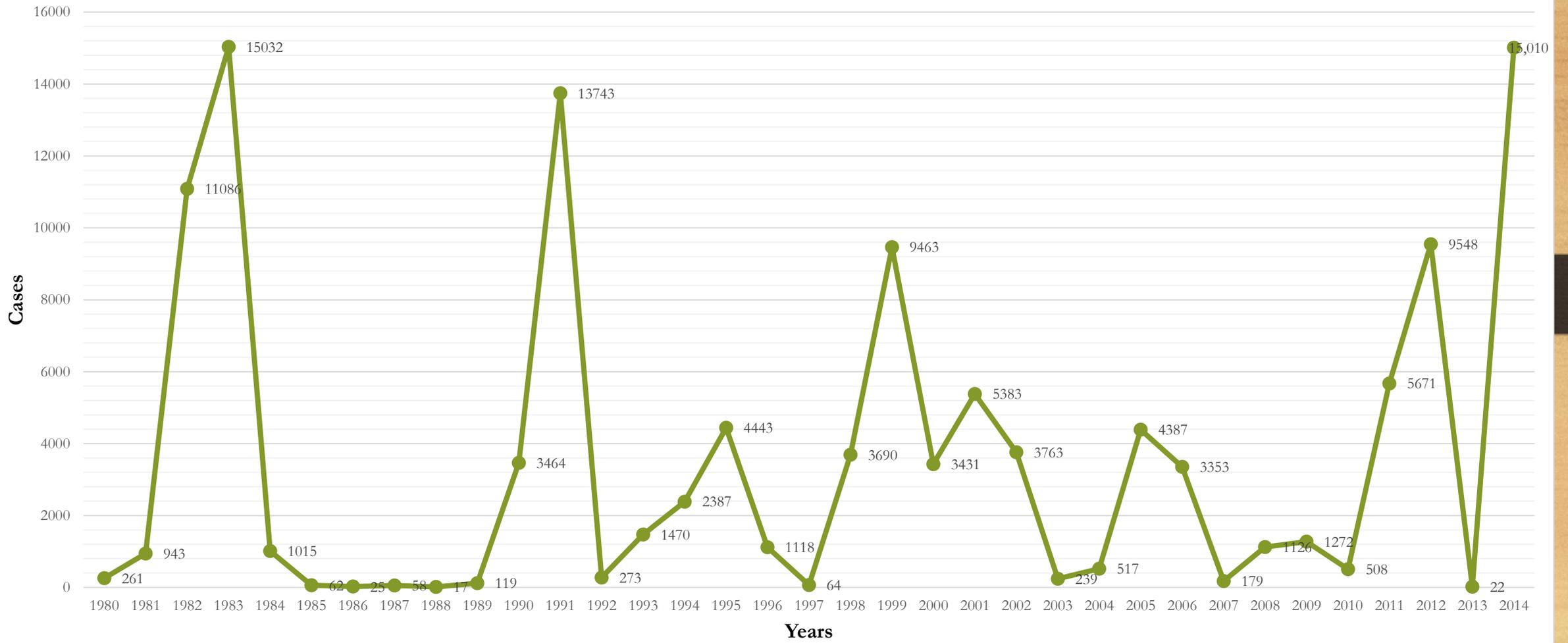
- First epidemic in Ghana in 1970/71
- Since the focal outbreaks: 4-6 years
- Recent years more frequent and protracted outbreaks

# Cholera Epidemics-2

- Several major cholera outbreaks over the past 3 decades:
- In 1982, as many as 15,032 cases (the highest number of cases recorded in a single year). Recently:
  - In 2011 → 9,174 cases were reported
  - In 2012 → total of 9,566 cases were reported
  - In 2013 → 22 cases were reported
  - In 2014 → the index case of cholera was reported on 10<sup>th</sup> June 2014 but over a period of less than 3 months, as at 14 Sept 2014, **16, 527 cases including 128 deaths (CFR: 0.8%)** have been reported from 8 out of 10 regions.

# Cholera Epidemics in Ghana: 1980 to September 2014

## Annual Trend Of Cholera Cases, Ghana



# Current Cholera Outbreak in Ghana

- The current ongoing outbreak which started in early June 2014 in the Accra Metropolis with 6 cases and no death has rapidly escalated reaching alarming magnitude of **16,527** cases including **128** deaths (Case fatality rate of 0.8%) as of 14 September 2014
- The outbreak has spread to 91 districts in 8 out of the 10 regions in the country
- No cases reported from 2 northern regions: UWR and NR

# Current Outbreak: Burden/Case load

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- As of 14 September 2014 cumulatively 15,010 cases including 127 deaths (Case fatality rate of 0.8%)
- From 76 districts in 8 regions of Ghana
- Most affected Region- Greater Accra Region

