Highlights in Pediatric Infectious Diseases 2012

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President, PIDSP

2012....The Year that Was

- New
  - Novel coronavirus
- Updates
  - Chikungunya
  - HFMD and EV 71
- Vaccine Preventable Diseases
  - Pertussis
  - Measles
  - Poliomyelitis

Novel Coronavirus (NCoV)

- Sept 22, 2012 - UK report to WHO
  - acute respiratory syndrome with renal failure in a previously healthy 49/M, with travel Hx to Saudi Arabia and Qatar
  - confirmed the presence of a NCoV almost identical to the virus which killed a 60 y/o Saudi National
    - Distantly related to the SARS CoV but does not appear to transmit easily between people
    - 2 cases in Jordan identified through testing of stored samples obtained during a pneumonia outbreak in April 2012
- As of 16 Feb, 2013, total of 12 confirmed cases
  - Saudi Arabia- 5 cases, 3 deaths; Jordan – 2 fatal cases; Germany – 1 case (with travel to Qatar); UK – 4 cases (1 with travel to Qatar; 3 family cluster)
  - 5/12 (all deaths) with renal failure; all others have recovered or are undergoing treatment
  - UK cases have no Hx of travel (person-to-person transmission)

Novel CoV Case definition

- Patient under investigation
  - Person with an acute respiratory infection (Hx of fever & cough)

    AND
  - Suspicion of pulmonary parenchymal disease (e.g. pneumonia or ARDS, based on clinical or radiological evidence of consolidation)

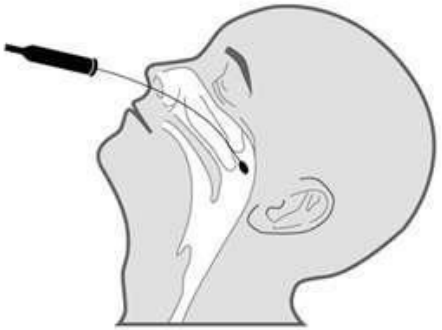
    AND
  - Residence in or Hx of travel to the Arabian Peninsula or neighboring countries within 10 days before onset of illness

    AND
  - Not already explained by any other infection or aetiology[1], including all clinically indicated tests for community-acquired pneumonia according to local management guidelines

WHO, Dec 2012

Laboratory Confirmation of Novel CoV

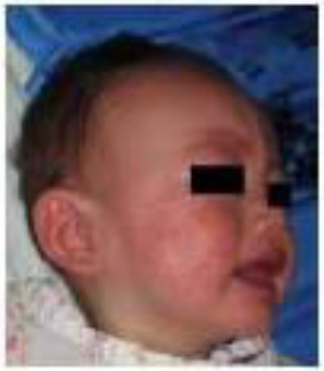
- Indication - only when there is clinical or epidemiological evidence that this virus may be the cause in an individual or cluster of patients
  - consider in patients with unexplained pneumonias, or in patients with unexplained severe, progressive or complicated respiratory illness not responding to treatment.
- Specimens – sputum, BAL, NPA, TA, NPS, nose/throat swab, tissue from lung biopsy, paired sera, whole blood in EDTA (for VI)
- Test – RT-PCR
- Update – so far no suspected cases identified in the Philippines



CHIKUNGUNYA

- Benign, dengue-like syndrome characterized by abrupt onset of fever, arthralgia, maculopapular rashes and leukopenia

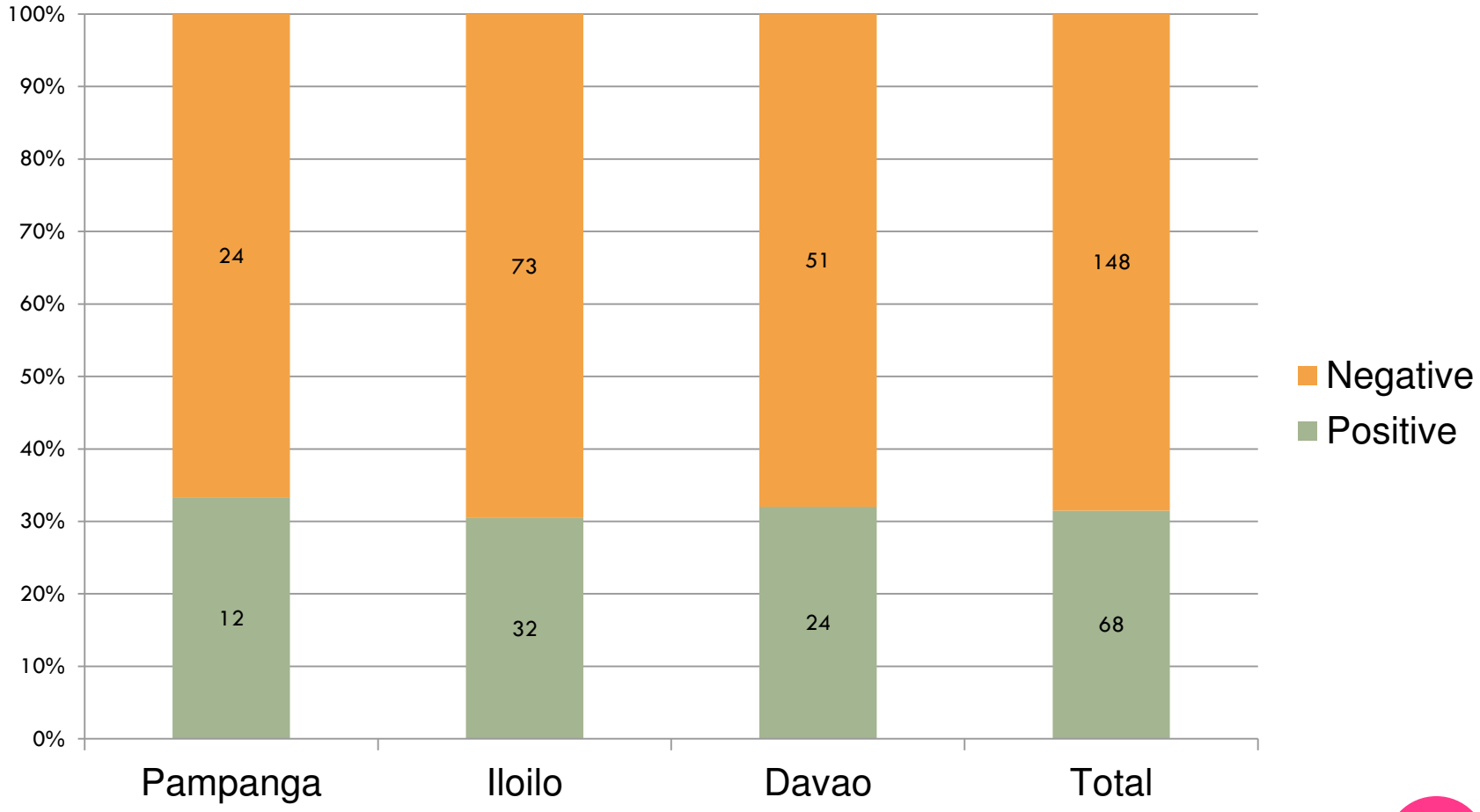
Swollen and stiff joints



Edematous rash

- Arthropod-borne RNA virus
- Same vectors as dengue but different geographic distribution since CHIKv infected *A. aegypti* mosquitoes transmit virus to vertebrates poorly
- Local outbreaks in Manila (1967), Negros (1968), Peace corps volunteers (1986), Cavite (1996)

PERCENTAGE OF CHIKV AMONG DEN NEGATIVE PEDIATRIC PATIENTS FROM 2009-2010 IN 3 SENTINEL SITES (N=216)



Sy et al, 2011 (unpublished)

CAPTURED THROUGH MEASLES SURVEILLANCE

- From June-September 2012, cases in several regions with fever and rash were investigated under the measles surveillance.
- Cases had pronounced joint symptoms/body aches and occurred generally in the more elderly population
- Out of 43 measles negative cases:

Chikungunya IgM Testing of Measles Negative Cases			
Positive	Equivocal	Negative	Total
30 (70%)	5 (12%)	8 (18%)	43

