



**IN THIS ISSUE:**

Hepatitis A Outbreak in South Carolina ...1

2020 School and Childcare Exclusion List Update .....2

2019 Updates—Standard of Care Practice for Tuberculosis .....2

Zika and Dengue Risks and Testing .....4

New Reporting Requirement for 2020: Positive Interferon Gamma Release Assay (IGRA).....5

Measles Virus .....6

# Epi Notes

FALL 2019

## Hepatitis A Outbreak in South Carolina

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DHEC declared an outbreak of hepatitis A in Aiken County on February 13, 2019, followed by a statewide outbreak declaration on May 13, 2019. As of November 1, 2019, 563 confirmed cases of hepatitis A in the state have been reported to DHEC since November 1, 2018, when cases began increasing. This is nearly 30 times the average number of cases reported statewide in a year and is indicative of how significant a public health threat the outbreak is. One death associated with the outbreak has been reported. The South Carolina outbreak coincides with a national hepatitis A outbreak that began in 2016. Through November 5, 2019, 30 states have reported hepatitis A outbreaks, consisting of more than 27,000 cases.

The groups of people at highest risk for hepatitis A infection during this outbreak are persons who use non-injection or injection drugs, persons who are homeless, men who have sex with men, and persons who are currently or have recently been incarcerated. Public notifications of potential exposures from cases occurring in food handlers at restaurants have

gained significant attention, but it is important for the public to understand the greatest risk factor for acquiring the infection is being a member of one of the four groups noted above.

DHEC investigates all reports of hepatitis A in South Carolina. At the start of the outbreak in South Carolina, DHEC — out of an abundance of caution — continued an established practice of giving public notice when a restaurant food handler tested positive. After reviewing updated guidance provided by the Centers for Disease Control and Prevention as well as data and other information related to the outbreak in South Carolina, DHEC no longer gives public notification every time a restaurant worker tests positive for hepatitis A. Based on recognized best practices from the Centers for Disease Control and Prevention (CDC) and other states, when an investigation shows the likelihood of patrons being exposed is small and hepatitis A vaccine is not needed, no public notice is given.

It is important to note that this outbreak is not a foodborne one, nor does the concern lie with the restaurant or its food.

DHEC is closely monitoring the progression of the outbreak in South Carolina, as well as communicating with other state health departments reporting hepatitis A outbreaks. DHEC is also taking proactive steps to prevent further spread of the disease by educating the

public, particularly individuals in the high-risk groups and community groups associated with those persons, and healthcare providers.

The best protection against hepatitis A infection is vaccination. DHEC strongly encourages vaccination and is providing no-cost hepatitis A vaccines to individuals in the four high-risk groups. An appointment for vaccination at a local health department may be scheduled by calling 855-472-3432 or visiting [www.scdhec.gov/HealthClinics](http://www.scdhec.gov/HealthClinics). The vaccine is also available from many healthcare providers and local pharmacies. In South Carolina, adults 18 years and older can get vaccinated at some local pharmacies without a prescription, depending on their insurance coverage. To search for a nearby pharmacy that offers vaccines, visit [www.vaccinefinder.org](http://www.vaccinefinder.org). In addition to the no-cost vaccine for individuals at high risk, DHEC provides low-cost vaccines for uninsured or underinsured individuals who are 19 years and older.

For more information on hepatitis A and the outbreak in South Carolina, visit the [DHEC website](#).

## 2020 School and Childcare Exclusion List Update

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The School and Childcare Exclusion List has routinely been updated annually and made available January 31 of each year. South Carolina Regulation 61-20 requires that DHEC publish an Official School and Childcare Exclusion List of Contagious or Communicable Diseases to include specific conditions for the duration of school or childcare exclusion. These conditions and criteria apply to both students and staff. Updates to the School and Childcare Exclusion List will no longer be made at the beginning of each year. Updates will be made available for the start of a new school year.

What does this all mean? The current 2019 School and Childcare Exclusion List should be used for the current 2019-2020 school calendar year. Beginning with the 2020-2021 school year, an updated School and Childcare Exclusion List will be published in June of each year. The current 2019 School and Childcare Exclusion List can be found at <https://scdhec.gov/sites/default/files/Library/CR-011634.pdf>. The brochure for parents is available in English and Spanish located at <https://scdhec.gov/health/child-teen-health/school-exclusion>.

Please contact the DHEC Division of Acute Disease Epidemiology (803-898-0861) with any questions about the School and Childcare Exclusion List.

## 2019 Updates—Standard of Care Practice for Tuberculosis

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South Carolina Department of Health and Environmental Control (SC DHEC) uses the Centers for Disease Control and Prevention (CDC) guidelines as the standard of care for practice.

