

Maricopa County Public Health Update

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What is the most commonly reported infectious disease in Maricopa County?



- A. Gonorrhea
- B. Salmonellosis
- C. Chlamydia
- D. Coccidioidomycosis (Valley Fever)

2018 cases reported to Maricopa County Public Health



A. Gonorrhea – **9009 cases**

B. Salmonellosis – **525 cases**

C. Chlamydia – **27,013 cases**

D. Coccidioidomycosis (Valley Fever) – **5495 cases**

Sexually Transmitted Infections in Maricopa County



Centers for Disease Control and Prevention

MMWR

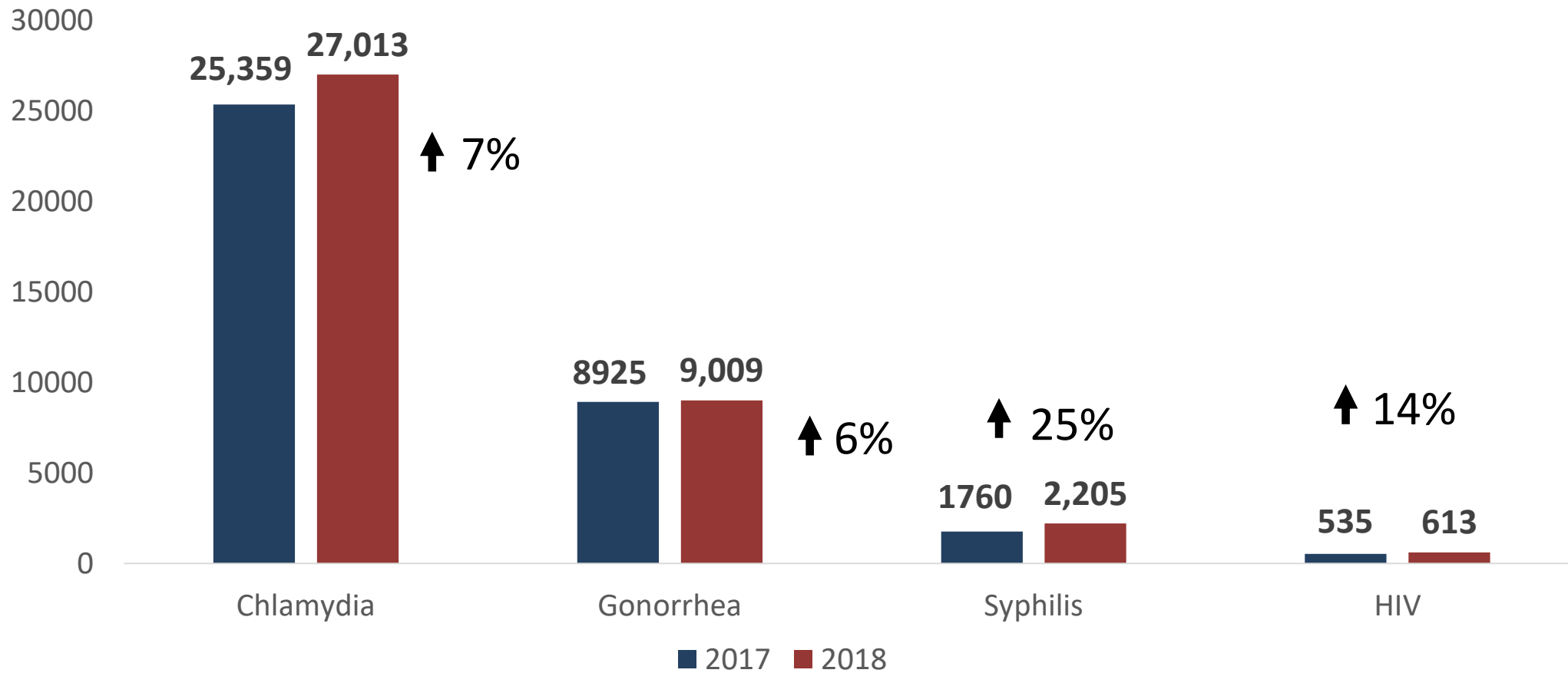
Recommendations and Reports / Vol. 64 / No. 3

Morbidity and Mortality Weekly Report

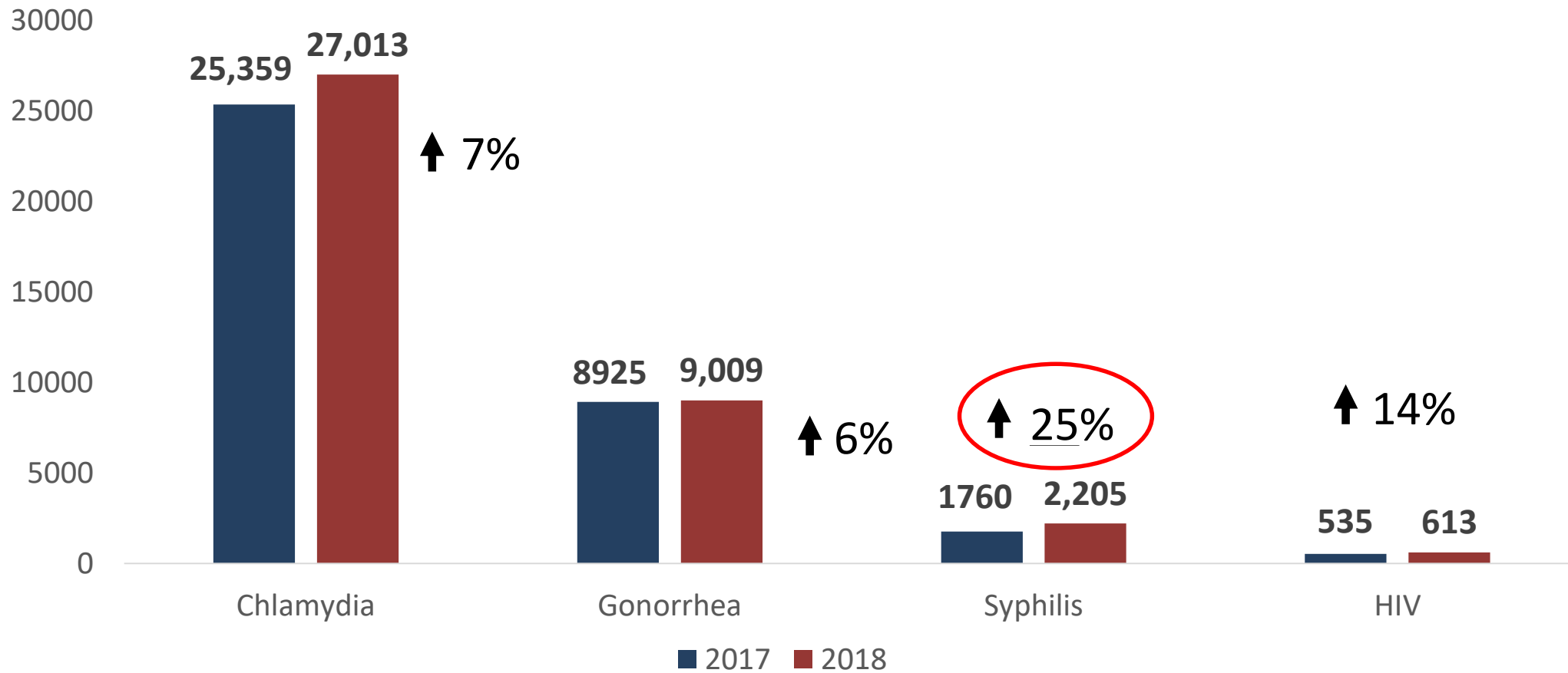
June 5, 2015

**Sexually Transmitted Diseases
Treatment Guidelines, 2015**

Sexually transmitted infections are up across the board



Sexually transmitted infections are up across the board



Chlamydia



Demographics

| Demographics | % of total |
|--------------------------------|------------|
| Female | 63% |
| Male | 36% |
| American Indian/Alaskan Native | 4% |
| Black/African American | 12% |
| Hispanic/Latino | 28% |
| Unknown | 32% |
| White | 22% |
| Homosexual | 4% |
| Heterosexual | 1% |
| Pregnant | 2% |

Diagnosis and Treatment

- Mostly asymptomatic
 - 10% of men have symptoms
 - 5-30% of women have symptoms
- Best dx test is NAAT (urine)
- Treat w/ Azithro 1 g x 1 or Doxy x 7d
- Complications
 - PID 10-15% of untreated women
 - Pre-term delivery, conjunctivitis, PNA
 - Reactive arthritis – Reiter's syndrome



Demographics

| Demographics | % of total |
|--------------------------------|------------|
| Female | 39% |
| Male | 60% |
| American Indian/Alaskan Native | 4% |
| Black/African American | 20% |
| Hispanic/Latino | 25% |
| Unknown | 22% |
| White | 27% |
| Homosexual | 13% |
| Heterosexual | 25% |
| Pregnant | 1% |

Diagnosis and Treatment

- Incubation Period: 1-14 days
- Most women and many men have no symptoms
- Best dx test is NAAT (urine)
 - Swab rectum and pharynx
- Treat with Ceftriaxone 250 mg IM
- Complications
 - PID or Epididymitis
 - Perinatal transmission
 - Disseminated gonococcal infection

Which of the following statements is FALSE about Expedited Partner Therapy (EPT) in Arizona?



- A. EPT is a way for partners of patients infected with gonorrhea and/or chlamydia to receive treatment without seeing a healthcare provider
- B. Patients whose partners received EPT are 29% less likely to be re-infected than those who told their partner to see a healthcare provider
- C. EPT has been legal in Arizona since 2008
- D. The patient's health insurance covers the cost of their partner's treatment

Which of the following statements is FALSE about Expedited Partner Therapy (EPT) in Arizona?



- A. EPT is a way for partners of patients infected with gonorrhea and/or chlamydia to receive treatment without seeing a healthcare provider
- B. Patients whose partners received EPT are 29% less likely to be re-infected than those who told their partner to see a healthcare provider
- C. EPT has been legal in Arizona since 2008
- D. The patient's health insurance covers the cost of their partner's treatment

Expedited Partner Therapy (EPT)



- EPT makes it **legal for healthcare providers to dispense or prescribe antimicrobial medications** to contacts of patients with certain communicable disease **without performing a physical exam.**
- Although highly effective for treating partners of patients with gonorrhea or chlamydia, it can also be used for pertussis or meningococcal meningitis.

