



Department of Public Health
Communicable Disease Section

Communicable Disease Update

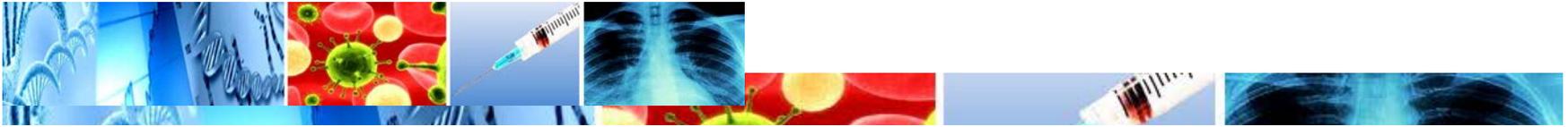
Lea Morgan
Program Coordinator
April 2016



- Name 3 strategies or interventions to prevent pertussis
- Understand what happens when diseases are reported
- Understand Zika virus transmission, testing, and prevention

- Requires healthcare providers and laboratories to report:
 - >85 communicable diseases
 - Any occurrence of unusual disease
 - Any outbreak
 - Non-communicable conditions
 - Animal bites (also for rabies exposure)
 - Disorders characterized by lapses of consciousness
 - Alzheimer's disease and other dementia
- Specifies reporting timelines
- Allows for the local Health Officer to add any conditions for local reporting

Confidential Morbidity Reports (CMRs)



State of California—Health and Human Services Agency

California Department of Public Health

TUBERCULOSIS (TB)

TB TREATMENT INFORMATION

DEPARTMENT OF MOTOR VEHICLES (DMV)

California Driver License or Identification Card Number (eight characters):

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1. If this report is based upon episodic lapses of consciousness, when was the most recent episode?:
(mm/dd/yyyy)

2. If there have been multiple episodes of loss of consciousness or control within the past three years, please indicate the dates if they are known to you.

(a): (mm/dd/yyyy) (b): (mm/dd/yyyy) (c): (mm/dd/yyyy) (d): (mm/dd/yyyy) (e): (mm/dd/yyyy) (f): (mm/dd/yyyy)

3. Within the past 12 months, has there been an episode of loss of consciousness or control while driving? Yes No Uncertain

4. Are additional lapses of consciousness likely to occur? Yes No Uncertain

5. If the patient has had episodes of nocturnal seizures, is there likelihood of lapses of consciousness occurring while he/she is awake? Yes No Uncertain

6. Has this patient been diagnosed with dementia or Alzheimer's disease? Yes No Uncertain

7. Would you currently advise this patient not to drive because of his/her medical condition? Yes No Uncertain

8. Does this patient's condition represent a permanent driving disability? Yes No Uncertain

9. Would you recommend a driving evaluation by DMV? Yes No Uncertain

Not done

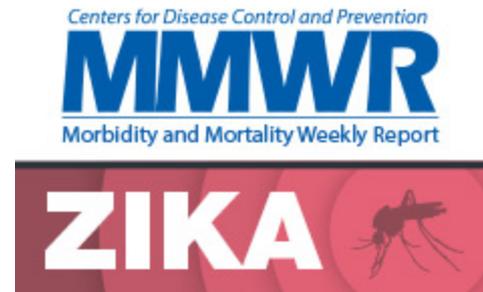
Other tests:

Remarks:

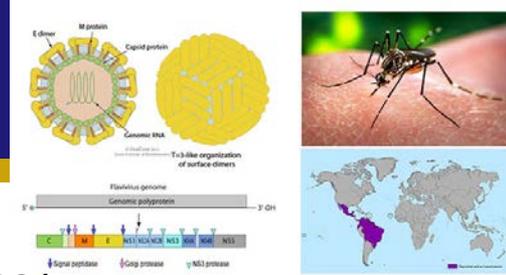
- Investigation: interview cases, clinicians
 - Risk factors, exposures
 - Cases, contacts in sensitive occupations/settings (e.g. food handlers, day care workers)
- Education
 - Information to case, contacts, public to control spread of disease in community
 - Health alerts, advisories to clinical community
- Disease control
 - Treatment, prophylaxis recommendations
 - Provide recommendations to infection control practitioners to help prevent spread of disease in healthcare & other settings
- Surveillance
 - Notify state, national public health officials, as necessary
 - Report morbidity to CDPH→CDC
 - Analyze & publish surveillance data

- An important part of surveillance is being alerted to any unusual diseases or occurrences in humans and animals:
 - Unusual disease
 - Increased incidence
 - Off-season illnesses
 - Change in severity of illness

- Zika Virus basics
- Current epidemiology
- Modes of Transmission
 - Sexual
 - Blood Transfusion
- Guidelines
 - Women of reproductive age
 - Sexual partners
 - Infants & children
 - Labor & delivery
- Prevention & Public Health Actions



