

# Epidemiological Situation of Cholera and its Response in Nepal



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# NEPAL



- Population: 28 million
- Life expectancy: 67 years (2010)
- Gross national income per capita \$1,210 (2010)
- Health Expenditure pp: US\$ 24
- Human Development Index: rank 140
- Incidence of poverty: 31%
- IMR: 46/1000 live birth (2011)
- U5MR: 54 /1000 live birth (2011)





# Nepal: Ecological Regions



# Cholera: A Public Health Problem

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- Cholera is endemic in Nepal. Epidemics in different parts of the country/years with varied morbidity and mortality
  - In Kathmandu Valley, cholera cases are reported almost every year especially during the rainy season
  - Frequent outbreaks (yearly) in other areas of the country, but sporadic
- Existing surveillance of cholera is inadequate to cover all of the districts in the country
- Cholera is a EWARS reportable disease
- Suboptimal WASH status

# Reported Clinical Cholera Cases (2011-2014)

S.N.	Region	2011		2012		2013		2014	
		n	%	n	%	n	%	n	%
		1	Eastern	2101	45.9	488	28.0	939	18.6
2	Central	825	18.0	431	24.7	2428	48.2	2616	62.7
3	Western	443	9.7	302	17.3	447	8.9	205	4.9
4	Mid –Western	863	18.9	115	6.6	525	10.4	54	1.3
5	Far – Western	345	7.5	408	23.4	703	13.9	471	11.3
	National	<b>4577</b>		<b>1744</b>		<b>5042</b>		<b>4170</b>	

