



INFLUENZA VACCINE AND HEPATITIS A UPDATE, 2017

Dr. Cora Hoover

Director, Communicable Disease Control and Prevention

Population Health Division

San Francisco Department of Public Health

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Influenza Vaccine Update

**I won't spread flu
to my patients
or my family.**

Even healthy people
can get the flu, and
it can be serious.

Everyone 6 months
and older should
get a flu vaccine.
This means you.

This season, protect
yourself—and those
around you—by
getting a flu vaccine.



Thanks to
Dr. David
Stier for
slides

For more information, visit: <http://www.cdc.gov/flu>



U.S. Department of
Health and Human Services
Centers for Disease
Control and Prevention

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Impact of Complicated Influenza

- Death
 - Mean 23,600 annual influenza-associated deaths in USA, mainly from cardiopulmonary complications
 - 90% are age 65+
- Hospitalization
 - >200,000 annually in USA
 - Mainly age 65+, age 0-4, those with chronic conditions
- Costs during a severe season - \$12 billion

Influenza Strains Continually Evolve

- Antigenic drift = slow mutation over time
- Antigenic shift = sudden reassortment (pandemic)
- Yearly flu vaccine formulation changes adjust for antigenic drift in flu strains
- FDA reviews changes in circulating strains annually to determine new vaccine composition

Antigen Composition 2017-18

- Trivalent influenza vaccines
 - A/Michigan/45/2015 (H1N1)pdm09-like **NEW**
 - A/Hong Kong/4801/2014 (H3N2)-like
 - B/Brisbane/60/2008-like (Victoria lineage)
- Quadrivalent influenza vaccines
 - All of the above, plus
 - B/Phuket/3073/2013-like (Yamagata lineage)

2017-18 Influenza Recommendations

- Live Attenuated Influenza Vaccine (LAIV/FluMist) still not recommended
- Recombinant vaccine (RIV3; Flu Blok) is acceptable during pregnancy

ACIP: Don't use LAIV this Season

- No significant effectiveness of LAIV against (H1N1)pdm09, during the influenza seasons 2013-14, 2014-15, and 2015-16
- Causes of low vaccine effectiveness not completely clear
- Not feasible to resolve issue for start of the 2017-18 season
- ACIP review of additional data expected Oct 2017 (today!)

Flu Vaccine Formulations, 2017-18

Formulation	Abbrev.
Inactivated Influenza Vaccine, quadrivalent <ul style="list-style-type: none"> MDV / SDV* / Prefilled syringes* / Intradermal* 	IIV4
Inactivated Influenza Vaccine, trivalent <ul style="list-style-type: none"> MDV / Prefilled syringes* 	IIV3
Cell-culture based Inactivated Influenza Vaccine, quadrivalent <ul style="list-style-type: none"> Prefilled syringes 	ccIIV4
Inactivated Influenza Vaccine, trivalent, high dose <ul style="list-style-type: none"> Prefilled syringes 	IIV3-HD
Adjuvanted Inactivated Influenza vaccine, trivalent <ul style="list-style-type: none"> Prefilled syringes 	aIIV3
Recombinant Influenza Vaccine, trivalent <ul style="list-style-type: none"> SDV 	RIV3
Recombinant Influenza Vaccine, quadrivalent <ul style="list-style-type: none"> Prefilled syringes 	RIV4

* CA requires use of thimerosal-free preparation for pregnant women and children ages 6-35 months

Who Needs Vaccine?

- All persons age \geq 6 months who do not have a contraindication
- But especially:
 - Persons at higher risk of complications
 - Household contacts of those persons
 - Health care workers (anyone with patient contact)
- And ... true contraindications are rare

Higher Risk for Influenza Complications

- Children < 5 yrs. (especially < 2 yrs.)
- Adults \geq 65 yrs.
- Immunosuppression
- Pregnant women
- Residents of long term care facilities
- Chronic Disease
 - Asthma, COPD, CF, other chronic pulmonary
 - Cardiovascular (except HTN)
 - Sickle cell, other chronic hematologic
 - Diabetes, other chronic metabolic
 - Stroke, Spinal Cord Injury, other chronic CNS