Zika Virus Infection



- **Etiology**: Zika virus
- **Symptoms**: most infections are asymptomatic, ~80%
 - fever, rash (pruritic, maculopapular), joint pain, conjunctivitis, muscle pain, headache
 - Death is rare
 - Guillain-Barré syndrome reported following Zika infection, incidence increases with age
- **Incubation period**: unknown, *currently estimated 3-14 days*
- **Infectious period**: found in blood for about a week (longest in literature is 11 days)
 - Found in other bodily fluids such as semen, urine, amniotic fluid, breastmilk
- **Transmission**: mainly through the bite of an infected mosquito (*Aedes aegypti*)
 - Mother to child
 - Sexual contact
 - Blood transfusions

Active Zika Virus Transmission, as of 4/7/16



As of April 6, 2016 (5 am EST)

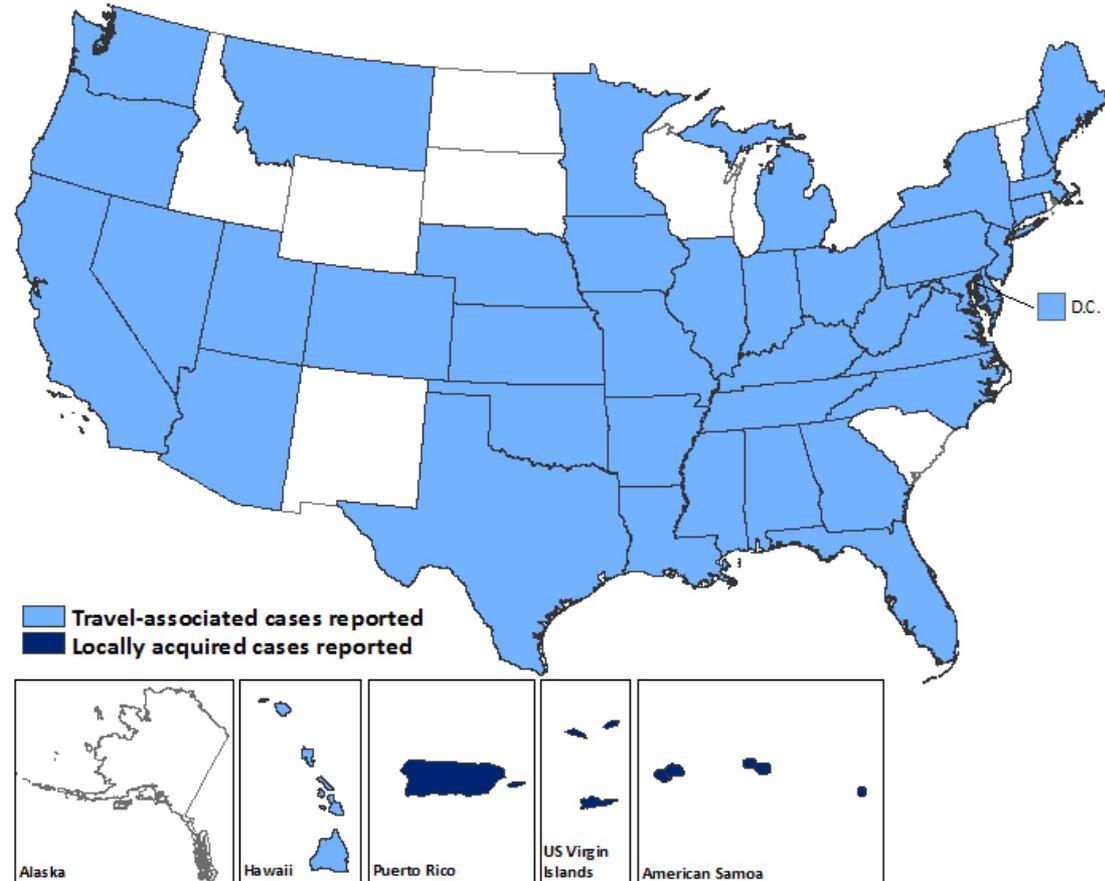
- Zika virus disease and Zika virus congenital infection are nationally notifiable conditions

US States

- Travel-associated Zika virus disease cases reported: 346
- Locally acquired vector-borne cases reported: 0
- Of the 346 cases reported,
 - 32 were pregnant women,
 - 7 were sexually transmitted, and
 - 1 had Guillain-Barré syndrome

US Territories

- Travel-associated cases reported: 3
- Locally acquired cases reported: 351
- Of the 354 cases reported,
 - 37 were pregnant women and
 - 1 had Guillain-Barré syndrome