# Epidemiological linkages to other regions -1/2

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## **Kasoa in CR**

- Shares borders with GAR. People commute daily between Accra and Kasoa

## **Konongo-Asante-Akim Central in Ashanti region**

- A passenger travelling from Accra to Kumasi had to stop at Konongo because of diarrhoea and was admitted to the Konongo hospital

# Epidemiological Linkage to other Regions 2/2

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## **Sekondi-Takoradi in WR**

- The case attended a meeting in Accra and came down with diarrhoea and vomiting on his return to Sekondi

## **Nkoranza in Brong Ahafo region**

- All the 4 cases lived in a Kiosk at Lapaz a suburb of Accra. One of them had diarrhoea and decided to travel to his hometown at Nkoranza for treatment. The others experienced the symptoms of cholera and also travelled to Nkoranza when they were treated and discharged

## Cholera Cases and Deaths by Region, Ghana 14.09.14

<b>Region</b>	<b>Cases</b>	<b>Deaths</b>	<b>CFR (%)</b>	<b>No. of Districts</b>
Ashanti	160	2	1.3	25
Brong-Ahafo	47	1	2.1	10
Central	1024	21	2.1	12
Eastern	845	4	0.5	15
Greater Accra	12,120	97	0.7	15
Northern	0	0	0.0	0
Upper East	1	0	0.0	1
Upper West	0	0	0.0	0
Volta	237	6	1.3	5
Western	93	0	0.0	8
<b>Total (Ghana)</b>	<b>16,527</b>	<b>127</b>	<b>0.8</b>	<b>91</b>

## Cholera Cases and Deaths by District, Ghana 31.08.14

Region	District	Population	Cases	Deaths	Attack Rate per 100,000	Case Fatality Rate (%)
Ashanti	Adansi South	124,978	5	1	4.0	20.00
Ashanti	Ahafo-Ano South	131,782	1	0	0.8	0.00
Ashanti	Amansie Central	98,291	5	0	5.1	0.00
Ashanti	Asante-Akim Central	70,105	3	0	4.3	0.00
Ashanti	Asante-Akim North	82,296	2	0	2.4	0.00
Ashanti	Asante-Akim South	127,001	2	0	1.6	0.00
Ashanti	Atwima-Kwanwoma	98,175	2	0	2.0	0.00
Ashanti	Bekwai	127,844	3	0	2.3	0.00
Ashanti	Bosome-Freho	65,422	1	0	1.5	0.00
Ashanti	Bosomtwe	101,724	2	0	2.0	0.00
Ashanti	Ejisu-Juaben	155,724	1	0	0.6	0.00
Ashanti	Kumasi	1,923,688	13	0	0.7	0.00
Ashanti	Kwabre	125,171	3	0	2.4	0.00
Ashanti	Obuasi	182,673	2	0	1.1	0.00
Ashanti	Sekyere South	101,831	1	0	1.0	0.00
Brong Ahafo	Nkoranza South	108,055	4	0	3.7	0.00
Central	Abura-Asebu-Kwamankese	128,425	31	2	24.1	6.45
Central	Agona West	126,422	163	3	128.9	1.84
Central	Asikuma-Odoben-Brakwa	123,516	8	0	6.5	0.00
Central	Awutu-Senya East	111,355	174	3	156.3	1.72