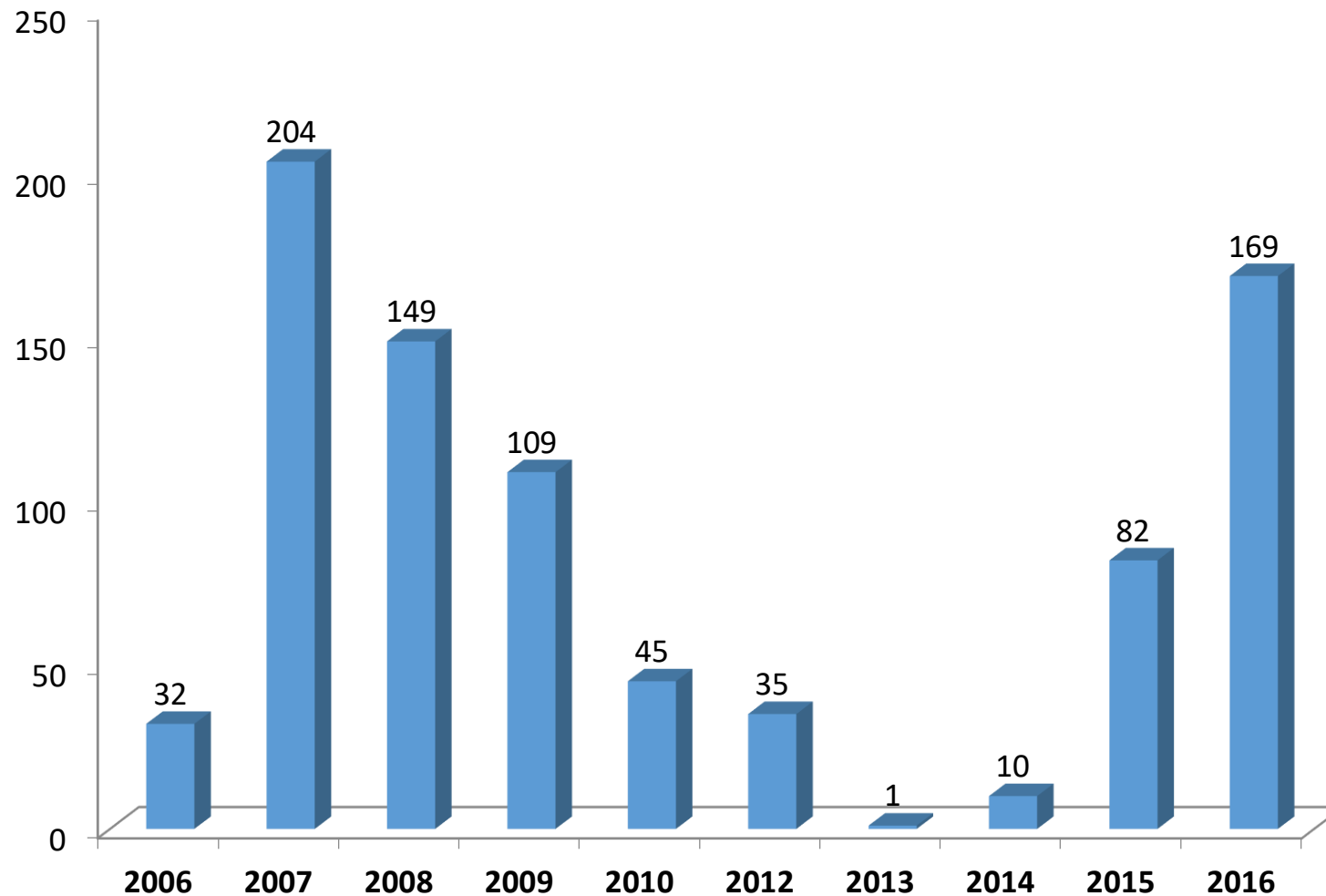
Source: HMIS, DoHS

# Number of Cholera Outbreaks in Nepal

SN	Year	Region	Reporting sites /districts	Laboratory Confirmed Cases
1	2009	Mid/Far Western	NPHL	109
2	2010	Mid Western/ Western	NPHL	61
3	2011	Central	Dhulikhel Hospital	1
4	2012	Western/Eastern/ Central	BPKIHS	35
