

Acute Diarrhea Situation in Cambodia

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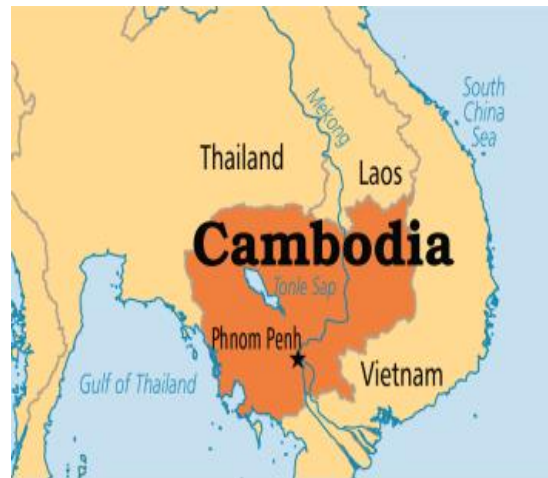
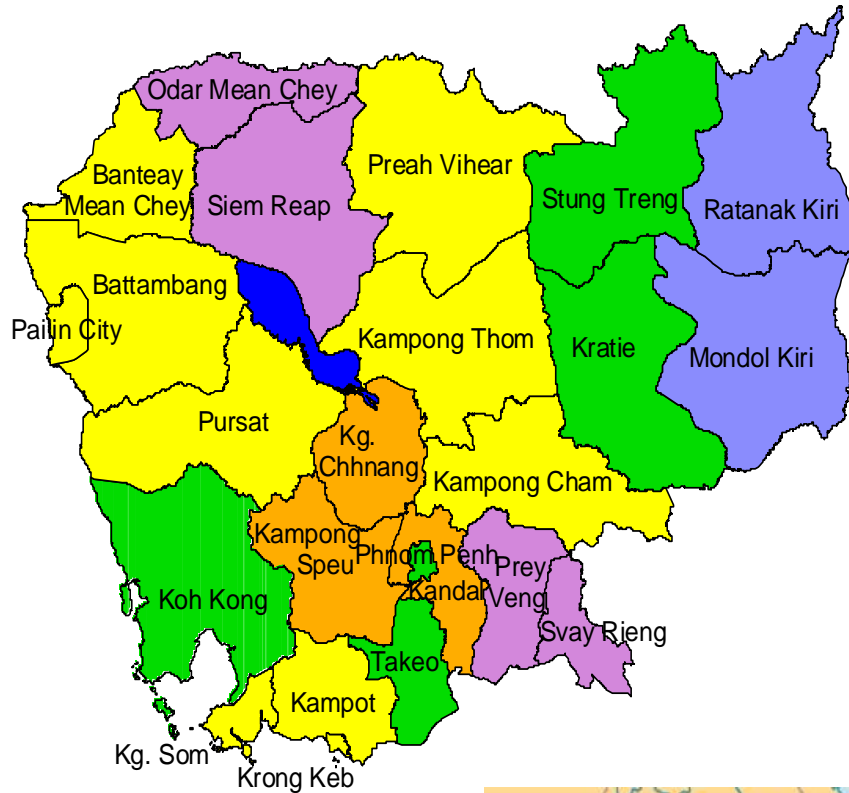
Hilton Opera Hotel,

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Cambodia Country Profile



- Population: ~ 15 M
- Surface: 181 035 Km²
- Urban: 20 %
Rural: 80 %
- Provinces: 25,
Operational Districts: 88,
Villages: 14,073
- GDP: US\$ 1,036 per capita
(19% under poverty line)
- Literacy rate: 78%
- Life expectancy:
 - Male: 70 years
 - Female: 75 years

Surveillance in Cambodia

1. CamEWARN

➤ Indicator or Case based Surveillance (IBS or IBS) Syndromic Surveillance

- Zero weekly reporting: **Acute Diarrhea or Suspect Cholera**
(main focus of this presentation)
- Severe Respiratory Infection or Pneumonia
- Suspect Avian Influenza

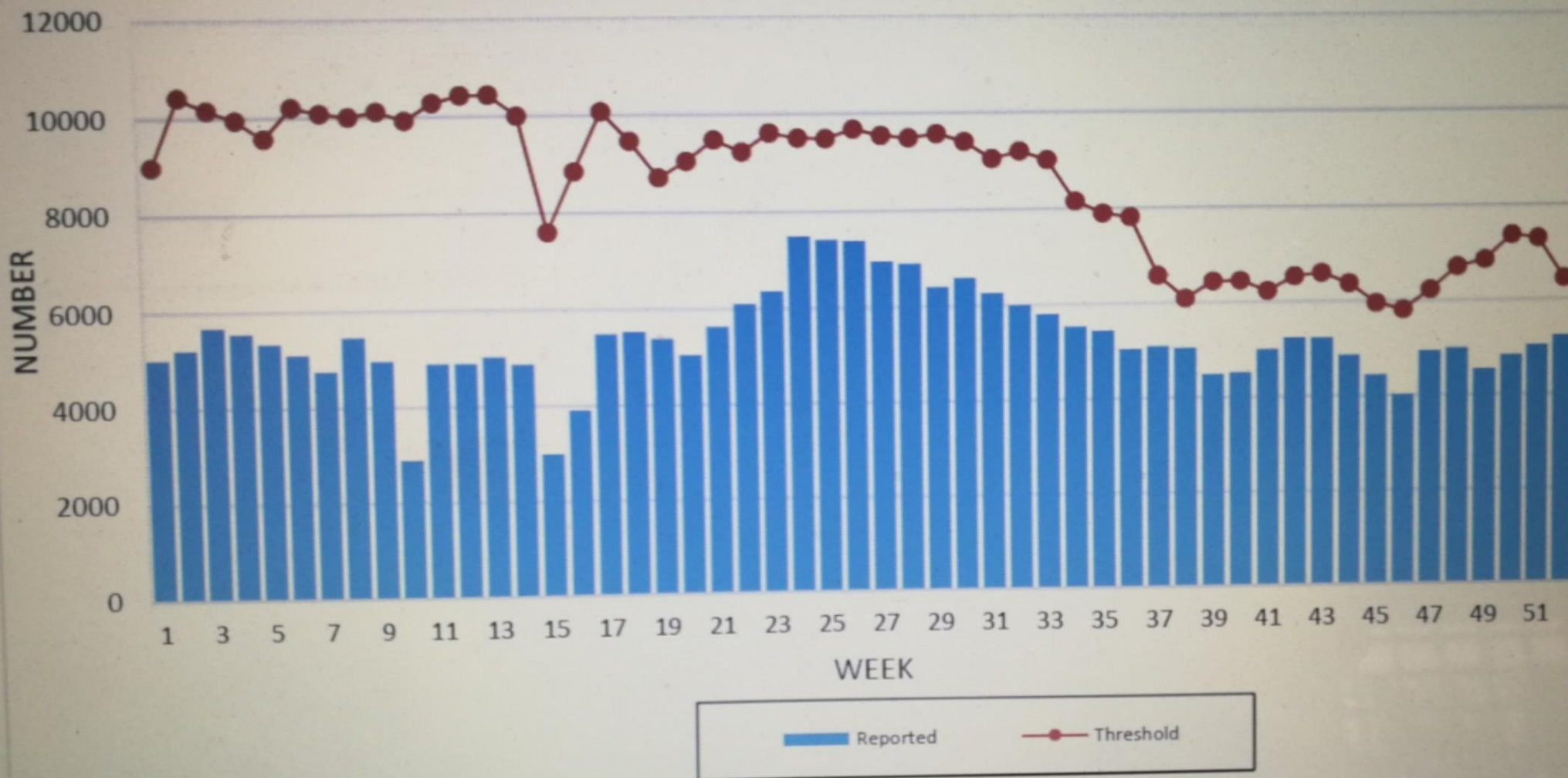
➤ Event-based Surveillance (EBS)