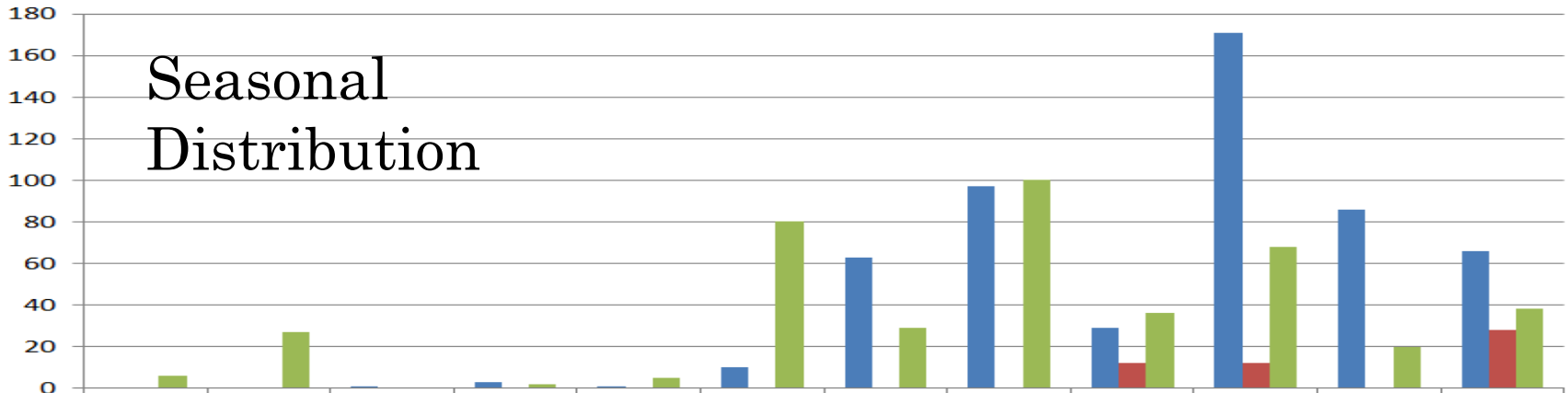
LABORATORY CONFIRMATION

- IgM testing services for Chikungunya at RITM since 2012
- A total of 990 referrals for Chikungunya IgM Testing were received at the NRL for Dengue and other Arboviruses (this includes samples from clusters of cases as well as routine diagnostic samples)

Chikungunya IgM Testing 2012			
Positive	Equivocal	Negative	Total
562 (56.7%)	67 (6.2%)	367 (37.1%)	990

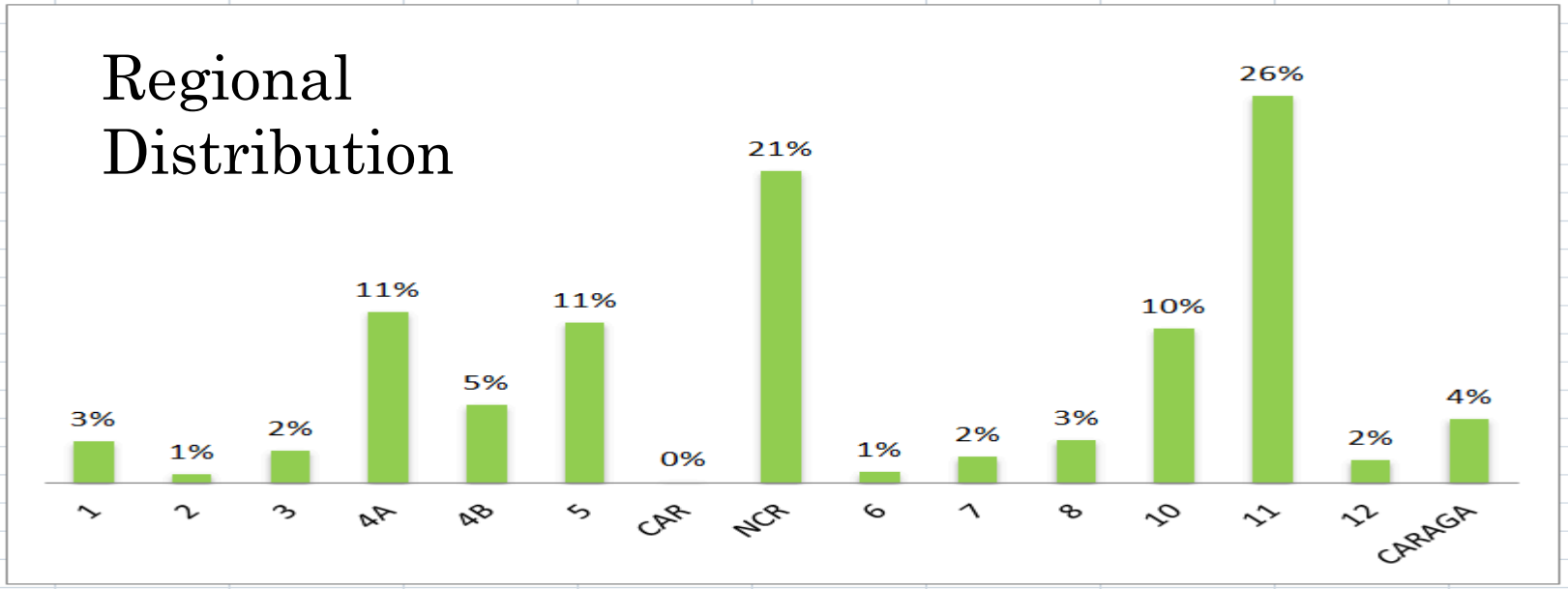
LAB CONFIRMED CASES 2012

Seasonal Distribution



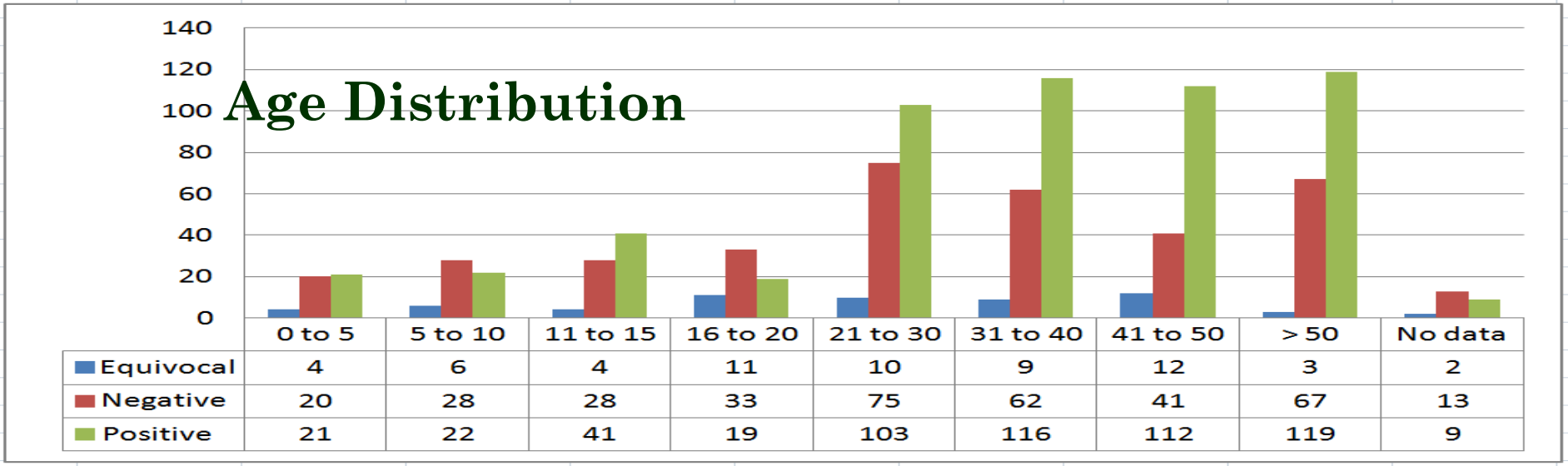
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Luzon	0	0	1	3	1	10	63	97	29	171	86	66
Visayas	0	0	0	0	0	0	0	0	12	12	0	28
Mindanao	6	27	0	2	5	80	29	100	36	68	20	38