CONTRAINDICATIONS

- Severe allergic reaction to any component of the vaccine (except egg) or to previous flu vaccination

PRECAUTIONS

- Egg allergy (often listed as contraindication, however see specific ACIP recommendations)
- Moderate or severe acute illness with or without fever
- Guillain-Barre syndrome within 6 weeks after a prior flu vaccine

Flu Vaccine and Pregnancy

- The majority of studies show an association between flu vaccination during pregnancy and improved birth outcomes
 - Preterm birth
 - Low birth weight
 - Stillbirth
- Maternal immunization also protects young infants from flu
- Recently published study showed an association between miscarriage and receipt of H1N1-containing flu vaccine in the first trimester
- The study had many limitations
- Does not allow/provide an estimate of potential increased risk of miscarriage after vaccination
- Bottom line: Pregnant women should discuss with OB providers. CDC still recommends flu vaccine during all trimesters of pregnancy.

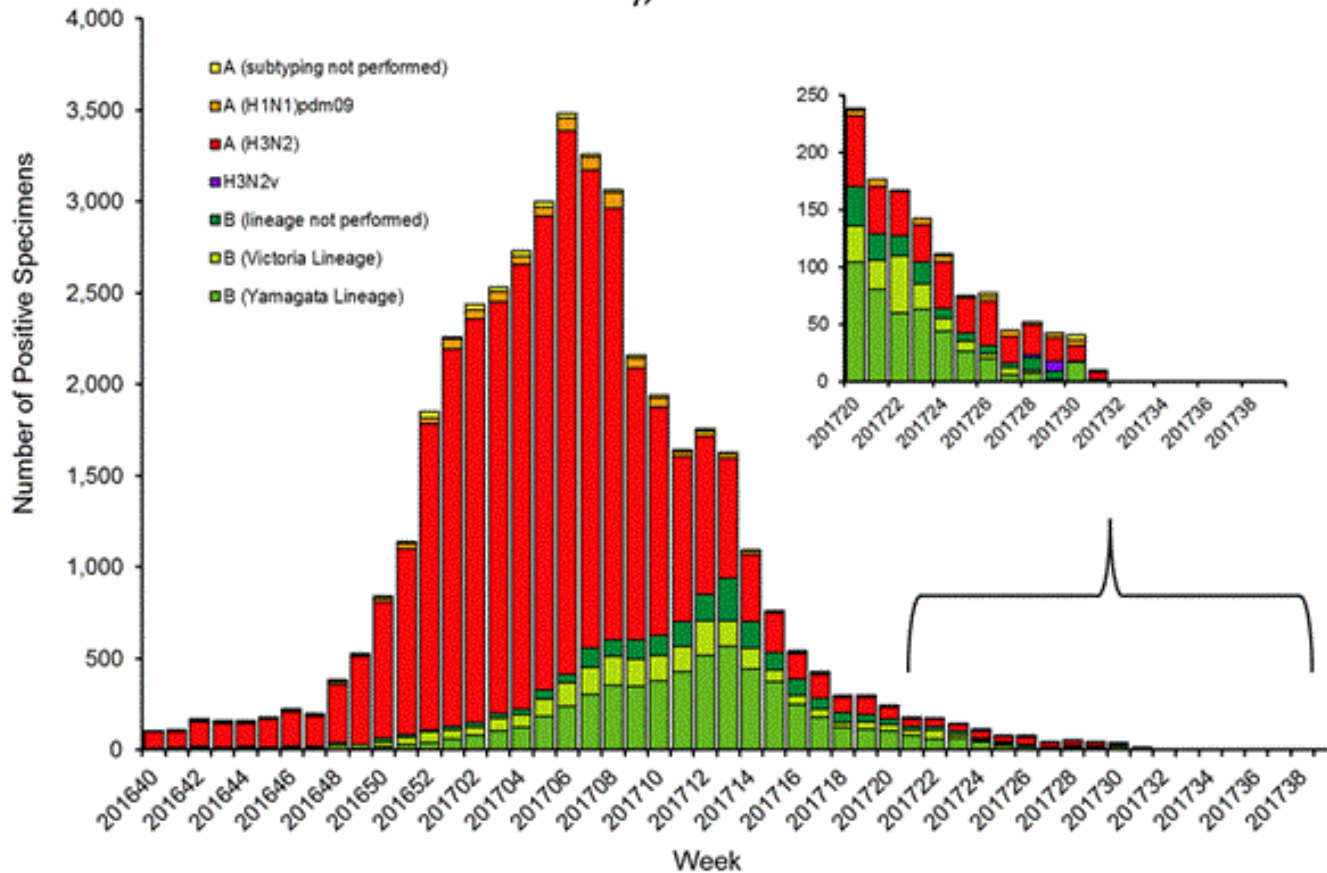
Strategies to increase flu vaccine immunogenicity for older adults (≥ 65)

