

Managing Communicable Diseases in Schools



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Disease Basics

Schools can play a major role in helping to reduce or prevent the incidence of illness among children and adults in our communities. Encouraging good hand hygiene and following cleaning recommendations contribute to a safe and healthy learning environment for children. When schools report illness to their local health department (LHD), public health specialists can assist schools with disease prevention and control guidance. This document provides schools with general information on what steps they can take to prevent and control communicable disease.

How Diseases are Spread

Understanding how diseases are spread can help prevent illness. Here are the most common routes of transmission:

- Fecal-oral: Contact with human stool; usually ingestion after contact with contaminated food or objects
- Respiratory: Contact with respiratory particles or droplets from the nose, throat, and mouth
- Direct skin-to-skin contact: Contact with infected skin
- Indirect contact: Contact with contaminated objects or surfaces
- Bloodborne: Contact with blood or body fluids

Coughing and Sneezing

Teach children (and adults) to cough or sneeze into tissues or their sleeve and not onto surfaces or other people. If children and adults sneeze into their hands, hands should be washed immediately.

Handwashing Procedures

Washing your hands is one of the easiest and best ways to prevent the spread of diseases. Hands should be washed frequently including after toileting, coming into contact with bodily fluids (such as nose wiping), before eating and handling food, and any time hands are soiled. It is also important that children's hands be washed frequently. Water basins and pre-moistened cleansing wipes are not approved substitutes for soap and running water. Alcohol-based hand sanitizers containing at least 60% alcohol may be used when soap and water are not available and hands are not visibly soiled. However, sanitizers do not eliminate all types of germs so they should be used to supplement handwashing with soap and water. The general handwashing procedure includes the following steps:

- Wet hands under warm running water.
- Apply soap.
- Vigorously rub hands together for at least 20 seconds to lather all surfaces of the hands. Pay special attention to cleaning under fingernails and thumbs.
- Thoroughly rinse hands under warm running water.
- Dry hands using a single-use disposable towel or an air dryer.
- Turn off the faucet with the disposable towel, your wrists, or the backs of your hands.

Bloodborne Exposures

Bloodborne pathogens, such as Hepatitis B virus (HBV), Hepatitis C virus (HCV) and human immunodeficiency virus (HIV), can be found in human blood and other body fluids. Bloodborne pathogens can be transmitted when there is direct contact with blood or other potentially infected material. This can include blood entering open cuts or blood splashing into mucous membranes (eyes, nose or mouth). All human blood should be treated as if it is infectious. If any bloodborne exposure occurs, contact your LHD to discuss the need for public health or medical follow-up.

Carriers of bloodborne pathogens should not be excluded from school. For more information, see the Michigan Department of Education's "Bloodborne Pathogens and School Employees" website at

http://www.michigan.gov/mde/0,4615,7-140-28753_64839_38684_29233_29803-241996--,00.html

Responding to Disease in a School

Develop a plan for school staff on how to address illnesses and reduce spread. Prompt action by staff may prevent a serious outbreak of communicable disease. Consider contacting your LHD for guidance on creating a plan.

Maintain a Sanitary Setting

It is important to maintain a sanitary setting to prevent the spread of illnesses. Many items and surfaces in schools must be cleaned and sanitized frequently. To clean and sanitize means to wash vigorously with soap and water, rinse with clean water, and wipe or spray the surface with a sanitizing solution. The surface should air dry for at least two minutes. For items that cannot be submerged into solution, spray or wipe with a sanitizing solution. Allow surfaces to air dry (do not towel dry). Immediately wash, rinse, and sanitize items or surfaces that have been soiled with a discharge such as urine or nasal drainage. Examples of sanitizing solutions may include:

- A solution of water and non-scented chlorine bleach with a concentration of bleach between 50–200 parts per million (one teaspoon to one tablespoon of bleach per gallon of water). Make this solution fresh daily.
- Commercial sanitizers used only in accordance with the manufacturer's instructions.

Remember that any cleaning, sanitizing or disinfecting product must always be safely stored out of reach of children. All sanitizers must be used in a manner consistent with their labeling. If there are still questions about the product, guidance is available from the National Antimicrobial Information Network at 1-800-621-8431 or npic@ace.orst.edu or from the National Pesticide Information Center at 1-800-858-7378.

Vaccination

Monitor the Michigan Care Improvement Registry (MCIR) to assure that children are up-to-date on their vaccinations. Assure that staff have also received all recommended vaccines. Visit http://www.michigan.gov/mdch/0,4612,7-132-2942_4911_4914_6385-150235--,00.html for the MDCH Immunization Division's "School and Childcare/Pre-school Immunization Rules."