- Hotline
- Specimens collected

2. Sentinel Surveillance

- 7 ILI sites
- 8 SARI sites
- Mix of healthcare centres, provincial and national hospitals
- Specimens collected

Acute Diarrhea in Cambodia in 2016 vs Threshold by week



The number of diarrhea cases reported in week 52 increased compared to the previous week and was under alert threshold level.

Cholera in Cambodia

- 1st lab confirmed case in Phnom Penh (Nov '09)
- *Vibrio cholerae 01 Ogawa*
- 15 Cambodians with Acute Watery Diarrhea were treated at An Giang, Viet Nam in January; 5 (3 from Kandal and 2 from Takeo) were confirmed cholera cases
- Press inquiries and reports on cholera
- Calls to MoH Hotline about diarrhea

Situation (June 2010)

- Since November, 452 confirmed cases in 20 provinces with 1 death (CFR < 1%)
 - Additional reports of 50-60 deaths probably due to cholera
 - Probable cholera-related fatalities were not brought to hospitals
- In June, cholera cases in 18 provinces
 - Phnom Penh, Kandal, Takeo, Kg Cham, Kg Speu, Prey Veng, Svay Rieng, Pursat, Kg Chhnang, Kg Thom, Kratie, Battambang, Siem Reap, Sihanoukville, Ratanakiri, Kampot, Preah Vihear, and Koh Kong
 - 35 of 77 operational districts currently affected (45%)
- Antibiotic sensitivity
 - Sensitive to ampicillin, ciprofloxacin, ceftazidime and cefotaxime
 - Resistant to cotrimoxazole, tetracycline, erythromycin and doxycycline

