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Hepatitis A Outbreaks in Multiple States: CDC Recommendations and Guidance

Clinician Outreach and Communication Activity (COCA)

November 29, 2018



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**At the conclusion of the session,
participants will be able to
accomplish the following:**

- Describe the epidemiology of the current hepatitis A outbreaks occurring in multiple states.
- Discuss the ongoing transmission of hepatitis A among high-risk populations.
- Review the indications for hepatitis A vaccination and use of hepatitis A vaccine in contacts as post-exposure prophylaxis.
- Discuss how to coordinate with local and state health departments on understanding hepatitis A in local jurisdictions.

Today's First Presenter



Sapna Bamrah Morris, MD, MBA

Incident Manager, Incident Command Structure Hepatitis A Response
Division of Viral Hepatitis
National Center for HIV/AIDS, Viral Hepatitis, STD, and TB Prevention
Centers for Disease Control and Prevention



Today's Second Presenter



Monique Foster, MD, MPH

Medical Epidemiologist

Division of Viral Hepatitis

National Center for HIV/AIDS, Viral Hepatitis, STD, and TB Prevention

Centers for Disease Control and Prevention



Today's Third Presenter



Noele Nelson, MD, PhD, MPH

Medical Officer

Division of Viral Hepatitis

National Center for HIV/AIDS, Viral Hepatitis, STD, and TB Prevention

Centers for Disease Control and Prevention





Hepatitis A Outbreaks— 2016–2018

Sapna Bamrah-Morris, MD, MBA

Monique A. Foster, MD, MPH

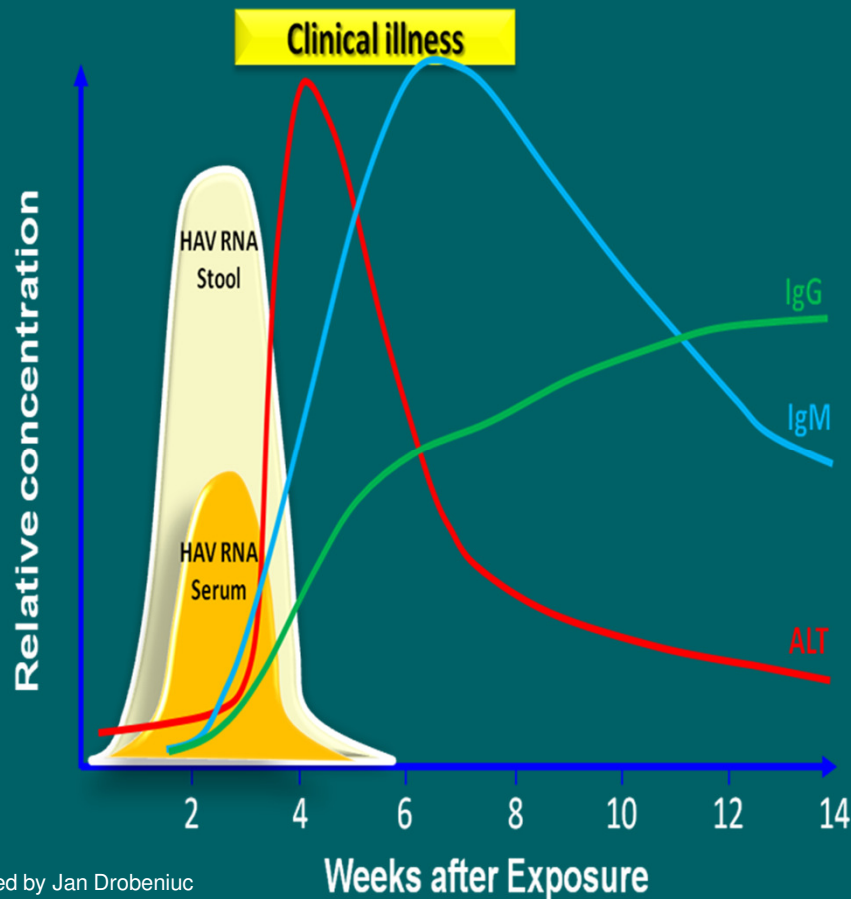
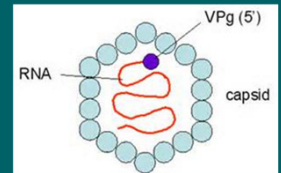
Noele Nelson, MD, MPH, PhD