5	2013	Central	Nepal Medical College, KIST Medical College	4
6	2014	Central	Rautahat	600
7	2015	Central	Kathmandu	80
8	2016	Central	Kathmandu valley and Saptari, Sarlahi	169

Source: National Public Health Laboratory(NPHL)

# Distribution of Vibrio isolates from AMR network: 2006-2016

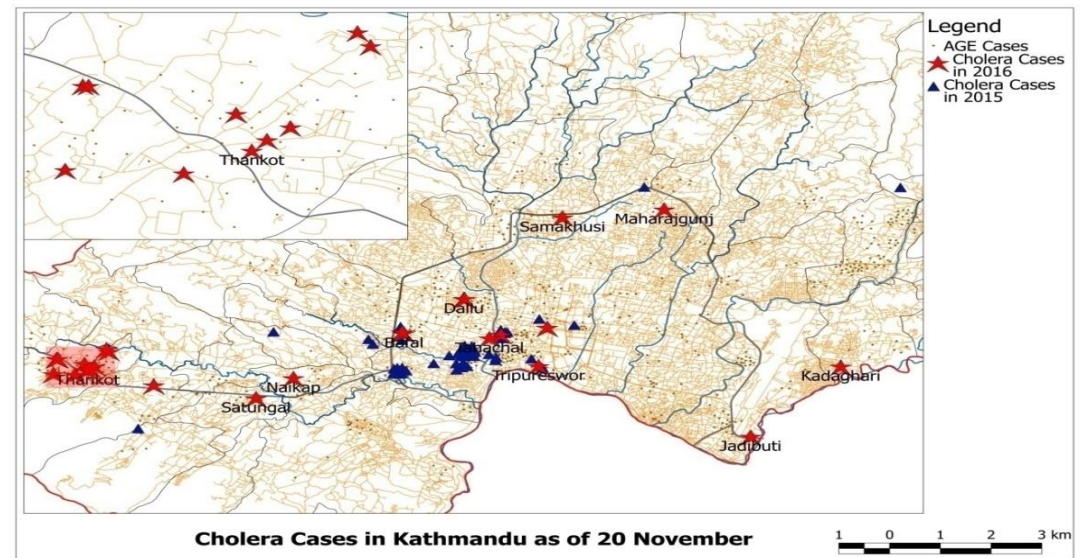
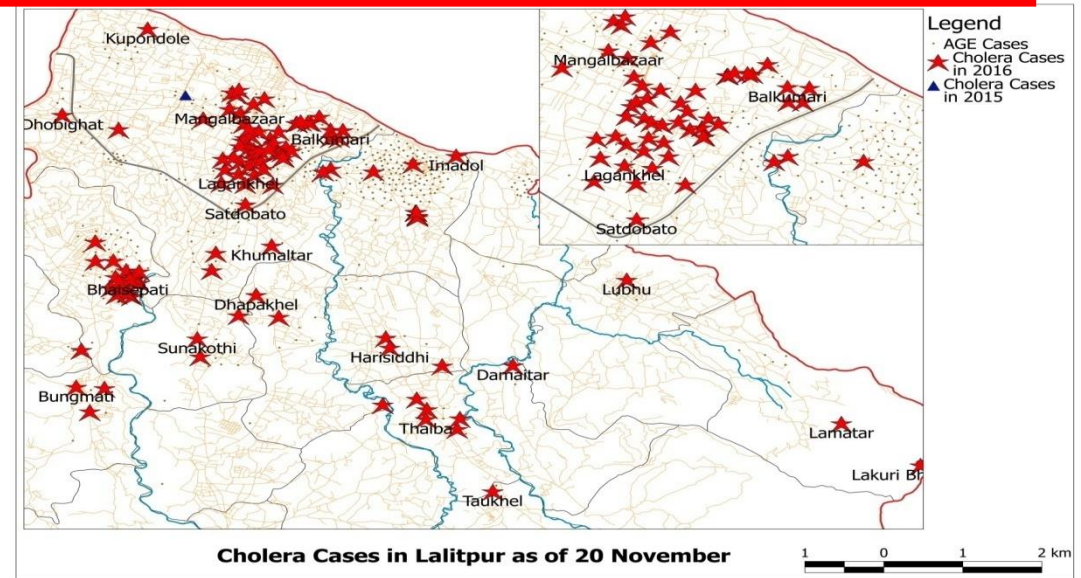