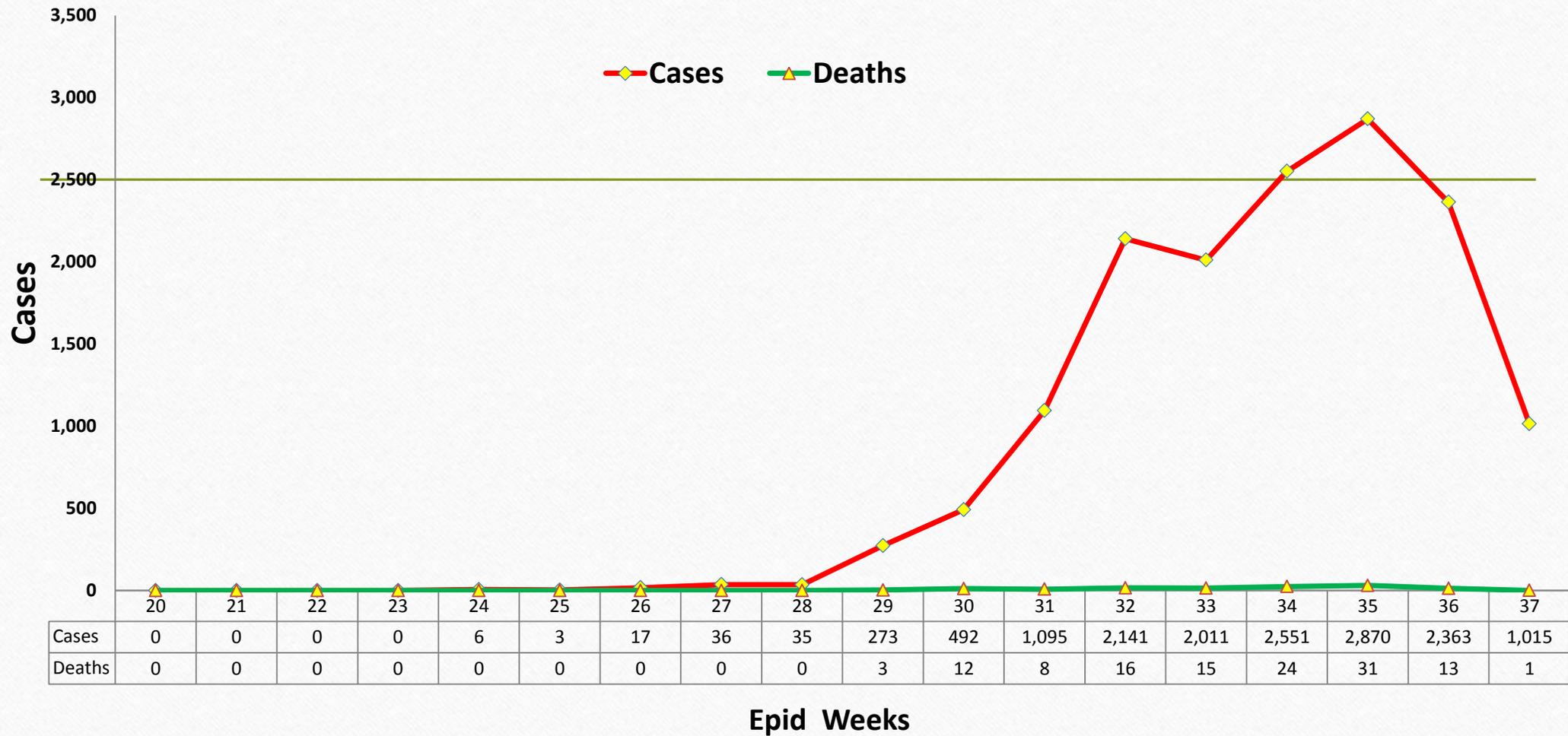
# Cholera Cases and Deaths by District, Ghana 31.08.14

Region	District	Population	Cases	Deaths	Attack Rate per 100,000	Case Fatality Rate (%)
Central	Cape Coast	186,189	27	0	14.5	0.00
Central	Efutu	75,176	36	0	47.9	0.00
Central	Ekumfi	65,617	39	1	59.4	2.56
Central	Gomoa East	226,932	13	1	5.7	7.69
Central	Gomoa West	148,155	6	1	4.0	16.67
Central	Komenda-Edina-Eguafo-Abirem	158,584	3	0	1.9	0.00
Central	Mfantseman	149,799	40	0	26.7	0.00
Eastern	Akwapim North	145263	114	0	78.5	0.00
Eastern	Denkyemba	83845	1	0	1.2	0.00
Eastern	Fanteakwa	115601	10	0	8.7	0.00
Eastern	Kwahu East	82087	1	0	1.2	0.00
Eastern	Kwahu West	99604	30	0	30.1	0.00
Eastern	Lower Manya-Krobo	94987	22	0	23.2	0.00
Eastern	New Juaben	195547	41	0	21.0	0.00
Eastern	Nsawam-Adoagyiri	75470	238	0	315.4	0.00
Eastern	Upper Manya-Krobo	76730	5	0	6.5	0.00
Eastern	West Akim	108505	29	0	26.7	0.00
Greater Accra	Accra	1,801,705	4734	37	262.8	0.78
Greater Accra	Ada East	81,005	11	0	13.6	0.00
Greater Accra	Adentan	85,717	7	0	8.2	0.00
Greater Accra	Ashaiman	209,289	35	0	16.7	0.00