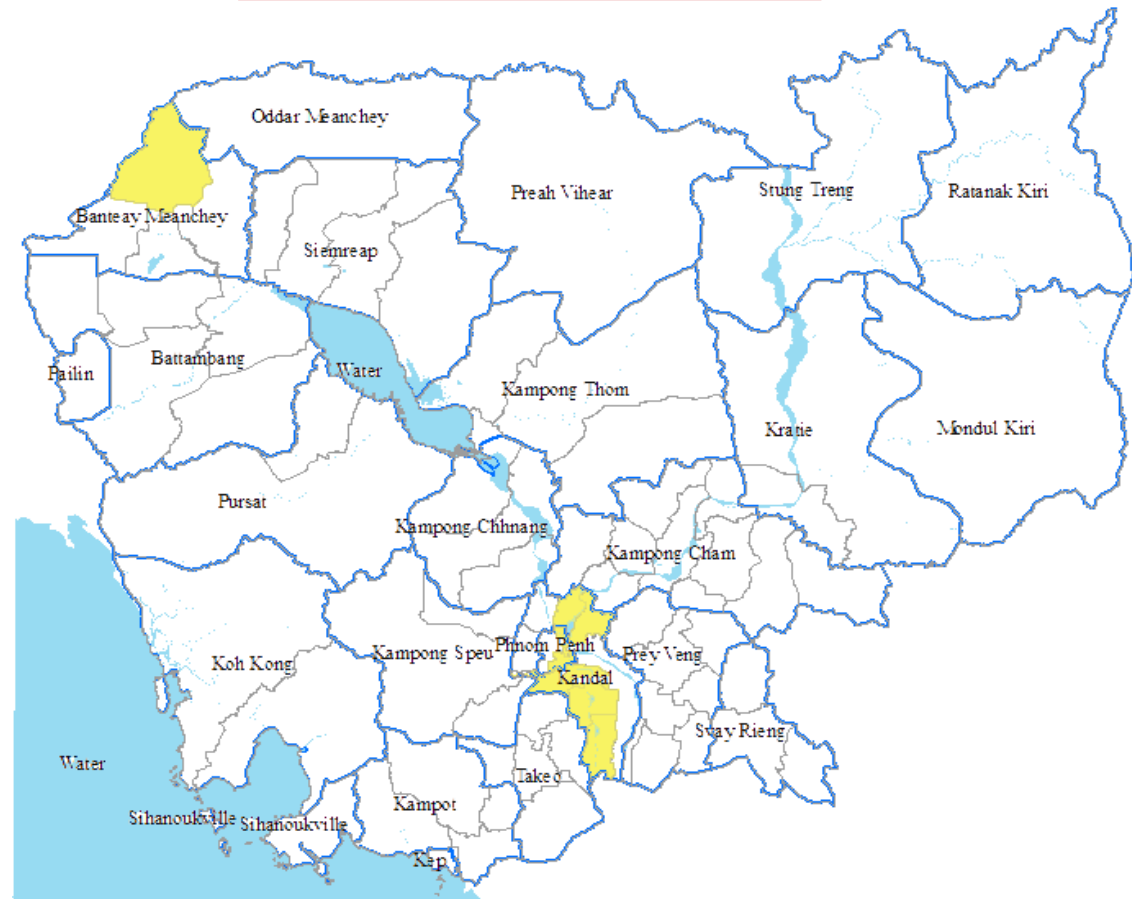
Geographical Spread: Nov - Dec 2009

1st cases in Phnom Penh from 2 operational districts



November

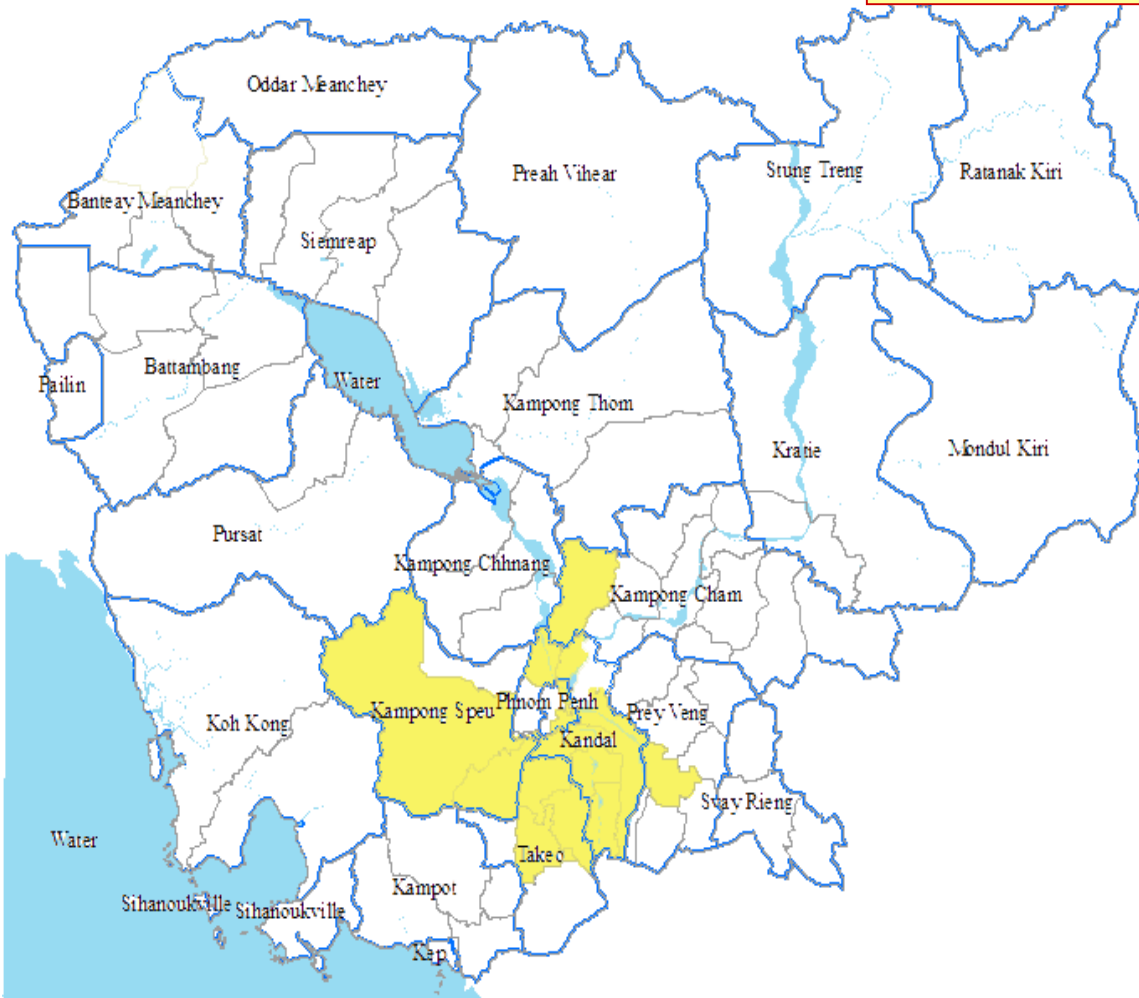
Yellow areas with confirmed cholera case