Centers for Disease Control and Prevention

COCA Call

November 29, 2018

Hepatitis A Virus (HAV)



Graph created by Jan Drobeniuc

- Replicates in the liver, excreted in bile
- Acute illness
- Clinical manifestations: fever, jaundice, myalgia, anorexia, malaise, diarrhea
- Average incubation period: 28 days
 - Peak infectious period 10-14 days prior to symptoms, 7-10 days after symptom onset

Hepatitis A Virus Endemicity in the United States

- The United States is now considered a very low endemic HAV country
- Cyclic increases occurred every 10-15 years
- The number of reported cases in the pre-vaccine era was \geq 21,000 annually

ACIP Hepatitis A Vaccine Recommendations

■ Targeted vaccination, 1996-1999

— 1996

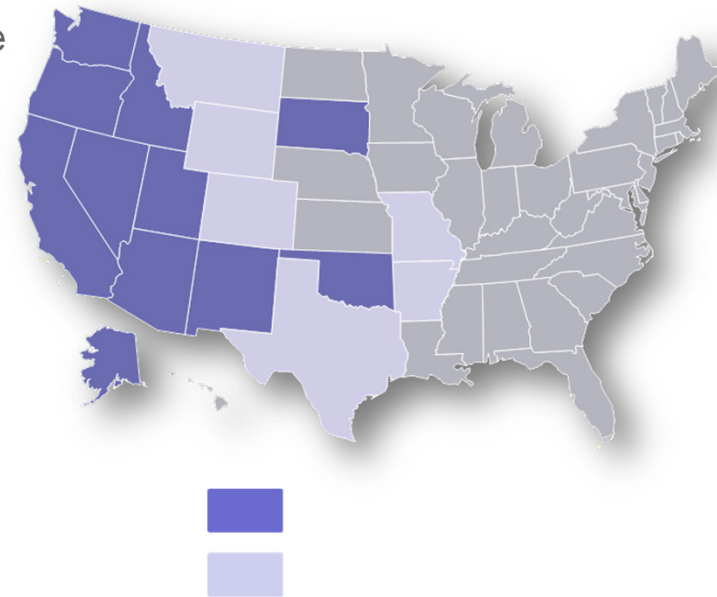
- Children at age 2 years in communities with high rates of disease
- Children through teen years in outbreaks