When to Keep a Child Home*

1. Fever: A child has a temperature of 100°F taken by mouth or 99°F taken under the arm. The child should not return until 24 hours of no fever, without the use of fever-reducing medications.
2. Diarrhea: A child has two loose or watery stools, even if there are no other signs of illness. The child should have no loose stools for 24 hours prior to returning to school. Exception: A healthcare provider has determined it is not infectious. Diarrhea may be caused by antibiotics or new foods a child has eaten. Discuss with a parent/guardian to find out if this is the likely cause. For students with diarrhea caused by *Campylobacter*, *E. coli*, *Salmonella* or *Shigella*, please refer to the chart below for exclusions and required clearance criteria.
3. Vomiting: A child that is vomiting. The child should have no vomiting episodes for 24 hours prior to returning to school. Exception: A healthcare provider has determined it is not infectious.
4. Rash: The child develops a rash and has a fever or a change in behavior. Exclude until the rash subsides or until a healthcare provider has determined it is not infectious. For students with a diagnosed rash, please refer to the chart below for exclusions and required clearance criteria.
5. Certain communicable diseases: Children and staff diagnosed with certain communicable diseases may have to be excluded for a certain period of time. See the chart below for disease-specific exclusion periods.

* These are general recommendations. Please consult your local health department for additional guidance.

Extracurricular activities also need to be curtailed when a student has a communicable disease. Anyone with a diarrheal illness (e.g., Norovirus, Salmonellosis, Shigellosis, Shiga-Toxin producing *E. coli*, Giardiasis, or Cryptosporidiosis) should not use swimming pools for 2 weeks after diarrhea has ceased.

Reporting

Michigan Law requires schools and childcare centers to report specific diseases according to Act No. 368 of the Public Acts of 1978, which states that physicians, laboratories, primary and secondary schools, child daycares, and camps are required to report the occurrence or suspected occurrence of any disease, condition, or infections as identified in the Michigan Department of Community Health (MDCH) CD rules to your LHD within 24 hours.

It is important for schools to report to their LHD for a number of reasons, including:

- To identify disease trends, outbreaks, and epidemics
- To enable preventative treatment and/or education
- To target prevention programs, identify care needs, and allocate resources efficiently
- To inform epidemiological practice and research
- To evaluate the success of long-term control efforts
- To assist with local, state, national, and international disease surveillance efforts

Individual Case Reporting

The diseases highlighted in bold in the “Disease Specific Chart” below represent a subset of the diseases required to be reported on an individual case basis to your LHD. A complete list of diseases that are required to be reported in Michigan, as well as a list of LHD contact numbers, can be found by going to

http://www.michigan.gov/documents/Reportable_Disease_Chart_2005_122678_7.pdf. Because of the risk of rabies, animal bites should always be reported to your LHD and/or animal control within 24 hours.

The individual case report should include the following information:

- Name of the disease
- Student demographic information including: first and last names, date of birth, grade, classroom, street address along with zip code, parent’s name, and phone number(s)
- The date the student was first absent
- Who the disease was identified by (i.e., healthcare provider, parent/guardian, etc.)

Family Educational Rights and Privacy Act (FERPA) allows for the disclosure of personally identifiable information in connection with a health or safety emergency to public health authorities without individual or parent authorization if knowledge of the information is necessary to protect the health or safety of the student or other individuals under § 99.31(a)(10) and § 99.36 of the FERPA regulations.

Aggregate Reporting


Weekly aggregate counts of flu-like illness (also referred to as influenza-like illness) should be reported to your LHD. Flu-like illness refers to any child with pneumonia or fever and any of the following symptoms: sore throat, cough, generalized aching in the back or limb muscles. Vomiting and diarrhea alone are NOT indications of influenza or flu-like illness. Some LHDs may also require weekly aggregate counts of gastrointestinal illness, which is defined as any child with diarrhea and/or vomiting for at least 24 hours. Other diseases such as strep throat, pink eye, and head lice may also need to be reported on a weekly basis. Schools should consult their LHD for reporting requirements and how to submit communicable disease reports.



Immediate Reporting of Serious Communicable Disease or Outbreak




In addition to reporting aggregate and individual cases, call your LHD **immediately** to report any of the following serious illnesses: measles, mumps, rubella, pertussis, *Haemophilus influenzae* Type B, meningitis, encephalitis, hepatitis, tuberculosis, or any other serious communicable disease. Unusual disease occurrences and outbreaks are also reportable **immediately** to your LHD. An outbreak is defined as any increase in a certain type of illness.