Health Care Personnel (HCP) are defined as: “all paid and unpaid persons working in health-care settings who have the potential for exposure to M. Tuberculosis through air space shared with persons with infectious TB disease.” (p. 3 <https://www.cdc.gov/mmwr/pdf/rr/rr5417.pdf>)

Updated guideline for screening of HCP: ([https://www.cdc.gov/mmwr/volumes/68/wr/mm6819a3.htm?s\\_cid=mm6819a3\\_x](https://www.cdc.gov/mmwr/volumes/68/wr/mm6819a3.htm?s_cid=mm6819a3_x))

### Definitions:

**2 step TST** – A process in which the first step of the TST is placed/read and then the 2nd step is completed 1-3 weeks after the first step.

**BAMT** – Blood Assay for M. tuberculosis – General term to refer to in vitro diagnostic tests that assess for the presence of infection with M. tuberculosis. This term includes but is not limited to **IGRA**.

**CXR** – Chest X-ray

**HCP** – Health care personnel – definition included above

**IGRA** – Interferon Gamma Release Assay - Whole blood test that can aid in diagnosing M. tuberculosis. Does not differentiate LTBI from TB disease. Refer to the FDA for those that are commercially available in the US.

**LTBI** – Latent TB infection

**S/sx** – Signs and symptoms

**TB** - Tuberculosis

**TST** – Tuberculin skin test – TST and PPD are often used interchangeably

Continue the use of facility risk assessments to guide infection control policies and procedures

<b>Baseline</b>	All HCP should have an individual risk assessment, TB symptom evaluation, and baseline TB screening (TST/BAMT).  Page 28	<b>No history of testing</b>	<b>Actions:</b> <ul style="list-style-type: none"> <li>Individual risk assessment (box)</li> <li>TB symptoms review</li> <li>2 step TST or single BAMT (TST in the last 12 months – page 29)</li> </ul>	If TST/BAMT are positive or the HCP shows s/sx of TB disease, a CXR should be performed.
		<b>History of previous positive screening</b>	<b>Actions:</b> <ul style="list-style-type: none"> <li>Obtain documentation of previous screening and/or treatment. If no documentation, proceed to test.</li> <li>Individual risk assessment (box)</li> <li>TB symptoms review</li> <li>CXR</li> </ul>	

<b>Postexposure</b>	After known exposure to a person with potentially infectious TB disease without the use of adequate personal protection, HCPs should have a timely TB symptoms evaluation and additional testing, if indicated.	<b>No history of positive screening</b>	<b>Actions:</b> <ul style="list-style-type: none"> <li>Individual risk assessment (box)</li> <li>TB symptoms review</li> <li>TST or BAMT</li> </ul> <b>8-10 weeks after date of last exposure:</b> <ul style="list-style-type: none"> <li>Individual risk assessment (box)</li> <li>TB symptoms review</li> <li>Retest those with initial negative tests using the same method of testing (TST or BAMT)</li> </ul>	If TST or BAMT are positive or the HCP shows s/sx of TB disease, a CXR should be performed.  Consider CXRs for: <a href="#">page 31</a>
		<b>History of previous positive screening</b>	<b>Actions:</b> <ul style="list-style-type: none"> <li>Individual risk assessment (box)</li> <li>TB symptoms review</li> <li>HCP with documented prior LTBI or TB disease do not need a TST/BAMT.</li> </ul>	If HCP shows s/sx of TB disease, a CXR should be performed.  Consider CXRs for: <a href="#">page 31</a>

- All HCP should receive annual education regarding TB to include risk factors and s/sx of TB disease.
- HCP should be encouraged to discuss any potential occupational or nonoccupational TB exposure with their occupational health provider.

<b>Serial screening</b>	Not routinely recommended unless the following:	<b>**Any HCP who has not completed treatment for LTBI should be monitored with an annual TB symptom evaluation**</b>	If symptomatic, a CXR is needed  If asymptomatic, reevaluate the risks/benefits of LTBI treatment.
		Consider for certain groups who might be at increased occupational risk for TB exposure (e.g., pulmonologists or respiratory therapists).	Consultation with the state health department is encouraged in making these decisions.  <a href="http://www.scdhec.gov">www.scdhec.gov</a> - keyword “tuberculosis”
		Consider for certain settings in which TB transmission has occurred in the past.	Consultation with the state health department is encouraged in making these decisions.  <a href="http://www.scdhec.gov">www.scdhec.gov</a> - keyword “tuberculosis”

Any HCP with LTBI and no prior treatment should be offered, and strongly encouraged to complete, treatment with a recommended regimen unless a contraindication exists. Short-course treatments are a preferred alternative due to compliance rates.