December

Geographical Spread: Jan - Feb 2010

Yellow areas with confirmed cholera case

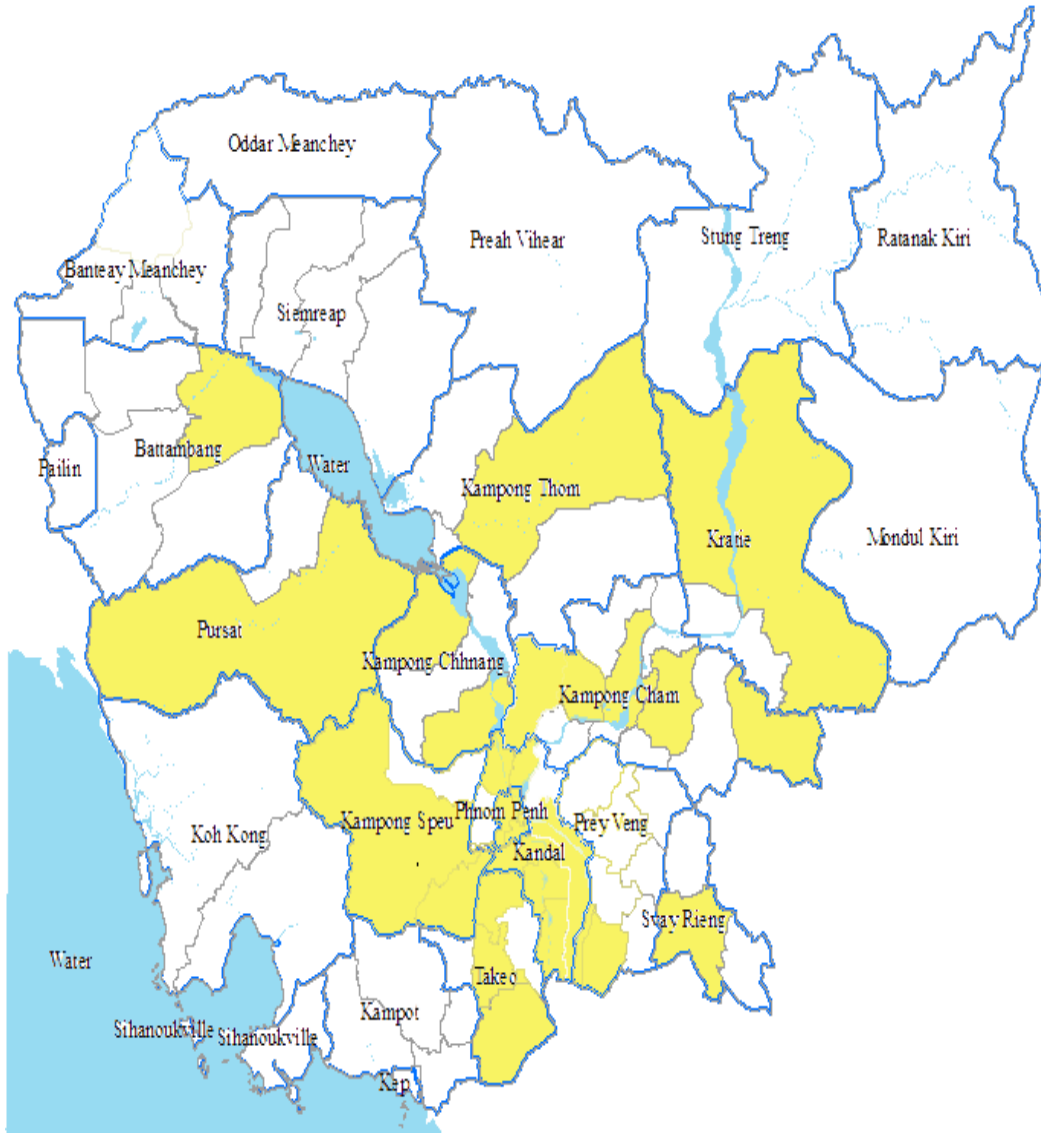


January



February

Geographic spread: March - April 2010

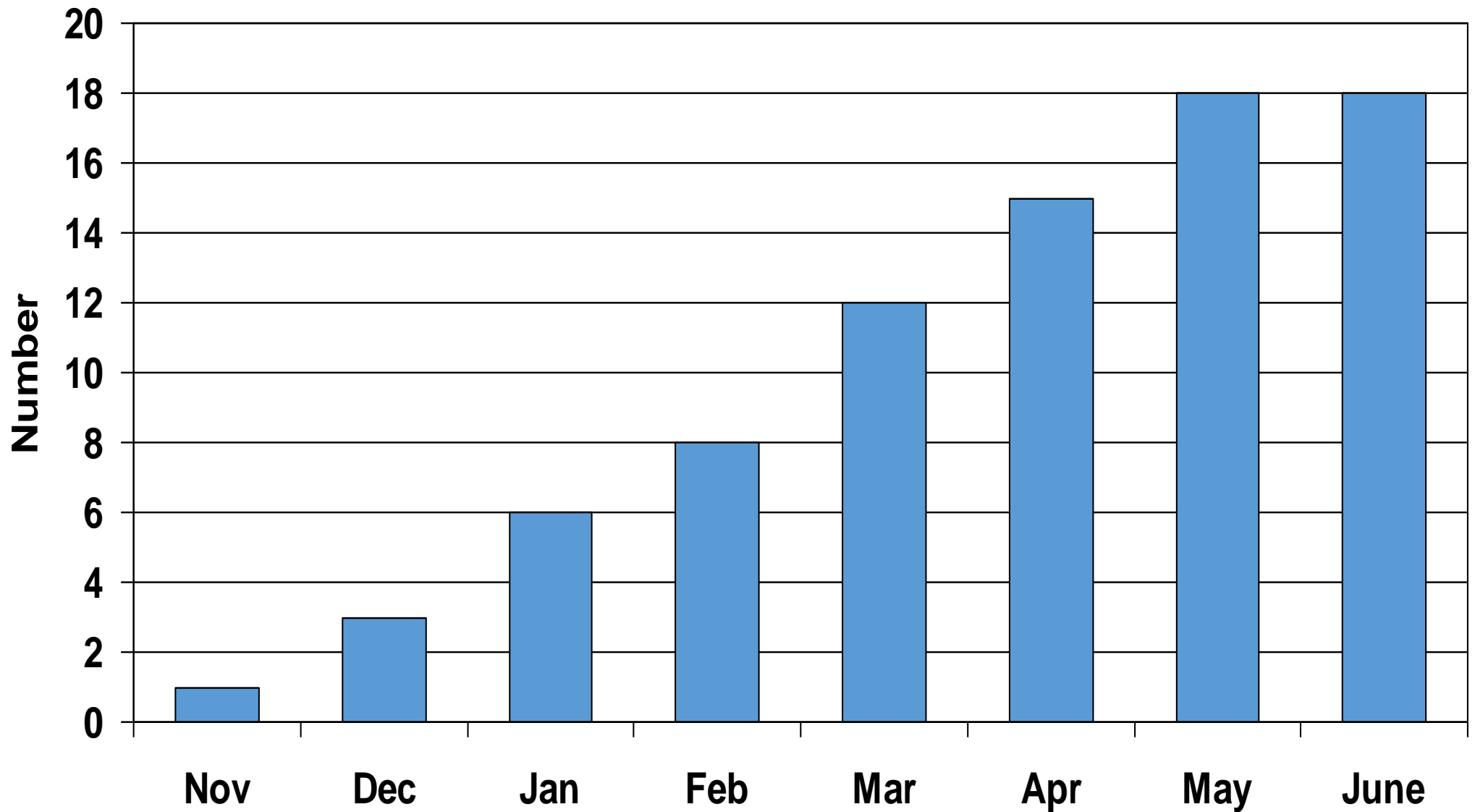


March

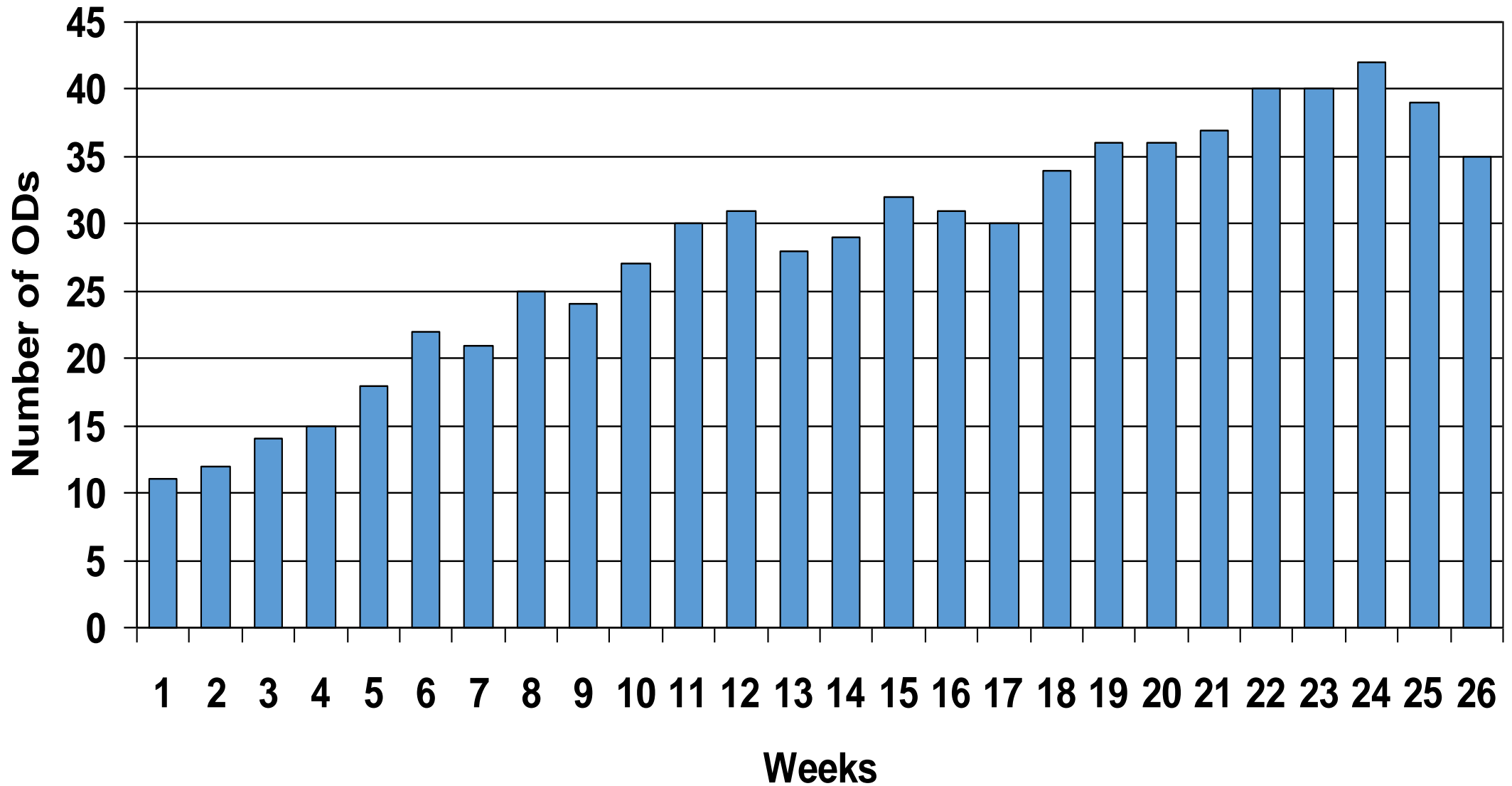


April

Number of Provinces with Cholera Cases by Month (Nov 2009 to June 2010)



Number of Operational Districts with Cholera Cases by Week, Jan to June 2010



Laboratory confirmed Cholera Cases

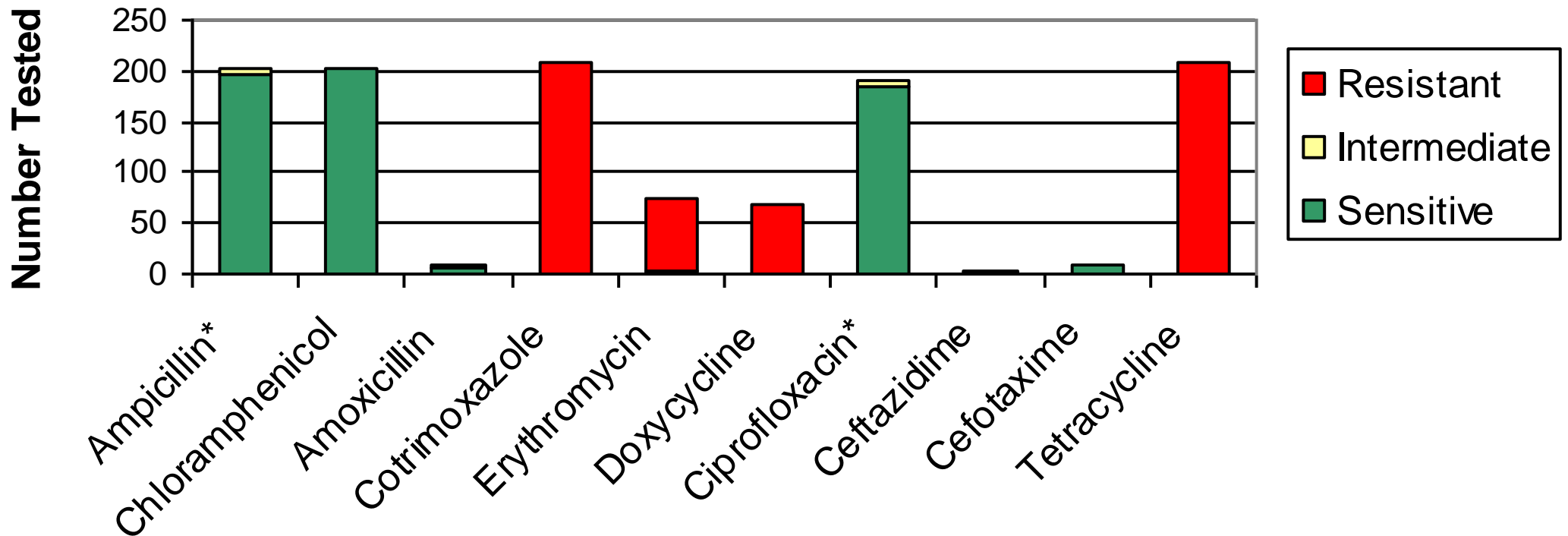
Province	Onset date of first case	Onset date of last case
Phnom Penh	25 Nov 2009	15 June 2010
Kandal	4 Dec 2009	2 June 2010
Banteay Meanchey	27 Dec 2009	27 Dec 2009
Takeo	2 Jan 2010	15 May 2010
Kampong Cham	9 Jan 2010	1 June 2010
Kampong Speu	25 Jan 2010	31 May 2010
Prey Veng	26 Jan 2010	29 April 2010
Svay Rieng	17 Feb 2010	24 June 2010
Pursat	24 Feb 2010	9 May 2010
Kampong Chhnang	1 March 2010	30 April 2010
Kampong Thom	11 March 2010	19 June 2010
Battambang	15 March 2010	12 June 2010

Laboratory confirmed Cholera Cases

Province	Onset Date of First Case	Onset Date of Latest Case
Kratie	11 March 2010	21 May 2010
Siem Reap	5 April 2010	10 April 2010
Sihanoukville	8 April 2010	9 June 2010
Ratanakiri	11 April 2010	17 June 2010
Kampot	19 April 2010	19 April 2010
Preah Vihear	14 May 2010	14 May 2010
Kep	21 May 2010	21 May 2010
Koh Kong	28 May 2010	14 June 2010