- **Sexual Contact**

- Sexual transmission from infected male to partner
 - Documented transmission from symptomatic males to partners
 - Transmission occurred before, during, and after symptoms
- Virus remains in semen longer than in blood
- We do not know:
 - How long virus stays in semen
 - If asymptomatic infected men can transmit Zika virus
 - If a woman can transmit Zika to sex partners
 - If Zika is spread through oral sex (e.g. saliva, vaginal fluids)



- **Blood Transfusion**

- No confirmed cases of transmission in U.S., but some suspected cases in Brazil
- 2.8% of blood donors in French Polynesian outbreak tested positive for Zika
- No FDA-licensed blood donor screening test available for Zika, but screening occurs through recent travel questionnaire

- **Recommendations**

- Refrain from blood donation for 4 weeks if:
 - History of Zika virus infection
 - Travel to an area with active Zika transmission & symptoms w/in 2 weeks of travel
 - Sexual contact with man diagnosed with Zika virus infection
 - Sexual contact with man who lived in or traveled to area with active Zika transmission in 3 mo before sexual contact
 - Living in or travel to area with active Zika transmission



- **Animals**

- Do not appear to be involved in transmission
- No evidence of animal to human transmission
- No reports of pets or other animals having Zika symptoms
 - Zika was discovered in non-human primates in 1940s, some had symptoms
- Microcephaly not reported among non-human primates in areas with previous or ongoing Zika virus transmission
- All non-human primates imported to the U.S. undergo mandatory 31-day quarantine





- ***Zika exposure:*** travel to an area with active Zika transmission, or sex (oral, anal, or vaginal) without a condom with a man who traveled to, or resided in an area with active Zika virus transmission
- ***Recommendations based on:***
 - No evidence Zika will cause congenital infection in pregnancies conceived after resolution of maternal viremia
 - No data available re: congenital infection in women with asymptomatic infection
 - Unknown whether asymptomatic men can transmit Zika in their semen
 - Infectious Zika virus detected in semen 2 weeks after sx onset in 2 cases
 - Zika virus RNA detected in semen of 1 case 62 days after sx onset



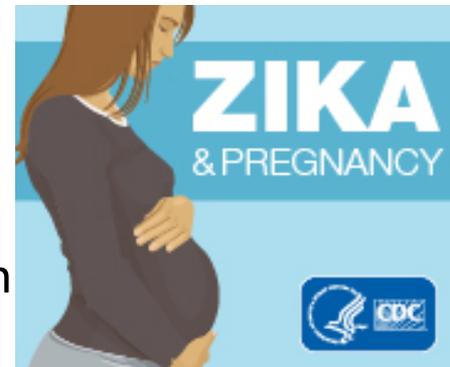
- **Preconception: Women with Possible Exposure to Zika Living Where No Active Transmission**
 - Educate re: signs & symptoms of Zika virus infection
 - Educate re: potential adverse outcomes associated w/ Zika infection during pregnancy
 - Wait 8 weeks after symptom onset before conceiving
 - Counsel on preventing unintended pregnancy
- **Preconception: Men with Possible Exposure to Zika Living Where No Active Transmission**
 - Men diagnosed or had Zika sx
 - Use condoms or abstain for 6 months after symptom onset
 - Wait 6 months before attempting conception
 - Men w/ possible Zika exposure but no clinical sx
 - Wait at least 8 weeks after possible exposure before conceiving



- **Testing Recommendations for Persons Attempting Conception**
 - No testing recommended for asymptomatic people with Zika exposure
 - Test serum in people with Zika exposure and one or more symptoms within 2 weeks of possible exposure:
 - acute fever
 - rash
 - arthralgia
 - conjunctivitis
- **Women Undergoing Fertility Treatment**
 - No documented transmission during fertility treatment, but theoretically possible
 - Zika not likely to be destroyed in cryopreservation process
 - Fertility treatment for couples should follow timelines for pre-conception
 - *Guidelines for donated tissues exist*



- **Testing Pregnant Women with Possible Zika Exposure** (see handout)
 - *Always contact the Local Public Health Department first**
 - **Asymptomatic:** test serum 2-12 weeks after travel/exposure in area with active Zika transmission
 - **Symptomatic:** test serum (within 7 days of onset), urine (within 30 days of onset)
 - Includes pregnant women with Zika exposure in 8 weeks prior to conception: test within 2-12 weeks of that exposure
- **Amniocentesis**
 - Individualized for each clinical circumstance
 - Consider in evaluation for congenital infections
 - Optimal time to perform for Zika infection is not known