— 1999

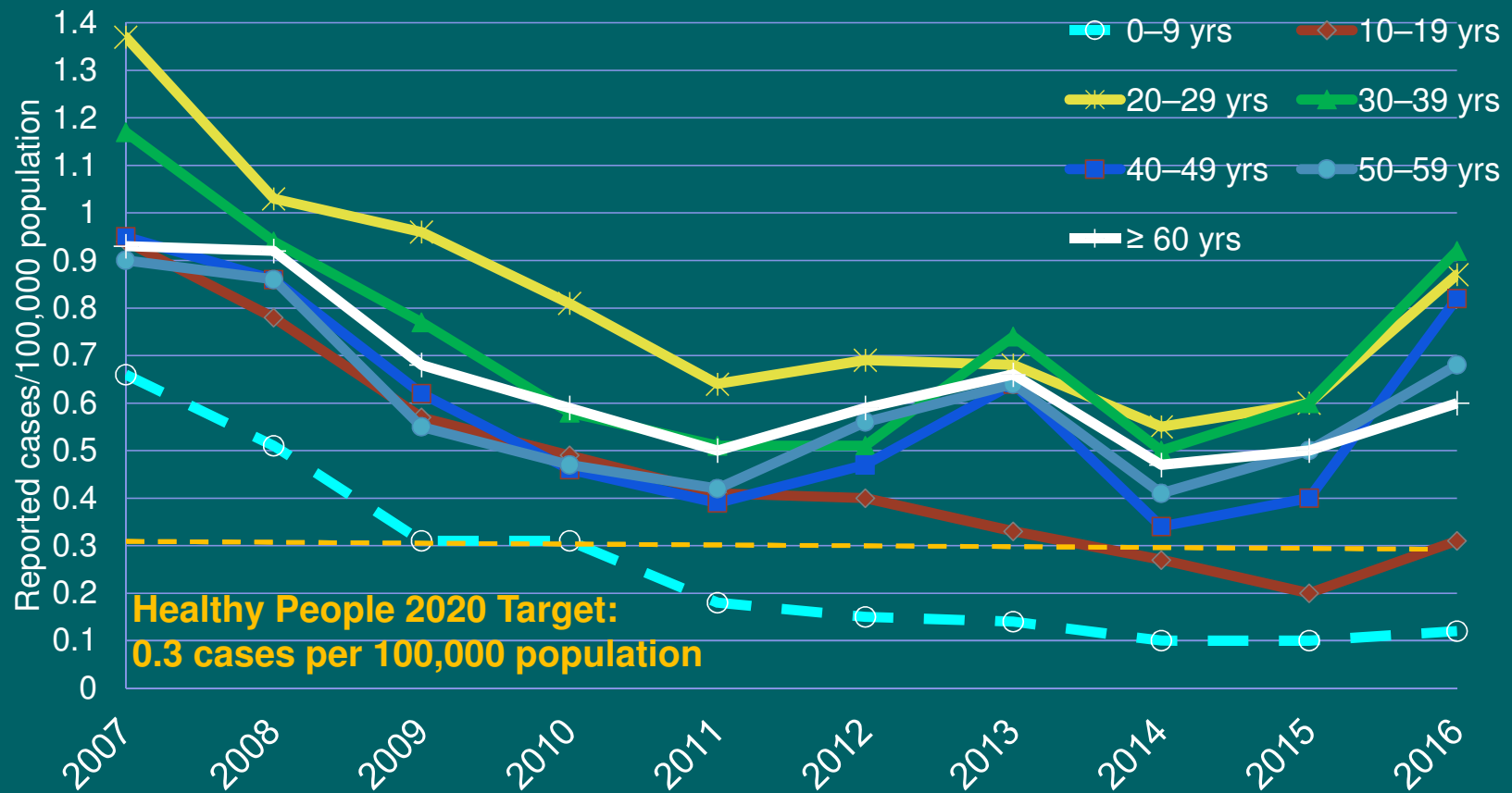
- Recommended in 11 states with rates 2x the national average
- Considered in 6 states with rates above the national average

— 2006

- Universal childhood vaccination
- Recommended for use at age 12-23 months in all states
- Continue existing vaccination programs for ages 2-18 years
- Consider catch-up vaccination in outbreaks and areas with increasing disease rates
- Any person wishing to obtain immunity

