Regional Epidemiologist Overview

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Region 2 South Epidemiologist

Surveillance and Infectious Disease Epidemiology Section

Michigan Department of Health and Human Services

Learning Objectives

- Understand the role (functions) of a Regional Epidemiologist
- Receive an introduction to the Michigan Disease Surveillance System and steps for access
- Learn about reportable conditions (e.g. what's reportable, who reports, interesting outbreaks/regional update)

8 Regional Epidemiologists

- Covering each of the public health preparedness regions
- Stationed at local health departments (LHDs) to better serve as a liaison between MDHHS and LHD
- Support outbreak investigations
- Assist in epidemiologic and surveillance activities
  - Bioterrorism
  - Traditional communicable diseases
  - Emerging infectious diseases
  - Other emerging issues
- Conduct data analysis
- Provide technical support and training for disease reporting to LHDs, private providers, and hospital infection control staff
- Attend local meetings and deliver situation updates

MDHHS Communicable Disease Division
Surveillance and Infectious Disease Epidemiology
Regional Epidemiologists Unit
Tiffany Henderson, Unit Manager (517) 335-8165

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Examples of Regional Epidemiologist Functions

- Training public health practitioners and healthcare providers how to use the Michigan Disease Surveillance System (MDSS)
- Supporting LHDs with outbreak investigations
  - Developing outbreak specific forms
  - Assisting with specimen collection for testing at MDHHS Bureau of Laboratories
  - Analyzing outbreak data
- Disseminating communicable disease information via email or during meetings
- Analyzing Michigan Syndromic Surveillance System (MSSS) data
  - County and Syndrome Alerts
  - Routine surveillance for influenza, gastrointestinal illnesses, heat-related illnesses, etc.
  - Special event and emerging disease surveillance
- Participation in public health preparedness planning and exercises
- Consultation on outbreaks and serious communicable disease cases
- Developing and training LHDs on the Outbreak Management System within MDSS

Reportable Conditions in Michigan

- Specified communicable diseases or conditions
  - 80+ diseases/organisms
  - Plus the unusual occurrence, outbreak, or epidemic of any disease, condition, or healthcare-associated infection
  - Some diseases require an isolate or specimen be submitted to the MDHHS Bureau of Laboratories (BOL)
  - Revised annually
- Reporting is required by Michigan law:
  - Michigan Public Health Act No. 368 Communicable Disease Rules: R 325.171-3, 333.5111
  - 2007 rule revision allows the State the right to periodically update the list of reportable diseases
  - This reporting is expressly allowed under HIPAA

2019 REPORTABLE DISEASES IN MICHIGAN – BY CONDITION

A Guide for Physicians, Health Care Providers and Laboratories

Report the following conditions to the Michigan Disease Surveillance System (MDSS) or local health department (see reverse) within 24 hours (unless otherwise noted) if the agent is identified by clinical or laboratory diagnosis.

Report the unusual occurrence, outbreak or epidemic of any disease or condition, including healthcare-associated infections.