Current EPT Recommendations

(CDC STD Treatment Guidelines, 2015)



Chlamydia

1 gm azithromycin PO



Gonorrhea*

400 mg cefixime PO
+
1 gm azithromycin PO

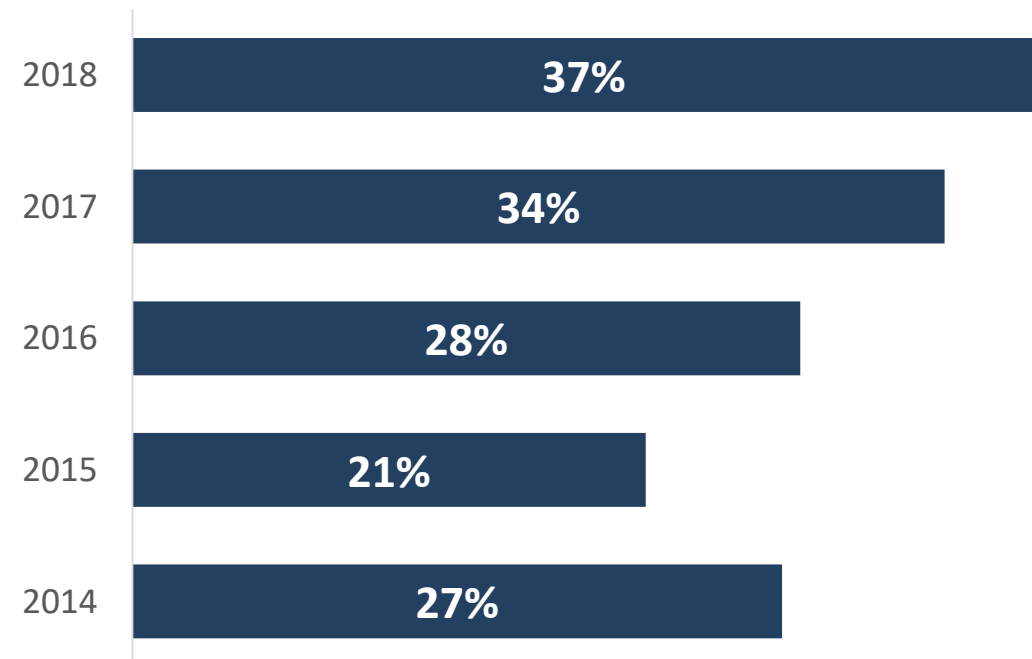
Syphilis –common among MSM but increasing in everyone



Demographics

| Demographics | % of total |
|--------------------------------|------------|
| Female | 25% |
| Male | 75% |
| American Indian/Alaskan Native | 7% |
| Black/African American | 12% |
| Hispanic/Latino | 39% |
| Unknown | 3% |
| White | 35% |
| Homosexual | 42% |
| Heterosexual | 37% |
| Pregnant | 5% |

Percent of Heterosexual Syphilis Cases



Syphilis



- Syphilis is caused by the spirochete *Treponema pallidum*
- Known as “the great imitator,” because it can mimic so many other illnesses
- The infection is differentiated into different stages:
 - Early-stage: < 1 year duration (most infectious)
 - Primary sore
 - Secondary rash
 - Mucus patches
 - Condyloma lata
 - Latency
 - Late-stage: > 1 year duration
 - Latency
 - *Unknown duration infections grouped here*
- Treatment is dependent on the stage of infection



How to stage



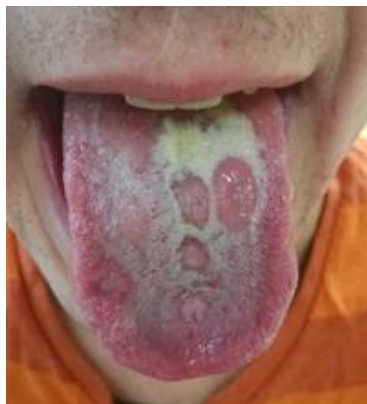
- Staging syphilis is critical to determining appropriate treatment
- What to look for:
 - Early Syphilis (Infection acquired within the last year):
 - Primary Symptoms: Round, painless, sore lasting 3 to 6 weeks and resolving without treatment
 - Secondary Symptoms: Rash often concentrated on hands and feet, mucous membrane lesions, and alopecia
 - New syphilis case: Negative syphilis test within the last year
 - Syphilis reinfection: titer within the last year that is at least four-fold lower than current test
 - Late Syphilis (Infection acquired more than one year ago):
 - Asymptomatic with no history of syphilis testing
 - Asymptomatic with most recent syphilis testing more than one year ago

Syphilis symptoms

Primary sore



Mucus patch



Condyloma lata



Secondary rash



Alopecia



Which is true about syphilis diagnostic testing?



- A. RPR/VDRL are treponemal tests and remain positive after treatment
- B. TP-PA/FTA-ABS are Non-treponemal tests and remain positive after treatment
- C. RPR/VDRL are confirmatory tests and remain positive after treatment
- D. TP-PA/FTA-ABS are confirmatory tests and remain positive after treatment

Which is true about syphilis diagnostic testing?



- A. RPR/VDRL are treponemal tests and remain positive after treatment
- B. TP-PA/FTA-ABS are non-treponemal tests and remain positive after treatment
- C. RPR/VDRL are confirmatory tests and remain positive after treatment
- D. TP-PA/FTA-ABS are confirmatory tests and remain positive after treatment

Syphilis Testing



- A syphilis diagnosis requires both a preliminary and confirmatory test:
- Preliminary syphilis screening
 - **Non-treponemal test**
 - RPR *with titer* or VDRL
 - Does not detect syphilis-specific Ab, thus cannot be used to diagnose alone
- Confirmatory syphilis test
 - **Treponemal test**
 - TP-PA or FTA-ABS
 - Detects syphilis-specific Ab
 - Remains positive after treatment

Classic testing sequence: non-treponemal (RPR) followed by treponemal (TP-PA, FTA-ABS)

Non-treponemal Titer History



- Understanding the non-treponemal RPR titer history is vital to determining whether a reactive test relates to an active or previous syphilis infection
- Routine testing with titers allows for more efficient detection of possible re-infection
 - *A four-fold increase in titer is indicative of re-infection (i.e. titer increase 1:4 to 1:16)*
- If a woman is new to your care, titer histories may be documented with Maricopa County Department of Public Health, Division of STD/HIV Clinical Services
 - Contact Maricopa County Epidemiologist at 602-506-5435
 - Contact Health Advisors at 602-506-6205

Syphilis Treatment



- Stage-appropriate treatment

- Early Syphilis (≤ 1 year)

- Bicillin-LA (Penicillin G benzathine) 2.4 MU IM x 1 dose

- Late Syphilis (>1 year)

- Bicillin-LA (Penicillin G benzathine) 2.4 MU IM x 3 doses, one-week intervals

- For pregnant women, exact one-week intervals is required
- Treatment will need to be re-started if a dose is delayed
- If allergic to penicillin, desensitization is required

- Jarisch-Herxheimer reaction

- Symptoms: *Fever, chills, skin rash intensification*
- Onset and duration: *Within 24 hours of treatment and resolving within a few hours*

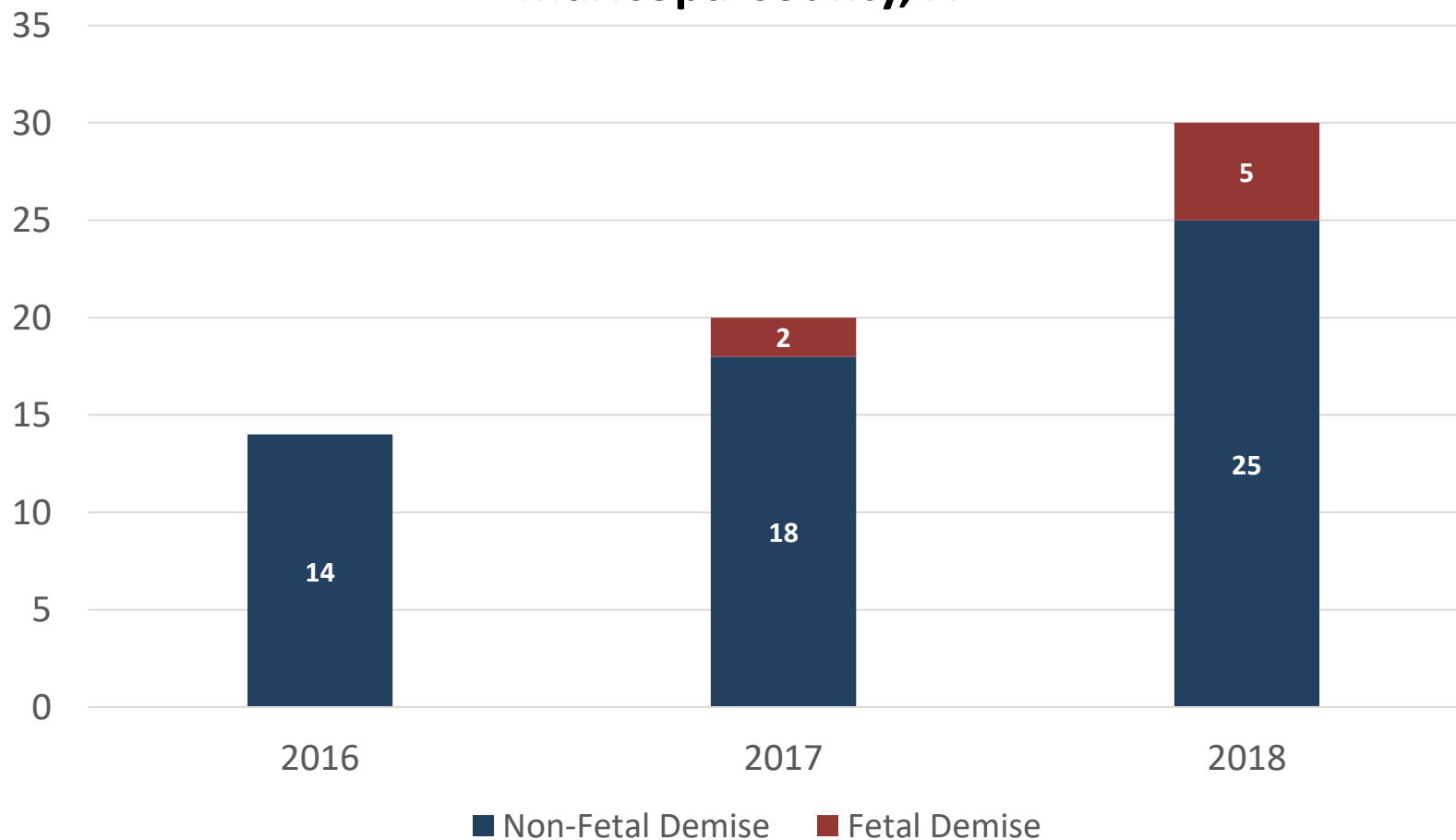


*Penicillin G benzathine
commonly referred to as “BIC”*

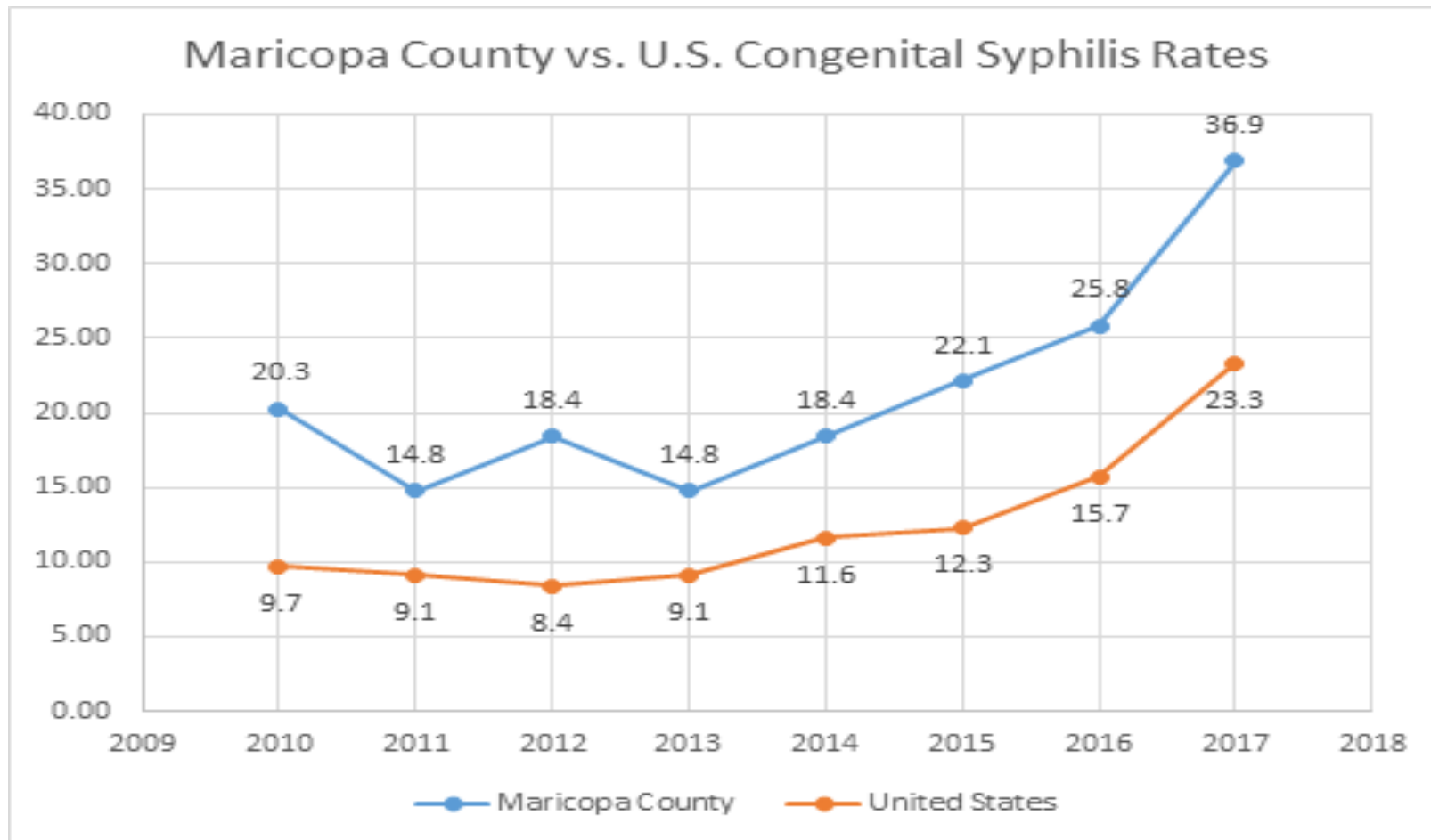
Congenital syphilis outbreak in Maricopa County: cases and deaths have more than doubled since 2016