## 8 diseases are under AMR surveillance

1. ***Vibrio cholerae***
2. *Shigella* species
3. *Streptococcus pneumoniae*
4. *Haemophilus influenzae*
5. *Neisseria gonorrhoeae*
6. *Salmonella* species (included since 2002)
7. ESBL *E. coli* (included since 2009)
8. Methicillin Resistant *Staphylococcus aureus* (included since 2013)

# Cholera Situation in Kathmandu Valley, 2016

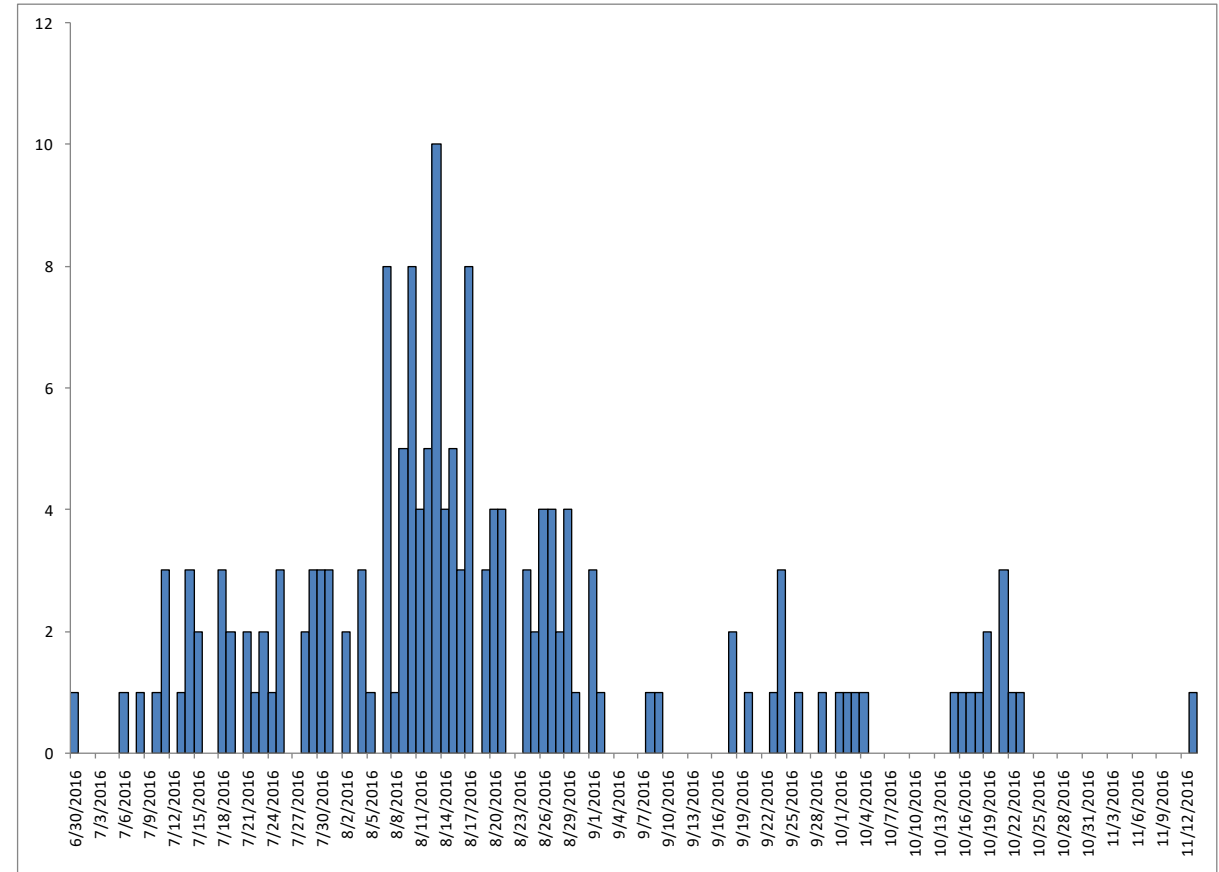
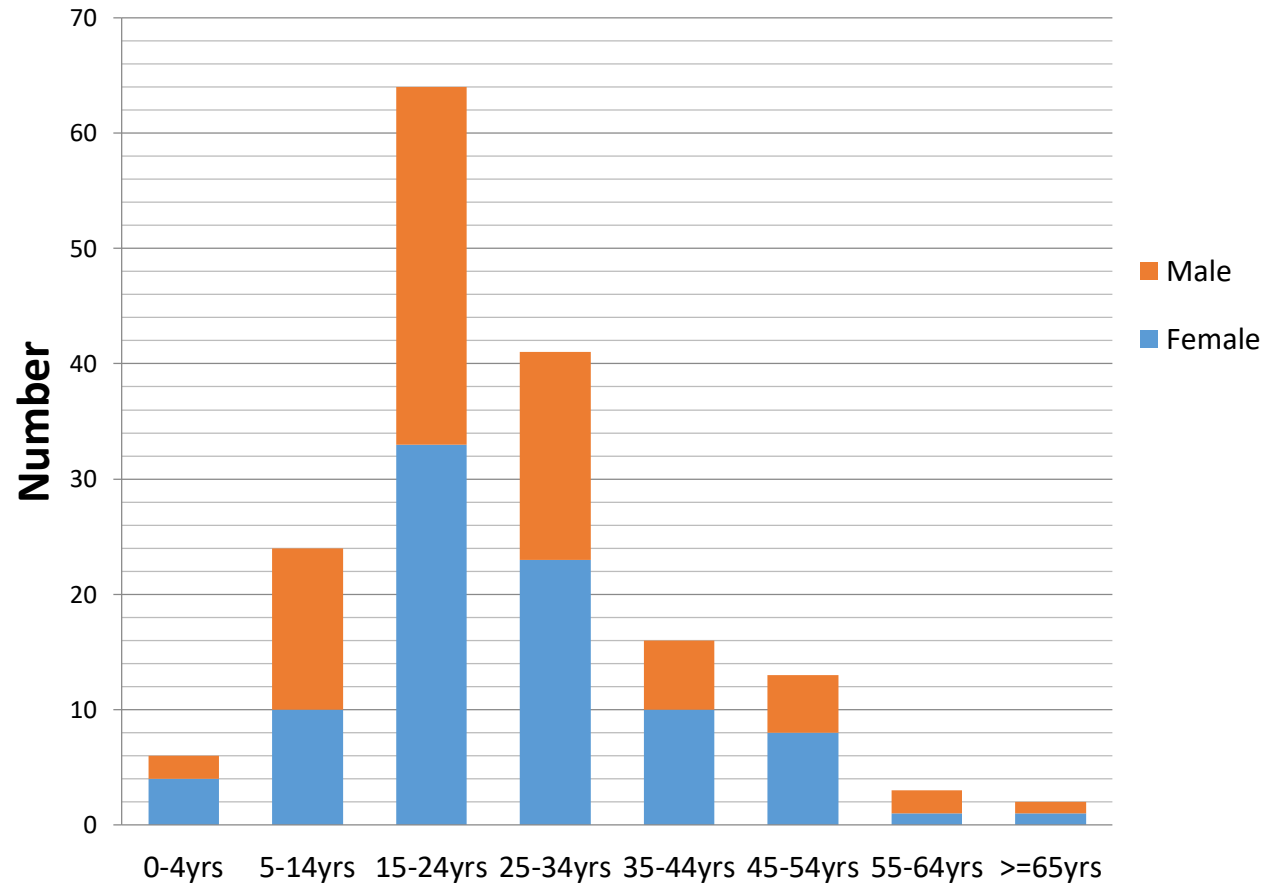
- First case confirmed on: **30<sup>th</sup> June**
- Last case confirmed on : **16<sup>th</sup> Nov**
- Cumulative cholera cases : **169**  
(119: Lalitpur, 31 Kathmandu,  
1 Bhaktapur, 1 Kavre, 6 Dhading,  
3 Saptari, 8 Unknown)
- **No deaths reported**