Local Health Department Contact Information: http://www.michigan.gov/documents/June2003LHDList_69658_7.pdf



Disease-Specific Information and Exclusion Guidelines

Disease [†]	Mode of Spread	Symptoms	Incubation Period	Contagious Period	Contacts	Exclusions (subject to LHD approval)
Campylobacteriosis[†]	Ingestion of under-cooked meat, contaminated food or water, or raw milk	Diarrhea (may be bloody), abdominal pain, malaise, fever	Average 2-5 days (range 1-10 days)	Throughout illness (usually 1-2 weeks, but up to 7 weeks without treatment)	Exclude with first signs of illness; encourage good hand hygiene	Exclude until diarrhea has ceased for at least 2 days; additional restrictions may apply
Chickenpox**[†] (Varicella) 	Person-to-person by direct contact, droplet or airborne spread of vesicle fluid, or respiratory tract secretions	Fever, mild respiratory symptoms, body rash of itchy, blister-like lesions, usually concentrated on the face, scalp, trunk	Average 14-16 days (range 10-21 days)	As long as 5 days, but usually 1-2 days before onset of rash and until all lesions have crusted	Exclude with first signs of illness; potential exclusion for those without documentation of immunity	Until lesions have crusted (for cases with non-crusting lesions: until lesions are fading or until no new lesions occur)
CMV (Cytomegalovirus)	Exposure to infectious tissues, secretions, or excretions	None or “mono-like”	1 month	Virus may be shed for 6 months to 2 years	If pregnant, consult OB; contacts should not be excluded	No exclusion necessary
Common Cold	Airborne or contact with respiratory secretions; person-to-person or by touching contaminated surfaces	Runny or stuffy nose, slight fever, watery eyes	Variable, usually 1-3 days	24hrs before onset to up to 5 days after onset	Encourage cough etiquette and good hand hygiene	No exclusion necessary
Croup	Airborne or contact with respiratory secretions	Barking cough, difficulty breathing	Variable based on causative organism	Variable based on causative organism	Encourage cough etiquette and good hand hygiene	No exclusion necessary
Diarrheal Illness (Unspecified)	Fecal-oral: person-to-person, ingesting contaminated food or liquid, contact with infected animals	Loose stools; potential for fever, gas, abdominal cramps, nausea, vomiting	Variable based on causative organism	Variable based on causative organism	Exclude with first signs of illness; encourage good hand hygiene	Exclude until diarrhea has ceased for 24h or until medically cleared
<i>E. coli</i>[†] (Shiga toxin-producing)	Fecal-oral: person-to-person, from contaminated food or liquids, contact with infected animals	Abdominal cramps, diarrhea (may be bloody), may include gas, nausea, fever or vomiting	Variable, usually 2-10 days	For duration of diarrhea until stool culture is negative	Exclude with first signs of illness; encourage good hand hygiene	Medical clearance required; also, exclude until diarrhea has ceased for at least 2 days; additional restrictions may apply
Fifth Disease (Erythema infectiosum) (Parvovirus B19)	Person-to-person; Contact with respiratory secretions	Fever, flushed, lacy rash (“slapped cheek”)	Variable, usually 4-20 days	Most infectious before 1-2 days prior to onset	If pregnant, consult OB; encourage good hand hygiene; do not share eating utensils	No exclusion if rash is diagnosed as Fifth disease by a healthcare provider