Congenital Syphilis Cases and Fetal Demise in Maricopa County, AZ



Maricopa County congenital syphilis rates exceed US rates



Clinical Signs and Symptoms in Infants



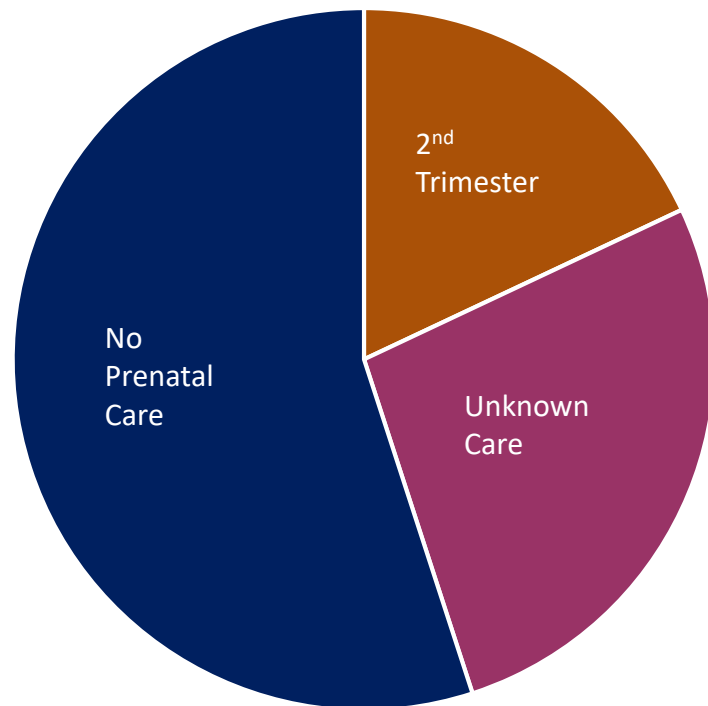
- Infants may not display obvious signs and symptoms of congenital syphilis
- All infants of mothers with reactive syphilis testing at delivery should be further evaluated for congenital syphilis (RPR)
- Syphilis Specific:
 - Syphilitic skin rash
 - Primary sore
 - Condyloma lata
- General Signs and Symptoms:
 - Edema
 - Snuffles
 - Jaundice/hepatitis
 - Hepatosplenomegaly
 - Pseudo paralysis



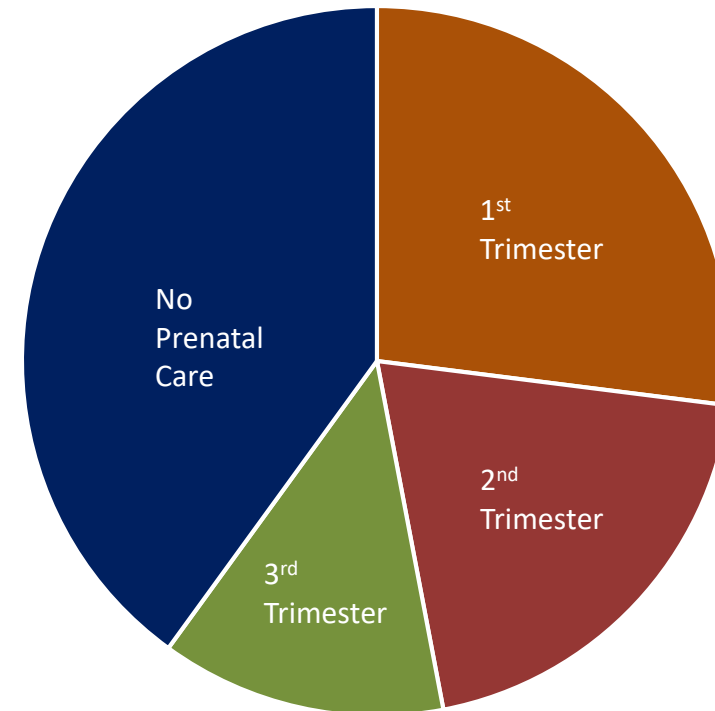
Almost half of mothers in 2018 initiated prenatal care prior to 3rd trimester and were not screened



Trimester of First Prenatal Visit



2014

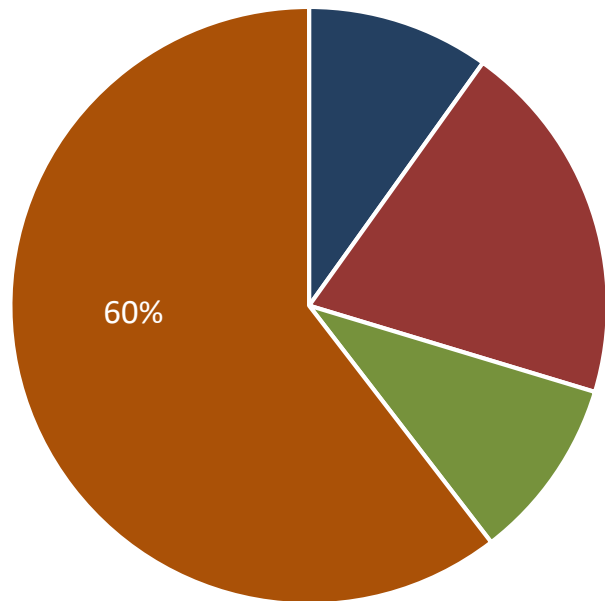


2018

Two-thirds of mothers of infants with congenital syphilis were diagnosed at delivery, leaving no time for prevention

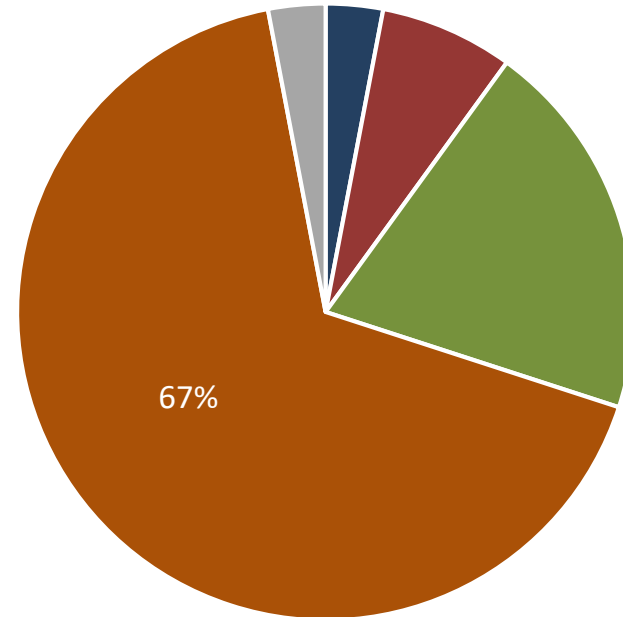


Trimester of Syphilis Diagnosis



■ 1st ■ 2nd ■ 3rd ■ Delivery

2014



■ 1st ■ 2nd ■ 3rd ■ Delivery ■ Unknown

2018

When should a pregnant woman in Maricopa County be screened for syphilis?



- A. At delivery
- B. The first prenatal visit
- C. Early in the third trimester
- D. All of the above

When should a pregnant woman in Maricopa County be screened for syphilis?



- A. At delivery
- B. The first prenatal visit
- C. Early in the third trimester
- D. All of the above

Screen pregnant patients for Syphilis 3 times!



- At the time of the first prenatal visit, the physician shall perform a standard syphilis test (ARS 36-693)
 - Non-treponemal test for mother
 - Follow-up with additional testing if reactive
- Early third trimester, 24-32 weeks, and again at delivery for all pregnant women (MCDPH Public Health Order, 2019)
- Maternal blood or cord blood syphilis test from all women who bear a stillborn infant or had a miscarriage at 20 weeks or more (ARS 36-694)



Maricopa County
Public Health

Hepatitis A Outbreak



Nationwide Outbreak



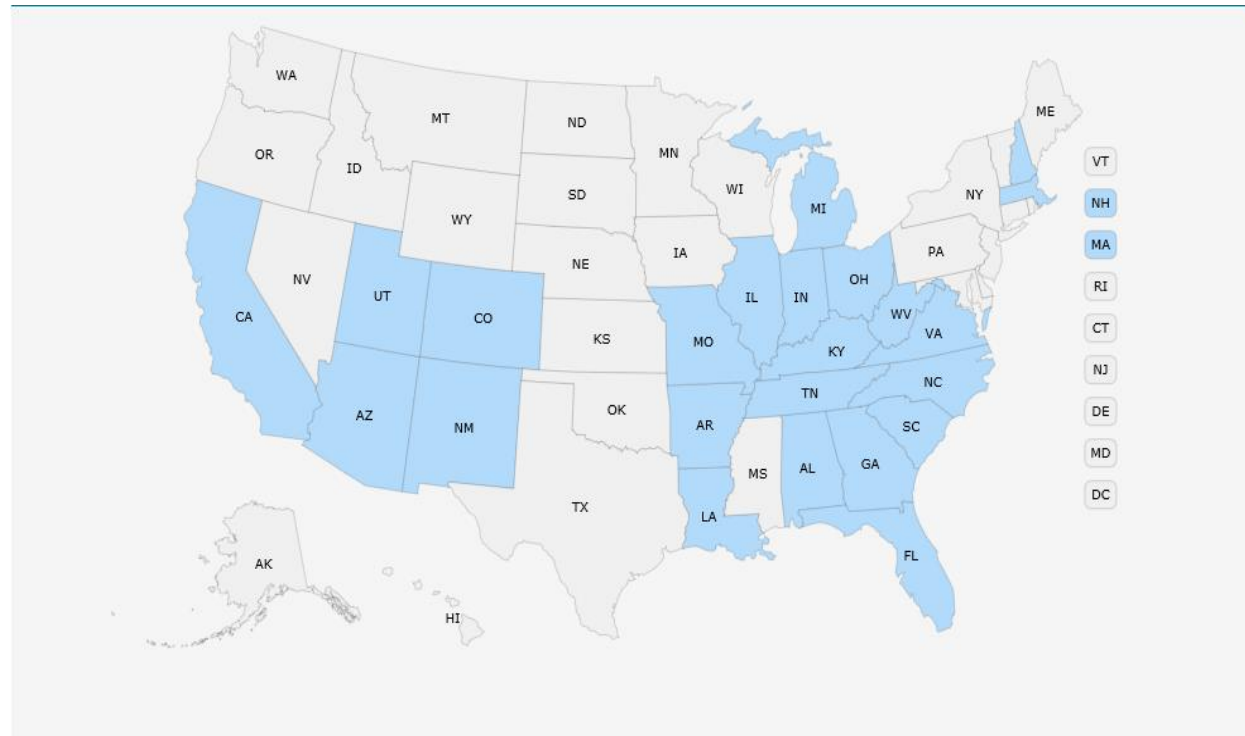
Multiple States with Hep A Outbreaks

Since 2016

- 17,000+ cases
- 170 deaths
- Primarily among:
 - Unstable housing
 - Illicit drug use

Newest states

- Idaho
- Colorado
- Arizona



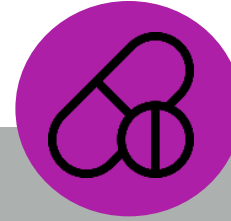
How is Hep A transmitted?



