

NC DEPARTMENT OF HEALTH AND HUMAN SERVICES

# **Measles Update and Planning**

North Carolina Communicable Disease Branch, Vaccine-Preventable Disease Team

NCDHHS, Division of Public Health Childcare Measles Planning and Update, March 2025

## **Objectives**

- Review measles basic information
- Highlight current measles situation and coverage trends
- Discuss measles exposures in childcare settings
- Local Health Department investigation
- Child and staff vaccination records, accuracy
- Vaccination exemptions in childcare setting
- List key points for exclusion (isolation and quarantine) of nonimmune children and staff
- Locate measles resources

# **Measles 101**

## **Measles**



- Acute viral illness transmitted via airborne particles or droplets
- VERY CONTAGIOUS! One of the most highly communicable infectious diseases
- Sharing airspace (e.g. sitting in same room) with an infected person is considered an exposure, and airborne virus can remain infectious for up to 2 hours after infectious person vacates the space
- Incubation period: 7-21 days (average 14 days)
- Infectious period: 4 days before to 4 days after rash onset (9 days total)

# **Clinical Picture**

- Early Signs (typically lasts 2-4 days)
  - High fever (up to 105°), cough, coryza (runny nose), conjunctivitis
  - Koplick spots (white spots on inner cheek)

- Rash (typically lasts 4-7 days)
  - Begins a few days after early signs
  - Maculopapular (flat lesions and small, solid raised lesions)
  - Begins on head and face
  - Spreads to trunk and extremities
  - Fades in order of appearance
- Complications include ear infections, diarrhea, immune system harm, hospitalization, pneumonia, brain swelling, death













Koplik spots

Public health image library <u>https://phil.cdc.gov/default.aspx</u>

## **Measles Vaccination**

- MMR is a combination vaccine that contains measles, mumps and rubella (MMRV also available for children, includes varicella)
- 2 doses of measles-containing vaccine are recommended as part of the routine childhood immunization schedule
  - The first dose at 12-15 months of age
  - The second dose at 4-6 years of age
- At least one dose of MMR is recommended for adults who do not have evidence of immunity
- Certain adults may need 2 doses. Refer to <u>CDC website</u> for complete guidelines
- Vaccine side effects can mimic disease but people with vaccineassociated fever or rash cannot spread measles

## **Current measles situation and coverage trends**

## CDC Measles Outbreak Map, 3/20/2025



- 378 confirmed cases in 18 states
- 2 deaths
- 33% of cases under 5 years of age
- 95% of cases unvaccinated

# **Concern for NC**

- Epicenter of Texas outbreak, Gaines County, has non-medical exemption rate of 17.6%, allowing for spread of disease
- Spring break and easy interstate travel makes it easy for infected person to bring disease to NC
- People can be contagious for 4 days before rash onset, infecting others unknowingly
- Some areas in NC also have high non-medical exemption rates, which would allow cases to spread throughout community

## **NC Counties with % Up To Date <90%**

Cherokee	83.69 %	<ul> <li>Madison</li> </ul>	88.37 %
Henderson	86.09 %	• Lincoln	88.81 %
• Clay	86.92 %	<ul> <li>Jackson</li> </ul>	89.29 %
• Graham	87.36 %	Harnett	89.36 %
Cumberland	87.53 %	Buncombe	89.71 %
Mitchell	87.88 %	• Wilson	89.82 %

#### NC Kindergarten Immunization Data Dashboard

https://immunization.dph.ncdhhs.gov/schools/kindergartendashboard.htm

## **Outbreak Risk**



Unvaccinated personVaccinated person

# **Concerns for Childcare**

## **Mix of Unvaccinated and Vaccinated Children**

- Communal space would allow for easy spread of virus
- Children under one year of age have no protection, at high risk if measles enters community
- First dose of MMR is recommended at 12 months of age, provides 93% protection, second dose at 4 years of age provides 97% protection.
- 33% of cases in 2025 have been children under 5 years
- Most measles deaths occur in children under 5 years of age

## **How to Stay Prepared**

- Create a list of children and staff who do not have the correct dose of MMR vaccine (1 dose for children in childcare, 2 doses for children over four in after school care) or who are too young to receive the vaccine. This list should include children who have a medical or religious exemption.\*<sub>SLO</sub>
- Promote respiratory hygiene and cough etiquette (cover your cough) and frequent handwashing
- Encourage children and staff to stay home when sick
- Review the <u>Communicable Disease Toolkit</u> created by the NC Childcare Health and Safety Resource Center
- Complete the Daily Health Check