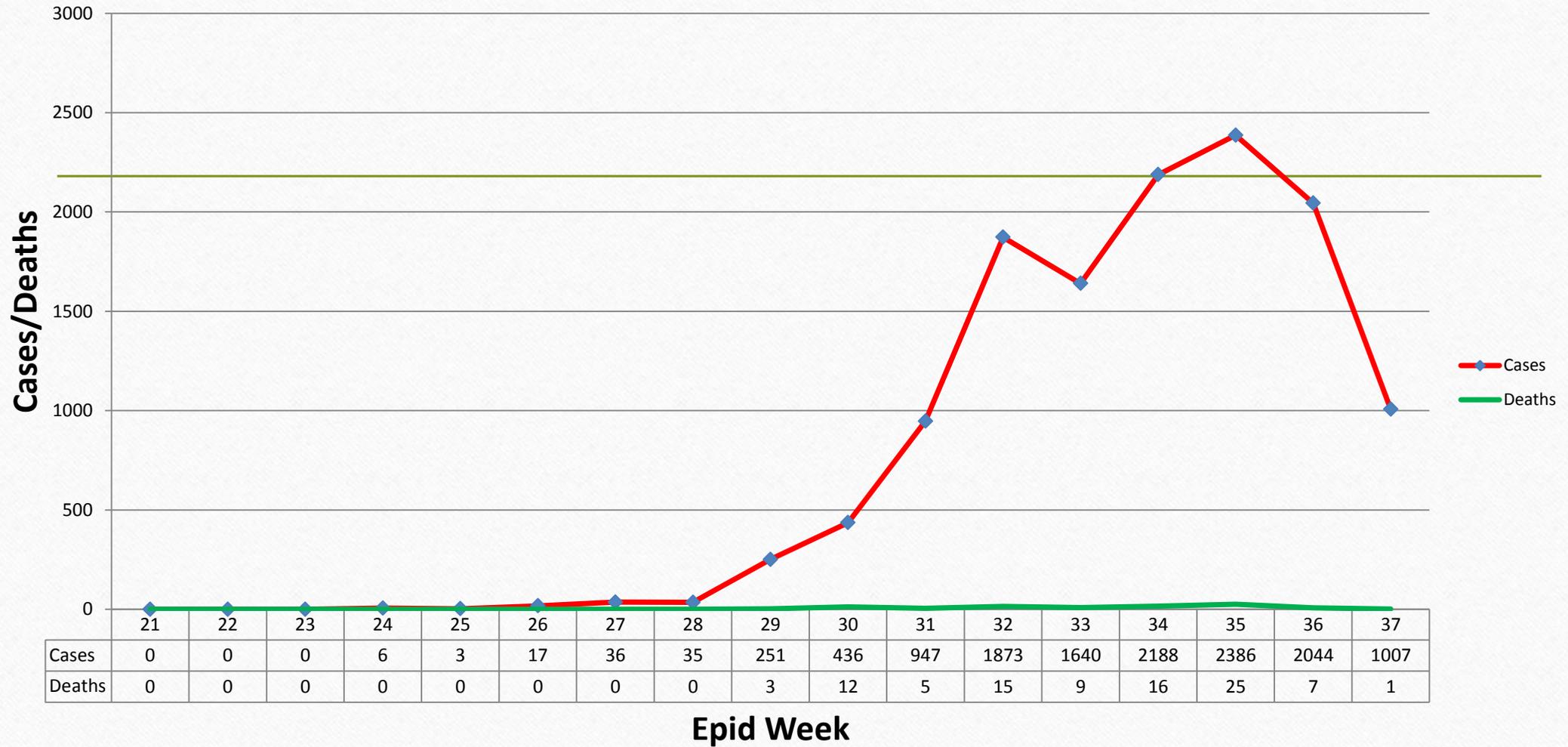
# Cholera Cases and Deaths by District, Ghana 31.08.14

Region	District	Population	Cases	Deaths	Attack Rate per 100,000	Case Fatality Rate (%)
Greater Accra	Ga Central	113,410	81	0	71.4	0.00
Greater Accra	Ga East	160,305	131	0	81.7	0.00
Greater Accra	Ga South	418,812	739	5	176.5	0.68
Greater Accra	Ga West	287,942	491	1	170.5	0.20
Greater Accra	Kpone Katamanso	105,901	63	0	59.5	0.00
Greater Accra	La Dade-Kotopon	224,215	1191	12	531.2	1.01
Greater Accra	La-Nkwantanang-Madina	124,268	381	6	306.6	1.57
Greater Accra	Ledzokuku-Krowor	249,794	475	4	190.2	0.84
Greater Accra	Ningo-Prampam	75,661	9	0	11.9	0.00
Greater Accra	Shai Osudoku	58,957	179	1	303.6	0.56
Greater Accra	Tema	335,354	497	8	148.2	1.61
Volta	Ho West	100,364	1	0	1.0	0.00
Volta	Ketu	173,117	57	3	32.9	5.26
Volta	Ketu North	107,595	10	0	9.3	0.00
Volta	Nkwanta	126,942	67	3	52.8	4.48
Western	Ahanta West	112,716	1	0	0.9	0.00
Western	Axim	64,551	4	0	6.2	0.00
Western	Ellembelle	92,857	3	0	3.2	0.00
Western	Sekondi-Takoradi	593,797	25	0	4.2	0.00
<b>Ghana</b>		<b>26,594,856</b>	<b>10,273</b>	<b>92</b>	<b>38.6</b>	<b>0.90</b>