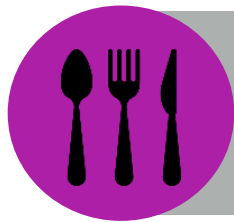
Not
washing
hands



Sex
with
infected
partners



Using
Drugs



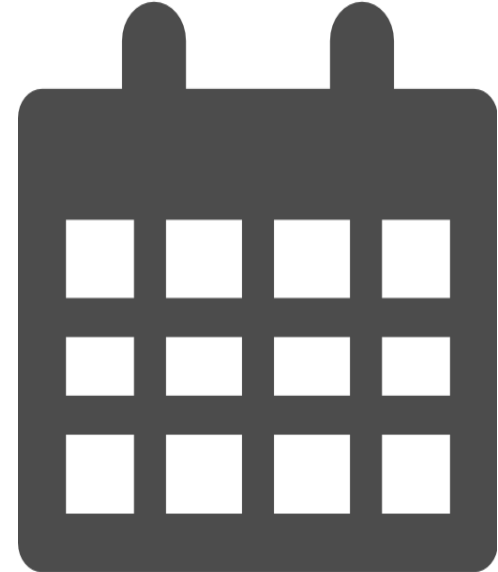
Eating contaminated foods



Incubation Period



The timeframe between
exposure to an infection and
the appearance of **symptoms**

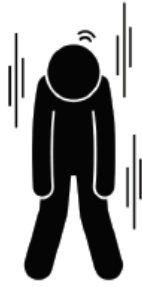


15-50 days
(average 28 days)

Symptoms of Hep A



Fever



Fatigue



Nausea



Loss of appetite



Jaundice
(yellowing of the
skin and eyes)



Stomach
pain



Vomiting

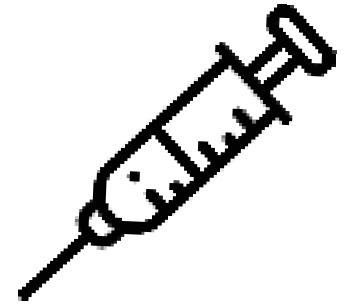


Dark urine,
pale stools,
diarrhea

Key Prevention



VACCINATION is the best prevention against Hepatitis A



ACIP Recommendations for Hepatitis A vaccination

- **Use of injection and non-injection drugs**
- Persons with chronic liver disease
- Men who have sex with men
- Persons with clotting factor disorders
- Household members of children adopted from endemic countries
- Persons in direct contact with hepatitis A
- All children > 1 year of age
- **Persons >1 year of age with homelessness (since 2018)**

Soap vs. Hand Sanitizer



Use Soap & Water to Wash Hands to Prevent Hep A Transmission

- Hand sanitizer is NOT effective for preventing Hep A transmission
- If soap & water are not available, use an alcohol-based hand sanitizer containing at least 60% alcohol & wash with soap & water as possible

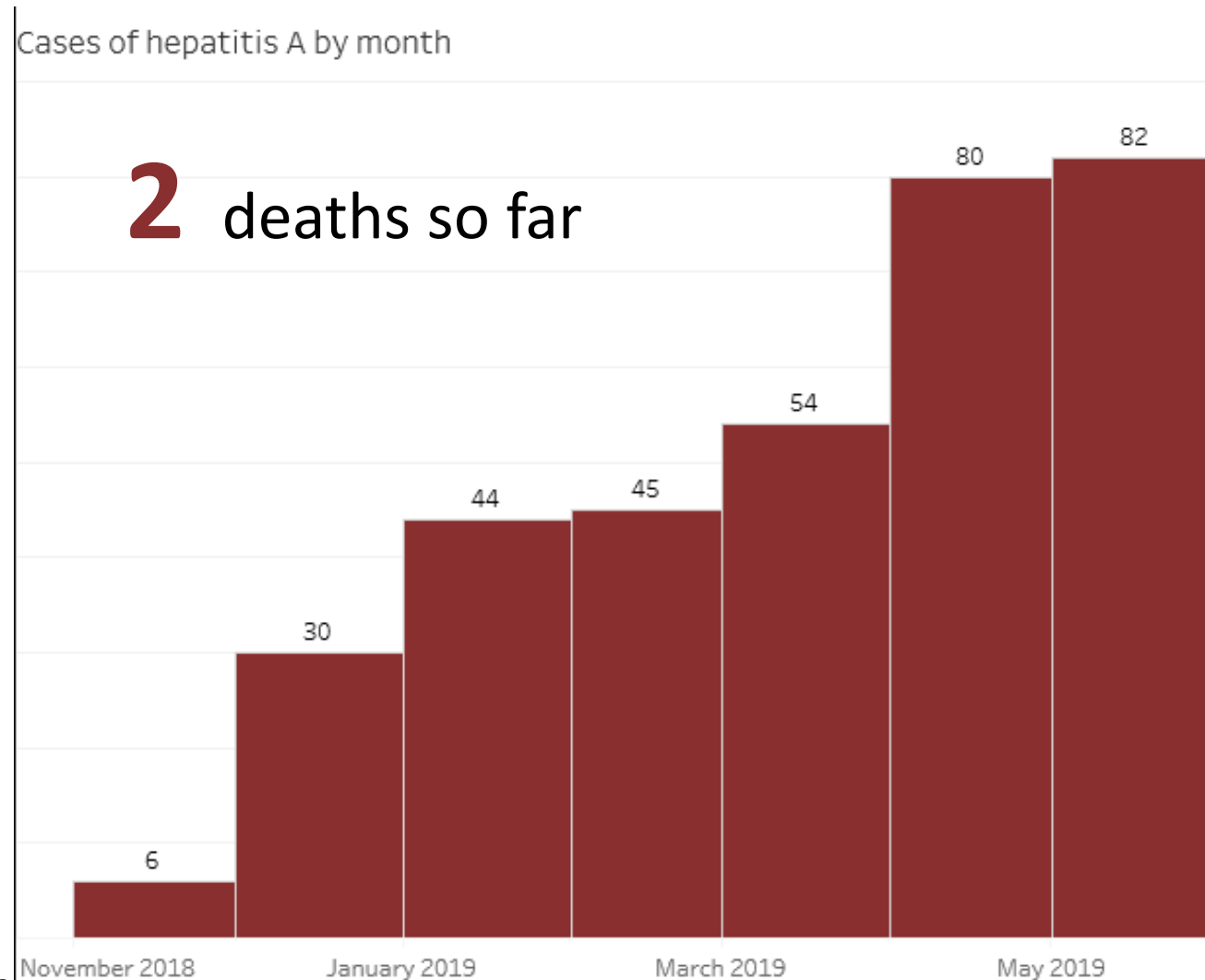




- Hep A virus is able to survive outside the body for months
- Difficult to kill – most common cleaning solutions are NOT effective

Hep A Can be Killed by Cleaning Surfaces with a Freshly Prepared Solution of 1:100 Dilution of Household Bleach to Water

Arizona has had **339** cases of hepatitis A since November 2018.



As of 5/24/19

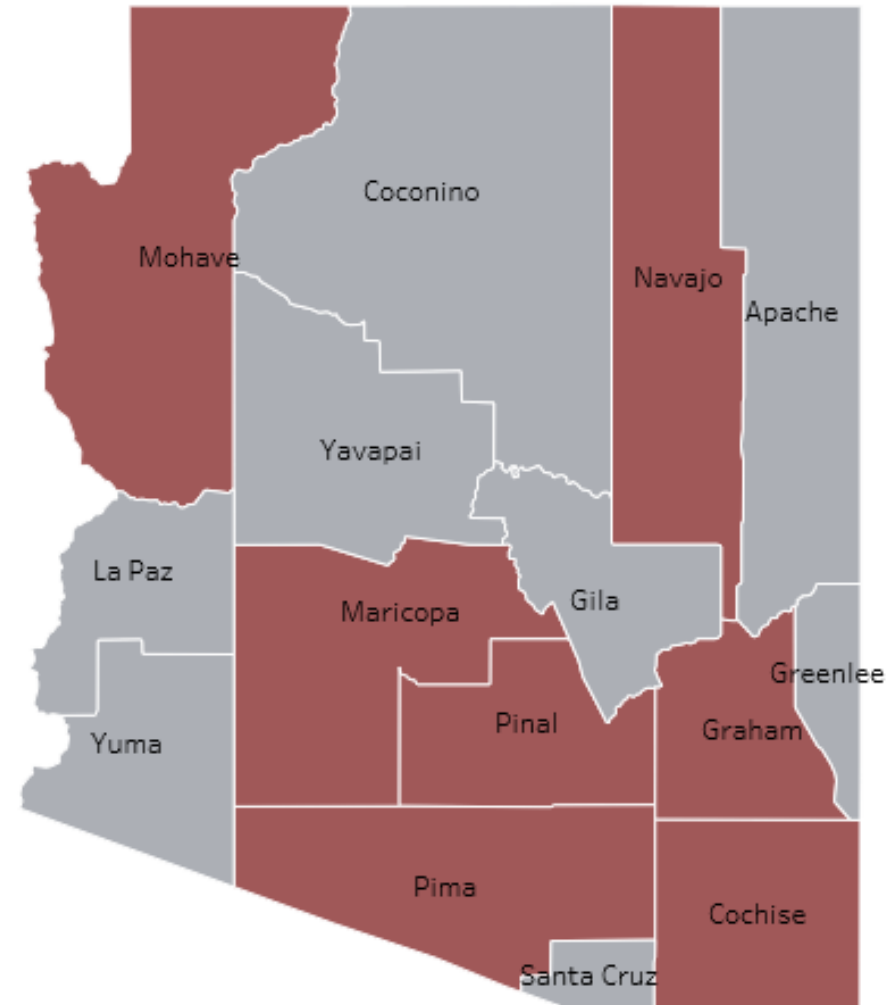


Statewide, **7** affected counties include:

- Cochise
- Graham
- Maricopa
- Mohave
- Pima
- Pinal
- Navajo

Pima and Maricopa have
the majority

As of 5/24/19



Pima County Outbreak



3 Cases identified Thanksgiving 2018

185 Outbreak cases to date



- 68% report drug use
- 23% report street homelessness
- 39% report both drug use & homelessness
- 75% hospitalized

(as of 5/16/19)

Maricopa County



November 2018 –

- **Initiated screening Hep A cases for homelessness**
- **Added enhanced Hep A surveillance efforts**