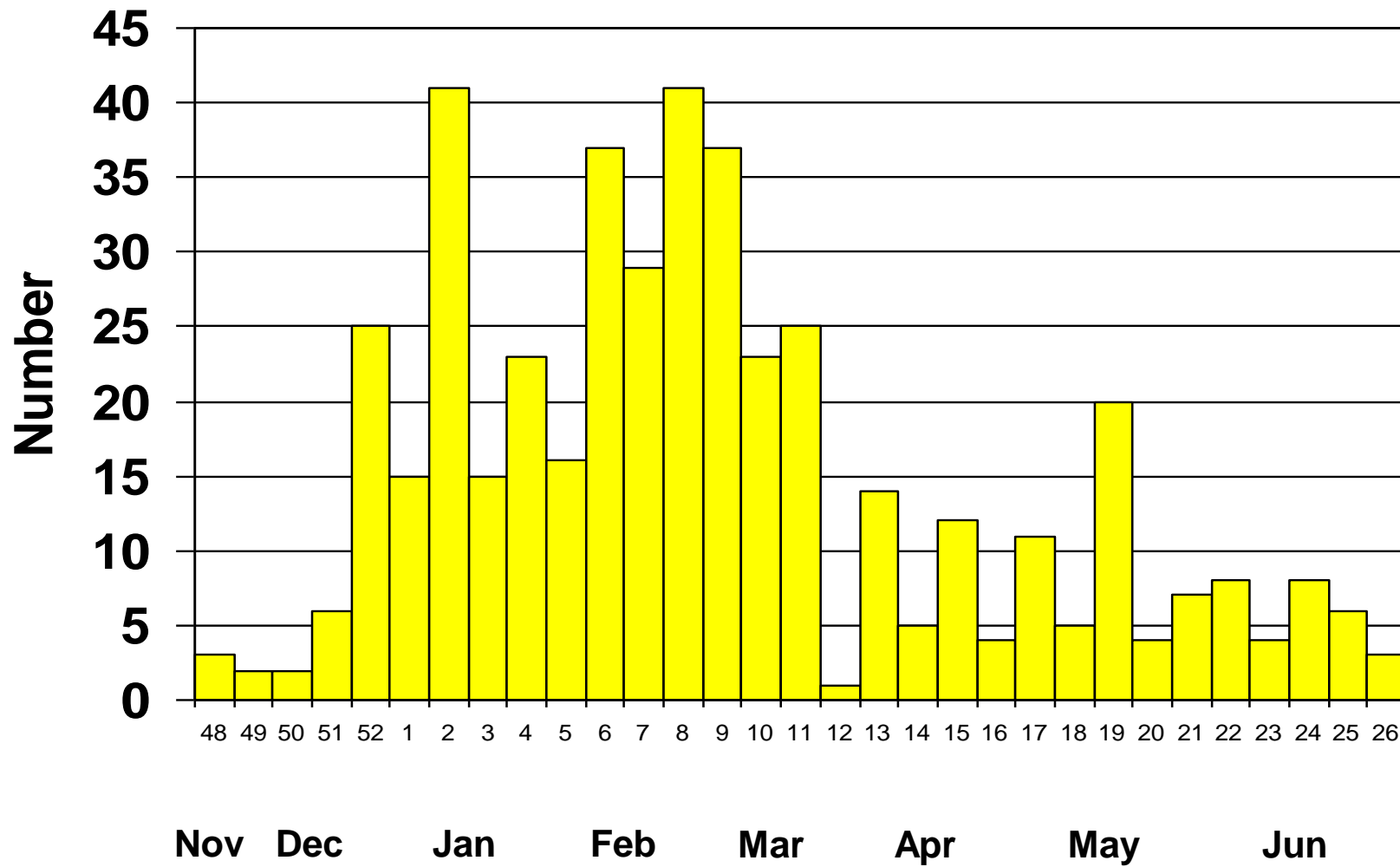
Laboratory Test Results on 207 Samples

**Antibiotic Sensitivity Test Results for *V. cholerae* 01
IPC, NAMRU and NIPH, Dec '09 to June 2010**



Date of Onset of Cholera Cases (N=452)

Nov 2009 to June 2010



**Age and Gender of Cholera Cases (N= 452)
November 2009 to June 2010**

Age (Years)	Male	Female	Total
< 1	13	3	16
1 to 4	49	39	88
5 to 15	114	78	192
16 to 50	72	67	139
50 +	6	11	17
Total	254	198	452

Field Investigations

- AWD outbreak among prisoners in Kandal (Dec 2009)
 - Probable source was contaminated water from nearby creek
- AWD outbreak in Poreamea village, Koh Thom OD, Kandal (January 2010)
 - Probable source: dried clams and contaminated water from pond
 - Boiling of water was protective
- Joint Cambodia and Viet Nam MoH cross-border investigation in An Giang, Viet Nam (February 2010)
 - Of 10 confirmed cholera cases in An Giang, VTN, 8 were from Cambodia (Takeo and Kandal) and two were living in a border commune in VTN but crossed the border daily to work in Cambodia
 - Confirmed cases were probably infected in Cambodia