**Difference between TB infection (LTBI) versus TB disease - [cdc.gov/tb/topic/basics/difference.htm](http://cdc.gov/tb/topic/basics/difference.htm)**



## Zika and Dengue Risks and Testing

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Mosquito-borne flaviviruses represent a significant ongoing risk to public health. The dangers of in utero infection with Zika virus became clear when an outbreak of the virus was detected in Brazil in 2015. Cases of the virus spread quickly throughout the Americas and the Caribbean, reached a peak in 2016, and quickly declined thereafter.<sup>1</sup> The number of cases reported in Brazil in 2018 was 20,000, which is down from a peak of 200,000. Due to limited surveillance, it is not known how many of the 87 countries that previously reported cases continue to have circulating Zika virus.<sup>2</sup> The result is an unclear understanding of the risk of Zika to travelers to these areas. As of August 1, 2019, five cases have been reported in the U.S. in 2019 states in returning travelers, but 23 cases have been reported in U.S. territories as a result of local transmission and one case from a returning traveler.<sup>3</sup>

On the contrary, cases of the related Flavivirus, dengue, has consistently and drastically increased over the past few decades with increasing geographic spread.<sup>4</sup> Both Zika and dengue are spread by the *Aedes* species of mosquitoes and can present with similar symptoms, including fever, rash, and muscle and joint pain. Testing for both viruses is usually done concurrently and may include testing for chikungunya or other endemic flaviviruses based on the exposure risk. Testing for acute infections with dengue or Zika can be done through nucleic acid amplification testing (NAAT) to detect viral RNA or enzyme immunoassays to detect the NS1 antigen of the dengue virus. This is usually followed by or done concurrently with testing for IgM antibodies against the specific viruses. Additional testing with plaque reduction neutralization tests (PRNT) may also be required. Clinicians and public health officials should understand the limitation and time

frames required to complete the testing algorithm and discuss these with patients who desire testing.

In June 2019, the Centers for Disease Control and Prevention (CDC) provided updated guidance on testing for dengue and Zika in those with clinically compatible illness and risk of infection.<sup>5</sup> Testing may be considered for nonpregnant patients who have appropriate clinical symptoms. If seven days or less have passed since the onset of symptoms, serum samples should be collected for NAAT (or NS1 antigen testing for dengue). Previous guidelines also recommended NAAT testing on a urine sample, but updated guidelines suggest that testing should be considered on other specimens, including plasma, whole blood, cerebrospinal fluid (CSF), or urine.

This new recommendation also represents a reduction in the timeframe that NAAT testing is recommended – down to seven days since symptom onset from the original 14 days. A positive result for either virus by NAAT in a patient with appropriate exposure history and symptoms indicates an acute infection and negates the need for further testing. A negative result requires additional testing for serum IgM. Samples tested at the South Carolina Public Health Laboratory are sent to the CDC for IgM testing and can take up to three weeks to deliver results. Negative results for NAAT and IgM testing are considered confirmation of no acute infection, but any positive result for dengue or Zika with no specific NAAT result requires additional testing. Serum specimens collected in the first week after symptom onset may not have detectable IgM as antibody levels have not had sufficient time to develop. Any negative IgM result on serum samples collected between seven days to 12 weeks after symptom onset confirm that there was no acute infection with those viruses. If there is a concern, however, about a repeat infection with a different dengue serotype, testing may be done with paired serum samples measuring IgG titers separated by at least two weeks. A four-fold rise is evidence of acute infection.

Current guidelines for testing pregnant women with clinically compatible illness for either dengue or Zika recommend concurrent testing by NAAT and IgM titers. Zika NAAT testing is recommended on urine and serum samples and should be done within 12 weeks of symptom onset for Zika testing. Zika virus persists longer in pregnant patients and consequently the time frame for NAAT testing may be extended. A positive Zika NAAT result on both specimens, or one specimen with a positive IgM result, confirms an acute infection. If only one NAAT specimen test positive and IgM result is negative, CDC recommends repeat testing on the same specimen. Due to the prolonged elevation of IgM, for pregnant women who may have had multiple exposures, it may not be possible to determine if the infection occurred before or after the pregnancy. PRNT testing does not provide more information on the timing of infection. Dengue NAAT or

NS1 antigen testing guidelines do not differ if the patient is pregnant, and that testing should not be performed if more than seven days have passed since symptom onset.