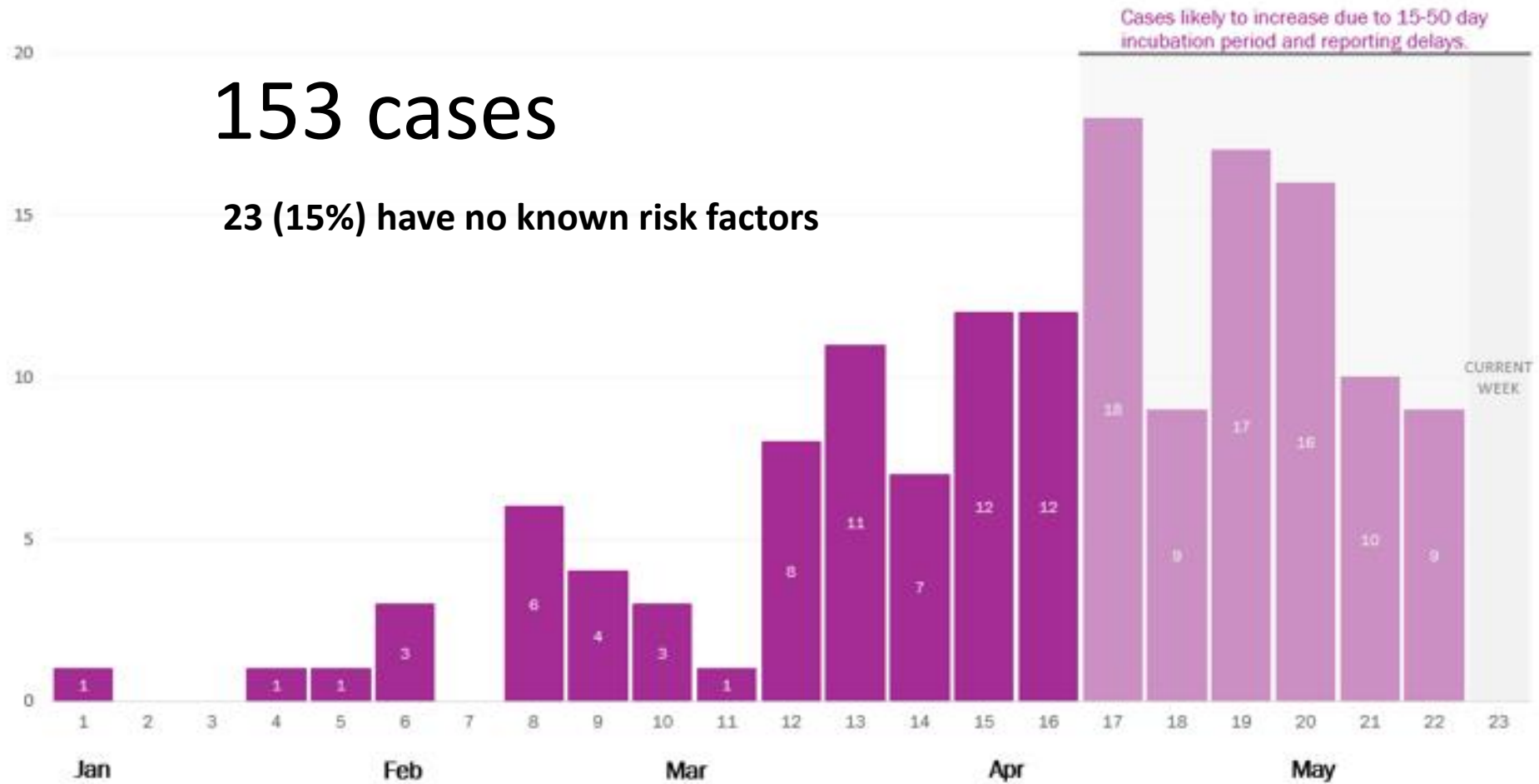
⬆ Increasing Cases of Hep A identified in January 2019

| | |
|-------------|------------|
| 2014 | 17 |
| 2015 | 10 |
| 2016 | 14 |
| 2017 | 42* |
| 2018 | 26 |

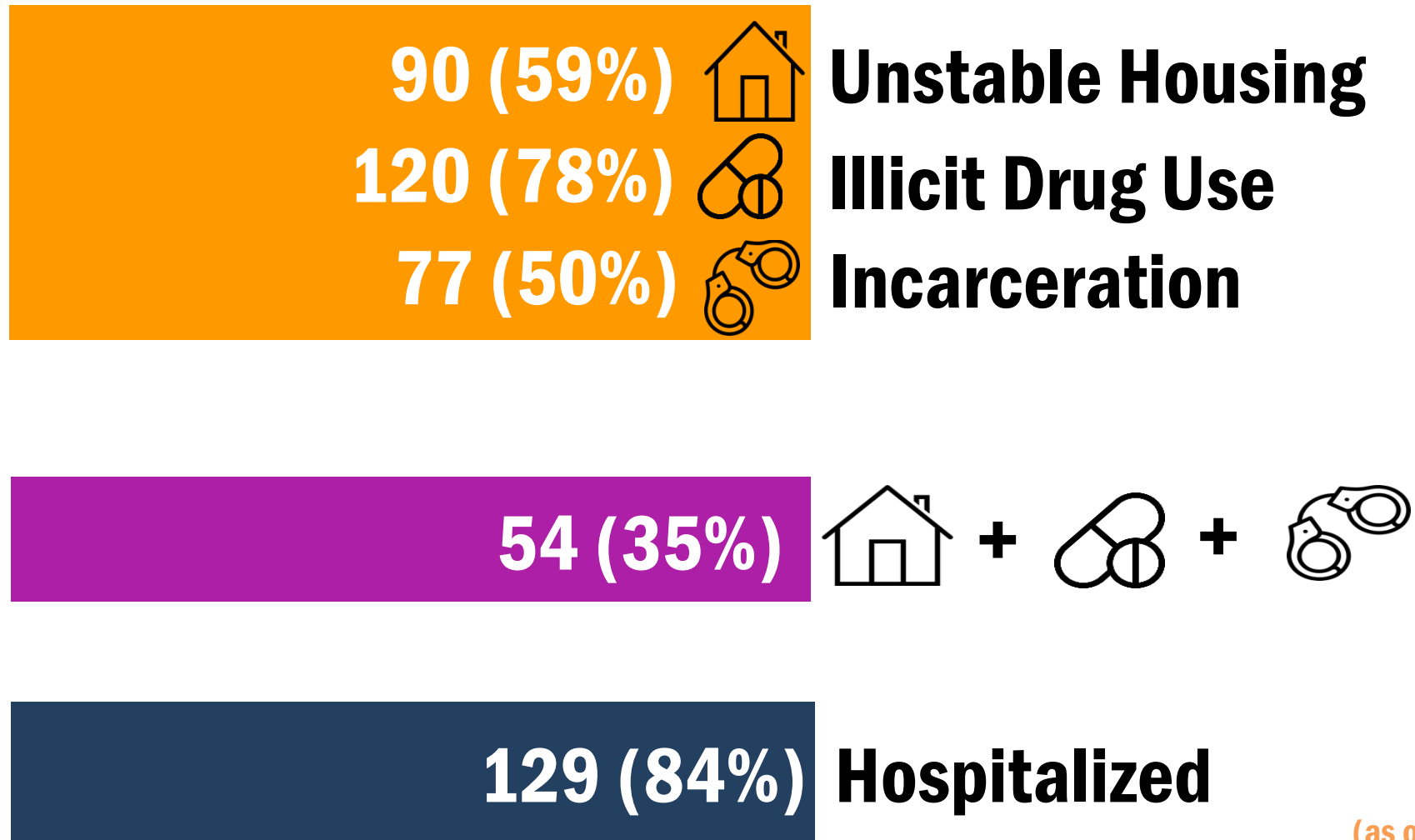
2019 153**

(as of 5/30/19)

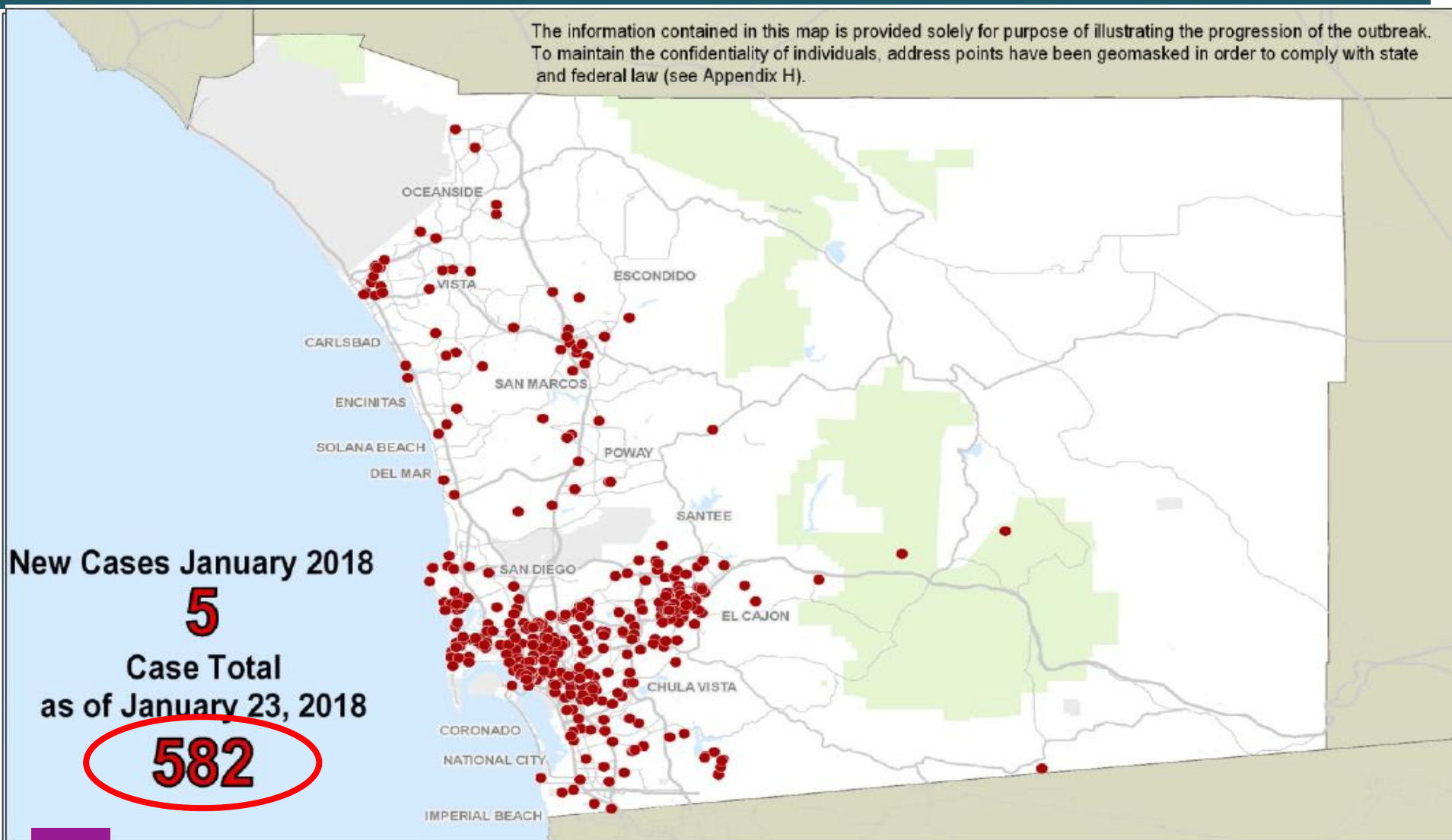
Maricopa County, 2019



Maricopa County Risk Groups and Severity



San Diego's Cases



San Diego, CA



November 2016 - January 2018

- 582 HAV cases, **20 deaths**
- Declared a local & state health emergency
- Vaccination locations were identified through a combination of data analysis and county staff & community partner input
- **121,921 vaccines administered**
- **\$12 Million spent on response**

VACCINATIONS

Total HAV vaccinations administered in San Diego County from (March 6, 2017 - January 23, 2018):

121,921

Total At-Risk Population vaccinated (estimated):