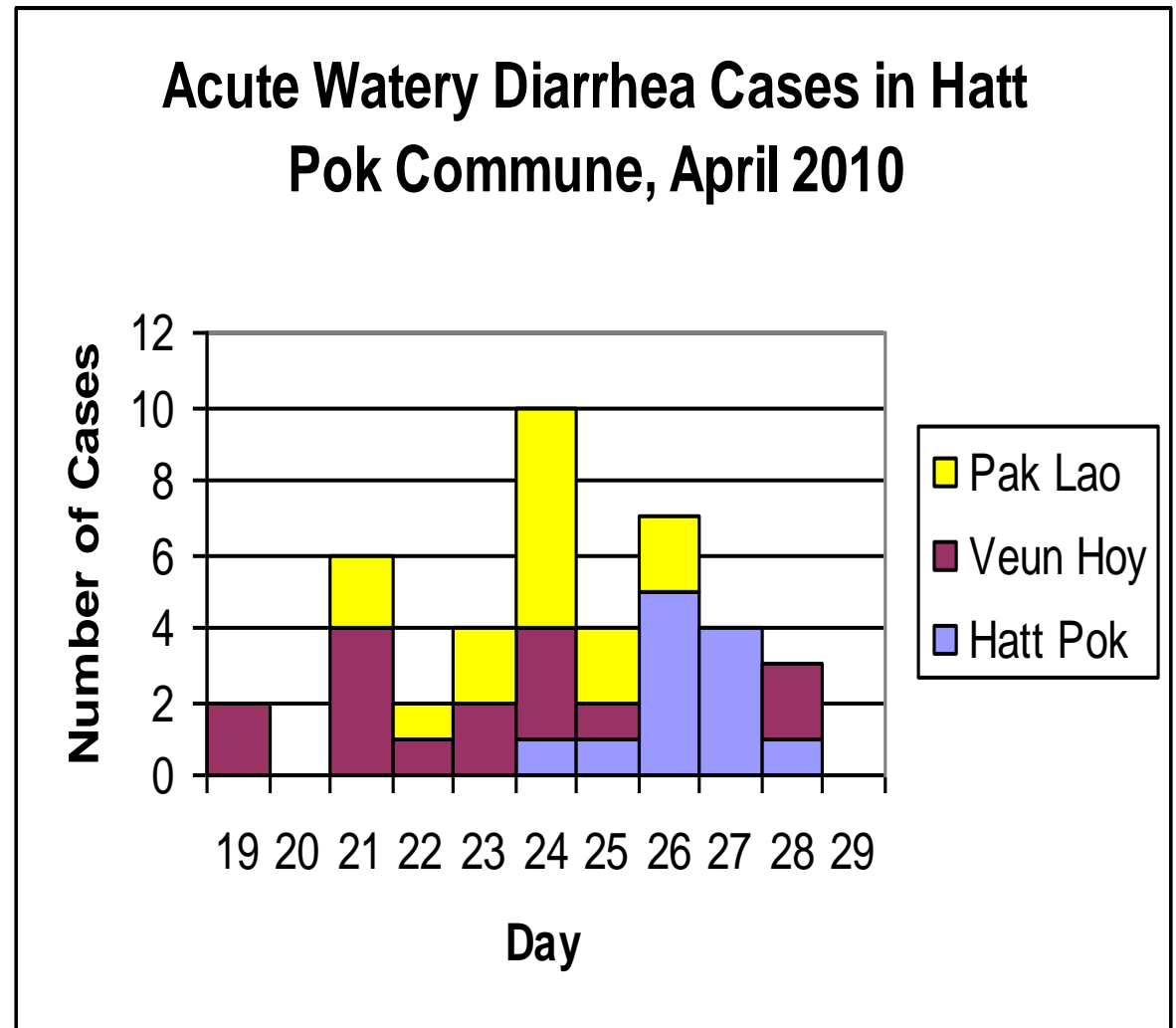
Field Investigations

- **Ratanakiri (April 2010)**

- Ethnic minorities living along Sesan River affected
- Access of villagers to health facilities is difficult
- Funeral-associated cases
- Intra-household transmission also significant
- CFR for this outbreak is 2%

- **Preah Vihear (May 2010)**

- Outbreak associated with wedding reception
- 61 cases with 2 deaths (CFR 3%)



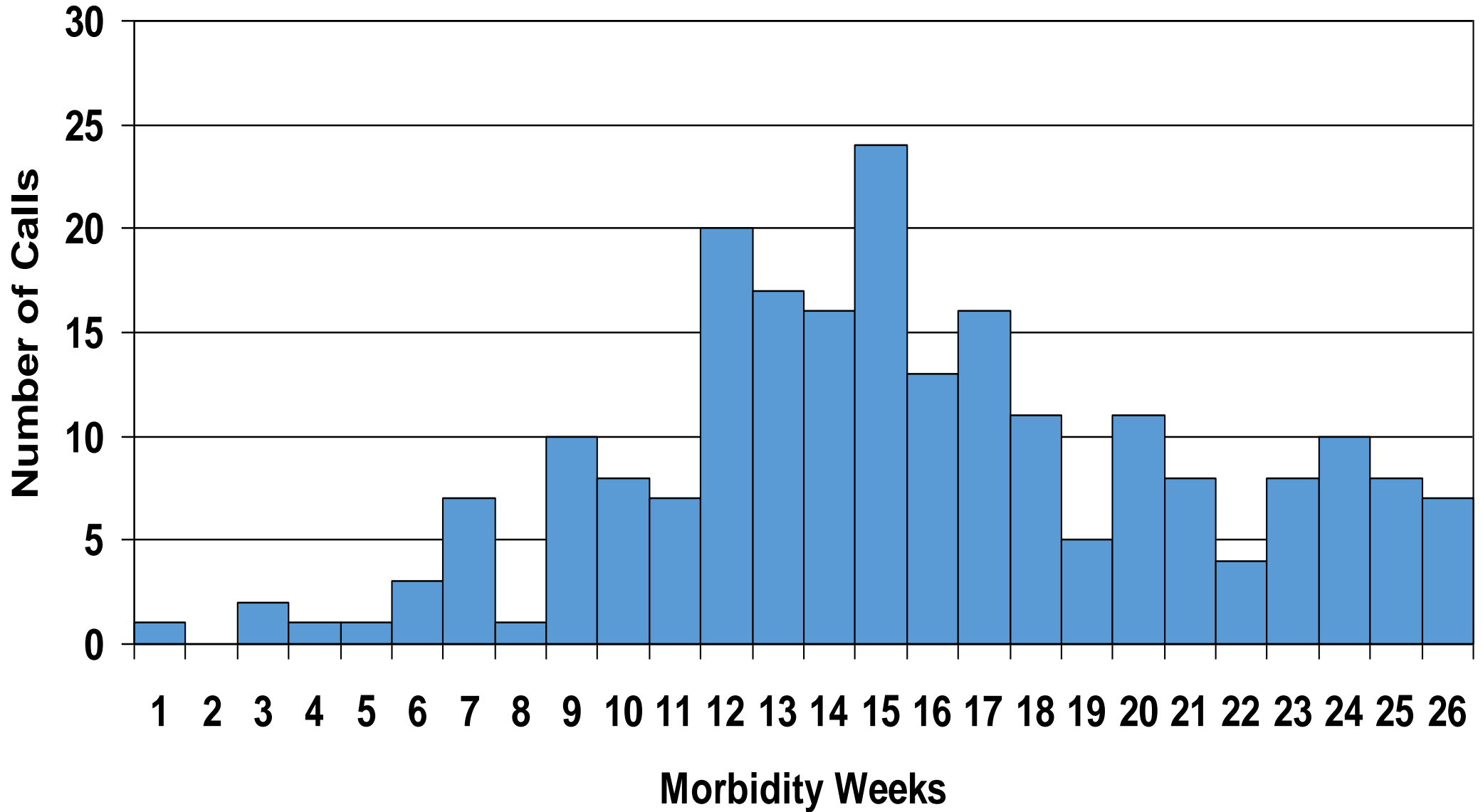
Conclusions from field investigations

- cholera is widespread in Cambodia
- multiple modes of transmission
- sporadic cases occurring with outbreaks (clusters of cases) associated with social gatherings (funerals, weddings) or in institutions (prison, factory) or households with poor personal hygiene and no latrines
- higher CFRs in remote villages due to difficult access to health facilities

