



# Invasive Meningococcal Disease (IMD) Update

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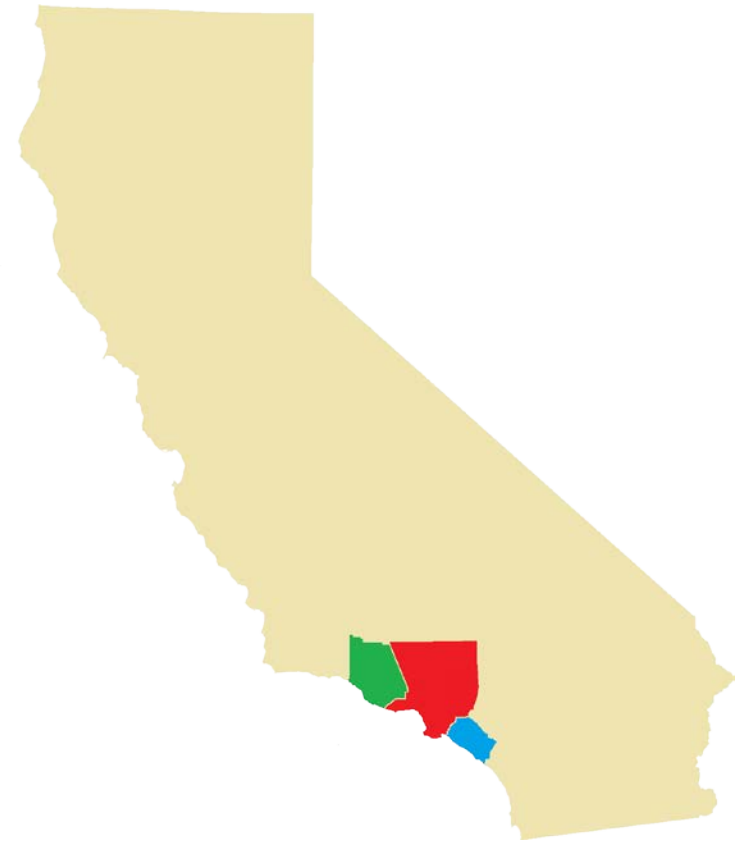
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# 2016-17 SoCal Outbreak

- Largest known IMD outbreak among MSM in US
- 31 outbreak-associated cases
- Multiple local health jurisdictions
  - City of Long Beach
  - Los Angeles County
  - Orange County
  - Ventura County