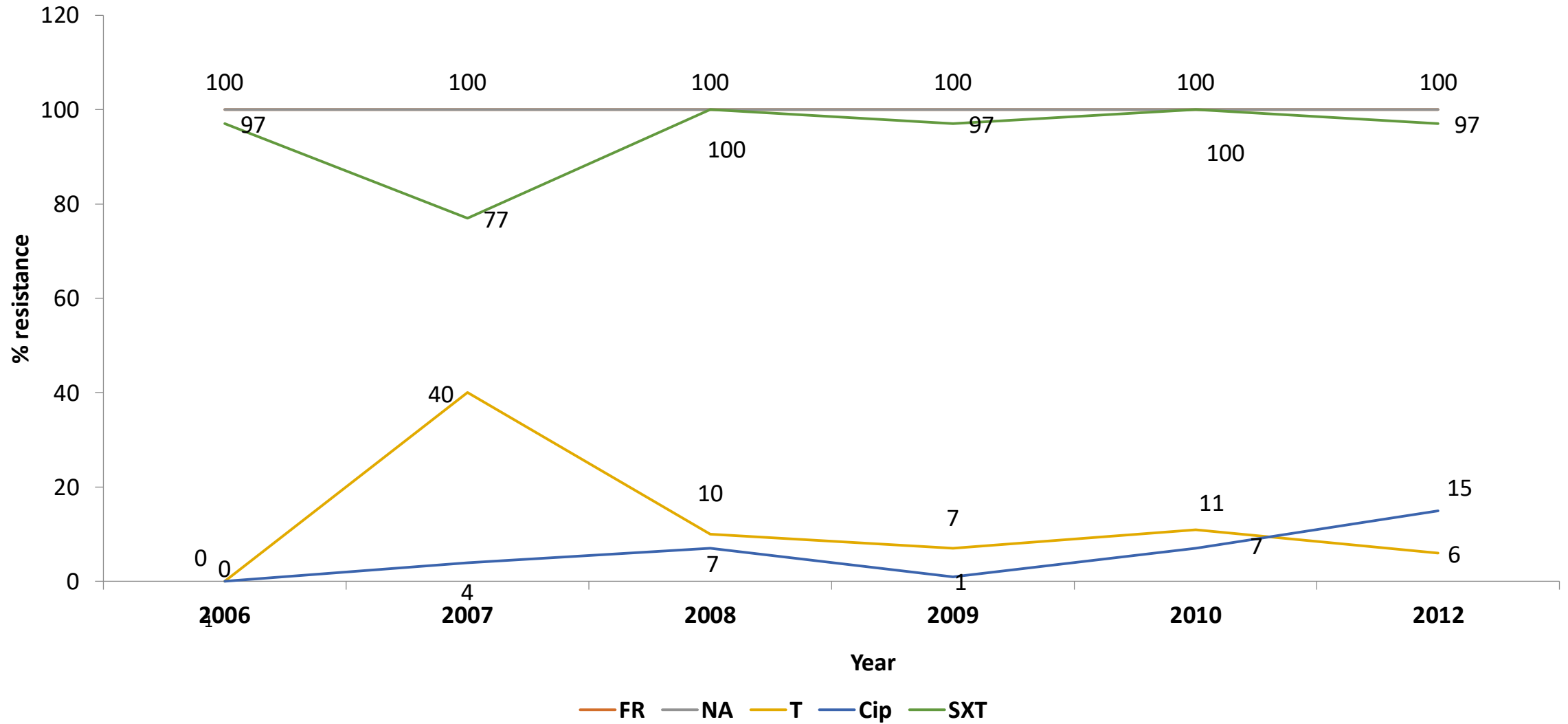


# Age and sex wise distribution cases

# Epi-curve of cases from 30 June to 12 Dec 2016 (N=169)