Acute flaccid myelitis (1)
Anaplasmosis (Anaplasma phagocytophilum)
Anthrax (Bacillus anthracis and B. cereus serovar anthracis) (4)
Arboviral encephalitides, neuro- and non-neuroinvasive:
Chikungunya, **Eastern Equine**, Jamestown Canyon, La Crosse, Powassan, St. Louis, West Nile, Western Equine, Zika (6)
Babesiosis (Babesia microti)
Blastomycosis (Blastomyces dermatitidis)
Botulism (Clostridium botulinum) (4)
Brucellosis (Brucella species) (4)
Campylobacteriosis (Campylobacter species)
Candidiasis (Candida auris) (4)
Carbapenemase Producing – Carbapenem Resistant Enterobacteriaceae (CP-CRE): Klebsiella spp., Enterobacter spp., and Escherichia coli (5)
Chancroid (Haemophilus ducreyi)
Chickenpox / Varicella (Varicella-zoster virus) (6)
Chlamydial infections (including trachoma, genital infections, LGV) (Chlamydia trachomatis) (3, 6)
Cholera (Vibrio cholera) (4)
Coccidioidomycosis (Coccidioides immitis)
Cryptosporidiosis (Cryptosporidium species)
Cyclosporiasis (Cyclospora species) (5)
Dengue Fever (Dengue virus)
Diphtheria (Corynebacterium diphtheriae) (5)
Ehrlichiosis (Ehrlichia species)
Encephalitis, viral or unspecified
Escherichia coli, O157:H7 and all other Shiga toxin positive serotypes (5)
Giardiasis (Giardia species)
Glanders (Burkholderia mallei) (4)
Gonorrhea (Neisseria gonorrhoeae) (3, 6)
Guillain-Barre Syndrome (1)
Haemophilus influenzae, sterile sites only- submit isolates for serotyping for patients < 15 years of age (5)
Hantavirus
Hemolytic Uremic Syndrome (HUS)
Hemorrhagic Fever Viruses (4)
Hepatitis A virus (Anti-HAV IgM, HAV genotype)
Hepatitis B virus (HBsAg, HBeAg, anti-HBc IgM, HBV NAAT, HBV genotype; report all HBsAg and anti-HBs (positive, negative, indeterminate) for children ≤ 5 years of age) (6)
Hepatitis C virus (**all** HCV test results including positive **and** negative antibody, RNA, and genotype tests) (6)
Histoplasmosis (Histoplasma capsulatum)
HIV (tests including reactive immunoassays (e.g., Ab/Ag, TD1/TD2, WB, EIA, IA), detection tests (e.g., VL, NAAT, p24, genotypes), CD4 counts/percents, and all tests related to perinatal exposures) (2,6)
Influenza virus (weekly aggregate counts)
Pediatric influenza mortality, report individual cases (5)
Novel influenza viruses, report individual cases (5,6)
Kawasaki Disease (1)
Legionellosis (Legionella species) (5)
Leprosy or Hansen's Disease (Mycobacterium leprae)
Leptospirosis (Leptospira species)
Listeriosis (Listeria monocytogenes) (5,6)
Lyme Disease (Borrelia burgdorferi)
Malaria (Plasmodium species)
Measles (Measles/Rubeola virus)
Melioidosis (Burkholderia pseudomallei) (4)
Meningitis: bacterial, viral, fungal, parasitic and amebic
Meningococcal Disease (Neisseria meningitidis, sterile sites) (5)
Middle East Respiratory Syndrome (MERS-CoV) (5)
Mumps (Mumps virus)
Orthopox viruses, including: Smallpox, Monkeypox (4)
Pertussis (Bordetella pertussis)
Plague (Yersinia pestis) (4)
Polio (Poliovirus)
Prion disease, including CJD
Psittacosis (Chlamydophila psittaci)
Q Fever (Coxiella burnetii) (4)
Rabies (Rabies virus) (4)
Rabies: potential exposure and post exposure prophylaxis (PEP)
Rubella (Rubella virus) (6)
Salmonellosis (Salmonella species) (5)
Severe Acute Respiratory Syndrome (SARS) (5)
Shigellosis (Shigella species) (5)
Spotted Fever (Rickettsia species)
Staphylococcus aureus, vancomycin intermediate/ resistant (VISA (5)/VRSA (4))
Streptococcus pneumoniae, sterile sites
Streptococcus pyogenes, group A, sterile sites, including Streptococcal Toxic Shock Syndrome (STSS)
Syphilis (Treponema pallidum) (6)
Tetanus (Clostridium tetani)
Toxic Shock Syndrome (non-streptococcal) (1)
Trichinellosis (Trichinella spiralis)
Tuberculosis (Mycobacterium tuberculosis complex); report preliminary and final rapid test and culture results (4)
Tularemia (Francisella tularensis) (4)
Typhoid Fever (Salmonella typhi) and Paratyphoid Fever (serotypes Paratyphi A, Paratyphi B (tartrate negative), and Paratyphi C) (5)
Vibriosis (Non-cholera vibrio species) (5)
Yellow Fever (Yellow Fever virus)
Yersiniosis (Yersinia enterocolitica)

LEGEND

(1) Reporting within 3 days is required.
(2) Reporting within 7 days is required.
(3) Sexually transmitted infection for which expedited partner therapy is authorized. See www.michigan.gov/hivstd for details.
(4) A laboratory shall immediately submit **suspect or confirmed** isolates, subcultures, or specimens from the patient being tested to the MDHHS Lansing laboratory.
(5) Isolate requested. *Enteric:* If an isolate is not available from non-culture based testing, the positive broth and/or stool in transport medium must be submitted to the MDHHS Lansing laboratory. *Respiratory:* Submit specimens, if available.
(6) Report pregnancy status, if available.
Blue Bold Text = Category A bioterrorism or select agent, notify the MDHHS Laboratory immediately: (517) 335-8063

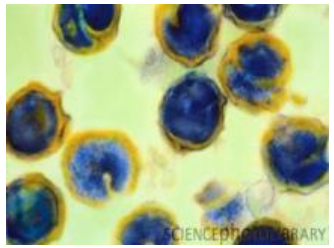
This reporting is expressly allowed under HIPAA and required by Michigan Public Act 368 of 1978, 333.5111

MDHHS maintains, reviews, and revises this list at least annually, for the most recent version please refer to: www.michigan.gov/cdinfo