103,000

Vaccinations directly led to decline in cases



IAS-USA *Topics in Antiviral Medicine*

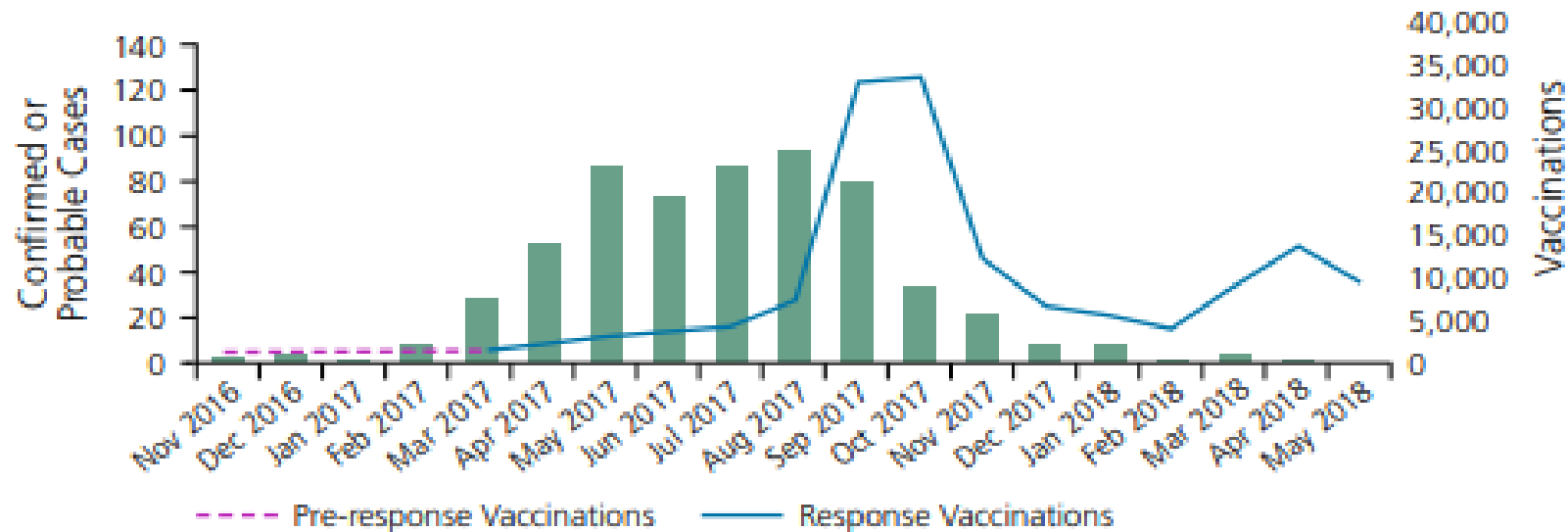
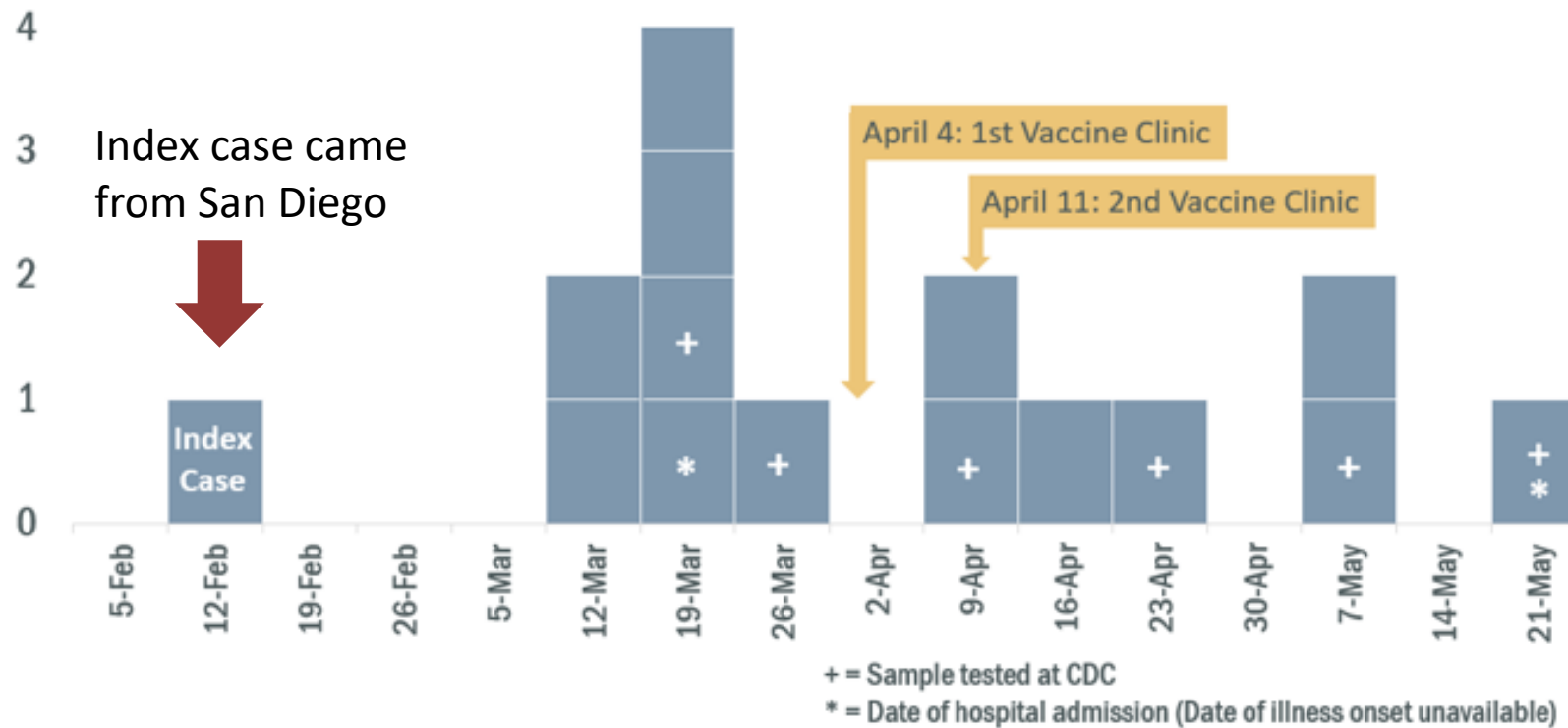


Figure 4. Effect of vaccination campaign in controlling San Diego hepatitis A virus outbreak. Courtesy of the County of San Diego, Health and Human Services Agency, Public Health Services, Epidemiology & Immunization Services.

2017 Maricopa County Outbreak in Homeless



Confirmed Cases of Hepatitis A by Week of Illness Onset

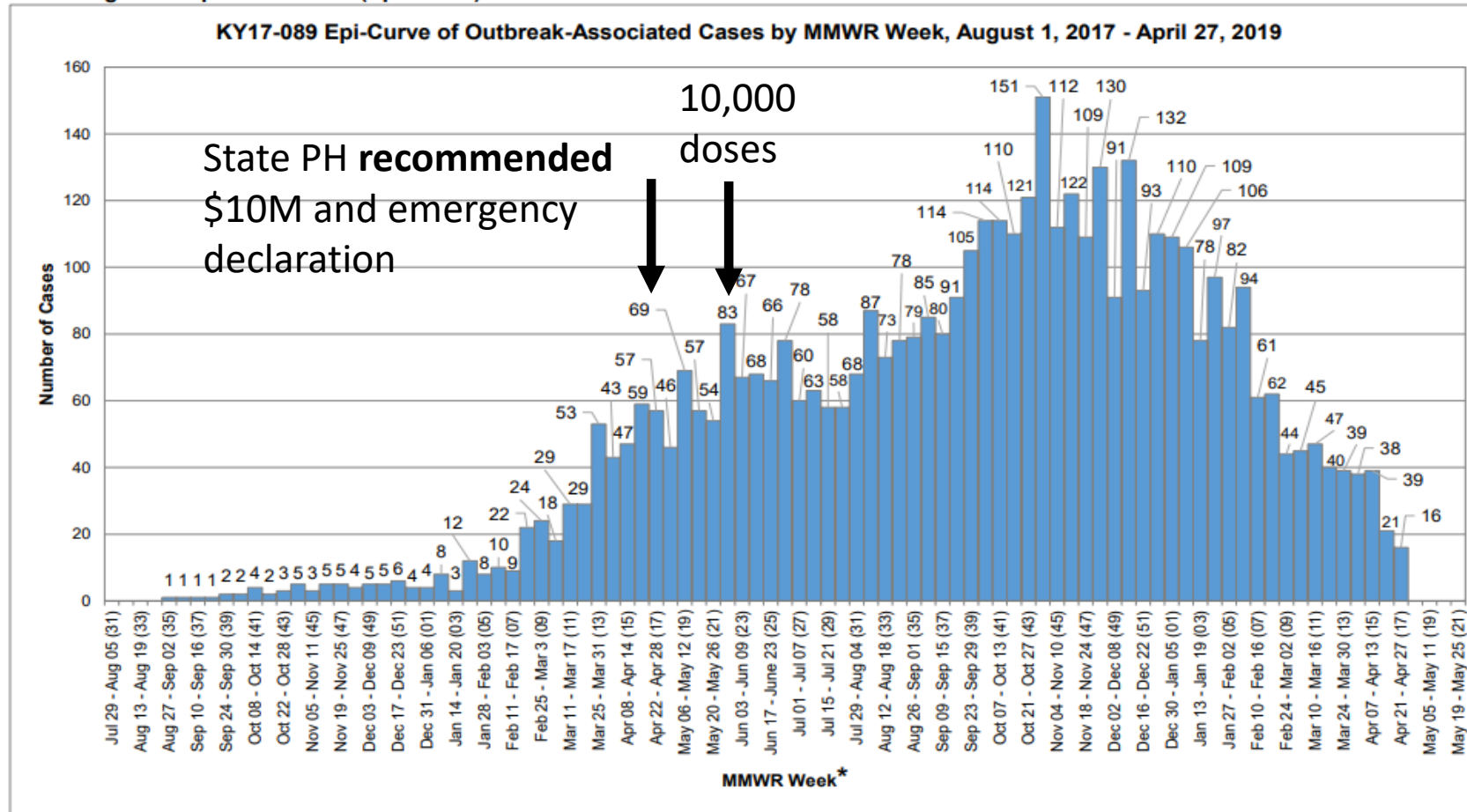


Outbreak ended with 15 cases in 3 months due to rapid targeted vaccination

Kentucky: a different story (4,229 cases, 43 deaths)



Figure 5: Epidemic-curve (Epi-Curve) of Outbreak-Associated Cases



* MMWR weeks are based on date of specimen collection.

Maricopa County Plan



- Vaccinating all jail inmates in 3 phases
 - 2 weeks of entry and exit
 - 8 months of entry only at Central
 - 1-2 months of long term inmates
- Community outreach to vaccinate highest risk populations
 - **Event strike teams** 4/wk X 32 wks
 - 340/wk for **10,880** vaccines total
 - **Encampment strike teams:**
 - 5/wk X 32wk
 - 170/wk for **5440** vaccines total

Take home point



- Vaccinate your patients with hepatitis A vaccine if they have a history of the following in the last year
 - Unstable housing or homelessness
 - Illicit drug use
 - Incarceration

We've lost herd immunity to measles!



MEASLES



is **highly contagious** and spreads through the air when an infected person **coughs or sneezes**.



It is so contagious that if one person has it, **9 out of 10 people** of all ages around him or her will also become infected if they are not protected.

Measles Signs and Symptoms



- **High Fever (102 or greater typically)**
- **3 C's**
 - Cough
 - Coryza
 - Conjunctivitis
- **Erythematous, maculopapular rash (2-4 days later)**
 - Begins at hairline and moves down the body over several days, then fades in same order
 - Rash lasts 5-6 days
 - Infectious period is 4 days before rash onset to 4 days after onset

Faces of Measles



Measles Complications



- **Pneumonia**
 - 1 in 20 children
 - The most common cause of death from measles in young children
- **Otitis media**
 - Can cause permanent hearing loss
- **Diarrhea**
- **Eye Damage**
- **Encephalitis**
 - 1 in 1,000 measles cases will develop acute **encephalitis**, which often results in permanent brain damage
- **Mortality: 1-2 out of every 1,000 children who become infected with measles will die from respiratory/neurologic complications**

International Outbreaks

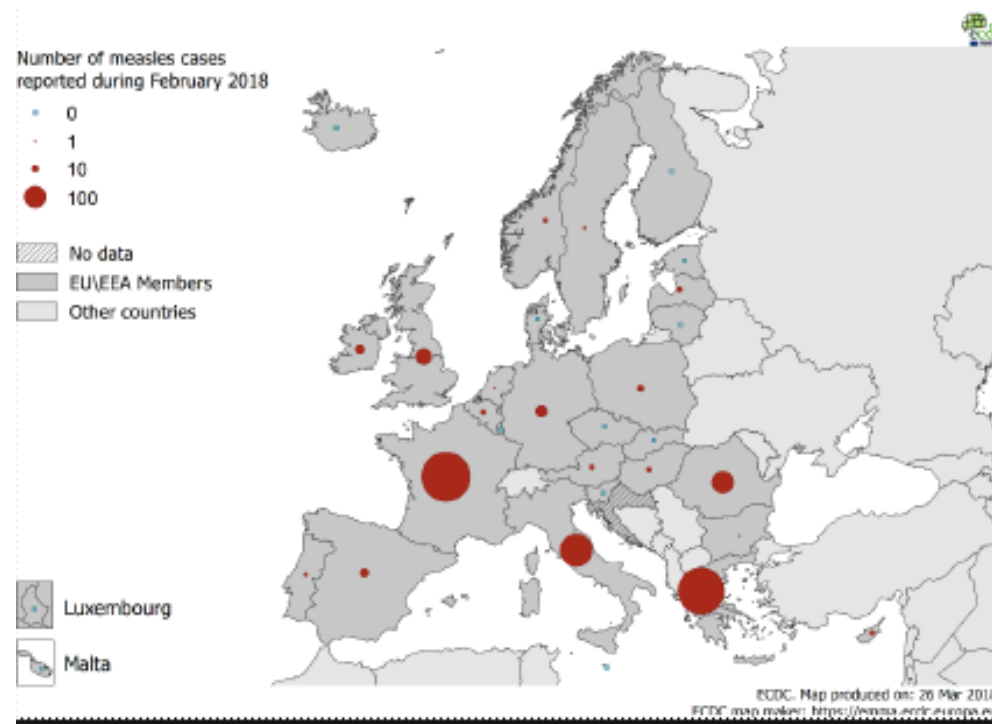


Travel Notices

Some U.S. travelers have become sick with measles after traveling abroad. Before you leave on an international trip, check the CDC Travel Notices on measles.