# AMR of *Vibrio cholerae* various antimicrobials (2006-2012)

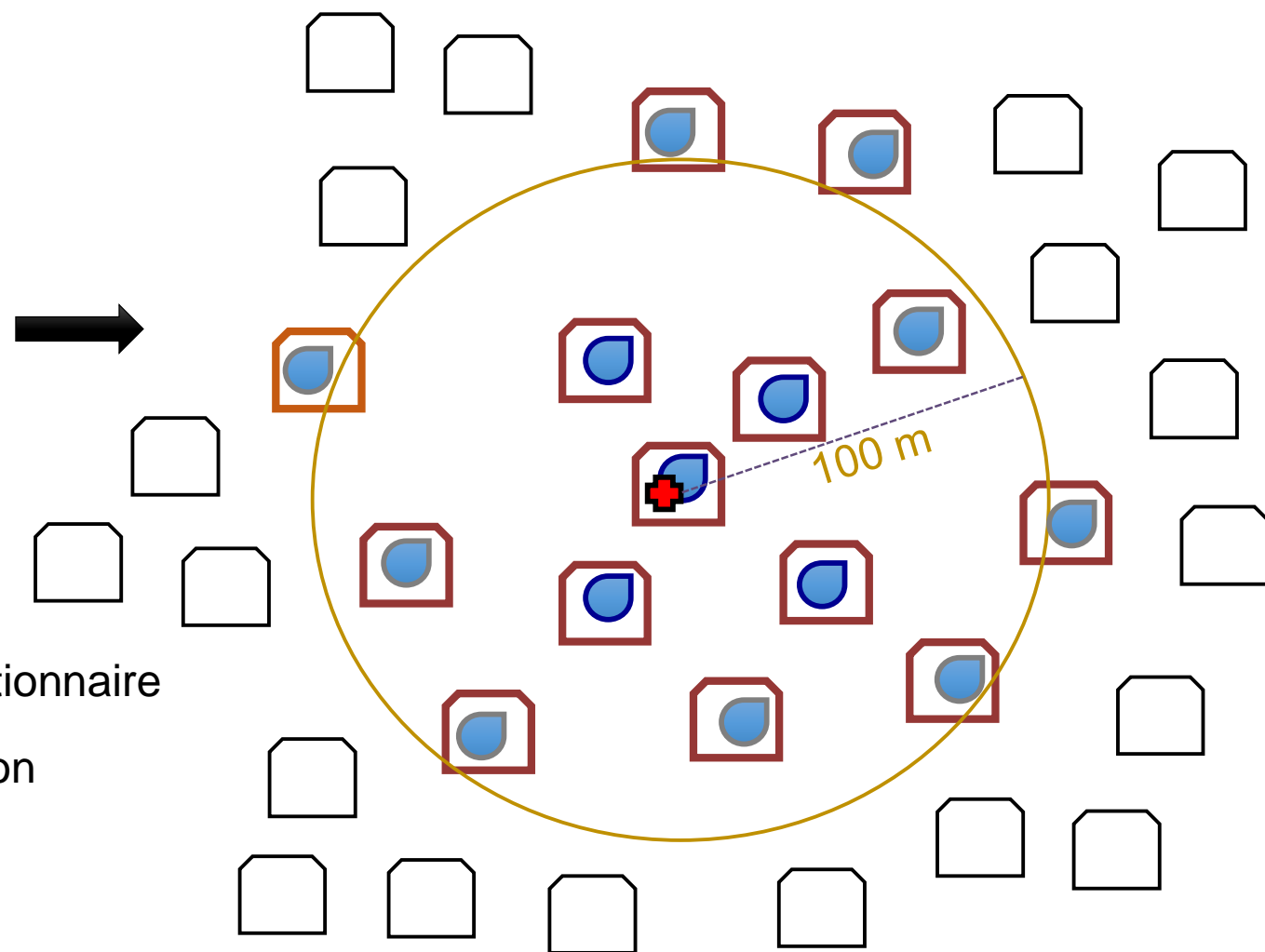
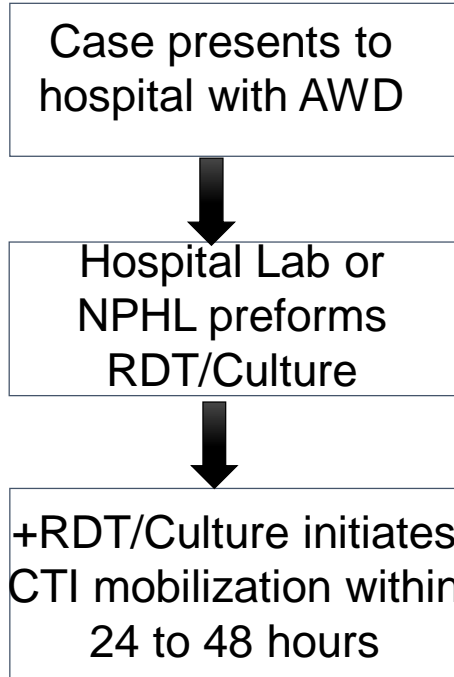