Regional Distribution



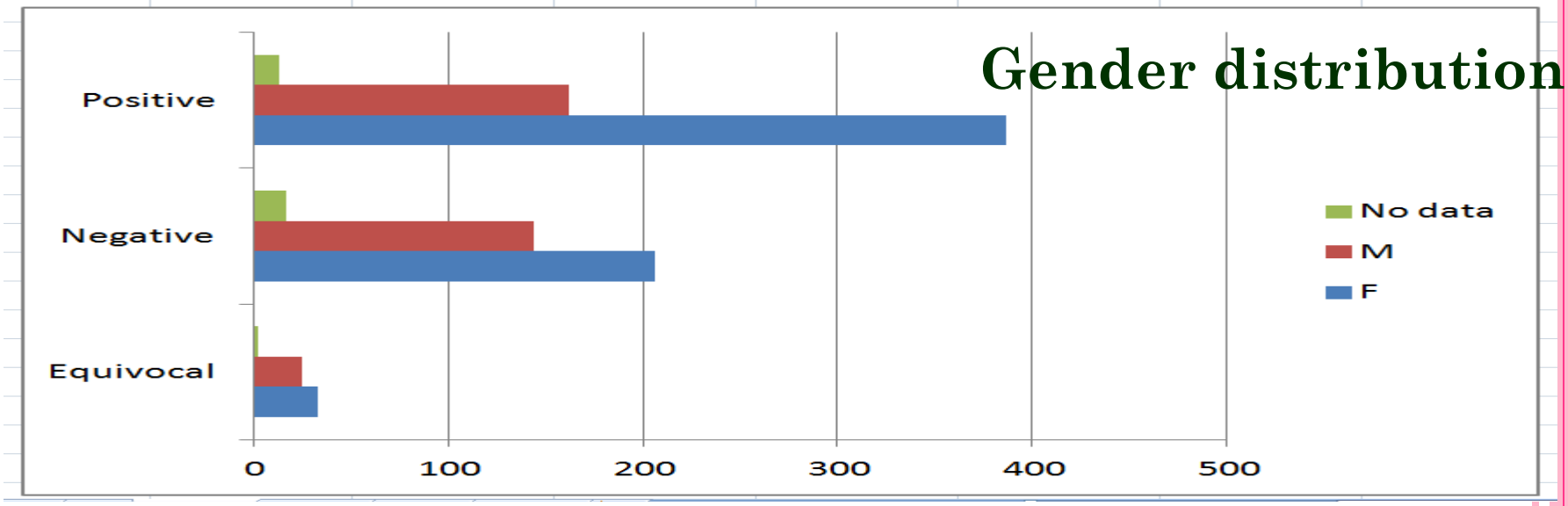
LAB CONFIRMED CASES 2012

Age Distribution



	0 to 5	5 to 10	11 to 15	16 to 20	21 to 30	31 to 40	41 to 50	> 50	No data
Equivocal	4	6	4	11	10	9	12	3	2
Negative	20	28	28	33	75	62	41	67	13
Positive	21	22	41	19	103	116	112	119	9

Gender distribution



Chikungunya vs dengue

- Many S/Sx (fever, myalgia, vomiting, abd pain, resp Sx etc) occur with similar frequency
- Chikungunya
  - Abrupt onset, shorter duration of illness
  - More common
    - Terminal maculopapular rash (59 vs 12 %)
    - Arthritis/arthralgia (40 vs 12 %); may persist for months
    - Conjunctival injection (55.6 vs 32.8 %)
  - Bleeding rare
  - Not common - Change in taste perception, post-illness bradycardia/asthenia/depression/fatigue

CHIKUNGUNYA

- Although not a notifiable disease under the PIDSR and usually causes a mild to moderate non-fatal illness (fever and polyarthritis), there are reports of:
  - Rare atypical lethal cases
  - Chronic symptoms of disability
- It is important to report, investigate and confirm suspected cases to guide control and prevention programs
- The fact that it is transmitted by the same vector as Dengue suggests that control of the vector for Dengue may lead to control of the 2 diseases

Hand, foot and mouth disease (HFM

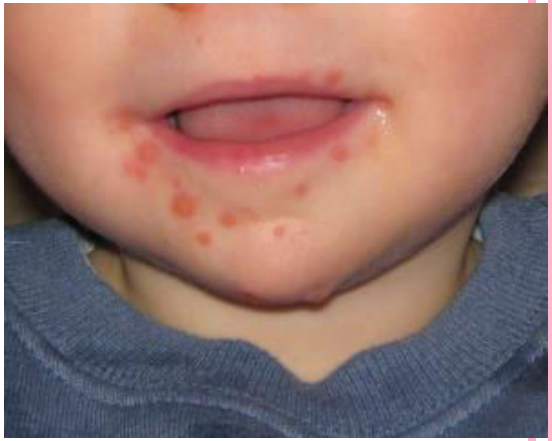
- Ap ile illness ki
  - T 20. 23 deaths were re and there were 44 dead by June 20
- WHO investigation - severe form of HFMD was the cause in the majo
  - 78 cases identified, 6
  - Mostly children < 3 y conditions; steroid use worsened

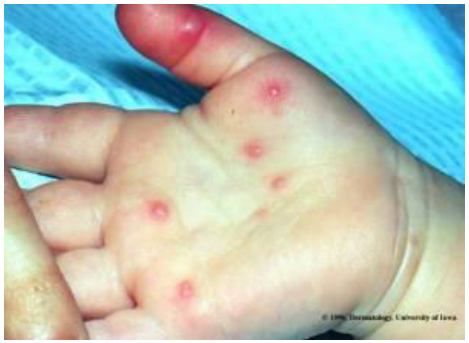
MANILA, Philippines, July 21, 2012 — A 19-month-old toddler from Davao has been diagnosed to have been infected with enterovirus 71, the same virus that has killed more than 60 children in Cambodia, but has since recovered.

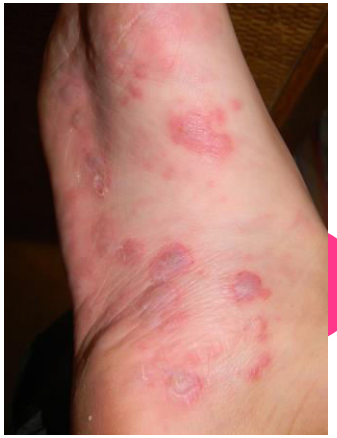
July 31, 2012
Philippines DOH confirms second case of EV-71 in Benguet boy

Hand, foot and mouth disease (HFMD)

- Contagious viral illness affecting infants and children
- Manifestations - mild fever, anorexia, malaise, sore mouth, enanthem (ulcerative lesions in the tongue and buccal mucosa), exanthem (vesicular rash on extremities, hands > feet)
- Transmission - close personal contact (kissing or hugging, coughing & sneezing, contact with feces, touching objects or surfaces that have the virus on them); most contagious during the first week of illness; not transmitted from animals

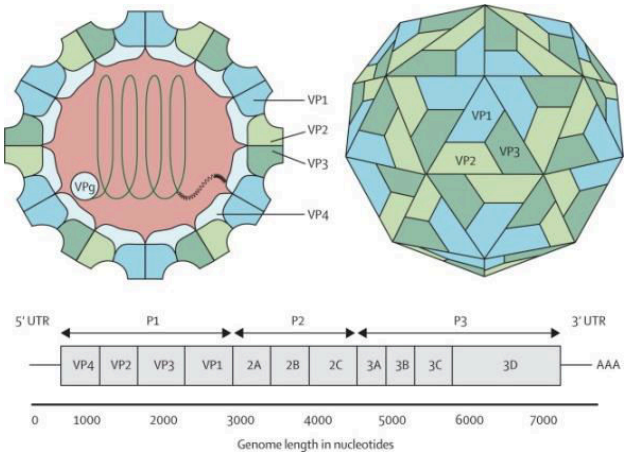


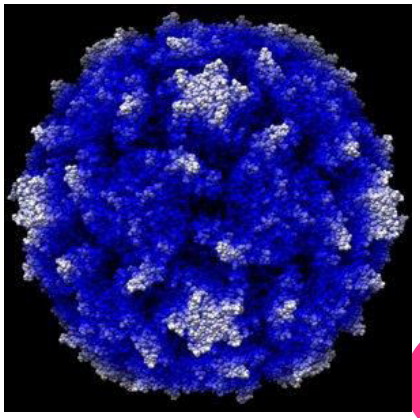




HFMD

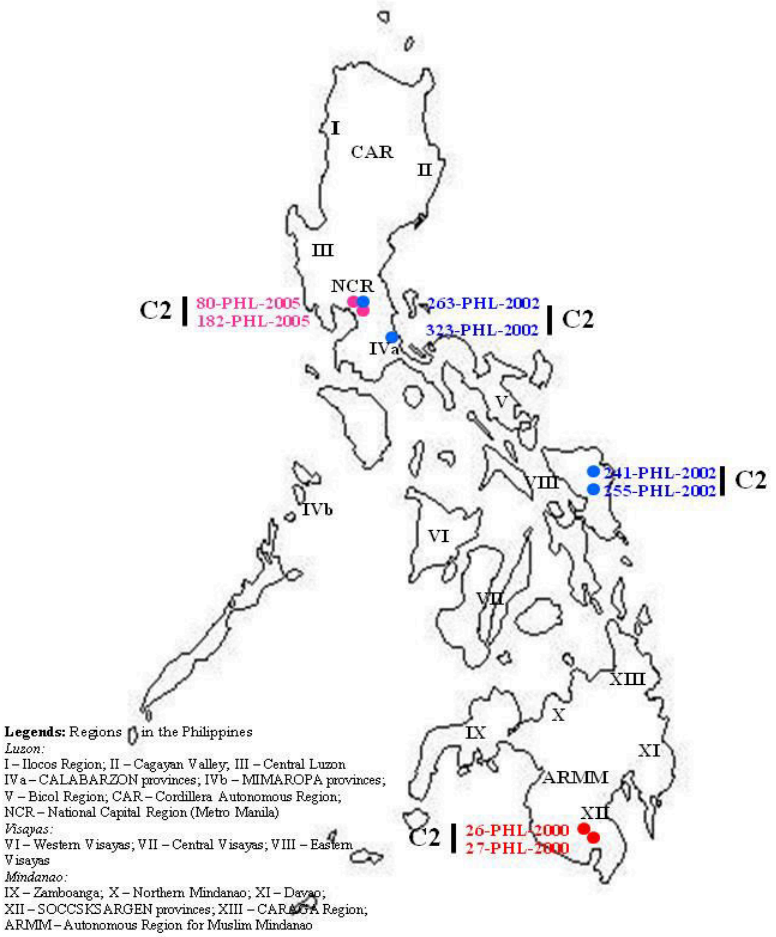
- Etiologic agents – Coxsackievirus A16, A5, A9, A10, B2, B5, echovirus 33 and enterovirus 71 (EV 71)
- Enterovirus 71 – RNA virus
  - Family *Picornaviridae*, Genus Enterovirus
  - Genotypes: A, B1-B5, C1-C5
  - RNA virus
  - Associated with severe complications (encephalitis, meningitis, paralysis)