- Travel Notice: Watch (Level 1): [Measles in Israel](#)
- Travel Notice: Watch (Level 1): [Measles in Ukraine](#)
- Travel Notice: Watch (Level 1): [Measles in Japan](#)
- Travel Notice: Watch (Level 1): [Measles in Brazil](#)
- Travel Notice: Watch (Level 1): [Measles in Philippines](#)

In 2018, Europe had **82,000 cases** (60% hospitalized) and **72 deaths** – highest in decade
34K cases in 42 countries in the first 2 months of 2019

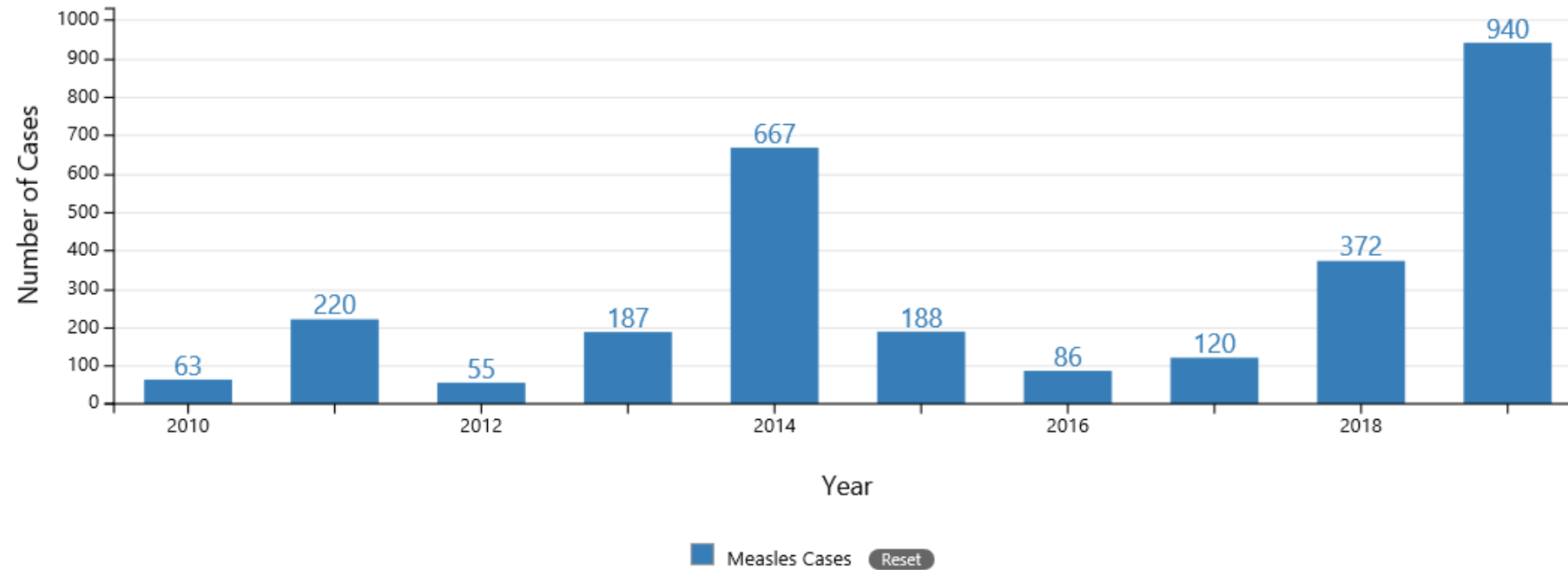


Current Situation: U.S.



Number of Measles Cases Reported by Year

2010-2019**(as of May 24, 2019)

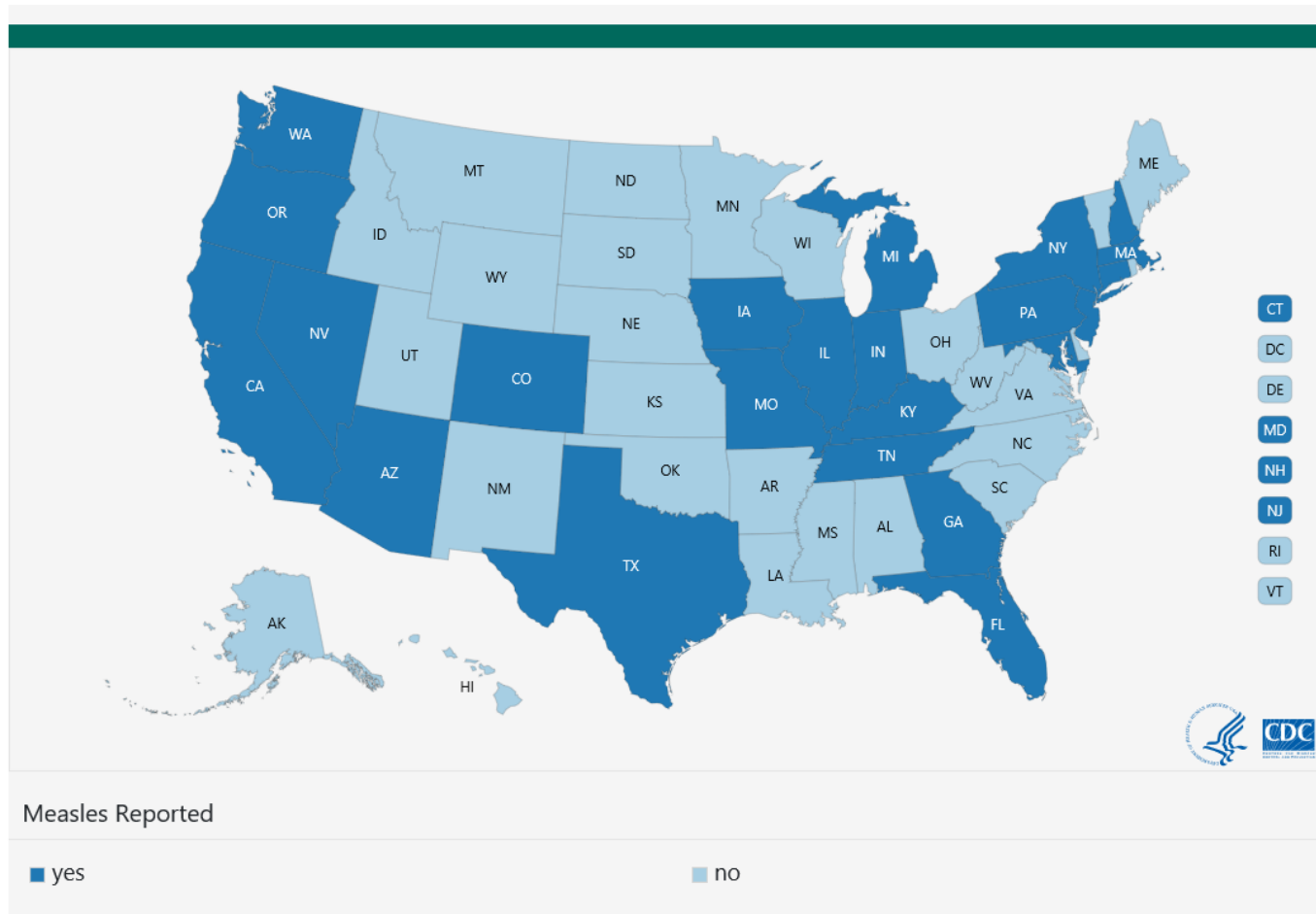


From January 1 to May 24, 2019, 940 individual cases of measles have been confirmed in 23 states. This is the greatest number of cases reported in the U.S. since 1994 and since measles was declared eliminated in 2000.

U.S. Measles Outbreaks



States That Have Reported Measles Cases in 2019



U.S. Measles Outbreaks



Measles Outbreaks Reported to CDC

Measles outbreaks (defined as 3 or more cases) are currently ongoing in 2019 in the following jurisdictions:

- [New York State, Rockland County](#)
- [New York City](#)
- [Michigan](#)
- [New Jersey](#)
- [California, Butte County](#)
- [California, LA County](#)
- [California, Sacramento County](#)
- [Georgia](#)
- [Maryland](#)
- [Pennsylvania](#)

These outbreaks are linked to travelers who brought measles back from other countries such as Israel, Ukraine, and the Philippines, where large measles outbreaks are occurring. [Make sure you are vaccinated against measles](#) before traveling internationally.

75% of U.S. cases linked to outbreaks in New York City and New York State

Measles In Arizona



2 Pima County cases in 2019

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Public Health Agencies Warn Residents of Potential Exposure to Measles in Arizona

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The [Arizona Department of Health Services](#) (ADHS) and the [Pima County Public Health Department](#) announced today that an out-of-state visitor with measles traveled to Tucson between April 17 through 29 and may have exposed the public to the disease. The person was potentially contagious and may have exposed the public at the following locations during the listed times:

- Monday, April 29, 2019:
- Tucson International Airport, 7250 S Tucson Blvd, Tucson, AZ 85756, from 6:00 a.m. to 10:40 a.m.

"Measles is a serious and highly contagious disease that can spread quickly, so if you or your child are not vaccinated against the disease and you were at the Tucson International Airport, there is a risk of getting measles," said Dr. Cara Christ, director of the Arizona Department of Health Services. "If you develop signs of measles, including high fever, cough, runny nose, red watery eyes, or a rash, stay home and call your healthcare provider so you can schedule a time to be seen. They will let you know when to visit their office so as not to expose others in the waiting area. If you do not have a health care provider, you may need to be seen at your local hospital emergency room or urgent care center. Please call before going to let them know you may have measles."

Maricopa County identified as the #1 measles “Hot Spot”

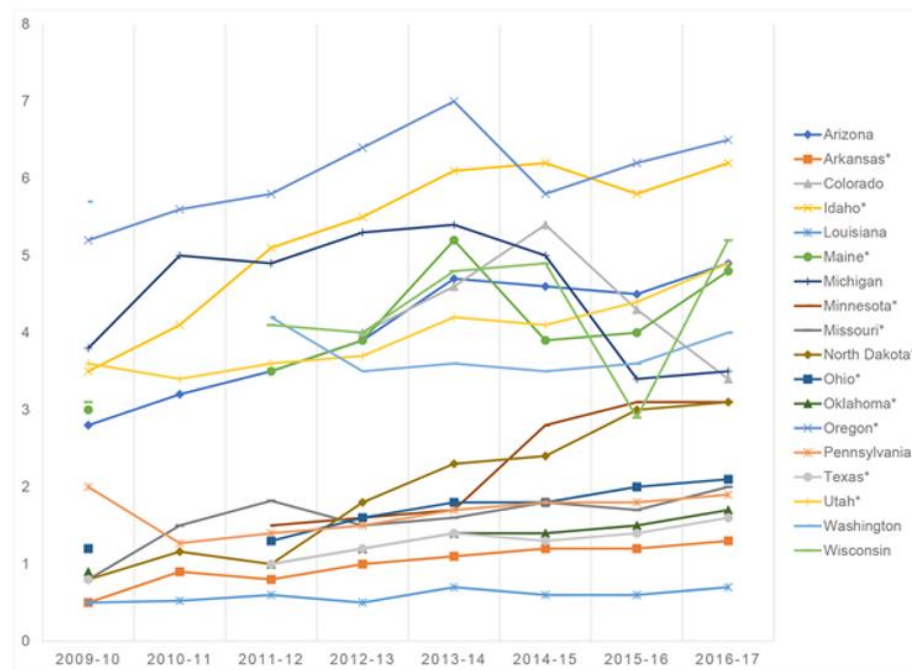


The state of the antivaccine movement in the United States: A focused examination of nonmedical exemptions in states and counties