- High-dose flu vaccine reduced flu illness by about 25% compared with standard-dose IIV
- Adjuvanted and recombinant flu vaccine also performed better than standard-dose IIV in preliminary studies
- Head-to-head comparison studies are pending
- In the meantime, no preferential recommendation by CDC

IIV4 vs. IIV3

Prevalence of Flu B - Yamagata

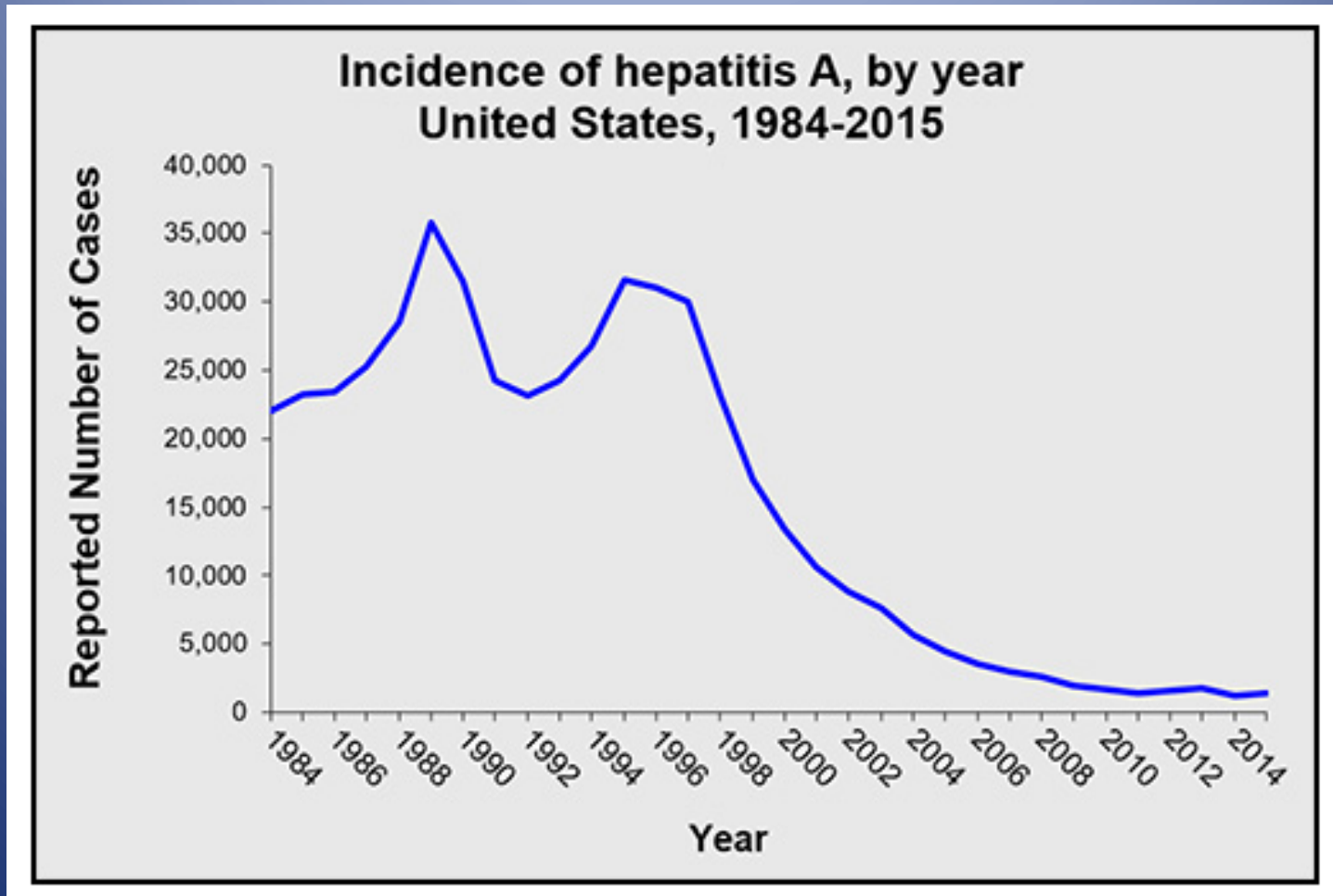
Influenza Positive Tests Reported to CDC by U.S. Public Health Laboratories, National Summary, 2016–2017 Season