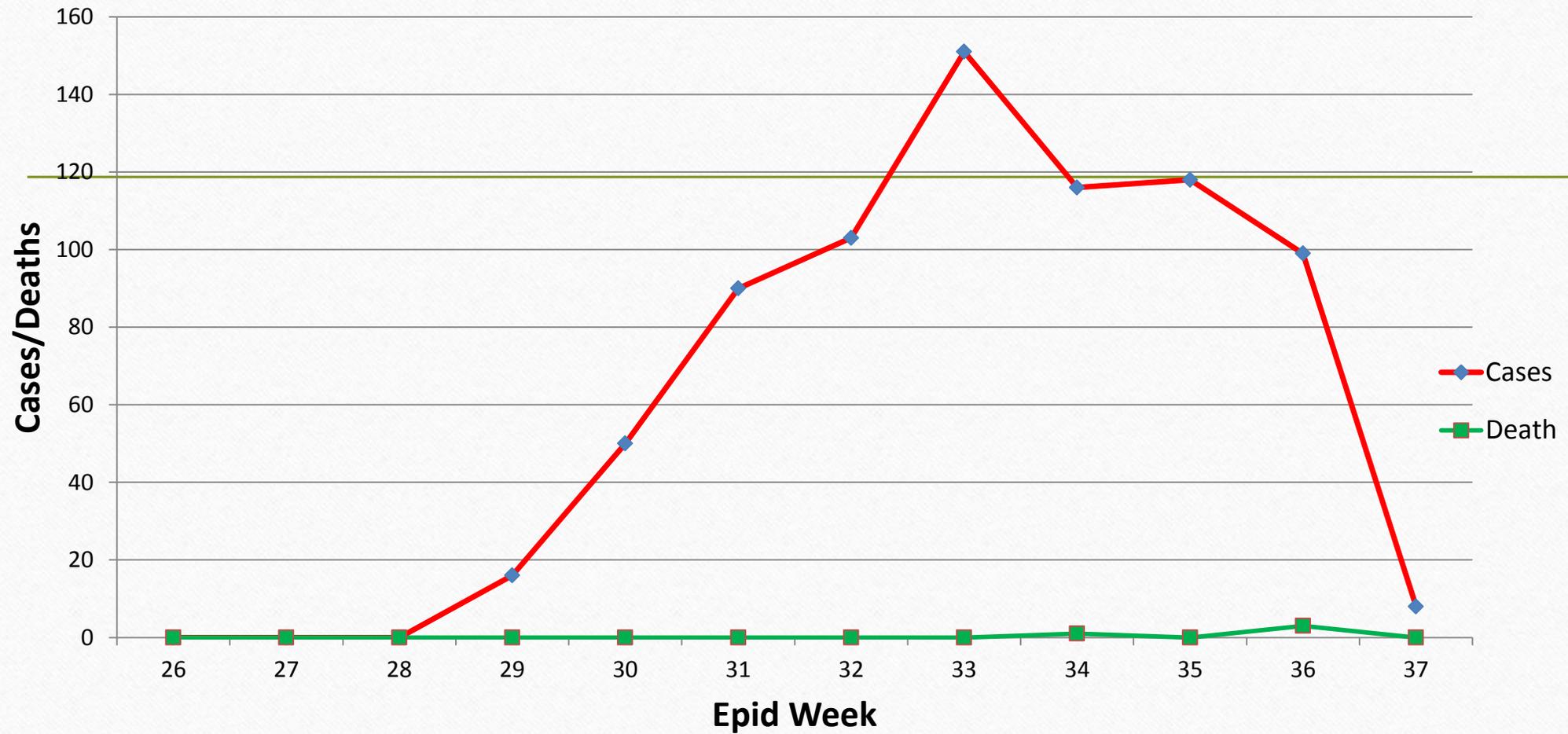
# Cholera Cases and Deaths, Ghana, Week 1-37, 2014