HFMD IN THE PHILIPPINES

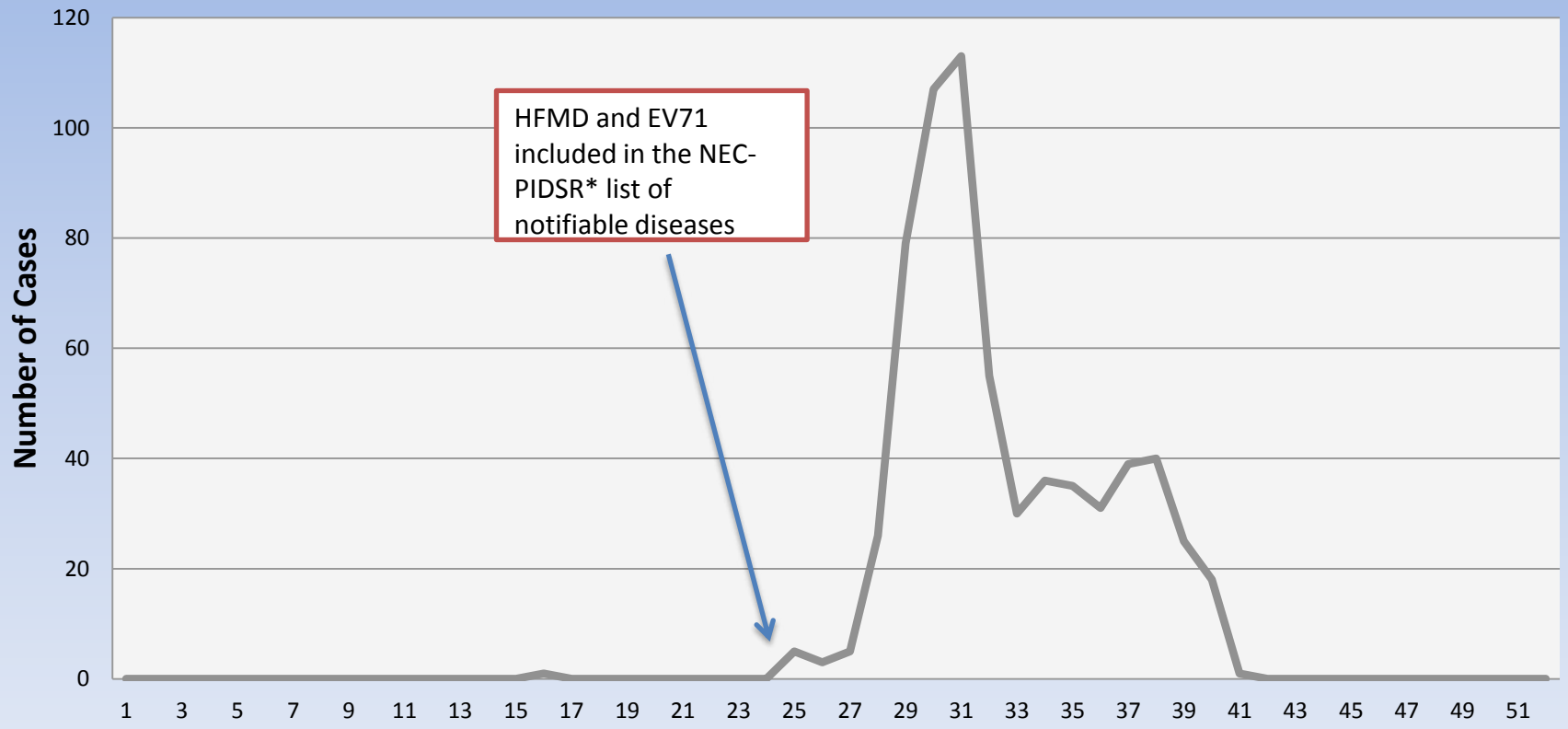
- HFMD not routinely reported
- Sporadic outbreaks have occurred
  - 2000, investigated by FETP fellow caused by CA16
  - Feb 2012, investigated by RESU-4A caused by CA6
- . Since 1992, AFP surv for poliovirus (PV) & other EVs has been detecting EVs (wild-type & vaccine-derived PVs) & other known EVs and untypable NPEVs.
- 1992- 2008 – 8 EV-71 detected in stools of AFP cases



Apostol et. al, 2011

Current Status of HFMD

Fig. 1 HFMD and EV71 Cases Reported per Morbidity Week, Philippines, as of December 22, 2012 (N=648)