Disease[†]	Mode of Spread	Symptoms	Incubation Period	Contagious Period	Contacts	Exclusions (subject to LHD approval)
Giardiasis**[†]	Person-to-person transmission of cysts from infected feces; contaminated water	Diarrhea, abdominal cramps, bloating, fatigue, weight loss, pale, greasy stools; may be asymptomatic	Average 7-10 days (range 3-25+ days)	During active infection	Encourage good hand hygiene	Exclude until diarrhea has ceased for at least 2 days; may be relapsing; additional restrictions may apply
Hand Foot and Mouth Disease** (Coxsackievirus) (Herpangina)	Contact with respiratory secretions or by feces from infected person	Sudden onset of fever, sore throat, cough, tiny blisters inside mouth, throat and on extremities	Average 3-5 days (range 2-14 days)	From 2-3 days before onset and several days after onset; shed in feces for weeks	Exclude with first signs of illness; encourage cough etiquette and good hand hygiene	If secretions from blisters can be contained, no exclusion required
Head lice (Pediculosis)	Head-to-head contact with an infected person and/or their personal items such as clothing or bedding	Itching, especially nape of neck and behind ears; scalp can become pink and dry; patches may be rough and flake off	1-2 weeks	Until lice and viable eggs are destroyed, which generally requires 1-2 shampoo treatments and nit combing	Avoid head-to-head contact during play; do not share personal items, such as hats, combs; inspect close contacts frequently	Students with live lice may stay in school until end of day; immediate treatment at home is advised; see Head Lice Manual
Hepatitis A**[†] 	Fecal-oral; person-to-person or via contaminated food or water	Loss of appetite, nausea, fever, jaundice, abdominal discomfort, diarrhea, dark urine, fatigue	Average 25-30 days (range 15-50 days)	2 weeks before onset of symptoms to 1 to 2 weeks after onset	Immediately notify your LHD regarding evaluation and treatment of close contacts; encourage good hand hygiene	Exclude until at least 7 days after jaundice onset and medically cleared; exclude from food handling for 14 days after onset
Herpes simplex I, II (cold sores / fever blisters) (genital herpes)	Infected secretions HSV I – saliva HSV II – sexual	Tingling prior to fluid-filled blister(s) that recur in the same area (mouth, nose, genitals)	2-14 days	As long as lesions are present; may be intermittent shedding while asymptomatic	Encourage good hand hygiene and age-appropriate STD prevention; avoid blister secretions; do not share personal items	No exclusion necessary
Impetigo (Impetigo contagiosa)	Direct or indirect contact with lesions and their discharge	Lesions/blisters are generally found on the mouth and nostrils; occasionally near eyes	Variable, usually 4-10 days, but can be as short as 1-3 days	While sores are draining	Exclude with first signs of illness; encourage good hand hygiene	Exclude until under treatment for 24hrs and lesions are healing; cover lesions
*Influenza** (influenza-like illness) 	Droplet or contact with respiratory secretions (sneeze and cough, touching contaminated surfaces)	High fever, fatigue, cough, muscle aches, sore throat, headache, runny / stuffy nose; vomiting and diarrhea infrequently reported	1-4 days	1 day prior to onset of symptoms to 1 week or more after onset	Exclude with first signs of illness; encourage cough etiquette and good hand hygiene	Exclude until 24hrs after fever has resolved (without fever-reducing medication) and cough has subsided

Disease[†]	Mode of Spread	Symptoms	Incubation Period	Contagious Period	Contacts	Exclusions (subject to LHD approval)
Measles**[†] (Rubeola) (Hard/red measles) 	Contact with nasal or throat secretions; airborne via sneezing and coughing	High fever, runny nose, cough, red, watery eyes, followed by rash first on face, then spreading over body	Average 10-12 days (range 7-21 days) from exposure to fever onset	4 days before to 4 days after rash onset	Exclude those without documentation of immunity	Exclude until 4 days after rash onset
Meningitis**[†] (Aseptic/viral)	Varies with causative agent: droplet or fecal-oral route; may be complications of another illness	Severe headache, stiff neck and back, vomiting, fever, intolerance to light, neurologic symptoms	Varies with causative agent	Varies with causative agent, but generally 2-14 days	Encourage cough etiquette and good hand hygiene	Exclude until medically cleared
Meningitis**[†] (Bacterial) (<i>N. meningitis</i>) (<i>H. influenzae</i>) (<i>S. pneumoniae</i>) 	Contact with saliva or nasal and throat secretions; spread by sneezing, coughing, and sharing beverages or utensils	Severe headache, stiff neck and back, vomiting, fever, irritability, intolerance of light, neurologic symptoms; rash is possible	Average 2-4 days (range 1-10 days)	Generally considered no longer contagious after 24hrs of antibiotic treatment	Immediately notify your LHD; encourage good hand hygiene; do not share personal items and eating utensils	Medical clearance required; exclude until 24 hrs after antimicrobial treatment
Mononucleosis	Person-to-person via saliva	Fever, sore throat, fatigue, swollen lymph nodes, enlarged spleen	30-50 days	Prolonged, possibly longer than 1 year	Do not share personal items	Exclude until able to tolerate activity; exclude from contact sports until recovered
MRSA** (Methicillin-resistant <i>Staphylococcus aureus</i>)	Transmitted by skin-to-skin contact and contact with surfaces that have contacted infection site drainage	Fever may be present; commonly a lesion; may resemble a spider bite and be swollen, painful with drainage; a non-symptomatic carrier state is possible	Varies	As long as lesions are draining; MRSA is frequently found in many environments; handwashing is the best way to avoid infection	Encourage good hand hygiene; do not share personal items, including but not limited to towels, washcloths, clothing and uniforms	No exclusion if wound is covered and drainage contained; exclusion from contact sports / swim until medical clearance
Mumps**[†] 	Airborne or direct contact with saliva	Swelling of 1 or more salivary glands (usually parotid); chills, fever, headache are possible	Average 16-18 days (range 12-25 days)	Up to 7 days prior to and 8 days after parotitis onset	Exclude those without documentation of immunity	Exclude until 5 days after onset of salivary gland swelling
*Norovirus** (viral gastroenteritis)	Food, water or surfaces contaminated with vomit or feces, person-to-person, aerosolized vomit	Nausea, vomiting, diarrhea, abdominal pain for 12-72hrs; possibly low-grade fever, chills, headache	Average 24-48hrs (range: 12-72hrs)	Usually from onset until 2-3 days after recovery; typically, virus is no longer shed after 10 days	Encourage good hand hygiene; contact LHD for environmental cleaning recommendations	Exclude until diarrhea has ceased for at least 2 days; exclude from food handling for 3 days after recovery