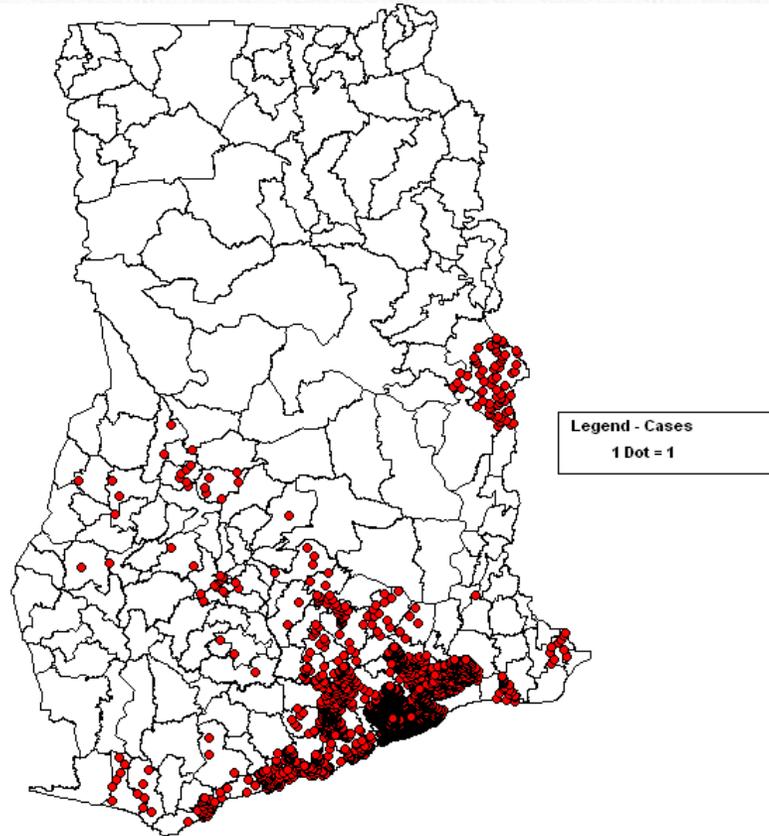
# Cholera Cases and Deaths, Greater Accra Region, Week 37, 2014



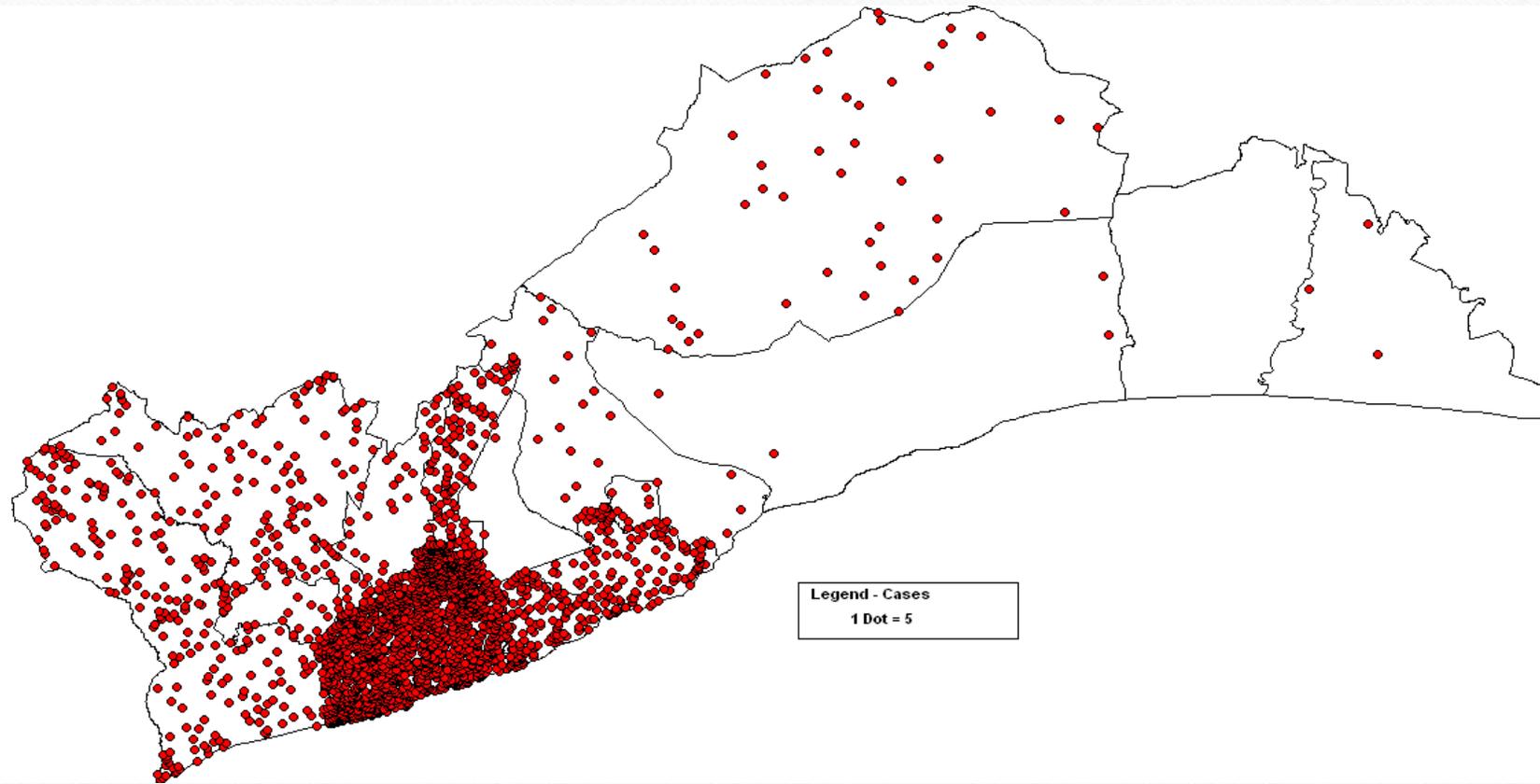
# Cholera Cases and Deaths, Eastern Region, 14.09.14