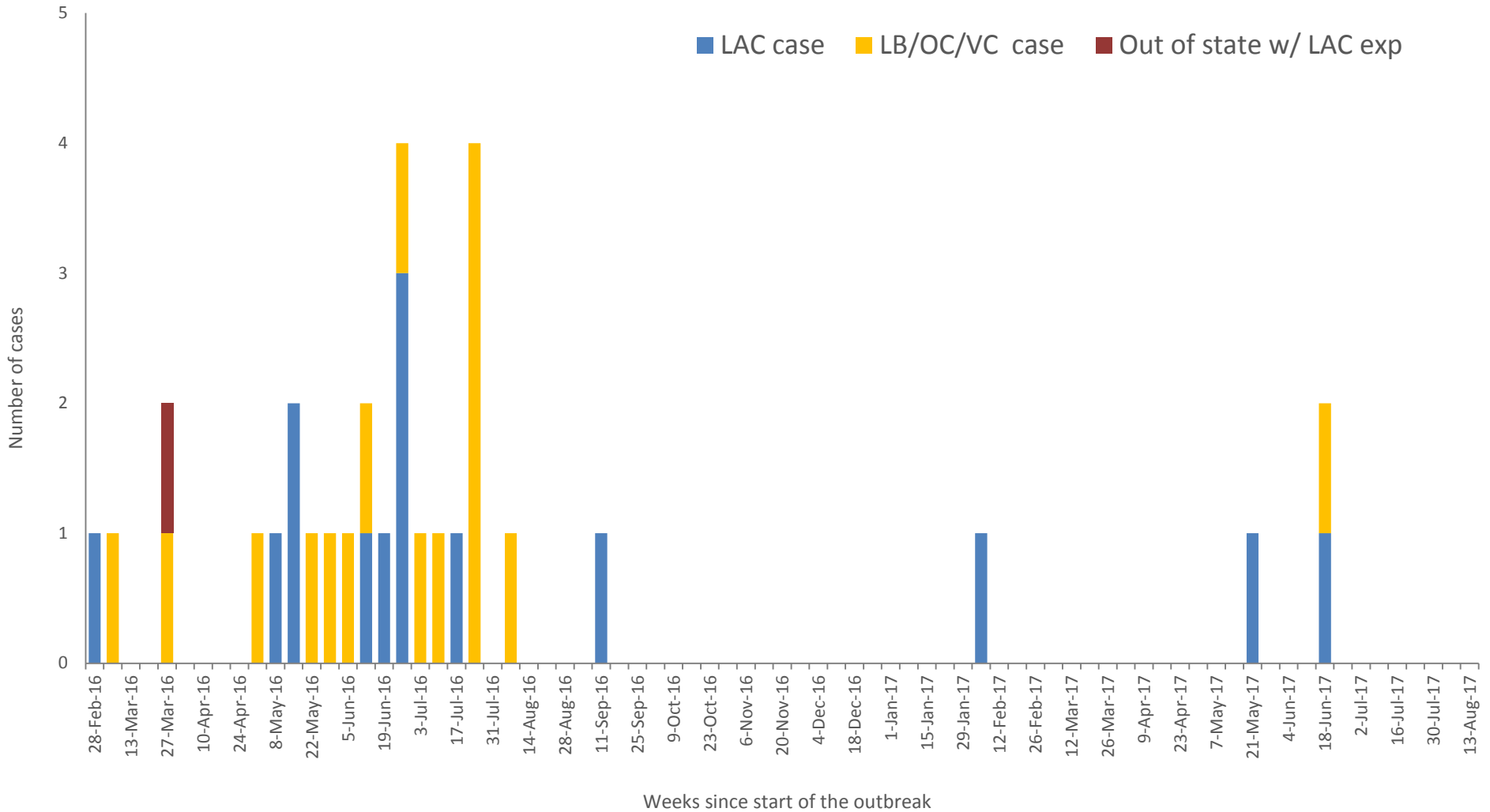


# IMD Case Description (n=31)

Characteristic	Number (%)
Male	28 (90%)
MSM (% of males)	23 (82%)
Median age (range)	32 (17-76)
Hospitalized	30 (97%)
Known HIV infection	5/29 (17%)
Deaths	4 (13%)



# Epidemic Curve





# Symptoms and Hospital Stay of LAC cases (n= 14)

	2016-17 n (%)
Nausea or vomiting	10 (71)
Triad (fever, stiff neck, altered sensorium)	7 (50)
Length of hospital stay (days)	8 (6 – 95)



# Clinical Presentation of Outbreak Cases

	Cases (n=27)
Meningococccemia	63%
Meningitis	37%



# LAC Vaccine Recommendations

- **All HIV-infected persons** should receive:
  - 2 doses of the conjugate meningococcal (MenACWY) vaccine at least 8 weeks apart and a booster 5 years later\* and every 5 years thereafter throughout life.
- **All MSM who are not HIV-infected** should receive:
  - single MenACWY vaccine dose (Menveo® or Menactra®) or a booster if the most recent dose was given  $\geq 5$  years ago.

\*If the most recent dose was received before age 7 years, the first booster dose should be administered 3 years after the initial dose and then every 5 years thereafter throughout life.

*Note: MenACWY vaccine is included on the AIDS Drug Assistance Program (ADAP) formulary.*



# Provider Guidance

- Implement evidence-based practices to ensure completion of the 2-dose vaccination schedule for all HIV-infected persons.
  - Examples include reminder-recall or co-scheduling
  - Track completion rates
- Ensure MSM clinic staff are completely vaccinated
- Refer MSM for free MenACWY vaccine if vaccination is not feasible at their primary care provider





# Vaccination Information

Meningococcal Vaccine Dosing and Schedule- updated CDPH chart describing timing of doses for high-risk populations

<http://eziz.org/assets/docs/IMM-1218.pdf>

Free Meningococcal Vaccine for all uninsured/underinsured MSM in LAC.

Find a location here:

<http://www.publichealth.lacounty.gov/ip/Docs/meningitisclinics.pdf>

**Meningococcal Vaccines—High-risk Populations** Different vaccines protect against different serogroups.

**Risk groups:** Exp. Increased Exposure to meningococcal serogroups covered by vaccines (due to outbreaks<sup>1</sup>, travel to affected areas [e.g. the Hajj], lab exposure)  
 CD. Persistent Complement component Deficiencies (including persons taking eculizumab [Soliris<sup>TM</sup>])  
 Asp. Functional or Anatomic Asplenia (including sickle cell disease)  
 HIV. HIV Infection