Disease[†]	Mode of Spread	Symptoms	Incubation Period	Contagious Period	Contacts	Exclusions (subject to LHD approval)
Pink Eye (conjunctivitis)	Discharge from eyes, respiratory secretions; from contaminated fingers, shared eye make-up applicators	Bacterial: Often yellow discharge in both eyes Viral: Often one eye with watery/clear discharge and significant redness Allergic: itchy eyes with watery discharge	Variable but often 1-3 days	During active infection (range: a few days to 2-3 weeks)	Exclude with first signs of illness; encourage good hand hygiene	Bacterial: exclude until 24hrs after microbial therapy Viral or allergic: no exclusion necessary
Rash Illness (Unspecified)	Variable depending on causative agent	Skin rash with or without fever	Variable depending on causative agent	Variable depending on causative agent	Variable depending on causative agent	Exclude until rash has subsided or until medically cleared
Respiratory Illness (Unspecified)	Contact with respiratory secretions	Slight fever, sore throat, cough, runny or stuffy nose	Variable but often 1-3 days	Variable depending on causative agent	Encourage cough etiquette and good hand hygiene	Exclude if child has fever over 100°F until fever free for 24hrs without fever-reducing medication
Ringworm (Tinea)	Direct contact with an infected animal, person, or contaminated surface	Round patch of red, dry skin with red raised ring; temporary baldness	Usually 4-14 days	As long as lesions are present and fungal spores exist on materials	Inspect skin for infection; do not share personal items; seek veterinary care for pets with signs of skin disease	Exclude until 24hrs of treatment; exclude from contact sports / swimming until treatment has been initiated
Rubella**[†] (German Measles) 	Direct contact; contact with respiratory secretions; airborne via sneeze and cough	Red, raised rash for ~3 days; possibly fever, headache, fatigue, red eyes	Average 16-18 days (range: 14-21 days)	7 days before to 7 days after rash onset	If pregnant, consult OB; exclude those without documentation of immunity	Exclude until 7 days after onset of rash
Salmonellosis[†]	Fecal-oral: person-to-person, contact with infected animals or via contaminated food	Abdominal pain, diarrhea (possibly bloody), fever, nausea, vomiting, dehydration	Average 12-36hrs (range: 6hrs-7 days)	During active illness and until organism is no longer detected in feces	Exclude with first signs of illness; encourage good hand hygiene	Exclude until diarrhea has ceased for at least 2 days; additional restrictions may apply
Scabies	Close, skin-to-skin contact with an infected person or via infested clothing or bedding	Extreme itching (may be worse at night); mites burrowing in skin cause rash / bumps	2-6 weeks for first exposure; 1-4 days for re-exposure	Until mites are destroyed by chemical treatment; prescription skin and oral medications are generally effective after one treatment	Treat close contacts and infected persons at the same time; exclude with first signs of illness; avoid skin-to-skin contact; do not share personal items	Until treatment is completed; see MDCH Scabies Prevention and Control Manual