## How to Stay Prepared

- Make sure children are staying on track with their immunization schedule. Have a system to check status
  - Check monthly
  - Keep a list of dates when children will need new vaccinations
  - Use the child immunization history form
- Notify parents if a child is behind, exclude children who are not up-to-date

	Child Immunization History
c	Submission of cartificate to child care facility/G \$ 120A-154 Cartificate

Child's full name:				Date o	Date of birth:				
nter the date of each d	ose received (Mon	th/Day/Year) or at	tach a copy of the immuniza	tion reco	rd.				
Vaccine Type	Abbreviation	Trade Name	Combination Vaccines	1 date	2 date	3 date	4 date	5 dat	
Diphtheria, Tetanus, Pertussis	DTaP, DT, DTP	Infanrix, Daptacel	Pediarix, Pentacel, Kinrix						
Polio	IPV	IPOL Pediarix, Pentacel, Kinrix							
Haemophilus influenza type B	Hib (PRP-T) Hib (PRP-OMP)	ActHIB, PedvaxHIB **, Hiberix	Pentacel						
Hepatitis B	HepB, HBV	Engerix-B, Recombivax HB	Pediarix						
Measles, Mumps, Rubella	MMR	MMRII	ProQuad						
Varicella/Chicken Pox	Var	Varivax	ProQuad						
Pneumococcal Conjugate*	PCV, PCV13, PPSV23***	Prevnar 13, Pneumovax***							
*Required by state law fo **3 shots of PedvaxHIB a ***PPSV23 or Pneumova have received Prevnar 13 Note: Children beyond th	rr children born on o rre equivalent to 4 H x is a different vacci l. neir S <sup>th</sup> birthday are	r after 7/1/2015. ib doses. 4 doses are ne than Prevnar 13 a not required to recei	required if a child receives mo nd may be seen in high risk chil ve Hib or PCV vaccines.	re than on dren over	e brand ol age 2. The	f Hib shots se childre	i. n would a	lso	
Gray shaded boxes ab	ove indicate that	the child should no	t have received any more d	loses of t	hat vaccir	ne.			
Record updated by:			Record updated by:						

tion on child's first day of attendance or within 30

#### Minimum State Vaccine Requirements for Child Care Entry

By This Age:	Children Need These Shots:						
3 months					1 Hep B		
5 months		2 Polio			2 Hep B		
7 months	3 DTaP	2 Polio		2-3 Hib**	2 Hep B	3 PCV	
12 months	3 DTaP	2 Polio		2-3 Hib**	2 Hep B	3 PCV	
16 months	3 DTaP	2 Polio	1 MMR	3-4 Hib**	2 Hep B	4 PCV	
19 months	4 DTaP	3 Polio	1 MMR	3-4 Hib**	3 Hep B	4 PCV	1 Var
4 years or older (in child care only)	4 DTaP	3 Polio	1 MMR	3-4 Hib**	3 Hep B	4 PCV	1 Var
Note: For children behind on immunizations, a catch-up schedule must meet minimal interval requirements for vaccines within a series.							
Consult with child's health care provider for questions.							

Updated May 2023

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## **How to Stay Prepared**

- Teach staff and parents to recognize the signs of measles (high fever, cough, runny nose, red, watery eyes).
- Post and share resources we will share printable flyers with the slides
- If possible, identify a private room for children suspected of having measles to wait for parents.

#### Measles

#### MEASLES IS A SERIOUS DISEASE

- Measles is a serious disease that causes a rash and fever.
- Measles is very contagious. It spreads when a person with measles breathes out, coughs or sneezes.
- Anyone who is not vaccinated is much more likely to get measles.
- Measles can be dangerous, especially for babies and young children. It can cause swelling of the brain and lung infections. In rare cases, it can be deadly.

#### Symptoms of measles and how it spreads

- Measles often begins with a high fever, cough, runny nose, and red, watery eyes. After 3-5 days, a rash usually begins on the face and spreads to other parts of the body.
- You can spread measles to others as early as four days before you have a rash and for up to four days after the rash first appeared.
- You can get measles just by being in a room where a person with measles has been. The measles virus stays in the air for up to two hours after that person has left the room.