# Cholera Response

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- Epidemiology and Disease Control Division (EDCD) implemented the Comprehensive Targeted Interventions (CTI) to Control Cholera in Kathmandu Valley
- CTI components are enhanced surveillance, laboratory diagnosis, field investigation, WASH and OCV vaccination.
- More than 700 volunteers were mobilized
- Activities include health education messaging, distribution of Chlorine solution (*Piyush*) for water disinfection, water testing, surveys, and miking

# CTI Ring Strategy



- ⊕ Index case/Questionnaire
- WASH Intervention
- Optional WASH
- Vaccine
- OCV / Health Education Ring

**Desired outcome:** Rapid response delivered to those at highest risk will prevent spread of outbreak

# Door to Door Awareness Campaign

## Orientation and IEC materials distribution

- Point of use water treatment
- Handwashing at critical times
- Food hygiene
- Personal hygiene



**जन्डिस, आउँ, काडापखाला तथा हैजा जस्ता पानी जन्य रोगबाट बच्ने मुख्य उपायहरू**

**सधै चर्पीको प्रयोग गर्ने**

सधै चर्पीमा मात्र दिसा पिसाब गर्नु पर्दछ ।  
चर्पी सधै सफा सुग्घर राख्नु पर्दछ । यसो गर्नाले दिसा-पिसाब र फोहरका कारणले लाग्ने रोगहरूबाट बच्न सकिन्छ ।

**साबुन पानीले हात धुने**

अगाडिका तीन अवस्थाहरूः

- खाना खानु अघि
- बच्चालाई खाना खुवाउनु अघि
- खाना पकाउनु वा खुवाउनुअघि

पछाडिका तीन अवस्थाहरूः

- दिसा धोइसकेपछि
- बच्चाको दिसा धोइदिएपछि
- फोहर छोएपछि

**पानी शुद्धिकरण गरेर पिउने**

**उमाल्ने**

- पानीलाई एक भुल्को उमालेर मात्रा पिउनुपर्छ ।
- उमालि सकेको पानीलाई पुनः प्रदूषित हुन नदिन छोपेर राख्नुपर्छ ।

**अथवा**

**क्लोरीनेशन**

- पानीमा पीयूष, पीयूष+ वा अक्वाट्याब राखी क्लोरिनेशन गर्नुपर्छ ।

क) पीयूष (६० मि.लि.) : एक लिटर पानीमा ३ थोपा क्लोरिन भोलो राख्नुपर्छ ।  
ख) पीयूष+ (२४० मि.लि.) : १० लिटर पानीमा बिकोको तल्लो धर्को र १५ लिटर पानीमा बिकोको माथिलो धर्कोसम्म क्लोरिन भोलो राखेर चलाउनुपर्छ ।  
ग) अक्वाट्याब : ५ लिटर पानीमा एक चक्की अक्वाट्याब राख्नुपर्छ ।