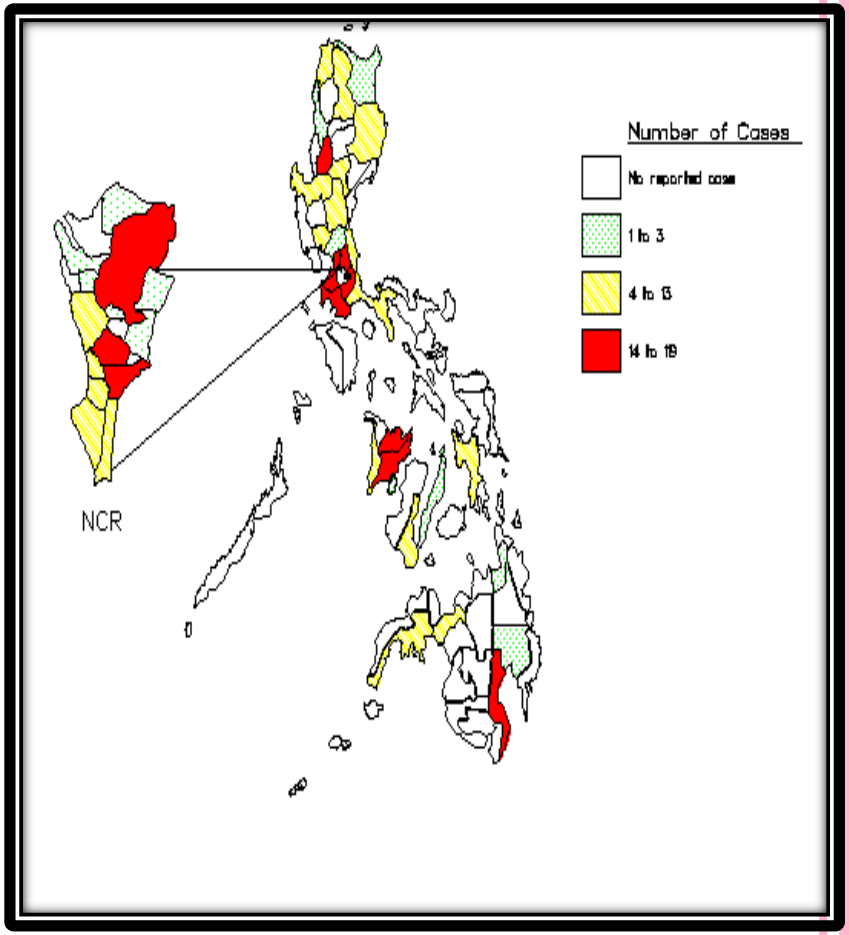


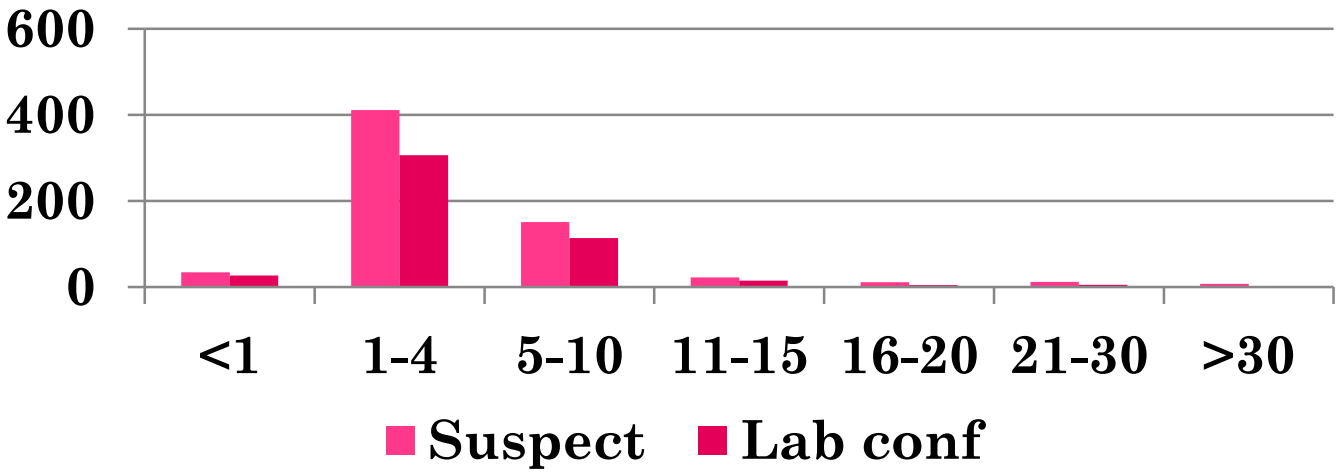
PIDSR – Philippine Integrated Disease Surveillance and Response

NEC

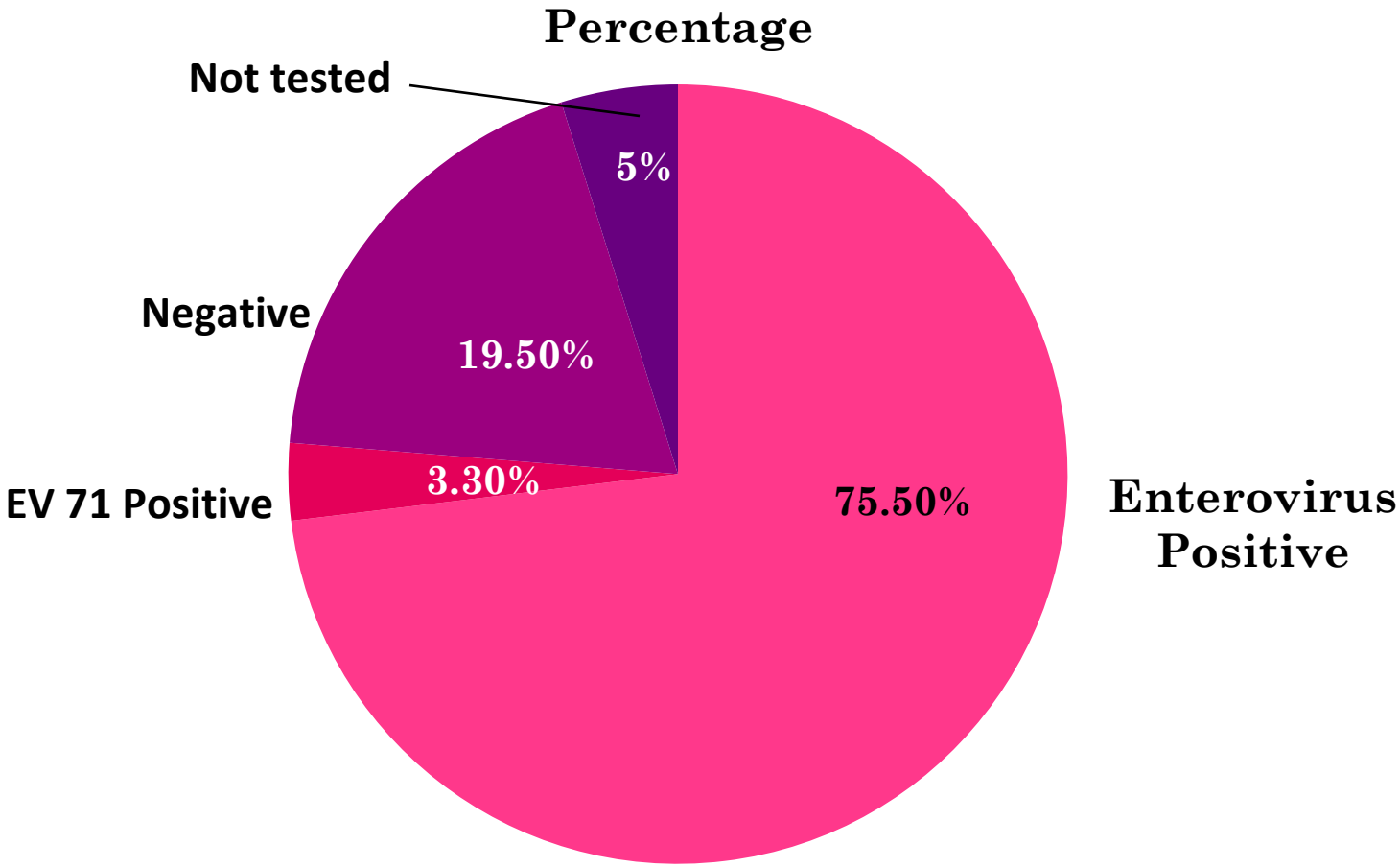
Geographical Distribution

- NCR (26.6%),
- Region IV-A (23.7%),
- Region VI (16.9%)
- Region XI (11.4%).





HFMD Cases by Case Classification , July-Dec, 2012 (N=889)



Vaccine Preventable Diseases: Pertussis

- Disease characterized by catarrhal Sx including cough; in 1–2 weeks, coughing paroxysms ending in the characteristic whoop may occur
- DPT3 coverage in 2011 was 80%
- Sporadic cases have been reported over the years:

2005	2006	2007	2008	2009
29	41	17	46	91

- 2009 – 3/91 deaths (CFR 3.3%); 2/91 (2%) cases lab confirmed

FHSIS, 2009

Source: WHO vaccine-preventable diseases: monitoring system 2012 global summary

PERTUSSIS

- Laboratory confirmation

	2010	2011	2012	2013 (Jan)	TOTAL
Number tested	12	12	23	7	54
Number PCR (+)	5	6	12	7	30
Confirmation rate	42 %	50 %	52.2 %	100 %	56%

- Of lab confirmed cases:

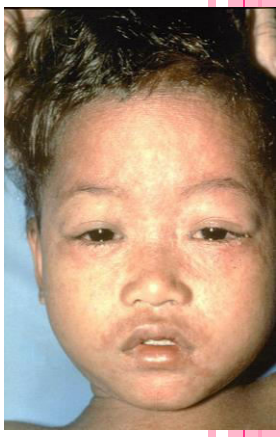
	Females	Males	Total
0 to 6 months	18	7	25 (86 %)
7 to 12 months	1	1	2 (7.5 %)
>1 to 5 years	2	0	2 (7.5 %)
TOTAL	21 (72 %)	8 (28 %)	29

RITM Microbiology lab

Pertussis: reminders

- Cases on the rise
- Laboratory confirmation is available
- Reporting is vital
- Immunization
  - Use TdaP in place of a due Td dose
  - Children and adolescents 7 to 18 years of age who are not fully immunized with DPT vaccine should be given a single dose of TdaP; remaining doses are given as Td