- Couples who are pregnant
 - Male partner who lives or traveled to area w/ Zika:
 - Use condoms every time during sex, or
 - Abstain for duration of pregnancy
- Men who live in or traveled to area w/Zika & non-pregnant partner
 - Use condoms every time during sex
 - Man diagnosed or had Zika symptoms
 - Use condoms or abstain for 6 months after symptom onset
 - Man traveled to area w/ Zika but no symptoms
 - Use condoms or abstain for 8 weeks after return
 - Man lives in area with Zika but no symptoms
 - Use condoms or abstain until there is no active Zika transmission
- Couples trying to become pregnant (see guidelines)
- Testing of blood or semen is not recommended to determine risk of sexual transmission



Guidelines: Infants & Children with Possible Zika Infection

- **Routine care** for infants born to mothers with Zika exposure during pregnancy, no maternal Zika testing, and normal head circumference, ultrasounds, & physical exam
- Spectrum of disease in **neonates** is unknown—2 cases reported
 - 1 infant was asymptomatic
 - 1 infant had thrombocytopenia and diffuse rash
- Spectrum of disease in **infants & children <18 yo** infected through mosquito bites
 - Most children asymptomatic or mildly ill
 - 2007 Micronesia outbreak: children 0-19yo had lower attack rates
 - Acute cases: within 7 days of onset, test serum, CSF if obtain for other reasons by PCR
 - 4 days p onset, can test serum for Zika IgM



Guidelines: Infants & Children with Possible Zika Infection



- **Congenital transmission**

- Testing guided by:
 1. Microcephaly or intracranial calcifications detected
 2. Mother's Zika testing results
- Review previous prenatal ultrasounds
- Newborn physical assessment
- *Use clinical judgement in evaluating infants with congenital abnormalities other than microcephaly or intracranial calcifications: test mother first*

- **Perinatal transmission**

- Suspect Zika in infant during first 2 weeks of life
 - Mother had possible Zika exposure in 2 weeks prior to delivery, AND
 - ≥ 2 symptoms: fever, rash, conjunctivitis, or arthralgia **Zika illness is usually mild in children**
- ***Notify Local Public Health of suspect Zika cases***

- No evidence of transmission through **breastmilk**, although Zika virus has been detected

- CDC encourages mothers living in areas of active Zika transmission to breastfeed

- **Standard Precautions: Minimize exposure to bodily fluids**
 - No documentation of transmission from patient to healthcare provider (HCP)
 - Zika patients may be asymptomatic
 - Opportunity to emphasize importance of appropriate infection control



- Basic Measures

- Prevent mosquito bites

- Window screens, air conditioning
 - Long-sleeved clothing & pants
 - Permethrin-treated clothing & gear
 - Insect repellents
 - Mosquito netting to cover infant carriers, strollers, cribs, beds



- What is Public Health doing?

- Interview suspect cases

- Symptomatic cases counseled to avoid mosquito bites in 1st week of illness → prevent human-mosquito transmission