#### Call your doctor or clinic right away if you see symptoms

- Your doctor or clinic will let you know if you need to come in for a visit.
- Measles is very contagious and you don't want to give it to someone in a waiting room. It's important to tell your doctor or clinic that you have symptoms of measles before you go. They will give you instructions for what to do so that you don't spread measles.

For more information:

www.cdc.gov/measles

Thank you to Seattle and King County, Washington Public Health for the use of this infographic.







Images: cdc.gov

#### Stay at home if you have measles

- It's important not to spread measles to others.
- Stay at home if you have measles. Don't go to school, work, to the store, or other people's homes.

VACCINATION IS THE BEST WAY TO PROTECT

The MMR shot is safe and very effective at

preventing measles. It also protects against

Doctors recommend that all children get the

Getting the MMR vaccine is safer than getting

Most children do not have any side effects from

usually mild and don't last long, such as a fever,

the shot. The side effects that do occur are

YOUR FAMILY

MMR shot.

measles.

mumps and rubella.

mild rash, and soreness.

Don't have visitors to your home if you or your child have a fever or rash.

## Have a Communicable Disease Policy in Place

NC Health and Resource Center has sample policies you can adapt – having predefined roles and definitions will help you respond quickly when needed

#### **Documents and Policies Available:**

- Communicable Disease and Exclusion Policy
- Inclusion/Exclusion Notification for Parents
- NC Child Care Immunization Policy

## **Recommendations for the childcare building environment**

- Measles is airborne
- Cleaning and disinfection will not prevent or control a measles outbreak, but routine standard cleaning procedures will protect against other illness
- Sufficient ventilation, appropriate PPE (N95), and immune staff and children (as appropriate based on immunization schedule) are needed to manage exposures in childcare settings
- Screen, isolate, call immediately to consult public health, and have child sent home

#### What to do if you have a suspected measles case

- Isolate the child if possible, empty room with open window, closed door, mask for child and accompanying staff
- Call the communicable disease nurse at your <u>Local Health Department</u>. – Identify your communicable disease nurse now and save their number
- If there is a measles case at your center, you must work with the Local Health Department to prevent the virus from spreading
- Unvaccinated children who are exposed to measles must be excluded through 21 days from most recent exposure

## More children likely to miss days in lower coverage settings

- School A: 100 children, 70% MMR coverage
  - 30 unvaccinated children; 1 gets measles
  - 29 children excluded/ quarantined for 21 days
  - <u>609</u> days missed

- School B: 100 children, 95% MMR coverage
  - 5 unvaccinated children; 1 gets measles
  - 4 children excluded/ quarantined for 21 days
  - <u>84</u> days missed

# Measles investigations in childcare settings

# **3 Basic Questions**

When the local health department begins investigating a suspected case, they will consider the following:

1. Immune Status

- Shot record, other evidence of immunity?
- 2. <u>Clinical Presentation</u>
  - Onset date of each symptom
  - Presentation of rash
  - Other potential causes of rash, other lab results
- 3. Epidemiology
  - Demographics, travel, employment, activities, school, congregate settings



# **Consider Other Causes of Fever/Rash**

- Fifth Disease (parvovirus)
- Hand, Foot and Mouth Disease (coxsackie virus)
- Roseola (human herpesvirus 6, 7)
- Scarlet fever (strep)
- Rocky Mountain Spotted Fever
- Recent antibiotic use
- Recent MMR vaccination
- Syphilis (in sexually active adolescents/adults)
- Contact dermatitis
- Heat rash
- Kawasaki syndrome

# **Infectious Period and Exposure Period**

- Patients with measles should isolate until the end of the infectious period (5 days after rash onset)
- Patient / family interviews will identify venues where patient might have been exposed. Exposure period for contacts is 7-21 days (average 10-14 days) before rash onset in the index case



# **Activity History**

- When interviewing the measles patient and/or their family, it is important for public health to gather an activity history.
- Childcare facilities can help verify activities.
- The activity history is a summary of where the patient has been and what they were doing for each day of the exposure period and infectious period.
- Knowing activities during exposure period helps us determine where the patient was exposed
- Knowing activities during infectious period helps us know who the patient exposed, and is the first step of the investigation

# **Measles Investigation**

## **Measles Contact Investigation Overview**

- The objective of a contact investigation is to determine who is exposed and verify the immune status of all exposed people.
- Exposed people without documented evidence of immunity may be eligible for measles post-exposure prophylaxis.
- For childcare we would need to obtain information on students and staff who were in the same room as the case-patient
  - -Typical school day- classrooms,, hallways, and communal spaces
  - -Before or after school extracurriculars or programs
  - -Field trips
  - -Transportation (e.g. bus rides)