Direct detection of viral RNA by NAAT testing or detection of the dengue NS1 antigen provide evidence of an acute infection and is considered confirmed when paired with a positive IgM result. A positive IgM in the absence of one of the other tests may represent an acute infection or a false positive result. Due to cross-reactivity of IgM assays to multiple flaviviruses, additional testing with PRNT is required to distinguish between viruses. These tests can detect a patient's immune response to produce IgG and other antibodies capable of neutralizing the viruses. They can provide evidence of exposure but provide no insight into the timing of the infection. Additional information must be considered including the NAAT results, recent and past exposures, and the clinical symptoms to determine if the PRNT results represent an acute infection. These tests are performed by the CDC and may take several months to return results. The results may identify the specific virus, provide evidence of no infection with either virus, or provide evidence of an unspecified flavivirus infection. They are not recommended if the patient has already tested IgM negative. In a person previously infected with a flavivirus or having received a vaccination against one, a PRNT test may not be able to distinguish which virus caused the most recent infection.

Dengue and Zika testing is not recommended for non-pregnant individuals who have no symptoms nor for those who cannot provide a relevant history of exposure. Zika testing is also not recommended for pre-conception screening. Testing may be considered for pregnant individuals without symptoms if they live in an area with ongoing Zika exposure or have recently moved from those areas. The decision to test pregnant patients who only traveled and spent a short period of time in a Zika endemic area is complicated by the uncertainty about the risk of exposure. CDC recommends use of a shared physician-patient decision-making model that considers a patient's values and preferences, clinical judgement, and limitations in the available tests.<sup>6</sup> Clinicians, patients, and public health officials should always consider these factors before undergoing testing in light of uncertainties surrounding the risk of infection with these viruses.

#### Sources

1. European Centre for Disease Prevention and Control. *Zika virus transmission worldwide*. Accessed on July 9, 2019 at <https://ecdc.europa.eu/en/publications-data/zika-virus-transmission-worldwide>
2. Jacobs, Andrew. *The Zika virus is still a threat. Here's what the experts know*. The New York Times. July 2, 2019. Available at <https://www.nytimes.com/2019/07/02/health/zika-virus.html>
3. The Centers for Disease Control and Prevention (CDC). *2019 case*

*counts in the US*. Accessed on August 5, 2019 at <https://www.cdc.gov/zika/reporting/2019-case-counts.html>

4. Murray NE, Quam MB, Wilder-Smith A. Epidemiology of dengue: past, present and future prospects. *Clin Epidemiol*. 2013;5:299–309. Published 2013 Aug 20. doi:10.2147/CLEP.S34440
5. Sharp TM, Fischer M, Munoz-Jordan JL, et al. Dengue and Zika virus diagnostic testing for patients with a clinically compatible illness and risk for infection with both viruses. *MMWR Recomm Rep* 2019;68(No. RR-1):1-10. DOI: <https://www.cdc.gov/mmwr/volumes/68/rr/rr6801a1.htm>
6. CDC. *Testing guidance*. Accessed on July 9, 2019 at <https://www.cdc.gov/zika/hc-providers/testing-guidance.html>

## New Reporting Requirement for 2020: Positive Interferon Gamma Release Assay (IGRA)

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Beginning January 1, 2020, the DHEC Division of Tuberculosis (TB) Control is instituting a new requirement to the *South Carolina (SC) 2020 List of Reportable Conditions* that will require reporting of each new positive Interferon Gamma Release Assay (IGRA). Two IGRAs have been approved by the U.S. Food and Drug Administration (FDA) and are available commercially in the U.S.: QuantiFERON®-TB Gold Plus and T-Spot®. Positive IGRAs can be reported by Electronic Lab Report (ELR), phone, secure email, or fax within three business days. This new requirement pertains to medical providers performing the test in addition to hospital and reference laboratories.

The addition of positive IGRA results as a 2020 reportable condition will greatly support the following goals of the SC Division of TB Control for TB elimination: identify individuals with positive IGRA results, assess for Latent TB Infection (LTBI), provide treatment for LTBI as indicated, and ultimately reduce active disease cases throughout the state.

#### Additional information for the provider:

A chest X-ray is an additional tool to aide in the diagnosis of a patient. TB suspects remain mandatory reportable by phone within 24 hours. A patient with a normal chest X-ray that has been diagnosed with LTBI may be recommended for treatment. Should the provider desire assistance with treatment for LTBI for the patient, the following information would be required in the report to DHEC: Tuberculin Skin Test (TST)/IGRA report, current radiology report, and patient demographics. Please call 803-898-0558 with any questions or concerns.