Disease[†]	Mode of Spread	Symptoms	Incubation Period	Contagious Period	Contacts	Exclusions (subject to LHD approval)
Shigellosis** †	Fecal-oral: frequently person-to-person; also via contaminated food or water	Abdominal pain, diarrhea (possibly bloody), fever, nausea, vomiting, dehydration	Average 1-3 days (range 12-96hrs)	During active illness and until no longer detected; treatment can shorten duration	Exclude with first signs of illness; encourage good hand hygiene	Medical clearance required; also, exclude until diarrhea has ceased for at least 2 days; additional restrictions may apply
Strep throat / Scarlet Fever	Respiratory droplet or direct contact; via contaminated food	Sore throat, fever; Scarlet Fever: body rash and red tongue	Average 2-5 days (range 1-7 days)	Until 24hrs after treatment; (10-21 days without treatment)	Exclude with signs of illness; encourage good hand hygiene	Exclude until 24hrs after antimicrobial therapy
Streptococcus pneumoniae 	Contact with respiratory secretions	Variable: ear infection, sinusitis, pneumonia or meningitis	Varies; as short as 1-3 days	Until 24hrs after antimicrobial therapy	Consult your LHD to discuss the potential need for treatment	Exclude until 24hrs after antimicrobial therapy
Tuberculosis (TB) †	Airborne; spread by coughing, sneezing, speaking or singing	Fever, fatigue, weight loss, cough (lasting 3+ weeks), night sweats, loss of appetite	2-10 weeks	While actively infectious	Consult your LHD to discuss for evaluation and potential testing of contacts	Exclude until medically cleared
Typhoid fever (Salmonella typhi) †	Fecal-oral: person-to-person, ingestion of contaminated food or water (cases are usually travel-related)	Gradual onset of fever, headache, malaise, anorexia, cough, abdominal pain, rose spots, diarrhea or constipation, change in mental status	Average range: 8-14 days (3-60 days reported)	From first week of illness through convalescence	Consult your LHD for evaluation of close contacts	Medical clearance required; also, exclude until symptom free; additional restrictions will apply
Whooping Cough** (Pertussis) † 	Contact with respiratory secretions	Initially cold-like symptoms, later cough; may have inspiratory whoop, posttussive vomiting	Average 7-10 days (range 5-21 days)	With onset of cold-like symptoms until 21 days from onset (or until 5 days of treatment)	Consult your LHD to discuss the potential need for treatment	Exclude until 21 days after onset or until 5 days of appropriate treatment
West Nile Virus	Bite from an infected mosquito	High fever, nausea, headache, stiff neck	3-14 days	Not spread person-to-person	Protect against bites using EPA approved insect repellents	No exclusion necessary

All diseases in **bold** are to be reported to your local health department

*Report only aggregate number of cases for these diseases

** Contact your local health department for a “letter to parents”

† Consult with local health department on case-by-case basis

 Vaccination is highly encouraged to prevent or mitigate disease

Select Diseases: Additional Information

Norovirus

Noroviruses are a group of viruses that cause gastroenteritis (GAS-tro-en-ter-I-tis) in people. Norovirus is known incorrectly as the “stomach flu”. Norovirus is NOT related to the flu (influenza), which is a respiratory illness caused by a different virus. Norovirus illness usually begins 24-48 hours after exposure, but can appear as early as 10 hours after exposure. Symptoms usually include nausea, vomiting, diarrhea, and stomach cramping, but a low-grade fever, chills, headache, muscle aches, and a general sense of tiredness may also be present. The illness is usually brief, with symptoms lasting 1-2 days. Noroviruses are very contagious and spread easily from person-to-person. The virus is found in the stool and vomit of infected people. People can become infected in several ways, including eating food or drinking liquids that are contaminated by infected food handlers, touching surfaces or objects contaminated with norovirus and then touching their mouth before handwashing, or having direct contact with another person who is infected and then touching their mouth before handwashing. Children and staff exhibiting symptoms of viral gastroenteritis should be excluded from school or other group activities until 2 days after their symptoms have stopped. Frequent handwashing with warm water and soap for at least 20 seconds is highly encouraged as alcohol-based hand sanitizers are NOT effective against the virus. It is important to note that most household cleaners are ineffective against norovirus; a diluted bleach solution is the most reliable means of disinfection. Norovirus can survive on surfaces for many days unless disinfected properly. Please see the MDCH Guidelines for Environmental Cleaning and Disinfection of Norovirus for instructions.