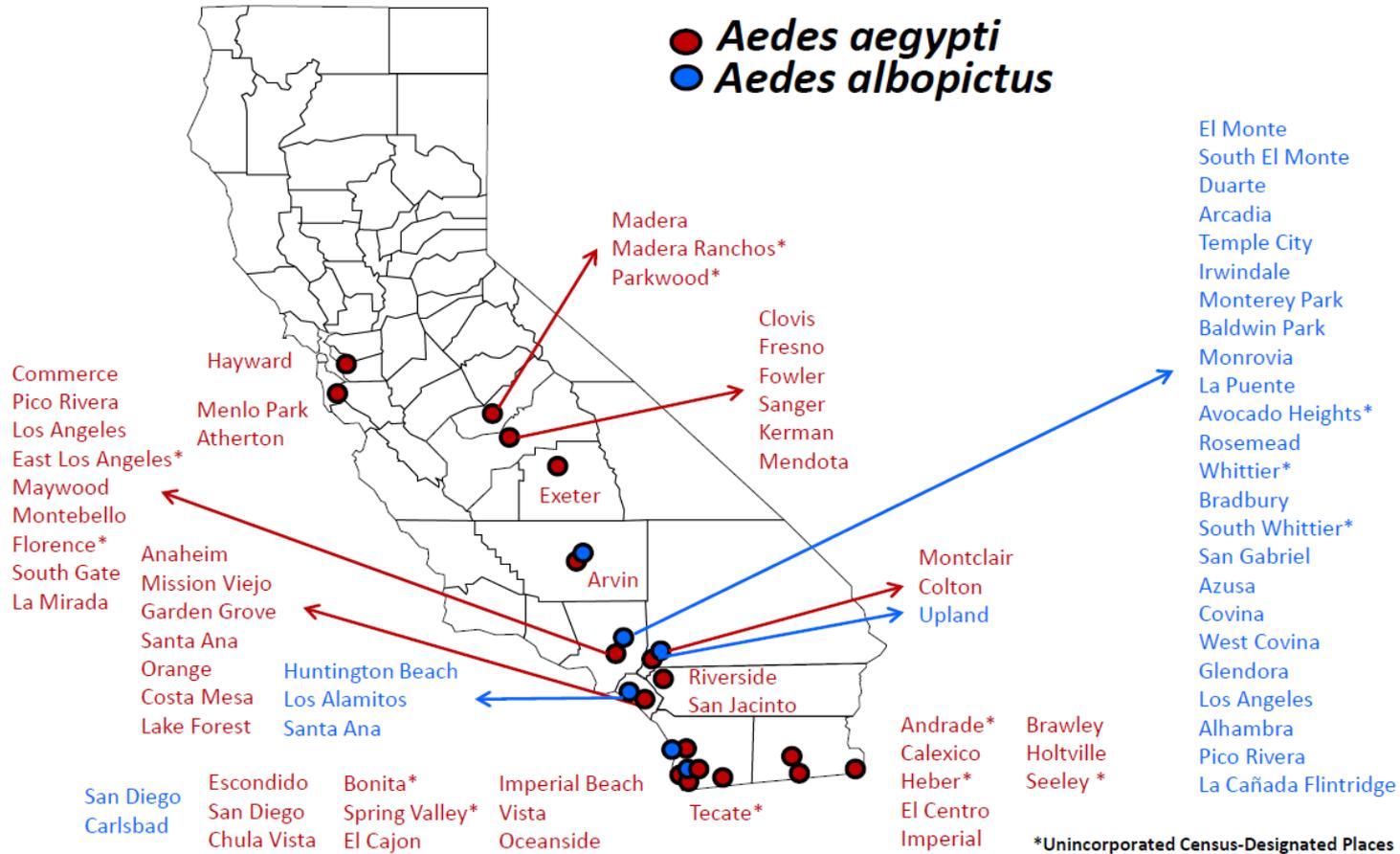
- Notify Vector Control agencies

- Trap for *Aedes* vectors
 - Check for breeding sites
 - Spray local areas

Zika Virus Transmission: Local Presence of Vectors

Aedes aegypti and *Aedes albopictus* Mosquitoes Detection Sites in California

Updated weekly on Fridays as new infestations are detected



San Bernardino DPH Communicable Disease Section

1.800.722.4794

After-hours Public Health Duty Officer available

http://www.sbcounty.gov/dph/publichealth/programs_services/communicable_disease_section/communicable_disease_home.asp

***Call Local DPH first!**

California Department of Public Health (CDPH)