# **How Do We Verify Evidence of Immunity?**

- North Carolina Immunization Registry (NCIR)
  - Use contact lists to look up immunization records
  - Must have date of birth
- Contact interviews
  - Talk to everyone on contact list
- This can be very labor-intensive if there are hundreds of contacts
- Contacts may need some time to find their records. <u>CDC's tips for</u> <u>finding vaccination records</u> may be a good resource to help them

#### TIPS FOR FINDING SHOT RECORDS

#### Keeping Your Vaccine Records Up to Date

Your vaccination record (sometimes called your immunization record) provides a history of all the vaccines you received as a child and adult. This record may be required for certain jobs, travel abroad, or school registration.

#### How to Locate Your Vaccination Records

Unfortunately, there is no national organization that maintains vaccination records. The CDC does not have this information. The records that exist are the ones you or your parents were given when the vaccines were administered and the ones in the medical record of the doctor or clinic where the vaccines were given.

If you need official copies of vaccination records, or if you need to update your personal records, there are several places you can look:

- Ask parents or other caregivers if they have records of your childhood immunizations.
- Try looking through baby books or other saved documents from your childhood.
- Check with your high school and/or college health services for dates of any immunizations.
   Keep in mind that generally records are kept only for 1-2 years after students leave the system.
- Check with previous employers (including the military) that may have required immunizations.
- Check with your doctor or public health clinic. Keep in mind that vaccination records are maintained at doctor's office for a limited number of years.
- Contact your state's health department. Some states have registries (Immunization Information Systems) that include adult vaccines.

#### What To Do If You Can't Find Your Records

If you can't find your personal records or records from the doctor, you may need to get some of the vaccines again. While this is not ideal, it is safe to repeat vaccines. The doctor can also sometimes do blood tests to see if you are immune to certain vaccine-preventable diseases.

#### Tools to Record Your Vaccinations

Today we move, travel, and change health care providers more than we did in previous generations. Finding old immunization information can be difficult and time-consuming. Therefore, it is critical that

# **Measles Resources**

## Many resources available to you

#### Local health departments:

 You should have a relationship with your Child Care Health Consultant and local communicable disease nurse. To find your local CCHC and communicable disease nurse, find your county on the lists below

#### LHD Contact Page

- <u>Child Care Health Consultants</u>
- North Carolina resources:
  - State Epidemiologist on call (24/7/365 number) 919 733-3419 (disease guidance, investigation, data)
  - NC Immunization Branch 919 707-5575 (vaccine schedule, supplies, logistics, NCIR)
- CDC resources:
  - Infographics and factsheets for all communicable diseases