Jacqueline K. Olive, Peter J. Hotez , Ashish Damania, Melissa S. Nolan 

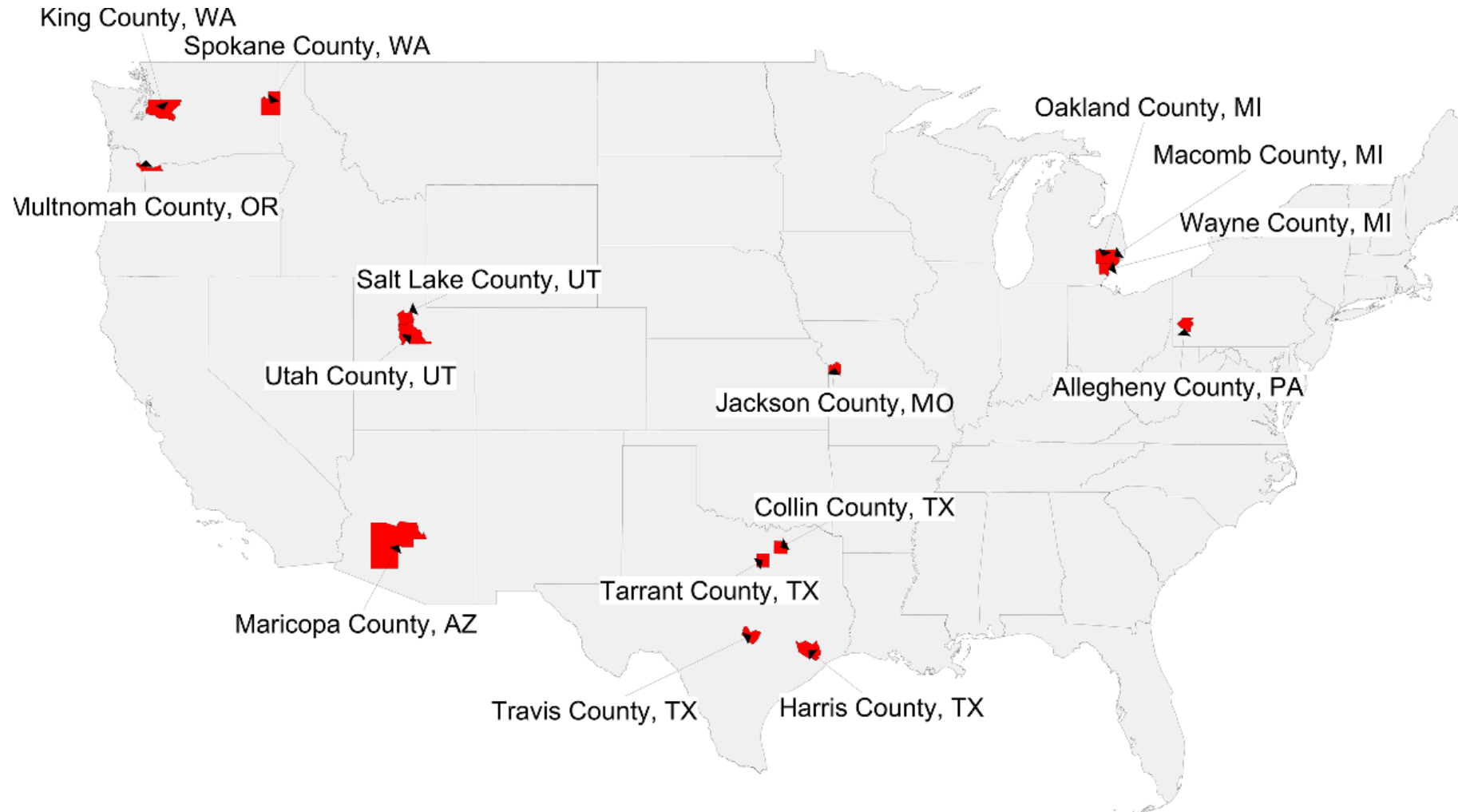
Published: June 12, 2018 • <https://doi.org/10.1371/journal.pmed.1002578>

Fig 1. Increasing nationwide trend in kindergarten NME rates from 2009 to 2017.



Olive JK, Hotez PJ, Damania A, Nolan MS (2018) The state of the antivaccine movement in the United States: A focused examination of nonmedical exemptions in states and counties. *PLOS Medicine* 15(6): e1002578. <https://doi.org/10.1371/journal.pmed.1002578>
<https://journals.plos.org/plosmedicine/article?id=10.1371/journal.pmed.1002578>

Vulnerable Counties



Prevention: Vaccine



- MMR Vaccine Effectiveness
 - 95-98% are Immune* with 1 dose
 - 99% are Immune* with 2 doses
- Herd Immunity is gone
 - **Maricopa County measles immunizations rates have dropped to 93%**
 - Personal belief exemptions have increased as immunization rates have dropped

You are considered immune to measles by CDC if you were born before WHAT YEAR?



A. 1954

B. 1957

C. 1962

D. 1967

You are considered immune to measles by CDC if you were born before WHAT YEAR?



A. 1954

B. 1957

C. 1962

D. 1967



Evidence of Immunity

At least one of the following:

- Written documentation of adequate vaccination:
 - **1 or more doses of MMR vaccine**
 - administered on or after the first birthday for preschool-age children and adults not at high risk
 - **2 doses of MMR vaccine** for school-age children and adults at high risk
 - including college students, healthcare personnel, and international travelers
- Laboratory evidence of immunity
- Laboratory confirmation of measles
- Birth before 1957
- Adults who don't know history should get an MMR

Which vectorborne disease is NOT endemic in Arizona



A. Plague

B. Lyme Disease

C. Rocky Mountain Spotted Fever

D. Saint Louis Encephalitis (SLE)

Which vectorborne disease is NOT endemic in Arizona



A. Plague

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Maricopa County Vector-Borne Disease Update



| Disease | Current Year (2019) as of 5/31/2019 | | Last Year (2018) as of 5/31/2018 | 2018 Total Number of Cases |
|---------------------------------------|-------------------------------------|--------|----------------------------------|----------------------------|
| | Cases | Deaths | | |
| LOCAL | | | | |
| <u>St. Louis Encephalitis</u> (SLE) | 0 | 0 | 0 | 0 |
| <u>West Nile Virus</u> (WNV) | 2 | 0 | 0 | 24 |
| Unspecified Flavivirus (SLE/WNV)† | 0 | 0 | 0 | 1 |
| TRAVEL-RELATED* | | | | |
| <u>Chikungunya</u> | 0 | 0 | 0 | 0 |
| <u>Dengue</u> | 0 | 0 | 0 | 7 |
| <u>Zika</u> | 0 | 0 | 1 | 2 |
| Unspecified Flavivirus (Dengue/Zika)† | 0 | 0 | 0 | 0 |

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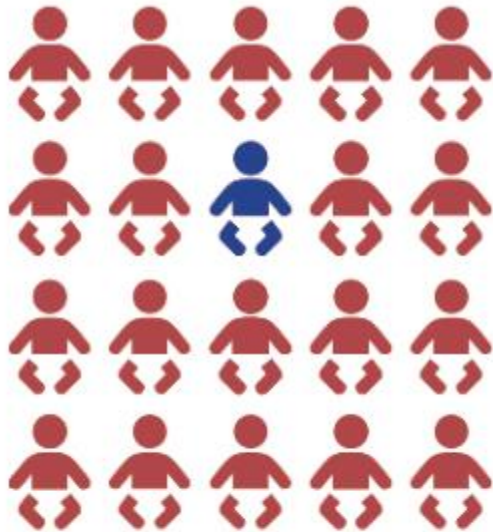
Zika worldwide



| Country | 2018 | 2019 as of March 16, 2019 |
|----------------------------|--------|---------------------------|
| Continental United States* | 0 | 0 |
| Puerto Rico | 246 | 2 |
| Mexico | 860 | 13 |
| Guatemala | 2300 | ? |
| El Salvador | 481 | 128 |
| Brazil | 19,020 | 2,062 |
| Peru | 984 | 275 |
| Colombia | 857 | 110 |
| Bolivia | 1736 | ? |
| India | 159 | ? |
| Thailand | 568 | 48 |
| Cuba | 873 | 2 |
| Africa | ? | 0 |

*Last autochthonous Zika case in the US was in Hidalgo County, TX in December 2017

Birth defects and Zika virus



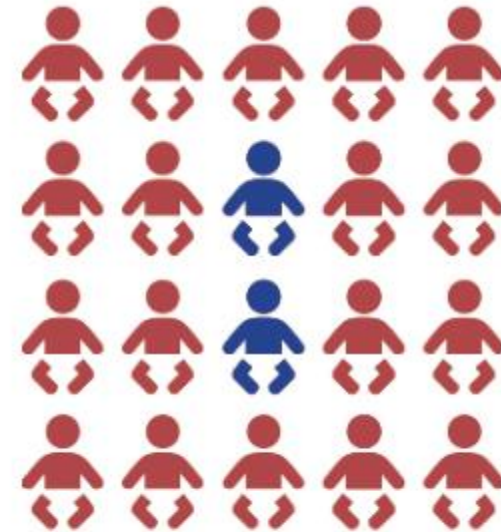
US Territories 5%

Confirmed Zika virus
infection during pregnancy =

5-10%

with Zika-associated
Birth Defects

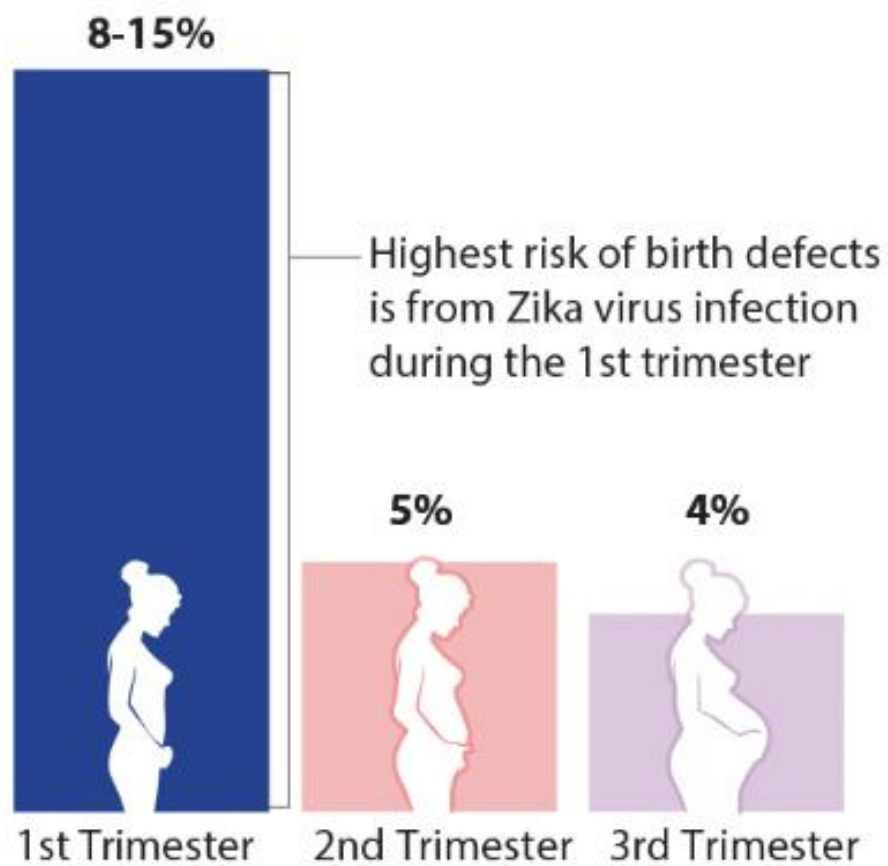
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US States 10%



Highest risk of birth defects in first trimester



Symptoms are NOT associated with risk



How do you reach Maricopa County Public Health



M-F 8 am – 5 pm: **(602) 506-6767**

24/7 Doc-on-call: **(602) 747-7111**

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