<https://www.cdph.ca.gov/HealthInfo/discond/Pages/Zika.aspx>

- Health Alerts
- Current case counts
- Local testing guidance

CDC.gov/Zika

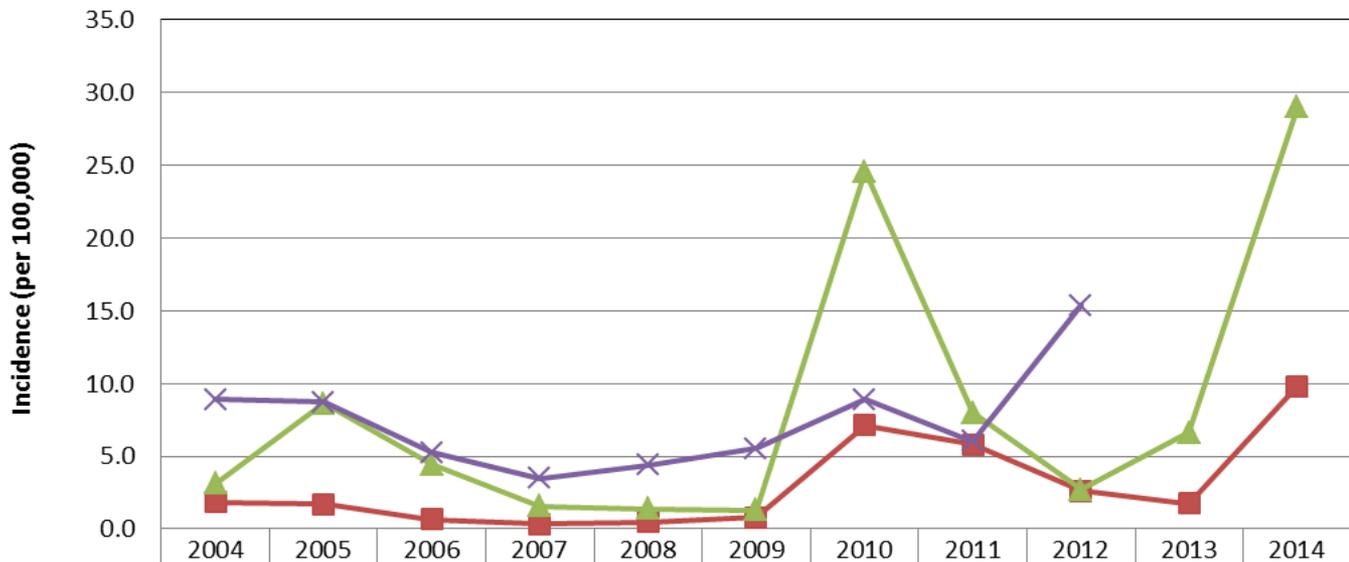
<http://www.cdc.gov/zika/>

- Updated guidelines
- COCA webinars (Clinician Outreach & Communication Activity)
- Resources & Publications (Infographics, Doctor's Visit Checklist, etc)

- Etiology: *Bordatella pertussis* (bacteria)
- Symptoms: cold-like symptoms, cough that progresses to become paroxysmal and last up to 2 mo, sometimes post-tussive vomiting
- Incubation period: 6-20 days (9-10 days avg)
- Infectious period: 21 days after sx onset, or 5 days after start of appropriate antibiotics
- Airborne transmission via respiratory droplets
- Public Health Significance:
 - Can be lethal in children <6mo
 - ~50% of infants <1yo are hospitalized
 - Pregnant women
 - Contacts to children <6mo

- We had a 550% increase in cases from 2013-2014, a result of the epidemic in CA

Incidence Rates for Pertussis in the County of San Bernardino, California, and the United States, 2004-2014



■ County of San Bernardino	1.8	1.7	0.7	0.3	0.5	0.8	7.1	5.8	2.6	1.8	9.8
▲ California*	3.1	8.6	4.4	1.6	1.4	1.3	24.5	8.0	2.7	6.6	29.0
× United States*	8.9	8.7	5.3	3.5	4.4	5.5	8.9	6.0	15.4	—	—

*CA for 2014 is preliminary & U.S. data for 2013-2014 were not available at the time this report was published.

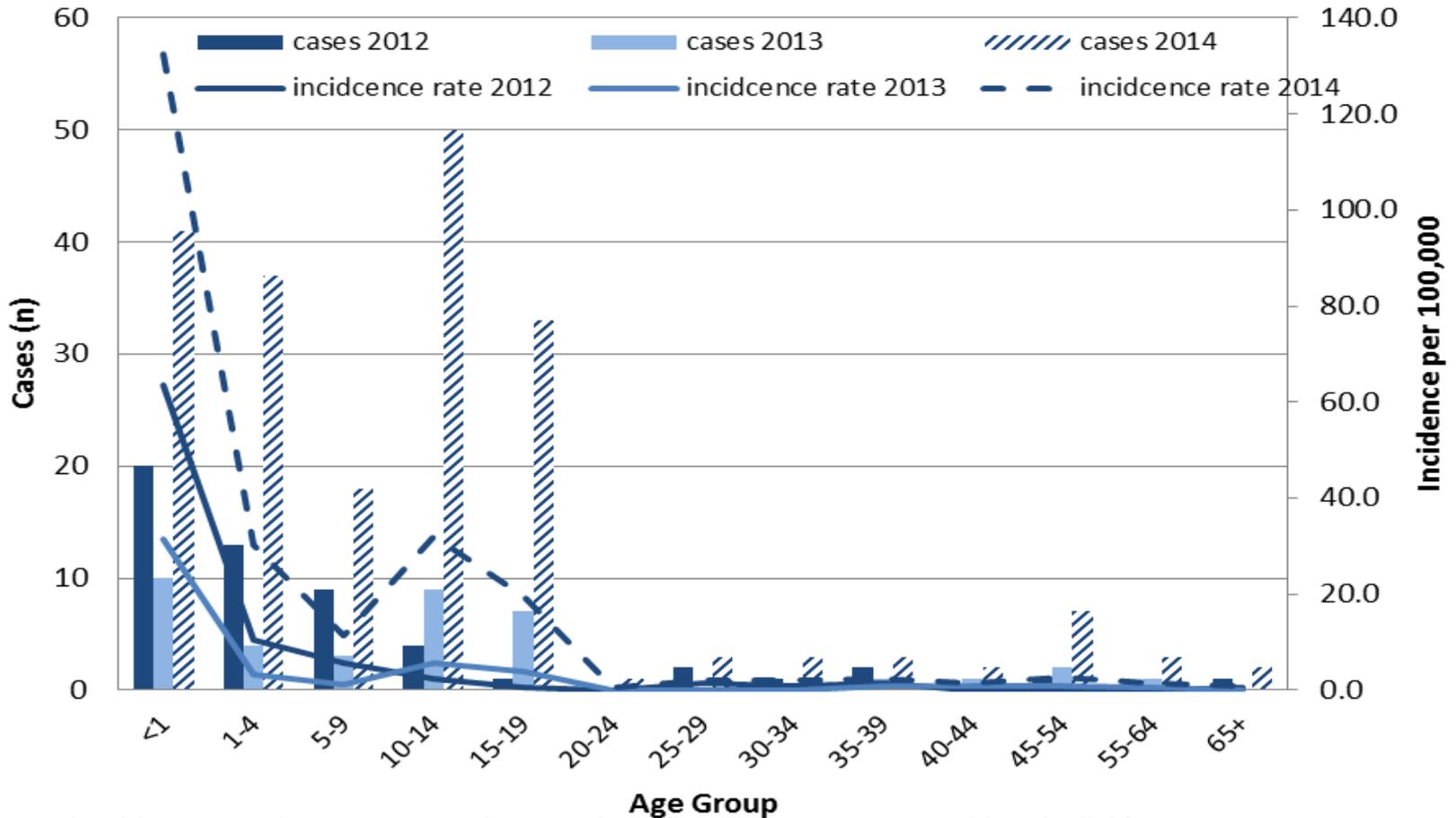
Pertussis (Whooping Cough)