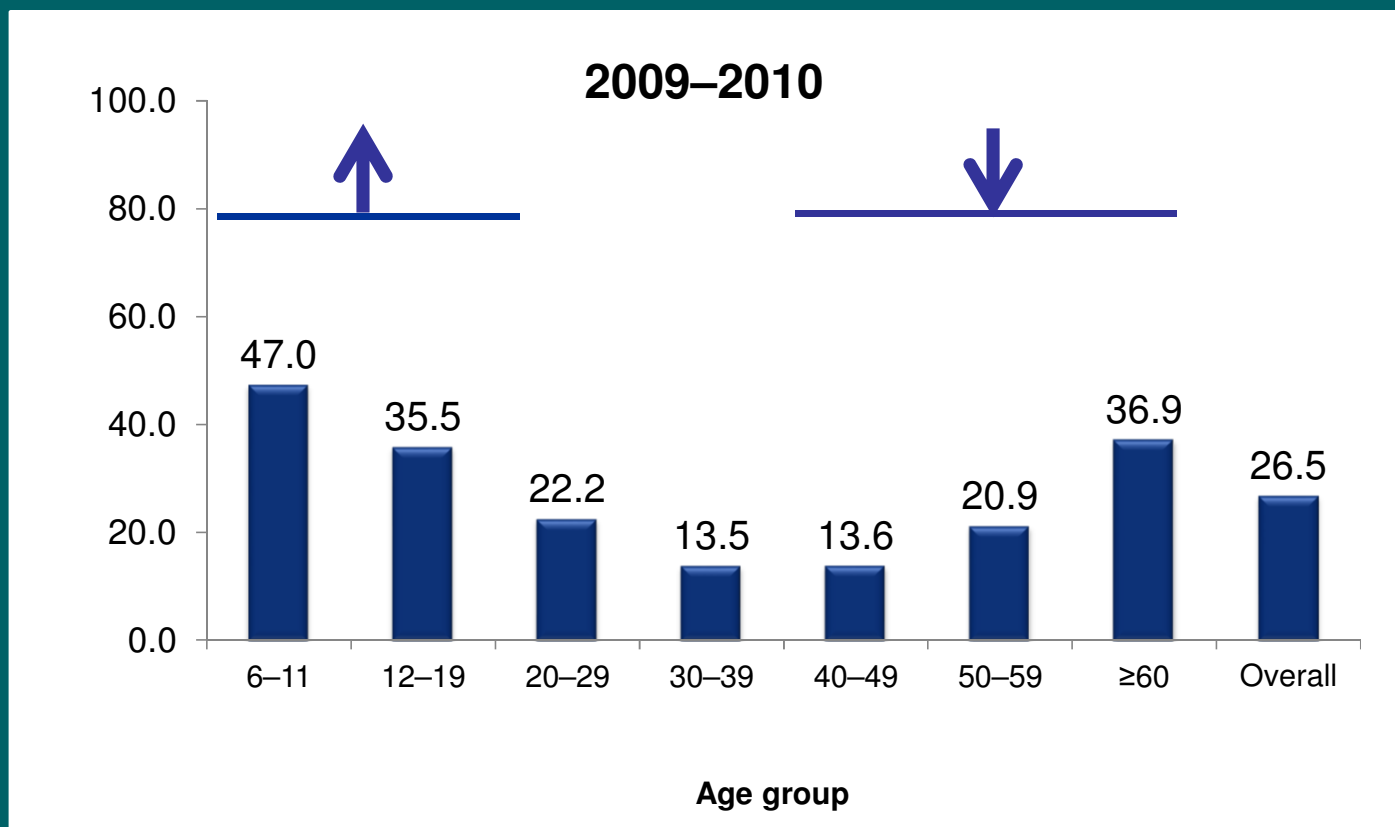


Rates of Reported Acute Hepatitis A United States, 2007-2016



National Notifiable Diseases Surveillance System (NNDSS);
<http://www.healthypeople.gov/2020/topicsobjectives2020/pdfs/Immunization.pdf>

Prevalence of anti-HAV by age group, NHANES, United States 2009–2010



NHANES, National Health and Nutrition Examination Survey

Murphy TV et al. Progress Toward Eliminating Hepatitis A Disease in the United States. MMWR Suppl. 2016 Feb 12;65(1):29-41.

ACIP Hepatitis A Vaccine Recommendations

Groups at increased risk of HAV or severe HAV disease

- Travelers
- Men who have sex with men
- Users of injection and non-injection drugs
- Persons with clotting-factor disorders
- Persons who work with nonhuman primates
- Persons who anticipate close personal contact with an international adoptee
- Persons with chronic liver disease
- Persons experiencing homelessness

Immunogenicity – Long-term Protection

- Protection following natural infection is lifelong
- Anti-HAV has been shown to persist in vaccine recipients for at least 20 years in adults administered inactivated vaccine as children with a three dose schedule.¹
- At least 20 year anti-HAV persistence was demonstrated among adults vaccinated with a two-dose schedule as adults.²
- Detectable antibodies are estimated to persist for 40 years or longer based on mathematical modeling and anti-HAV kinetic studies.^{2,3}
- Anti-HAV after a single dose of HepA vaccine can persist for almost 11 years⁴
 - A single dose of HepA vaccine was shown to promote HAV-specific cellular immunity similar to that induced by natural infection⁵

1. Plumb ID, et al. *J Viral Hepat.* 2017 Jul;24(7):608-612.; 2. Theeten H, et al. *Vaccine.* 2015 Oct 13;33(42):5723-7.

3. Hens N, et al. *Vaccine.* 2014;32(13):1507-1513. 4. Ott J.J. and Wiersma S. T. , *Int. J. Infect. Dis.*, vol. 17, no. 11, pp. e939-44, Nov. 2013.