MDCH Fact Sheet and Guidelines for Environmental Cleaning and Disinfection of Norovirus

http://www.michigan.gov/documents/mdch/NorovirusEnvironCleaning_281018_7.pdf

http://www.michigan.gov/documents/mdch/NorovirusFactsheet_281017_7.pdf

Influenza

Influenza (or “the flu”) is a contagious respiratory illness caused by influenza viruses that infect the nose, throat, and lungs. It can cause mild to severe illness, and at times can lead to death. In fact, influenza causes more hospitalizations among young children than any other vaccine-preventable disease. People infected with influenza may experience fever or feeling feverish, chills, cough, sore throat, runny or stuffy nose, muscle or body aches, headaches, fatigue; some children may experience vomiting and diarrhea. Most experts believe that flu viruses spread mainly by droplets produced when people with flu cough, sneeze or talk. These droplets can land in the mouths or noses of people who are nearby. Less often, a person might also get flu by touching a surface contaminated with flu virus and then touching their own mouth, eyes or nose. Most healthy adults may be infectious to others beginning 1 day before symptoms develop and up to 5 to 7 days after becoming sick. Some people, especially young children and people with weakened immune systems, might shed the virus for even longer. One of the best ways to protect against the flu and its potential severe complications is to get a seasonal influenza vaccine each year. Flu vaccination is recommended for all children aged 6 months and older. Making healthy choices at school and at home can help prevent the flu. Encourage children, parents, and staff to take the following everyday preventive actions:



- Stay home when you are sick and avoid close contact with people who are sick.
- Cover your nose and mouth with a tissue when you cough or sneeze. Throw the tissue away after use and wash your hands. If a tissue is not available, cover your mouth and nose with your sleeve, not your hand.
- Wash your hands often with soap and water. If this is not available, use an alcohol-based hand rub.
- Avoid touching your eyes, nose, or mouth. Germs spread this way.
- Clean and disinfect frequently touched surfaces at home, work, or school, especially when someone is ill.

MDCH and CDC Websites

www.michigan.gov/flu

<http://www.cdc.gov/flu/keyfacts.htm>

<http://www.cdc.gov/flu/school/index.htm>

Methicillin – Resistant *Staphylococcus aureus* or MRSA

MRSA is methicillin-resistant *Staphylococcus aureus*, a type of staph bacteria that is resistant to several antibiotics. Methicillin is an antibiotic used to treat certain bacterial infections. MRSA can cause skin and other infections. In most cases it is not necessary to close schools because of a MRSA infection in a student. However, the decision to close a school for any communicable disease should be made by school officials in consultation with local and/or state public health officials. When a MRSA infection occurs within the school population, the school clinician should determine, based on medical judgment, whether some or all students, parents, and staff should be notified. If medical personnel are not available at the school, consultation with the local public health authorities should be used to guide this decision. Repeat cases, spread to other students, or complex cases should be reported to the health department for consultation. MRSA transmission can easily be prevented by practicing good hand hygiene, especially before eating and after using the bathroom, and ensuring all infections are clean and covered, as this will greatly reduce the risks of surface contamination.



CDC Website and MDCH Brochure

<http://www.cdc.gov/mrsa/community/schools/index.html>

http://www.michigan.gov/documents/MRSA_brochure_FINAL_167898_7.pdf

Bed Bugs (*Cimex lectularius*)

Bed bugs are small, brownish, flattened insects that feed on the blood of people while they sleep. Although the bite does not hurt, it may develop into an itchy welt similar to a mosquito bite. Bed bugs do not transmit disease, but they can cause significant itchiness, anxiety, and sleeplessness. Bed bug infestations are also very difficult and expensive to control. Usually, bed bugs will hide during the day and only come out to feed during the night. Unlike head lice, they do not live on a person. However, they can hitchhike from one place to another in backpacks, clothing, luggage, books, and other items. Actual bed bug infestations in schools are uncommon. More commonly, a few bed bugs will hitchhike to school from an infested home by hiding in a student's clothing or backpack. Bed bugs that hitch a ride into the school in one student's backpack could be carried home by another student, making the school a potential hub for bed bug spread. This is not a minor concern – bed bugs are very expensive and difficult to eradicate. If a school plans to use pesticides to control pests indoors, then they are required under Michigan law to have an **integrated pest management (IPM)** plan in place. If a bed bug infestation is suspected or a number of students are getting bitten during class, the school should contact a **licensed pest management professional** for assistance.



MDCH Fact Sheet for Schools

http://www.michigan.gov/documents/emergingdiseases/Bed_bugs_schools_293498_7.pdf

Head Lice

Lice are parasitic insects that can be found on people's heads and bodies and survive by feeding on blood. Head lice infestations are spread most commonly by close person-to-person contact, usually by direct head-to-head contact, with an infested person. Less frequently, lice can be spread by sharing belongings. However, head lice survive less than 1–2 days if they fall off a person and cannot feed. Pets do not play a role in the transmission of human lice. Lice move by crawling; they cannot hop or fly. Both over-the-counter and prescription medications are available. Head lice are not known to spread disease. To help prevent and control the spread of lice:



- Avoid head-to-head (hair-to-hair) contact during play and other activities at home, school, and elsewhere.
- Do not share personal items such as hats, scarves, or combs or lie on areas exposed to an infested person.
- Machine wash contaminated items using the hot water (130°F) laundry cycle and the high heat drying cycle.