- **Pregnant Women**
 - Tdap in 3rd trimester (between 27-36 weeks of pregnancy, at the earliest opportunity during this window)
 - Tdap is recommended during each pregnancy, even when given before pregnancy
 - Transplacental immunity until first vaccination at 6--8 weeks of age
- **Infants** can start the childhood whooping cough vaccine series, DTaP (PDF), as early as 6 weeks of age
- **Students in 7th grade** in California need to have met the requirement for a Tdap (PDF) booster - see <http://shotsforschool.org>
- **Adults** are also recommended to receive a Tdap booster, especially if they are in contact with infants or are health care workers, most adults have not yet received Tdap
- Whooping cough vaccination recommendations: **Advisory Committee on Immunization Practice (ACIP)**
<http://www.cdc.gov/vaccines/hcp/acip-recs/index.html>

Pertussis (Whooping Cough) by Age

Age Distribution of Pertussis Cases by Count & Incidence, County of San Bernardino, 2012-2014 (n=205)

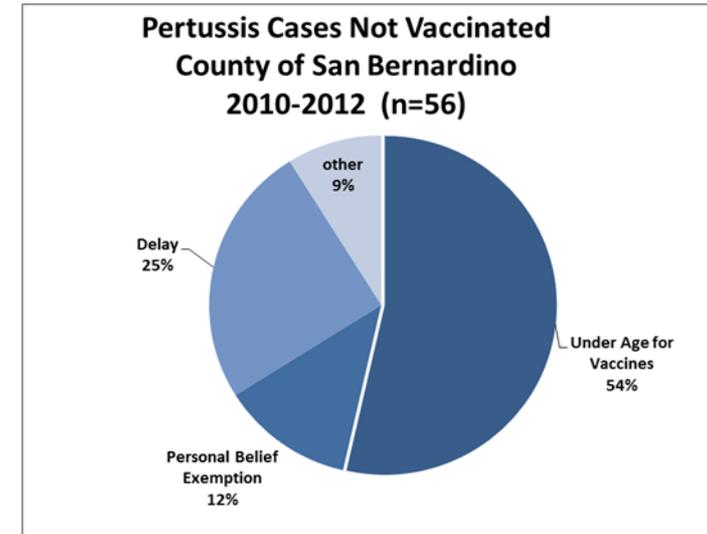


*Incidence rates in age groups where totals are less than 5 are not considered reliable.

➤ Importance of vaccinating contacts of the newborn: siblings, parents, caregivers

- ❑ How often is a pregnant mom supposed to be vaccinated for pertussis?
 - **Every pregnancy**
- ❑ When, ideally, during pregnancy?
 - **Third trimester**
 - **BONUS: why?**
 - **Passive immunity from mother to infant helps protect infant until they are old enough to be vaccinated at 6-8 weeks of age**

➤ Missed opportunities? 25% of those not vaccinated because of delay in starting series or between doses



1. Vaccinate **pregnant women**, *every* pregnancy during the third trimester
2. Immunize **infants** promptly
 - can be as early as 6 weeks, especially if mother did not receive Tdap during pregnancy
3. Vaccinate **household contacts & caregivers** of infants
4. Vaccinate **healthcare workers**, especially those who work with infants or pregnant women
5. Consider pertussis **diagnosis**
 - Regardless of age
 - In recently vaccinated people
 - Young infants
6. **Test** for pertussis (no serology)
 - NP swab or aspirate
 - PCR or culture
7. **Treat** with antibiotics before obtaining test results
8. Consider providing **antibiotic prophylaxis** to people with direct contact with respiratory secretions from the case