5. Melgaço JG, et al. *Vaccine.* 2015 Jul 31;33(32):3813-20

Hepatitis A Vaccine Coverage, United States, 2016

■ Children¹

- 60.6% for children age 19-35 months, ≥2 doses (59.7%, 2017)
- 86.1% for children age 19-35 months, ≥1 dose (86%, 2017)

■ Adolescents²

- 64.4% for adolescents age 13-17 years, ≥2 doses
- 73.9% for adolescents age 13-17 years, 1 dose

■ Adults³

- 9.5% for adults ≥19 years, ≥2 doses
- 13.4% for adults 19-49 years, ≥2 doses; Travelers, 19.3%; CLD, 23.7%
- 5.4% for adults ≥50 years, ≥2 doses

1. Hill HA, et al. MMWR 2017;66:1171–1177.

2. Nelson NP, et al. *Vaccine* 2018. Mar 14;36(12):1650-1659

3. Vaccination Coverage Among Adults in the United States, National Health Interview Survey, 2016.
<https://www.cdc.gov/vaccines/imz-managers/coverage/adultvaxview/NHIS-2016.html#hepA>

Hepatitis A Virus Outbreaks – United States, 2016–2018

- CDC has assisted in multiple HAV outbreaks since July 1, 2016

- Foodborne Transmission
 - Hawaii-Frozen Scallops
 - Multistate- Frozen Strawberries
- Person-to-Person Transmission
 - Homeless individuals and injection/non injection drug users
 - Men who have sex with men (MSM)



- >8,000 outbreak associated cases reported since July 1, 2016

Shifting Hepatitis A Virus Epidemiology

- Past outbreaks were associated with asymptomatic children
- A large population of adults are not immune to hepatitis A virus
- Older individuals are more likely to experience severe disease and adverse outcomes
- Vaccination uptake among at-risk adults is low

Hepatitis A among Homeless Populations

- Little is known about hepatitis A immunity among homeless populations in the United States
- Homelessness is now considered an independent risk factor for HAV infection
- Older age, duration of homelessness, and injection drug use may indicate hepatitis A immunity

Hepatitis A among Persons Who Use Drugs

- High incidence of hepatitis A infections among this population
- Mixed evidence that injection drug use contributes substantially to risk
- Transmission is predominantly by direct person-to-person contact, related to crowding and poor hygiene

Increased Morbidity and Mortality during 2016–2018

- Hepatitis A related hospitalizations were increasing prior to 2016
 - 7% in 1999 to 46% in 2015
- Hospitalizations for cases during 2016–2018 outbreaks range from 25-82%
- Case mortality in California and Michigan outbreaks around 3%
- Coinfections with hepatitis B and hepatitis C

Hepatitis A Vaccination for Outbreak Control

- Vaccination is the cornerstone for control of community outbreaks
- Post-exposure prophylaxis alone may not effectively control outbreaks
- Targeted vaccination to the groups at highest risk is the best way to control disease spread
- Primary prevention with adequate vaccination of at-risk groups is preferable

Vaccination of Persons At-Risk

- Syringe Service Programs, Homeless Shelters, and Substance Abuse Treatment Centers
 - Important for engaging individuals at-risk
 - Providing prevention efforts early
 - Vaccination on site increases initiation and completion

- Jails
 - Many report drug use
 - Can vaccinate a large number of individuals
 - Vaccinations can be tracked

Vaccination of Persons At-Risk


■ Emergency Departments

- Provide care to difficult to reach populations
- Provide opportunities for rapidly responding

■ Peer Mentors

- Helps overcome mistrust
- Successful in approaching peers
- Usually recognized as leaders
- Effective communicators/educators

Summary

- Many adults have no immunity to hepatitis A virus, increases in morbidity and mortality are expected
 - Community outbreaks of hepatitis A virus are often prolonged and challenging to control
 - Vaccination is the cornerstone of outbreak control of community outbreaks
 - Outreach and vaccination of persons at-risk in targeted venues is effective for outbreak control
- 