Vaccine Preventable Diseases: Measles

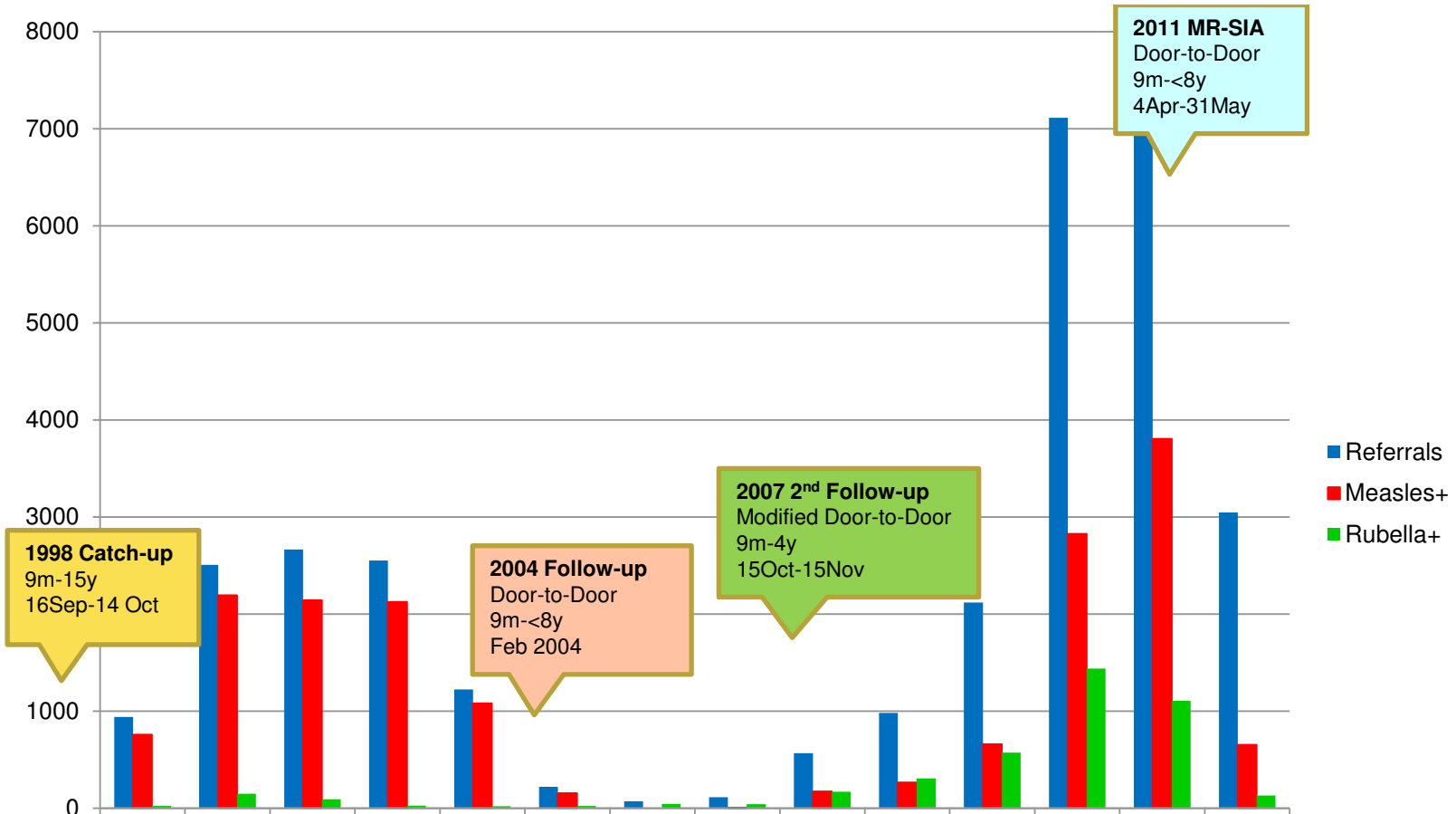


- Acute viral disease characterized by fever, cough, coryza, conjunctivitis, maculopapular rash and pathognomonic Koplik spots
- Reportable vaccine-preventable disease
- MCV coverage 79 % as of July 2012*
- Large outbreaks noted in 2010 and 2011

*Source: WHO vaccine-preventable diseases: monitoring system 2012 global summary

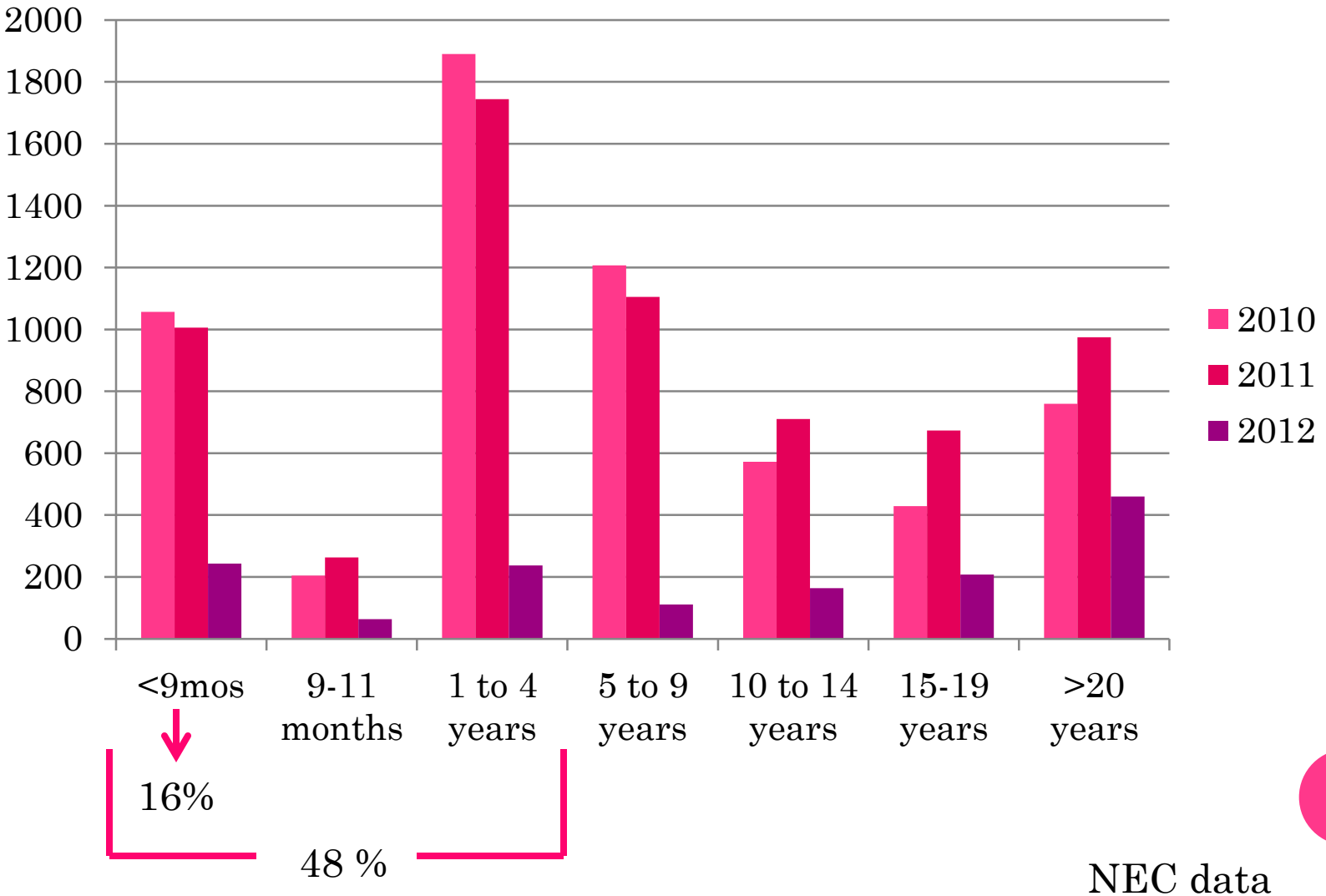
Confirmed Measles

National Data (1999-2012)



	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Referrals	940	2506	2665	2552	1225	221	71	114	566	981	2118	7114	7538	3048
Measles+	758	2193	2143	2124	1081	155	0	3	173	266	659	2826	3807	654
Rubella+	25	148	94	27	21	25	46	43	171	309	574	1440	1107	131