## W HEALTH AND Management of Select Infectious Diseases in School Settings

- 2-	For further Information contact:	CD Nume at your local Health Department)	ins Preventable Reportable Call at 5	ber, outbreaks are reportable. uspect an outbreak, call Epi on 19-733-3419 available 24/7.	
Disease Name	Overview	Symptoms	Prevention	School Exclusion	
		SKIN and RASH	·		
Chicken Fox (varicella infection)	Infection caused by the varicella-coster virus.	Rach (small, red, bilistering bumps)     Fever     Runny roce     Cough	Varicella vaccine     Proper surface sanitation     Knep room well verditated     Regular and thorough handwashing	Contact local health department within 24 hours     Doclude until all lexions are crusted	
Fifth Disease (Erythema Infectiosum)	Infection caused by Human Parvovirus 819	<ul> <li>Fever, headache</li> <li>Muscle and joint aches</li> <li>Red, lace like rash on cheeks, torso, arms, and thighs that lasts 1-3 weeks</li> </ul>	Proper surface sunitation     Disposal of tissues contaminated with blood or mucus     Regular and thorough handwashing     Can be harmful to fetus	Exclusion sof required	
Hand Foot and Mouth Disease (Cossacklevinut)	Infection caused by Coxackievirus, more common in summer and fall	Thy bilities in the mouth, on the flager, paires or hands, buttock, and osles of feet     Common cold like symptoms (sore throat, runny nose, cough, ferm)	When coupling or sneering cover mouths and noses with a disposable tituue     Regular and thorough handwashing especially after handling contaminated taxes or changing dispers     Ensure proper surface disinfection	Exclusion not required	
Impetigo	Infection caused by Streptococcal or Staphylococcal bacteria	<ul> <li>Small, red pimples or fluid-filled bilisters with crusted, yellow scabs on the skin</li> </ul>	Wash Infected areas and cover any open sores or wounds     Proper surface sanitation     Regular and thorough handwashing	<ul> <li>Exclude until 24 hours after treatment has started</li> </ul>	
Measles (Rubecia)	Infection caused by the measies virus, highly contagious Eliminated in the United States, but travel- related cause can occur	Fever, cough, runny nose, red and watery eyes     Small, red upota in mouth     Rash spreading from the halfline downward	MMR vacche required     Proper surface suntation     Regular and thorough handwashing	Contact Local Health Department Immediately     Exclude for at least four days after the beginning     of the rash     Exclude exposed, non-immunited children	
Ringworm	Infection caused by several kinds of fungl, may affect the body, feet, or scalp	Red, circular patches on the skin     Cracking and peeling of skin between toes     Redness, scaling of scalp	<ul> <li>Cover skin leelons</li> <li>Do not share objects that come in contact with the head (hats, brushes, bedding, etc.)</li> <li>Treat other affected household members</li> <li>Regular and thorough household</li> </ul>	<ul> <li>Exclude at the end of the school day that the infection is identified and until treatment is started</li> </ul>	
Roseola (Human Herpesvinus 6)	Viral Infection causing a rash in children 6-24 months old	<ul> <li>High fever</li> <li>Red, raised rash</li> </ul>	When coughing or sneezing cover mouths and noses with a disposable tissue     Regular and thorough handwashing	Exclusion not required	
Rubella (German Measles)	Uncommon, mild infection caused by Rubella virus Eliminated in the United States	<ul> <li>Red or pink rash on the face and body</li> <li>Swollen glands behind ears</li> <li>Slight fever</li> </ul>	MMR vaccine required     Regular and thorough handwashing     Can be very harmful to fetus	<ul> <li>Contact Local Health Department within 24 hours</li> <li>Exclude for seven days after the beginning of the rash</li> <li>Exclude exposed, non-immunized children</li> </ul>	
Scarlet føver	Infections caused by Group A Streptococcus bacteria	<ul> <li>Sunburn-like rash with tiny bumps that may ltch</li> <li>Fever, sore threat, swollen glands</li> <li>Tellow or white coating on tongue and throat</li> </ul>	Avoid direct contact with potentially infected individuals     When coupling or sweeing cover mouths and noses with     a dispositio fittuue     Fegular and thorough handwashing	<ul> <li>Exclude until antibiotics administered for at least 12 hours and no fever is present</li> </ul>	
		RESPIRATORY	·		
0040-13	COVID-18 is a disease caused by the SARE-CoV- 2 vina, a coronavirus not previously seen in humans before 2019.	Fever or chills     Cough     Southese of breath or difficulty breathing     Harcle or body aches     Headsche     New loss of taste or smell     Sore throat     Congestion or runny nose     Nauses or vorsting     Diarthes     Diarthes	<ul> <li>COVD-19 vaccine is recommended for everyone 6 months of age and older Avaid being expond to anyone who is sick</li> <li>When coughing or spectra gover mouths and noises with a disposable flause</li> <li>Regular and thorough handwashing</li> <li>Wear a well fitting musit fracestly exposed to a respiratory virue, are sick, or are recovering</li> </ul>	COC: When Students or Soft are Sick     Exclude until the child is fever free* for at least 24 hours     AND respiratory virtue symptoms are getting before overall for at least 24 hours.     Students and staff returning after a respiratory linear con consider additional actions to reduce spread	
Influenza	Infection caused by the Influenza virus	Fewer, chills, or headache     Cough and sove throat     Matcie or body ache     Fatigue     Congestion or runny nose     Shortness of breach or difficulty breathing     Nauses, vombing, or diarthea	<ul> <li>Flowsche is recommended for everyone 6 months of age and older</li> <li>Avoid being exposed to anyone who is sick</li> <li>When coughing or sneeting cover mouths and noises with a disposable tituue</li> <li>Regular and thorough handwashing</li> <li>Warar swell-Relating mail: firecastly exposed to a respiratory whrae, are sick, or are recovering</li> </ul>	CDC: When Students or Staff are Sick     Exclude until the child is feerer free? For at least 24 hours     AND respiratory virus symptoms are getting before overall for at least 24 hours.     Students and staff returning after a respiratory lines can consider additional adjust to reduce spread	
RSV (Respiratory Syncytlal Virus)	Viral infaction caused by Respiratory Syncytial virus, atually cause: cold-like symptom, occurs mostly in winter and early spring	Cold-like symptoms     Bespiratory problems (wheecing, difficulty breathing)	Proper sublistion of hard surfaces and toys     When coughing or savering cover mostls and noses with a disposable fisuse     Dispose of fissues conteminated with mucus     Regular and thorough handwashing	<ul> <li>Eachaion not required</li> <li>Students and staff returning after a respiratory linear, can consider <u>additional actions</u> to reduce spread</li> </ul>	
Whooping Cough (Pertussia)	Contagious bacterial infection that causes mild to severe coughing	<ul> <li>Cold-like symptoms</li> <li>Coughing that leads to vomiting, loss of breath, or blue face</li> <li>Whooping sound when inhaling after coughing</li> </ul>	<ul> <li>DTaF vaccine, for children less than seven years of age</li> <li>Tdap vaccine, for persons 30 years and older</li> <li>When coupling or sneeding cover mouths and noses with a disposable timue</li> <li>Regular and thorough handwashing</li> </ul>	Contact Local Health Department within 24 hours     Exclude until filve days after treatment has started     Exclude untreated cases for 21 days from the date     cough began	