Acknowledgments

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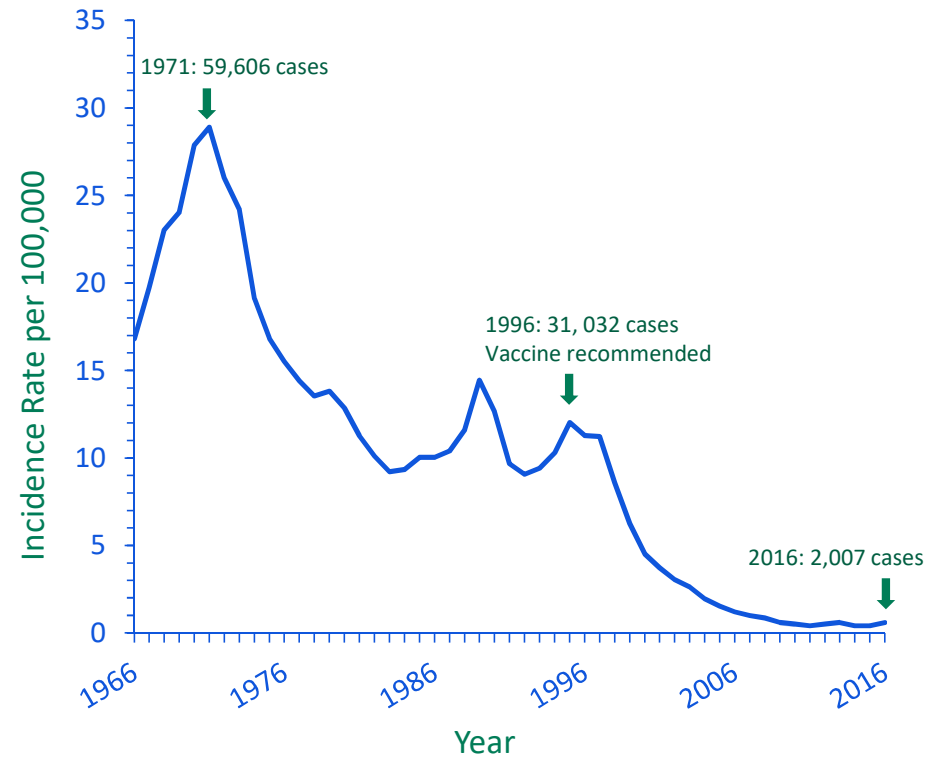
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- Nicole Stone
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- Brandi Taylor
- Cassie Jones



Thank You!

Hepatitis A Virus Endemicity in the United States

- The United States is a low endemicity country
- The number of reported cases in the pre-vaccine era was $\geq 21,000$ infections annually
- In the pre-vaccine era, cyclical increases occurred every 10–15 years



To Ask a Question

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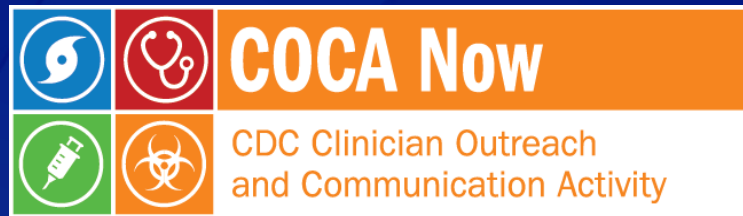
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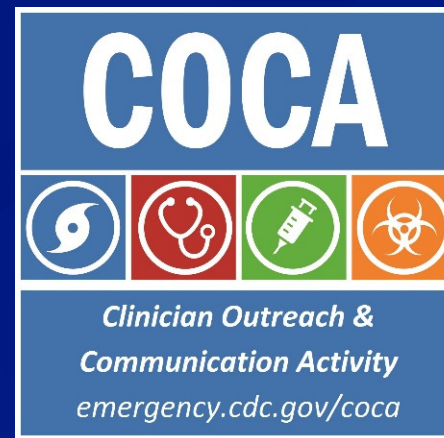


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