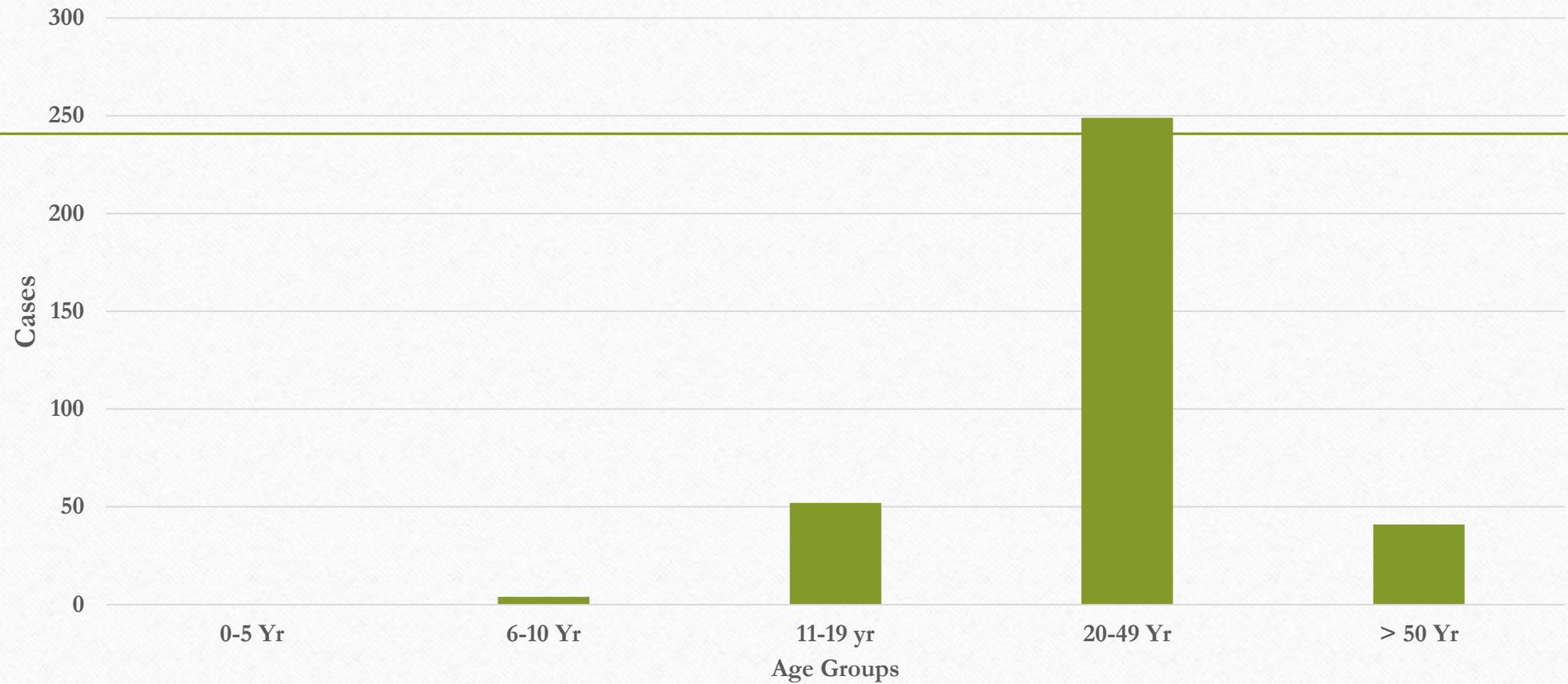
# Spot map of Cholera Cases, Ghana, 14.09.14



# Spot map of Cholera Cases, Greater Accra Region, 14.09.14



# Age Distribution, Cholera Cases, GAR; Jun-Jul 2014



# Respond Measures\_ National Level

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- Conducted support visits to the affected regions and districts
- Cholera alert has been sent to all regions and districts
- Standard Operative Procedures (SOPs) on surveillance and case management have been sent to all regions.
- Drugs and supplies dispatched to the affected region
- National Cholera Emergency Preparedness and Response Plan updated and activated
- Conducted outbreak investigation
  - Case control study