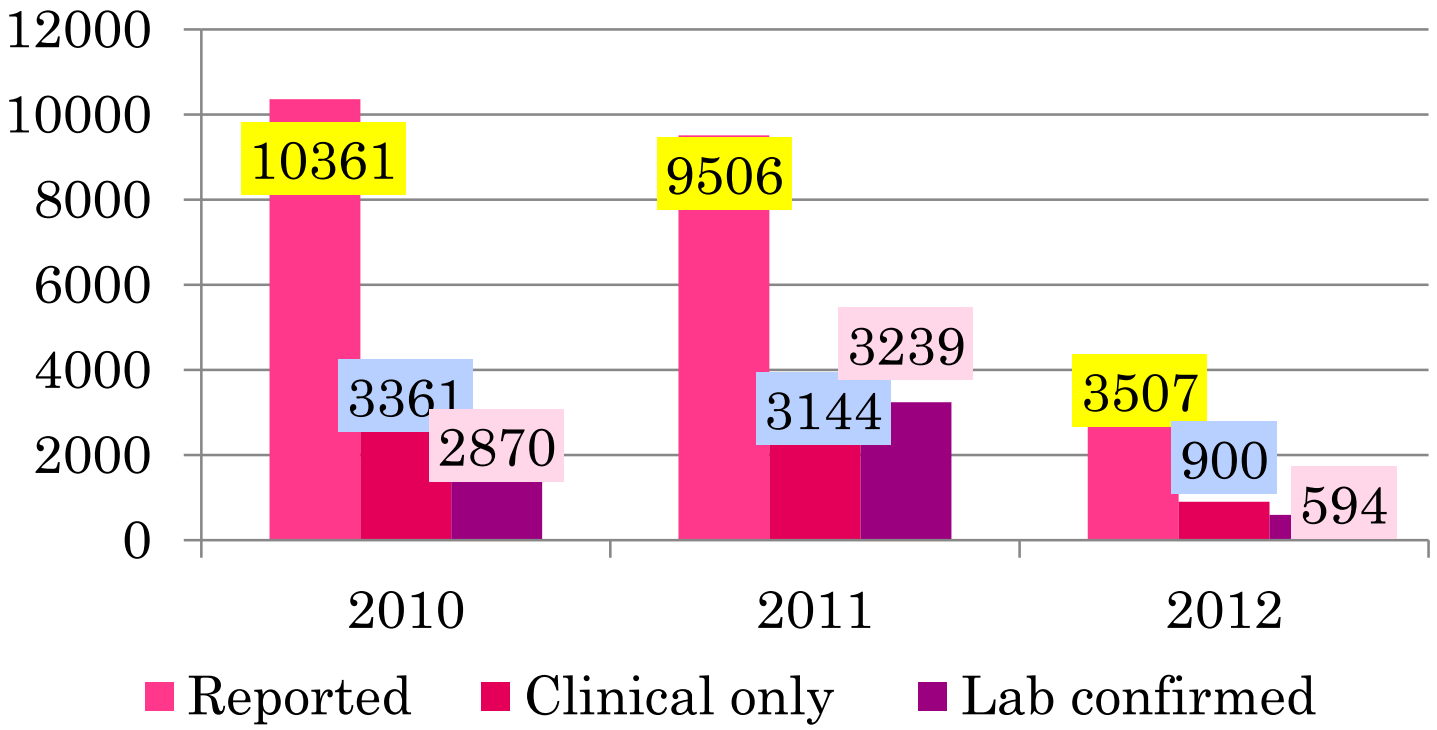
Age distribution of Confirmed cases



NEC data

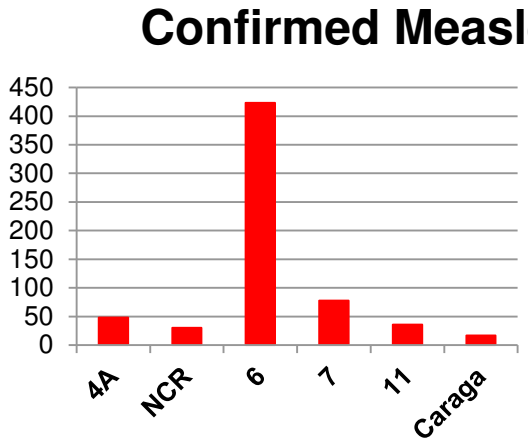
Confirmed Measles Cases

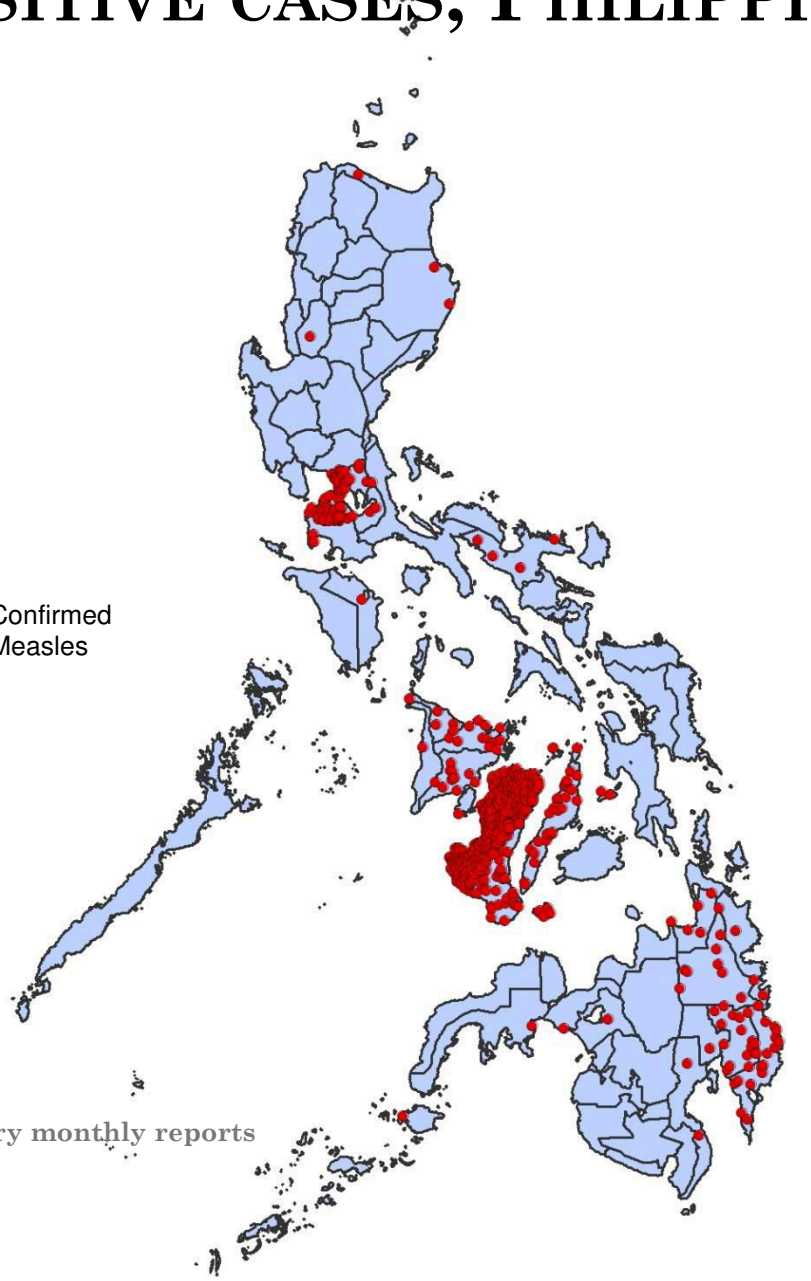
- 32 % clinical only
- 27 % lab confirmed



Measles IgM positive cases, Philippines, 2012*

1 dot = 1 case





Source: National measles and rubella laboratory monthly reports

* Reports from January to September 2012

MEASLES: REMINDERS

- **Surveillance**
  - Identify a suspect measles case defined as: any individual, regardless of age, with the ff: history of fever (temp $\geq 38^0$C), generalized non-vesicular rash of $\geq$ 3 days duration and at least one of the ff: cough, coryza, conjunctivitis
  - Send specimens for lab confirmation (FREE OF CHARGE)
    - Blood - 2 ml serum taken 4-28 days from onset of rash; allowed to clot in the refrigerator and refrigerated until transport
      - Alternative: Dried Blood Spot
    - Nasopharyngeal/Oropharyngeal Swab in VTM
      - taken within the first 3-5 days after onset of rash
      - refrigerated until transport
  - Tests - Antibody Testing (IgM), Virus Isolation, PCR detection/Genotyping
  - National Reference Lab for Measles (WHO accredited 2008)

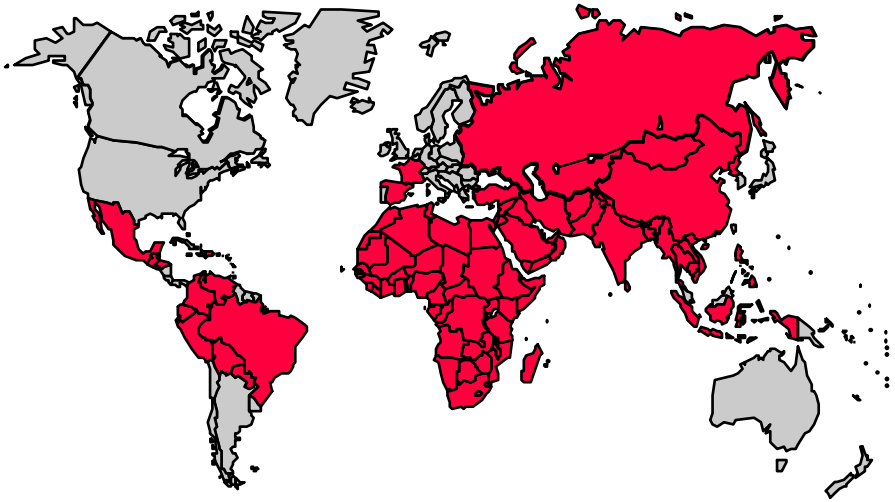
Measles: reminders

- **Immunization**
  - Children who received a dose of a MCV at < 12 months should be given 2 additional doses of measles- containing vaccine (preferably MMR) at 12-15 mos and 4-5 years
- Regional Goal (WPRO) to eliminate measles by year 2015
  - achieving and maintaining 95% population immunity against measles virus in each birth cohort through routine and/or supplementary immunization activities (SIAs);
  - sensitive and timely case-based surveillance for measles;
  - access to an accredited laboratory to confirm suspected cases and identify virus