GASTROINTESTINAL

#### MEASLES NOTIFICATION LETTER FOR SCHOOLS/DAYCARES

Letterhead (Facility or Health Authority/Department)

Date

To Parents and Guardians:

This letter is to inform you that your child may have been exposed to a person with measles at **SCHOOL NAME on DATE(S)**. We are sending this letter to make you aware of this exposure and to provide additional information about measles.

Measles is a very contagious disease that is spread through the air when a person with measles coughs or sneezes. Children and adults who have not had measles or who have not been fully immunized [with 2 doses of vaccine] are at risk of developing measles, which can lead to encephalitis (brain swelling), severe respiratory illness, and death. For the next two weeks, it is very important for you to watch your child for symptoms of measles, which include the following (usually in this order):

- Fever
- Cough
- Runny nose
- Pink eyes
- Rash that starts on the head and spreads all over the body

Children usually receive the MMR (measles-mumps-rubella) vaccine at 12-15 months and again at 4-6 years of age. Children that have had two doses of MMR are considered immune to measles.

People with measles are infectious for four days before the rash starts and four days after. The measles rash usually starts 14 days after exposure, although it may occur 5-21 days after exposure.

Children who have measles are required to stay home from school or daycare until four days after the day the rash started. Children with fevers over 100 degrees are also required to stay home from school and daycare. Children who have not been vaccinated against measles and have been exposed may be asked to stay home from school or daycare to ensure that they do not get sick and expose other children for 21 days from the time of exposure.

Children under the age of 1 year and those with weakened immune systems are at higher risk of complications from measles. Notify your child's doctor as soon as possible that your child may have been exposed to measles.

If your child experiences measles symptoms, or if you have questions, please contact your healthcare provider as well as the LOCAL HEALTH DEPARTMENT at PHONE NUMBER as soon as possible. **Measles is a very contagious airborne disease.** If you decide you want your child to be seen at your doctor's office or at a healthcare facility such as an emergency department or clinic, **PLEASE CALL THEM FIRST** and inform them you were possibly exposed to measles. If you are advised to go to a healthcare facility, *please bring this letter with you*, so you will be properly evaluated upon arrival.

Sincerely,

SIGNATURE BLOCK

#### References

- Manual for the Surveillance of Vaccine Preventable Diseases
  - -<u>https://www.cdc.gov/surv-manual/php/index.html</u>
- NC Kindergarten Immunization Data Dashboard
  - https://immunization.dph.ncdhhs.gov/schools/kindergartendashboard.htm
- School Measles Outbreak Simulator
  - epiENGAGE Measles Outbreak Simulator v-1.7.0
- Measles Preparedness Checklist
  - <u>https://www.cdc.gov/measles/media/pdfs/2025/02/CDC-Public-Health-Checklist\_Sept18\_FINAL-updatedlinks-508.pdf</u>
- School Infection Spread Prevention
  - https://www.cdc.gov/orr/school-preparedness/infection-prevention/index.html