Do not use fumigant sprays or fogs as they are not necessary and can be toxic. It is recommended that schools review the MDCH Head Lice Manual and develop a written policy addressing how infestations will be managed.

CDC Websites and MDCH Head Lice Manual

<http://www.cdc.gov/parasites/lice/>

http://www.michigan.gov/documents/Final_Michigan_Head_Lice_Manual_106828_7.pdf

Animals in the Classroom

Animals can be valuable teaching aids in the school setting, but safe practices are required to reduce the risk of infection or injury. The National Association of State Public Health Veterinarians (NASPHV) has developed guidelines for the exhibition of animals in school and other settings. Schools should ensure that:

- Teachers and staff know which animals are inappropriate as residents or visitors in schools
- Teachers and staff know which animals should not be in contact with children
- Personnel providing animals for educational purposes are knowledgeable about animal handling and the diseases that can be transmitted between animals and people
- Staff and students wash their hands after contact with animals, their feed, or their habitats

For complete details and recommendations for schools, please review the NASPHV Animal Contact Compendium, Appendix 3, “Guidelines for Exhibition of Animals in School and Child-Care Settings” (link below).

NASPHV Website and Compendium of Measures to Prevent Disease Associated with Animals in Public Settings, 2013

<http://www.nasphv.org/>

<http://www.nasphv.org/Documents/AnimalContactCompendium2013.pdf>

***Clostridium difficile* Infection or CDI**

Clostridium difficile (C. diff) is a spore-forming bacterium that causes inflammation of the colon, known as colitis. It is the most common cause of diarrhea in healthcare settings. Individuals with other illnesses requiring prolonged use of antibiotics, and the elderly, are at greatest risk of acquiring CDI. Any surface or material that becomes contaminated with feces can serve as a reservoir for C. diff spores. Use bleach-based products for disinfection of environmental surfaces. Symptoms include watery diarrhea, fever, loss of appetite, nausea, and abdominal pain or tenderness. As with other diarrheal diseases, students should be excluded from school while they experience symptoms. Good hand hygiene practices will reduce transmission.

CDC Website and MDCH Fact Sheet

<http://www.cdc.gov/hai/organisms/cdiff/Cdiff-patient.html>

http://www.michigan.gov/documents/mdch/CDiffTipSheet_374585_7.pdf

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References

- Control of Communicable Diseases Manual. 19th Edition. David L. Heyman, MD Editor. American Public Health Association
- Red Book: 2012 Report of the Committee on Infectious Diseases. 29th Edition. American Academy of Pediatrics
- MDCH Scabies Prevention and Control Manual: http://www.michigan.gov/documents/scabies_manual_130866_7.pdf
- MDCH Fact Sheet on Norovirus: http://www.michigan.gov/documents/mdch/NorovirusFactsheet_281017_7.pdf
- MDCH Guidelines for Environmental Cleaning and Disinfection of Norovirus: http://www.michigan.gov/documents/mdch/NorovirusEnvironCleaning_281018_7.pdf
- CDC Website: Influenza: <http://www.cdc.gov/flu/keyfacts.htm> or <http://www.cdc.gov/flu/school/index.htm>
- CDC Website: MRSA: <http://www.cdc.gov/mrsa/community/schools/index.html>
- MDCH MRSA Brochure: http://www.michigan.gov/documents/MRSA_brochure_FINAL_167898_7.pdf
- CDC Website: *C. difficile*: <http://www.cdc.gov/hai/organisms/cdiff/Cdiff-patient.html>
- *C. difficile* MDCH Fact Sheet: http://www.michigan.gov/documents/mdch/CDiffTipSheet_374585_7.pdf
- MDCH Bed Bugs Fact Sheet: http://www.michigan.gov/documents/emergingdiseases/Bed_bugs_schools_293498_7.pdf
- CDC Website: Lice: <http://www.cdc.gov/parasites/lice/> or <http://www.cdc.gov/parasites/lice/head/prevent.html>
- MDCH Head Lice Manual: http://www.michigan.gov/documents/Final_Michigan_Head_Lice_Manual_106828_7.pdf
- National Association of State Public Health Veterinarians Website: <http://www.nasphv.org/>
- MDCH Communicable Disease Information & Resources Website: www.michigan.gov/cdinfo