Vaccine Preventable Diseases: Poliomyelitis

1988

> 125 countries

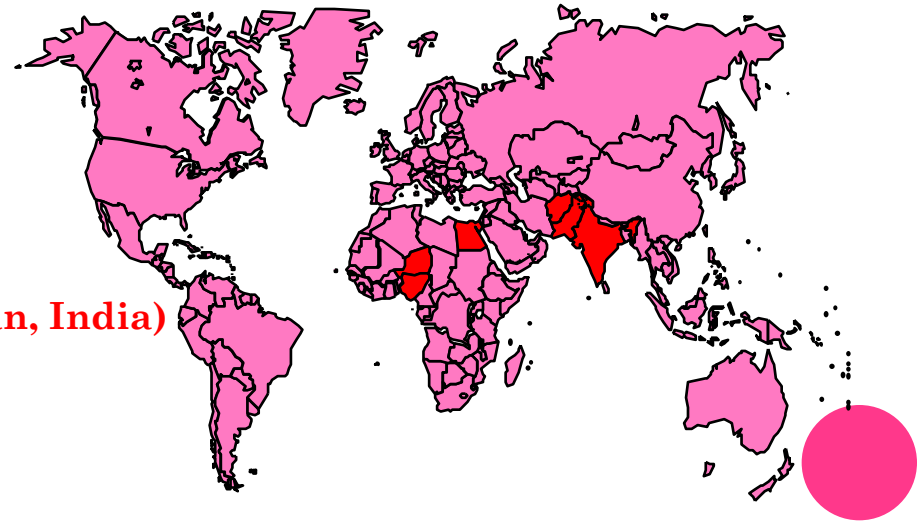


WPRO declared polio-free in 2000

2012

4 countries

(Nigeria, Pakistan, Afghanistan, India)



PHILIPPINES STATUS

- May 1993 – last polio virus isolated in Cebu
- Oct 29, 2000 – certified polio-free in Kyoto, Japan
- Last year, Philippines categorized as high risk for wild poliovirus (PV) importation because of declining AFP surveillance performance, low OPV3 coverage and geographic proximity to countries with ongoing transmission of PV

National Polio Laboratory performance indicators using the new algorithm

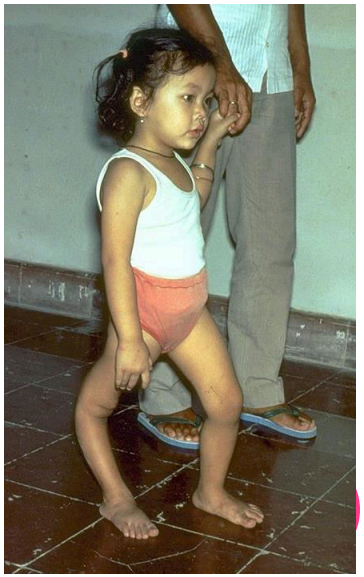
PERFORMANCE INDICATOR	2011	2012 (as of Nov)
Test results reported on at least 80% of AFP specimens < 14 days of receipt	95.5%	95.3%
Virological tests are performed on at least 150 stool specimens annually	912	1006
The accuracy of PV detection and identification among all virus isolates is at least 90%	100% (2)	100%
At least 80% of PV isolates from AFP cases are forwarded to the RRL ITD < 7 days of obtaining typing result	100%	100%
Internal QC procedures, including cell culture sensitivity, are implemented at least quarterly in accord with the WHO protocol	Yes	Yes
The score on the most recent WHO approved proficiency test is at least 80%	100%	100%
The score from the annual on-site review of laboratory operating procedures and practices is at least 80%	97%	On-site review on Dec 2012
The annual NPEV isolation rate from all stool specimens is at least 10%	**6.9%**	**8.05%**

AFP CASE DEFINITION

- Acute: rapid onset of paralysis, < 3-4 days usually to reach the maximum but may extend to two weeks
- Flaccid: loss of muscle tone, "floppy" (as opposed to spastic or rigid)
- Paralysis: loss of muscular force, loss or diminution of motion

POLIO: REMINDERS

- **AFP Surveillance**
  - Identify any child < 15 yrs with AFP or a person of any age in which polio is suspected
  - Notify immediately a "**HOT CASE**" defined as a case < 5 years old, with < 3 OPV doses and has fever at the onset of asymmetrical paralysis or a person of any age whose stool specimen has a PV isolate
    - Requires reporting within 24 hours



Is it a case of AFP?

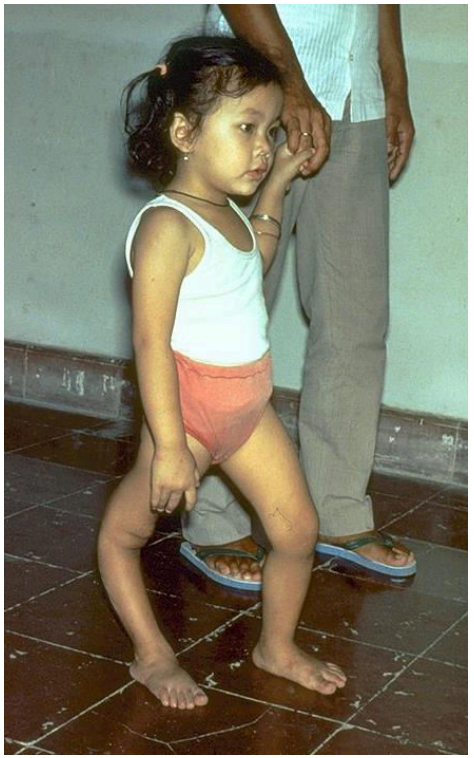
1. **Is the patient less than 15 years old?**
2. **Is (or was) the patient paralyzed/ paretic?**
3. **Is (or was) the paralysis/ paresis flaccid?**
4. **Did the paralysis develop rapidly, within two weeks?**
5. **Did the paralysis/ paresis start less than 2 months ago?**

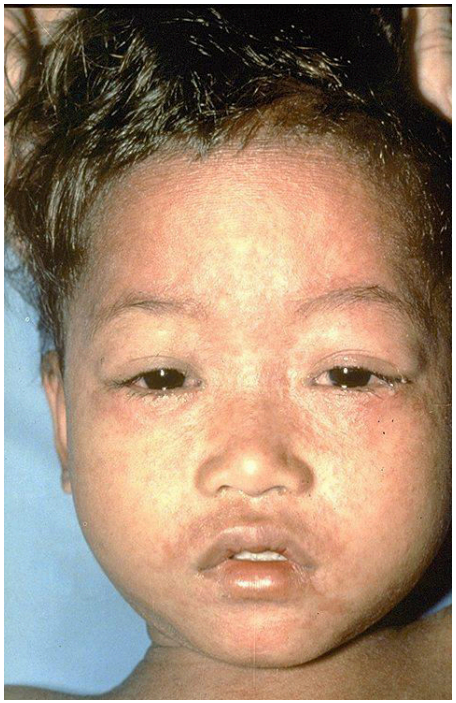
If YES to ALL 5 questions :

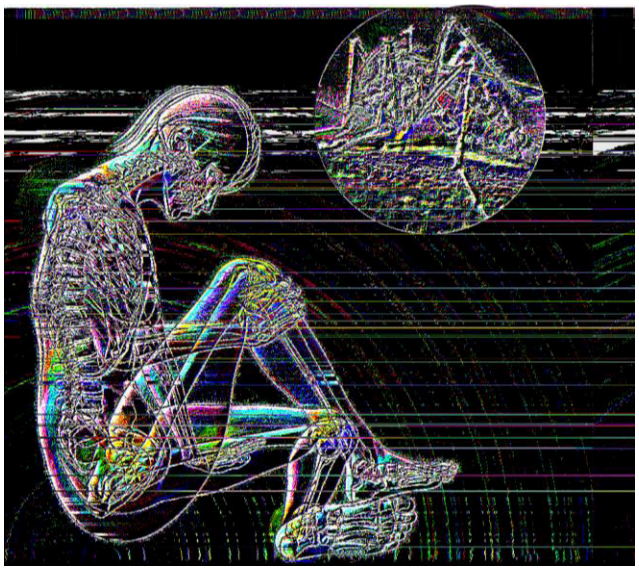
IMMEDIATELY:

- Notify the designated Disease Surveillance Coordinator (DSC) or EPI Surveillance Officer or the RESU
- Collect 2 stool specimens 24-48 hours apart
- Facilitate complete case investigation; fill out case investigation form


Hand, Foot,
and Mouth
Disease







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- Vina Arguelles, NRL for Influenza, RITM
- Lydia Sombrero, Microbiology Department, RITM

THANK YOU VERY MUCH FOR LISTENING