Age at first dose	Exp.	CD	Asp.	HIV	1) MenACWY vaccines <sup>2</sup>	Boosters for those who remain at increased risk
2–6 months	✓	✓	✓	✓	2 months: ACWY-CRM Menveo <sup>®</sup> 4 months: ACWY-CRM Menveo <sup>®</sup> 6 months: ACWY-CRM Menveo <sup>®</sup> 12–15 months: ACWY-CRM <sup>®</sup> Menveo <sup>®</sup>	
7–23 months	✓	✓	✓	✓	ACWY-CRM Menveo <sup>®</sup> → 3 months → ACWY-CRM <sup>®</sup> Menveo <sup>®</sup>	If primary dose(s) given when younger than 7 years: 3 years → ACWY-CRM or -D <sup>®</sup> Menveo <sup>®</sup> or Menactra <sup>®</sup> → Every 5 years → ACWY-CRM or -D <sup>®</sup> Menveo <sup>®</sup> or Menactra <sup>®</sup>
9–23 months	✓	✓			ACWY-D <sup>®</sup> → 3 months → ACWY-D <sup>®</sup>	
2 years and older	✓	✓ <sup>3</sup>	✓ <sup>3</sup>	✓ <sup>3</sup>	ACWY-CRM or -D <sup>®</sup> Menveo <sup>®</sup> or Menactra <sup>®</sup> → 2 months → ACWY-CRM or -D <sup>®</sup> Menveo <sup>®</sup> or Menactra <sup>®</sup> ACWY-CRM or -D <sup>®</sup> Menveo <sup>®</sup> or Menactra <sup>®</sup>	If primary dose(s) given at age 7 years or older: Every 5 years → ACWY-CRM or -D <sup>®</sup> Menveo <sup>®</sup> or Menactra <sup>®</sup>
<b>2) Also give MenB vaccine—may be given at same time as MenACWY vaccine. Use the same brand for each dose in the series.</b>						
10 years and older	✓	✓	✓	✓	1st dose: MenB-4C Bexsero <sup>®</sup> → 1 month → 2nd dose: MenB-4C Bexsero <sup>®</sup> OR 1st dose: MenB-FHbp Trumenba <sup>®</sup> → 1–2 months → 2nd dose: MenB-FHbp Trumenba <sup>®</sup> → 6 months between 1st and 3rd dose → 3rd dose: MenB-FHbp Trumenba <sup>®</sup>	



# Eculizumab CDC Health Advisory

- Eculizumab (Soliris®) commonly prescribed for treatment of
  - atypical hemolytic uremic syndrome (aHUS)
  - paroxysmal nocturnal hemoglobinuria (PNH)
- Patients receiving Eculizumab have 1,000-2,000 fold greater risk of IMD compared to general population
- ACIP recommends meningococcal vaccination for all patients receiving eculizumab
- Meningococcal conjugate (MenACWY) vaccine targets serogroups A, C, W, and Y, but provides no protection against nongroupable *N. meningitidis*
- Consider antimicrobial prophylaxis for duration of eculizumab therapy



# Reporting

- Report **suspect cases** (positive Gram stain, don't wait until culture is positive) **immediately** to ACDC by phone:  
(213) 240-7941 8am-5pm  
(213) 974-1234 after hours

- Forms to complete and fax after the call found here:

<http://publichealth.lacounty.gov/acd/Diseases/EpiForms/MeningococcalDisRep.pdf>

State of California Department of Public Health  
Meningococcal Disease Case Report

State of California Department of Public Health  
400 North Doe Street  
Burbank, CA 91502-1010  
Tel: (818) 337-3300

**MENINGOCOCCAL DISEASE CASE REPORT**

Patient Name-Last: \_\_\_\_\_ Sex: \_\_\_\_\_ Middle Initial: \_\_\_\_\_ Date of Birth: \_\_\_\_\_ Age: \_\_\_\_\_ Sex: \_\_\_\_\_  
 Address-Number, Street: \_\_\_\_\_ City: \_\_\_\_\_ State: \_\_\_\_\_ County: \_\_\_\_\_ ZIP Code: \_\_\_\_\_  
 Telephone Number: \_\_\_\_\_  
 Home ( ) \_\_\_\_\_ Work ( ) \_\_\_\_\_  
 Name ( ) \_\_\_\_\_  
 Ethnicity (check one):  Asian-American/Pacific  White  Native American  Asian/Pacific Islander  Other  Hispanic/Latino  Non-Hispanic/Latino  
 Race (check one):  Asian Indian  Chinese  Japanese  Korean  Filipino  Guamanian  Hawaiian  Other

**PRESENT ILLNESS**  
 Onset date: \_\_\_\_\_ Attending physician: \_\_\_\_\_ Telephone number: \_\_\_\_\_  
 Hospitalization:  Yes  No Admit date: \_\_\_\_\_ Discharge date: \_\_\_\_\_ Hospital name: \_\_\_\_\_ Medical record number: \_\_\_\_\_ Telephone number: \_\_\_\_\_