IIV4 v. IIV3

- Clinically, flu A and B are indistinguishable
- Flu B linked to more severe disease in children
- In some years flu B ~ 30% of illness
- IIV4 decreases risk of B lineage vaccine mismatch
- No randomized controlled trial data; modeling studies suggest IIV4 is cost-effective, especially in years with more Flu B

Hepatitis A Update



Hepatitis A Outbreaks in California

- Mostly affecting homeless and drug-using patients
- San Diego: 507 cases; 19 deaths
 - Local public health emergency declared on 9/1/17
- Santa Cruz: 70 cases
- Los Angeles: 8 cases
- Public health departments statewide are “on alert” for related cases; vaccination efforts underway

Hepatitis A – Introduction

- “Hepatitis” = liver inflammation
 - Can be caused by viruses, drugs, or toxins
 - Clinical picture may be similar even if cause is different
- Hepatitis A caused by infection with Hepatitis A Virus (HAV)
- Unlike Hepatitis B and C, HAV infection is acute only; does not become chronic
- May be asymptomatic, especially children < 6 yrs; may be life-threatening, especially for adults with existing liver disease (such as Hepatitis B/C infection)

Hepatitis A - Outcomes

- Most adults with HAV infection have nausea, vomiting, fatigue, stool/urine changes, jaundice. Most recover with no permanent liver damage.
- <1% have fulminant (extremely severe) disease that can result in liver failure and death/need for transplant
- Rarely fatal, overall case fatality rate (CFR) is 0.3%
 - Higher in pts w/coexisting liver disease, >50yrs
 - San Diego CFR 3.6%