[cdc.gov/tb/topic/basics/difference.htm](https://www.cdc.gov/tb/topic/basics/difference.htm)

## Measles Virus

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The worst measles outbreak in decades has swept the country this year. According to the CDC, from January 1 to July 3, 2019, 1,109 cases of measles have been confirmed in 28 states. This is the greatest number of cases reported in the U.S. since 1992 and since measles was declared eliminated in 2000.

Hundreds of measles cases among the Orthodox Jewish community in New York account for most cases. Members of the Orthodox Jewish community contracted measles while in Israel and subsequently spread the disease in their unvaccinated community upon their return to the U. S. Outbreaks linked to these communities in New York have since spread to surrounding areas and states, including Michigan.

As seen in New York, measles cases in the U.S. usually occur due to an increase in the number of travelers who get measles abroad and bring it into the country, and/or further spread of measles in U.S. communities where people are unvaccinated. While rates of measles infection have increased around the U.S., no confirmed cases have occurred in South Carolina in 2019.

Measles is a potentially devastating acute febrile illness caused by the measles virus. Common complications in children include pneumonia and croup. Acute encephalitis with permanent brain damage occurs in about 1 of every 1,000 cases. In the post-elimination era, death has occurred in 1-3 of every 1,000 cases.

Measles is transmitted by direct contact with infectious droplets and is highly infectious—the chance of illness in a susceptible individual exposed to measles is 90%. The incubation period generally is eight to 12 days from exposure to onset of symptoms (about seven to 21 days from exposure to rash onset). To prevent measles from spreading, at least 95% of the population need to be vaccinated. In 2017, about 88% of SC children between 19-35 months of age had received at least one dose of MMR vaccine.

Clinically, measles typically starts as a high fever ( $\geq 101^{\circ}\text{F}$ ) that includes one or more of the “3 Cs” –cough, conjunctivitis, and coryza (rhinitis). Koplik’s spots (white spots inside the cheeks) may also be present. This prodromal phase proceeds a generalized, maculopapular rash by three to four days. The rash usually begins on the face before spreading to the rest of the body.

People who contract measles usually have clinical symptoms AND a history of recent travel abroad or exposure to someone who recently travelled abroad; have not been

vaccinated against measles; or live in a community where measles is currently occurring. Since measles is still rare, it is important that clinicians consider other sources of fever and rash. Important factors to consider include: age of patient, season, travel history, exposures, and immunizations.

If health care providers suspect that a patient has measles, they should:

- Promptly isolate the patient to avoid disease transmission. Provide the patient with a face mask until they have been appropriately isolated. Patients with measles are infectious from four days before through four days after rash onset.
- Contact DHEC regarding the patient and need for testing.
- Obtain specimens for testing from patients with suspected measles, including viral specimens for genotyping, which can help determine the source of the virus.

### › Measles PCR

- ›› Throat or NP swabs are required for testing. Specimen must be shipped cold in viral transport media (VTM) and within 24 hours of collection.
- ›› NP swab is preferable because it will allow additional testing on Biofire for other rash-causing viruses.
- ›› Specimens should ideally be collected as close to rash onset as possible or within three days. Specimen collected after three days of onset have a higher risk of false negative results.

### › Serology – IgG

- ›› Collected in red top vacuum tube.
- ›› IgM testing is only done at CDC. PHL will coordinate specimen shipment if indicated.
- ›› IgG serology testing from PHL is available for the determination of immunity status and convalescent serum testing.

## Resources for Additional Information

- CDC guidance for health care providers: <http://www.cdc.gov/measles/hcp>
- Photos of measles: <http://www.cdc.gov/measles/about/photos.html>
- CDC Measles Vaccination <http://www.cdc.gov/measles/vaccination.html>

## Links for Disease Reporting Information

### Reportable Diseases Page on DHEC website

[www.scdhec.gov/ReportableConditions](http://www.scdhec.gov/ReportableConditions)

### PDF List of Reportable Conditions

<https://www.scdhec.gov/sites/default/files/Library/CR-009025.pdf>

### SC DHEC Disease Reporting Form

[www.scdhec.gov/sites/default/files/Library/D-1129.pdf](http://www.scdhec.gov/sites/default/files/Library/D-1129.pdf)

## Questions?

For questions about disease reporting or to discuss electronic disease reporting via DHEC's electronic disease surveillance reporting system, call the DHEC Bureau of Disease Control in Columbia:

(803) 898-0861  
Monday – Friday  
8:30 a.m. – 5 p.m.

To learn about DHEC's web-based reporting system, call:

1-800-917-2093  
Monday – Friday  
8:30 a.m. – 5 p.m.



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