# Respond Measures\_ Regions

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- Regions have alerted all districts and asked them to intensify diarrhoea surveillance
- Press briefing has been issued to selected media houses in the region to carry out public education on prevention
- Health education has started in the affected communities and is on-going
- Cases are being managed at facilities according to national guidelines
- Contact are traced and immediate contacts given preventive treatment
- District Health Management Teams (DHMTs) are working with District Assemblies to provide education on food hygiene and sanitation issues

# Findings Case Control study

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- Cholera Cases were six (6) times more likely to have drunk street-vended sachet water (odds ratio (OR) = 6; 95% confidence interval (CI): 1.4-20.9; p-value: 0.00)
- Eating food prepared outside home especially street vended food was significantly associated with getting cholera infection [OR=5.6; CI 2.5-13.5; p-value 0.00].
- home prepared food protective against acquiring cholera [OR=0.1; 95% CI: 0.06-0.29), p value: 0.00].
- The Odds of acquiring cholera was reduced by 70%, comparing hand washing after defecating in controls to cases (OR = 0.3; 95% CI: 0.1-0.8)
- Knowledge of the mode of cholera transmission significantly reduces the risk of acquiring cholera by almost 60% (OR = 0.4; 95% CI: 0.2-0.8: p-value: 0.01).

# Environmental Risk factors 1/2



# Environmental Risk factors 2/2

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# Challenges-1/3

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Risk factors prevalent hence risk for further spread of the outbreak high:

- Street water and food vendors are a major factor for cholera spread
- Poor sanitation
- Unsafe drinking water and poor access to safe water
- Floods leading to contamination of domestic water sources
- Increased person to person transmission
- Poor personal hygiene
- Poor food hygiene
- Poor environmental sanitation

# Challenges-2/3

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- Inadequate cholera beds at the treatment centres compelling management of cases on benches, mattresses on the floor
- Inadequate cholera treatment centres
  - improvised sites were OPD, medical wards and unroofed uncompleted buildings with patients also managed on benches.
- Increased person to person
  - Persons visit their relatives and get infected

## Challenges-3/3

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- Congested Cholera Treatment Centres
- Increases person to person transmission



# Key Areas of intervention to Address the Cholera Outbreak

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- Community education and social mobilization
- Effective surveillance and Case management
- Safe Water supply to affected communities
- Adequate sanitation facilities: Liquid and Solid waste disposal
- Food hygiene

# Intervention Area-1

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- Region, Metropolitan, Municipal and Districts to step-up Multi-sectorial Public Health Emergency Management and response systems
- National/Regional/Metropolitan/District Health Directorates to provide isolation facilities, cholera beds and adhere to Case management protocols at all the health facilities.
- Increase supply to regions with cholera logistics (infusions (5:4:1); Doxycycline / Tetracycline, ORS)



# Intervention Area -2

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- Intensify Mass Community Education and social mobilization with announcements on cholera prevention in the affected areas with the following key messages:
  - Drinking of safe water-pipe water/treated water and avoid drinking of street vended sachet water
  - Preparation and consumption of food under hygienic conditions
  - Avoid eating street vended foods
  - Avoid defecating in open, use toilet facilities
  - Wash hands with soap and water after using toilet and before meals.
  - In case of acute diarrhoea, start ORS before going to H/F

# Intervention Area -3

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- Metropolitan/Municipal/District Assemblies and Food and Drugs Authority to ensure that food and water vendors provide hygienic food and water eg preparation, storage and serving.
  - Street sales stopped during the outbreak?
- Ghana water company to provide adequate water supply eg tanker supply to communities without water
- Ministry of Local Government and Food and Drugs Authority to enforce by-laws on environmental sanitation, water and food safety: target food and water vendors

# Intervention Area -4

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- Ministry of Local Government and Rural Development to ensure
  - Adequate waste management (solid and Liquid waste)
  - Establish liquid waste treatment centres
  - Inspection of sachet water producers and distributors premises for safety practices
  - Inspection of food sellers premises for adherence to food safety practices
  - Enforce by-laws on food hygiene

# Conclusion

- Cholera is becoming endemic in Ghana (2011-14) and need a global, holistic solution
- In Accra, cholera cases come from overcrowded peri-urban ghettos with poor infrastructures and hygiene conditions, inadequate environmental management and poverty (like Agbogbloshie, James Town and Glife slums)
- Overcrowded health facilities in Achimota, La Polyclinic, Korle-Bu
- Lack of hygiene, sanitation, clean water supply, domestic waste management
- Social mobilization (community awareness) is to be strengthened in peri-urban settlements
- Promote use of chlorinated water

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Let's Stop the spread of Cholera  
in our communities

**Thank you**

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