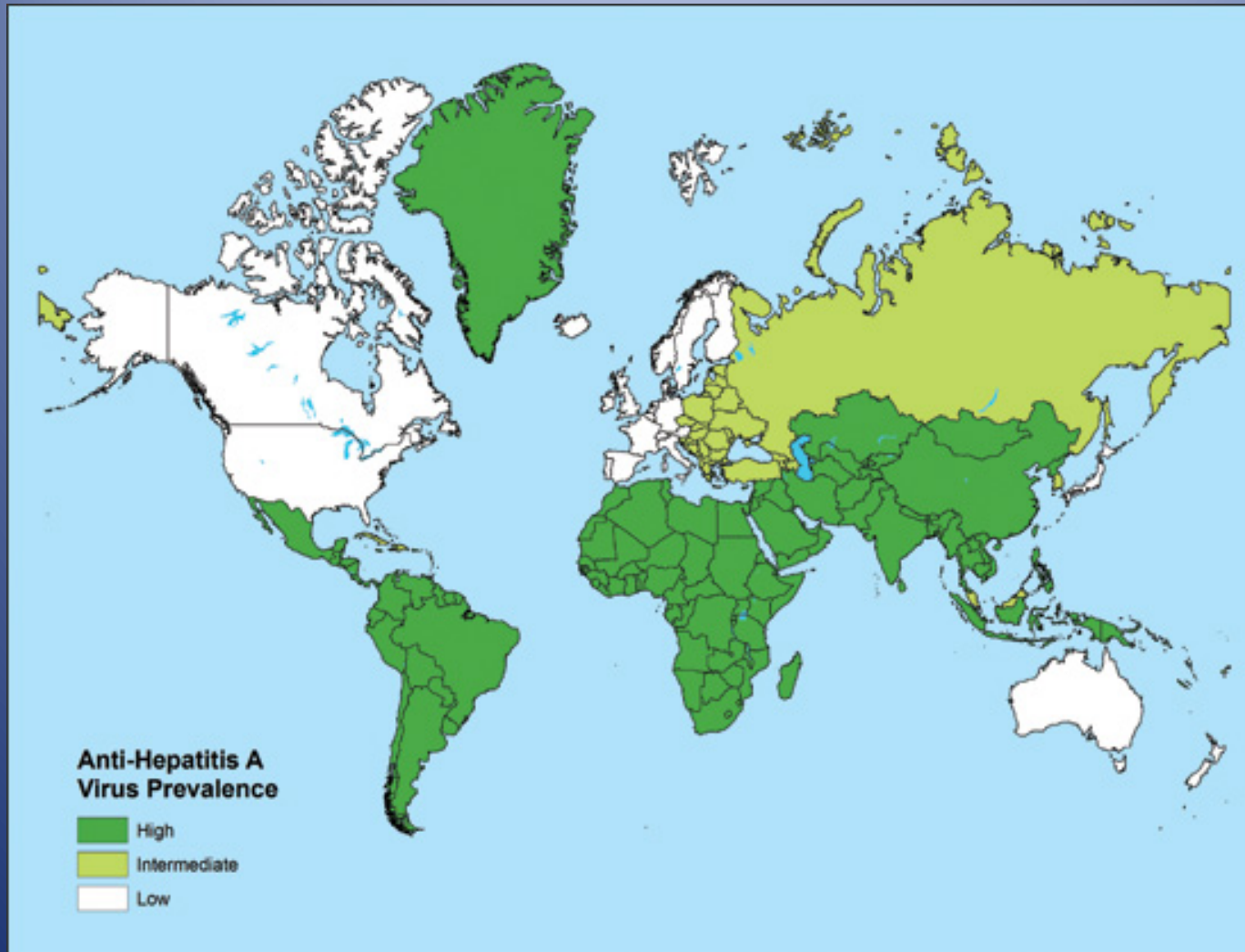
Hepatitis A – Transmission and Incubation Period

- HAV infects GI tract, excreted in feces: mostly transmitted person-to-person or in contaminated food
 - poor hygiene/sanitation conditions, sexual practices contribute to spread
- Incubation period from infection to symptoms is 15-50 days, average 28 days
- Long incubation period makes outbreak investigation and tracking very challenging!

Hepatitis A-Risk groups

- Main groups at risk for HAV in US
 - Travelers to countries w/high or intermediate HAV endemicity
 - Men who have sex with men (MSM)
 - Drug users (injection and non-injection)
 - Contacts of recent adoptees from HAV-endemic countries
 - Now...homeless (a CA-specific recommendation)

Global epidemiology of hepatitis A



<http://www.cdc.gov/travel/yellowBookCh4-HepA.aspx>

Public Health HAV Case Investigation

- Contact tracing; notification and education of contacts
- Post-exposure prophylaxis for contacts
- Restriction from food handling while infectious



Increase in HAV Cases in MSM in SF

- Cases noted beginning in August 2017
- 8 cases so far; unimmunized
- No clear chain of transmission or common exposure among cases
- Analysis of viral specimens shows strains related to MSM outbreaks elsewhere in the US and Europe, NOT related to homeless outbreaks

HAV Vaccination for Outbreak Control and Outbreak Prevention

- For outbreak prevention, SFDPH is actively working to immunize at-risk groups
- Approximately 3000 doses of vaccine given so far in SF (all groups)
- Vaccination of MSM in high volume clinics; primary care
- Vaccination of at-risk individuals in...
 - Jails
 - Syringe exchange programs
 - Behavioral health sites
 - Drug treatment facilities
 - Shelters
 - Soup kitchens
 - Street Medicine outreach