Monitoring of Cholera Situation

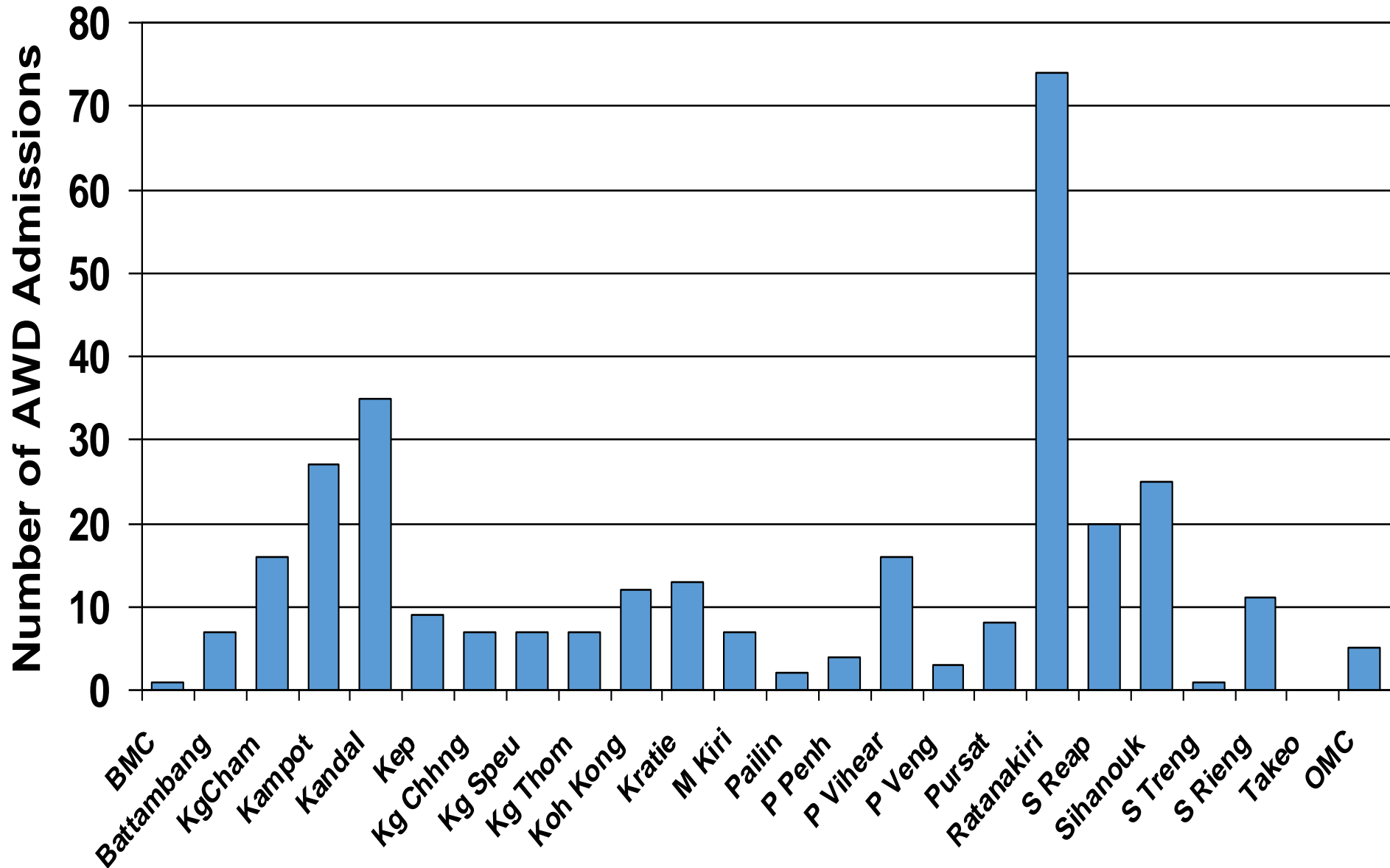
- Maintain line list of laboratory confirmed cases
 - Inform Province and OD of new cases in their areas
 - Weekly updates posted on MOH website
- Weekly analysis of AWD cases in CAM EWARN
 - Note provinces and ODs with no. of cases exceeding threshold and increasing trend
- Reporting of unusual clusters to Hotline (EBS)
- Investigations
 - Clusters in institutions, e.g. prison, school, orphanage, factory
 - ODs without lab confirmed case with increasing trend and no. of cases exceeding threshold (identify commune with most cases)
 - ODs with previous confirmed cholera case and no. of cases continues to exceed threshold for two consecutive weeks, no significant decline in no. of cases

Calls to MoH Hotline (115) about Diarrhea Jan to June 2010



AWD Cases in Provincial Hospitals

Week 26 (23 to 29 June 2010)



Cholera Outbreak

- Confirmed outbreak: no. of acute watery diarrhea cases exceeds the threshold or unusual cluster in an institution with one or more cases confirmed positive for cholera

Once cholera is confirmed in an area, there is **no** need to test every AWD case

- Outbreak controlled: no. of AWD cases declines and stays within expected levels for at least two consecutive weeks from date of latest confirmed case

Note: for monitoring purposes, outbreak area = operational district

Management of Cholera Outbreak

- **Monitoring component**

- Surveillance of Acute Watery Diarrhea through CAM EWARN
- Reporting of laboratory confirmed cholera cases to CDC Dept
- Outbreak investigations

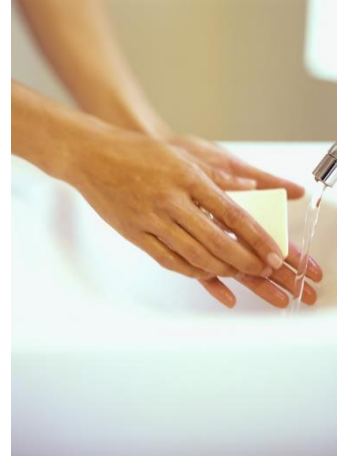
- **Response component**

- Communications (TV and radio spots, posters, flyers)
- Treatment
- Logistics
- Community mobilization (in collaboration with MRD and NGOs)

Cholera Prevention and Treatment

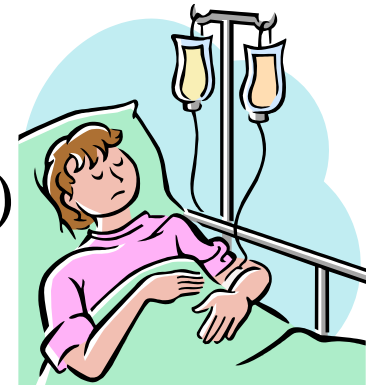
- Prevention:

- Safe food and water
- Good personal hygiene
- Sanitary waste disposal



- Treatment:

- Oral rehydration
- IV fluids (with moderate or severe dehydration)
- Antibiotics (only in very severe cases)
- Zinc supplements



Thank you!