**SYMPTOMS/SIGNS**

	Yes	No	Unk		Yes	No	Unk
Date history obtained:							
Fever > 38°C/100.4°F (highest recorded):	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Seizures	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Headache	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Altered consciousness	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Stiff neck	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Maculopapular rash	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Respiratory symptoms	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Petechial rash (distribution: _____)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Nausea/vomiting	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Purpuric rash (distribution: _____)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other relevant symptoms (list): _____				Clinical purpura fulminans	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**SYNDROME**

	Yes	No	Unk	<b>HOSPITAL COURSE</b>	Yes	No	Unk
Pneumonia/MDD	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ICU admission	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Encephalitis/meningitis	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Intubated	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Septic arthritis	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Were antibiotics taken prior to collection of blood for microbial testing?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Septic shock	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Were antibiotics taken prior to collection of CSF for microbial testing?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Disseminated intravascular coagulation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Date antibiotics started: _____			
Prior medical history:				Antibiotic prescribed: _____			

**LABORATORY TESTING FOR N meningitidis** Pos \_\_\_\_\_ Not Done \_\_\_\_\_  
 Blood culture (date collected): \_\_\_\_\_  
 CSF gram stain for gram stain: \_\_\_\_\_  
 CSF antigen test: \_\_\_\_\_  
 CSF: \_\_\_\_\_

**Meningococcal Case Supplemental Form**  
 To be filled out in conjunction with the Meningococcal Disease Case Report and Contact Roster

In the past 3 months, there has been an increase in severe meningitis cases. The public health department is investigating this increase in these severe infections. To assist Public Health Department in controlling the spread of these infections, I need to ask some questions about your health activities and recent places that you and your close friends and family have been.

Patient Name (Last, First): \_\_\_\_\_ Date of Birth: \_\_\_\_\_ YCMR ID: \_\_\_\_\_  
 Will this information be collected by proxy?  Yes  No  If Yes, Name and relationship to case: \_\_\_\_\_

**POSSIBLE EPIDEMIOLOGIC RISK FACTORS**

**SOURCE CONTACT**  
 1) In the past month, have you been in contact with friends, relatives or any other groups of people that had similar symptoms as yours (i.e. headache, fever, problem in nursing, skin rash, nausea, vomiting)?  Yes  No  
 If Yes, Name of contact or group: \_\_\_\_\_  
 Location of contact: \_\_\_\_\_ City: \_\_\_\_\_ State: \_\_\_\_\_ ZIP Code: \_\_\_\_\_  
 Address: \_\_\_\_\_  
 Contact telephone: Home: ( ) \_\_\_\_\_ Cell: ( ) \_\_\_\_\_ Work: ( ) \_\_\_\_\_

**RESIDENCE**  
 2) In the past 3 months, where have you slept at night? (Check all that apply.)  
 Residence: Specify address: \_\_\_\_\_ City: \_\_\_\_\_ State: \_\_\_\_\_ ZIP Code: \_\_\_\_\_  
 Shelter: Specify name of shelter: \_\_\_\_\_ City: \_\_\_\_\_ State: \_\_\_\_\_ ZIP Code: \_\_\_\_\_  
 Specify address: \_\_\_\_\_  
 Streets: Specify name of streets/cross streets: \_\_\_\_\_  
 Jail: Specify name of jail: \_\_\_\_\_ Telephone number: ( ) \_\_\_\_\_  
 Other: Describe location: \_\_\_\_\_  
 3) In the past 3 months, do you have any friends or relatives that have:  
 Been homeless: Specify shelter name: \_\_\_\_\_ State: \_\_\_\_\_ ZIP Code: \_\_\_\_\_  
 Stayed in a shelter: Specify name of streets/cross streets: \_\_\_\_\_ City: \_\_\_\_\_ State: \_\_\_\_\_ ZIP Code: \_\_\_\_\_  
 Stayed on the streets: Specify name of streets/cross streets: \_\_\_\_\_ City: \_\_\_\_\_ State: \_\_\_\_\_ ZIP Code: \_\_\_\_\_

**FOOD AND BEVERAGE**  
 4) In the past 3 months, where have you eaten your meals? (List all locations)  
 Residence: Specify address: \_\_\_\_\_ City: \_\_\_\_\_ State: \_\_\_\_\_ ZIP Code: \_\_\_\_\_  
 Shelter: Specify name of shelter: \_\_\_\_\_ City: \_\_\_\_\_ State: \_\_\_\_\_ ZIP Code: \_\_\_\_\_  
 Specify address: \_\_\_\_\_  
 Soup Kitchen: Specify address: \_\_\_\_\_ City: \_\_\_\_\_ State: \_\_\_\_\_ ZIP Code: \_\_\_\_\_