**क्लोरीन हालेको आधा घण्टा पछि मात्र पानी प्रयोग गर्नुहोस् ।**

दृष्टिमिथिलो तथा रोग निवृत्तना महामाया, टेकु  
जिल्ला जनस्वास्थ्य कार्यालय, सल्लिगपुर

# Community Level Intervention

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- Booth Campaigns – Strategic Locations
- Awareness rallies
- Miking (In mobile vehicle and also during rallies)
- Awareness sessions to community groups and key community actors
- Food and food outlet inspection- Food authority and Municipality
- Mass communication by various media and special programs
- 300 schools reached to education children on Cholera and prevention



# Water Quality Testing

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Use of **H<sub>2</sub>S test kit (P/A Vial)** – Triggering tool for – HHs, Schools, Community Sources, Tankers, Jar-Water

**Free Residual Chlorine Tests** – HHs, Tankers  
No. of **water quality testing** – 650



# Water Quality at Source & Service Level

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**Kathmandu Upatyaka Khanepani Limited (KUKL)** - ensured proper dosing of Chlorination of water being supplied through their utility service

**Private Tanker Association** - No. of **Tankers chlorinated** - 3970

**Kathmandu Valley Water Supply Management Board (KVWSMB)**- identified 8 location surrounding the valley for testing of chlorine and dosing in water tanker; ensuring regular dosing and regulating tankers

**Water testing** of Jar waters and **sharing of the results** to community with solutions.

**KVWSMB shared the test results** to the Jar vendors for action



# Institutional Capacities

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## **Epidemiology and Disease Control Division (EDCD):**

- Setting up of sentinel sites for active surveillance
- Link with NPHL and selected hospitals to initiate and monitor the surveillance process
- Lead on cholera and diarrheal outbreak investigation and rapid response in coordination with NPHL, UNICEF, GTA, DPHO and WASH NGOs
- Review and publish daily/weekly situation report of cholera and AGE

## **National Public Health Laboratory (NPHL):**

- Receive stool and water samples
- Test samples and provide results to EDCD
- Receive information on supply needs for the selected hospitals

## EFFORTS (Contd.)

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### **District Public Health Office (DPHO):**

- Implement the decisions from EDCCD, Department of Health Services, Ministry of Health
- Coordinate with local governmental and non governmental stakeholders working in health and WASH
- Mobilize periphery level health workers and FCHVs in community level.

# Steering Committee for Enteric Disease Control

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- Steering Committee for Enteric Disease Control was formed under the leadership of Director General of Department of Health Services in 2015
  - Member secretary - Director of EDCCD
  - Members – Child Health Division, National Public Health Laboratory, WHO, UNICEF, professional organization, GTA
  - Invitee members - JHU, IVI, Sabin Vaccine Institute
- Several meetings of the steering committee were conducted to guide and make decisions for prevention and control of enteric diseases
- Task Force for Cholera Control was formed under the chairmanship of Director of EDCCD.

# Closure link with WASH

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- WASH Package in response
- Sharing the information between WASH and health team



# Strengthened Partnership

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WASH Intervention at district level supported  
by- UNICEF WASH partners – ENDO, CDO Nepal, OXFAM, ENPHO, Nepal Redcross Society

# Experience of OCV Vaccination

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- OCV Vaccination conducted in Routahat (2014) Nuwakot and Dhading (2015) with more than 95% coverage in 2015
- OCV vaccination was conducted at Banke district with 84% coverage in 2016
- Pre-emptive vaccination can effectively organized within the public health system of Nepal
- Proved the collaborative partnership is the key to success

# National Preparedness and Response Plan for AGE / cholera

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- A multiyear plan (2017-22) is drafted with comprehensive package
- Plan has covered the surveillance system, laboratory diagnosis, coordination, WASH, logistics and supplies, immunization and monitoring & evaluation



# Conclusion

- Nepal is a Cholera endemic country with potential for outbreaks.
- Gaps in surveillance and response.
  - Surveillance need to be strengthened to cover nation wide.
  - Need for comprehensive and integrated intervention of enhanced surveillance, investigation and WASH response.
- Enhanced collaboration and coordination across the multiple stakeholders at various levels (health, water and sanitation sectors) is crucial
- Strengthening the existing support from partners
- Advocacy needed to introduce the OCV vaccination
- Cholera Prevention and Response National Road Map should be developed urgently



Thank you!