CDPH Pertussis web page: <http://www.cdph.ca.gov/HealthInfo/discond/Pages/Pertussis.aspx>

Electronic Reporting via CalREDIE: Provider Portal

- Allow providers to report directly to SBDPH via CalREDIE
- Brief training
- Meaningful Use requirements
- If interested, contact Communicable Disease Section, 1.800.722.4794

The screenshot shows the 'Supplemental' tab of the CalREDIE Provider Portal. The form is titled '* Disease Being Reported' and contains the following fields:

- * Last Name, * First Name, Middle Name, Name Suffix
- SSN, DOB (MM/DD/YYYY), Age, Months, Days
- Address Number & Street, Apartment/Unit Number
- City, State (CA), Zip
- Census Tract, County of Residence, Country of Residence
- Country of Birth, Date of Arrival (MM/DD/YYYY)
- Home Telephone, Cellular Phone / Pager, Work/School Telephone
- E-mail Address, Other Electronic Contact Information
- Work/School Location, Work/School Contact
- * Gender, Pregnant? (Yes, No, Unknown), Estimated Delivery Date
- Marital Status, Medical Record Number
- Occupation Setting, Describe/Specify
- Occupation, Describe/Specify
- Occupation Location
- Request New Report Source, * Submitter Name (Stone, Allison), * Reporting Source (Kaiser - South Sacramento)

At the bottom right, there are 'Next' and 'Cancel' buttons.

Quick Reference for Exclusion of Students & Staff

Please report ALL cases of **Unusual disease** and **Outbreaks** to San Bernardino Department of Public Health:
1.800.722.4794 or <http://www.sbcounty.gov/pubhlth/>

Developed by SBCSS Health Services in cooperation with San Bernardino County Department of Public Health Communicable Disease Section

Disease	Transmission	Report	Exclusion
Chickenpox/Shingles/Varicella	Direct contact, Indirect contact, Airborne, Droplet	Yes--outbreaks & hospitalizations	Yes, until vesicles dry Yes, until 24h after treatment or released by MD
Conjunctivitis	Direct contact	Outbreak only	Yes, until recovered
Diarrhea/Vomiting	Fecal-oral	Outbreak only	Yes, if fever present
Fifth Disease	Direct contact	Outbreak only	Yes, during acute illness
Hand, Foot, and Mouth	Fecal-oral, Direct contact	Outbreak only	Yes, until rtreated and no nits
Head lice	Direct contact	Outbreak only	Yes, until lesions healed or covered or 24h after treatment
Impetigo	Direct contact	Outbreak only	Yes, until recovered
Influenza	Droplet, Direct contact, Indirect contact	Hospitalized cases, Outbreaks	Yes, 4 days past onset of rash
Measles/Rubeola	Droplet, Direct contact	Yes	Yes, until released by MD
Meningitis	Direct contact, Droplet	Yes	Yes, until no longer acutely ill
Mononucleosis	Direct contact Airborne, Direct contact,	Outbreak only	

I think I have a case of... Should I report...?

MERS-CoV

Ebola

Measles

Mumps

Pertussis

What specimens do we collect? Where do we send them?
Do we worry about office/school exposures?
How long is the person infectious? Off-work/school orders?

We are your resource!

**Call us: SBDPH Communicable Disease Section
1.800.722.4794**



Summary: SBDPH Communicable Disease Section

- Investigation: individual cases & outbreaks
- Surveillance:
 - Passive for all diseases except TB contacts
 - Active for identifying TB contacts (potential cases), outbreak investigation
- Prevention:
 - case-patient education re: disease transmission & vaccination,
 - TB screening for contacts to active TB case

<http://www.sbcounty.gov/pubhlth/>

1.800.722.4794

Public Health Duty Officer available after hours

- What is the best and fastest way to have a suspected Zika virus case tested?
 - **Contact the local health department**
- What critical information should be asked of persons suspected to have Zika?
 - 1. Travel history**
 - 2. Symptoms**
 - 3. Other risk factors**
- **Describe the reservoir for Zika virus in California**
 - *Aedes aegypti and Aedes albopictus*

➤ Name 3 strategies or interventions to prevent pertussis

- ✓ Vaccinate **pregnant women**
- ✓ Immunize **infants** promptly
- ✓ Vaccinate **household contacts & caregivers** of infants
- ✓ Vaccinate **healthcare workers**, especially those who work with infants or pregnant women
- ✓ Consider pertussis **diagnosis**
- ✓ **Test** for pertussis (no serology)
- ✓ **Treat** with antibiotics before obtaining test results
- ✓ Consider providing **antibiotic prophylaxis**

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Communicable Disease
Section 1.800.722.4794