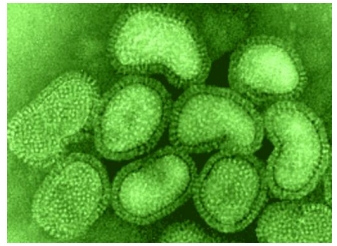
Michigan Department of Health and Human Services • Bureau of Laboratories • Bureau of Epidemiology and Population Health REV. 12/2018

Why Communicable Disease Surveillance is Important

- To identify outbreaks
- To mitigate or halt transmission
- To assure treatment, preventive treatment and/or education
- To evaluate prevention and control programs
- To help target prevention resources
- To facilitate epidemiologic research
- To assist national and global surveillance efforts

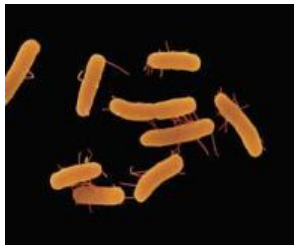


Chlamydia trachomatis



Influenza Virus

Mycobacterium tuberculosis



Salmonella sp.

Who Reports and What to Report

Reporting Entities (not comprehensive)

- Physicians
- Hospitals
- Laboratories
- School systems
- Child care facilities
- Long-term care facilities
- Veterinarians
- Medical Examiners
- And more…

Timeliness and Completeness of Reports

- In general, all reportable conditions are required to be reported within 24 hours of confirmation
- Report contents
  - Demographic info – name, date of birth, sex, race
  - Contact info- address, phone number
  - Pregnancy status
  - Disease details- onset date, lab results
- Surveillance is only as good as the data received
  - The timeliness and effectiveness of public health responses are dependent on prompt and accurate surveillance reporting

Authority of State and Local HDs

- Michigan is a “home rules” state, meaning local (county and district) health departments have autonomy
- State and LHD personnel are authorized to investigate reported diseases including:
  - Contacting health providers
  - Conducting additional case-finding
  - Specimen collection
  - Gathering medical history, lab results, treatments, etc.
- All communicable disease reports should be reported to your LHD

Michigan Disease Surveillance System (MDSS)

A tool for public health surveillance in Michigan

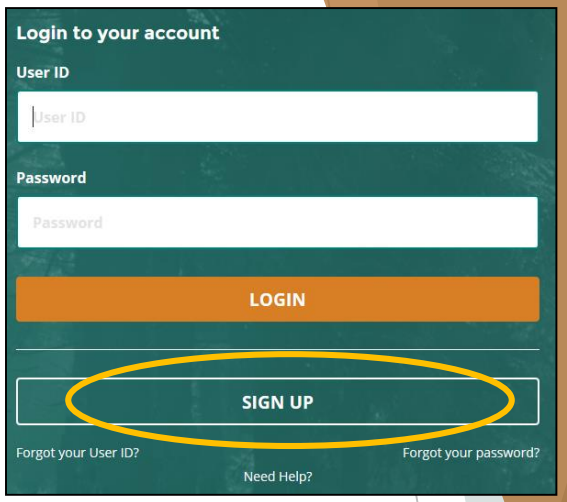
- Makes reporting of diseases/conditions easier, more efficient, and closer to real-time
- Reduces delays in initiation of public health follow-up
- Allows reporting 24 hours/day
- Clarifies whether the case reported involves multiple providers/facilities
- Provides documentation of a facility's role in reporting for regulatory and accreditation agencies
- Allows instantaneous retrieval of summary reports of diseases
- Reduces the volume of necessary telephone communications for additional information between LHD and facility

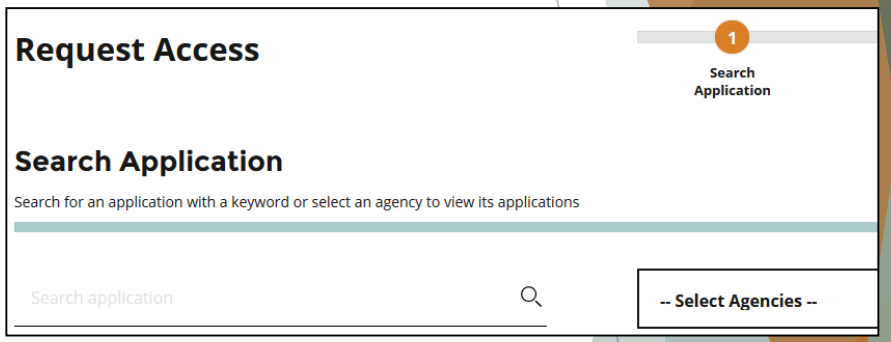
Healthcare Provider Role in MDSS

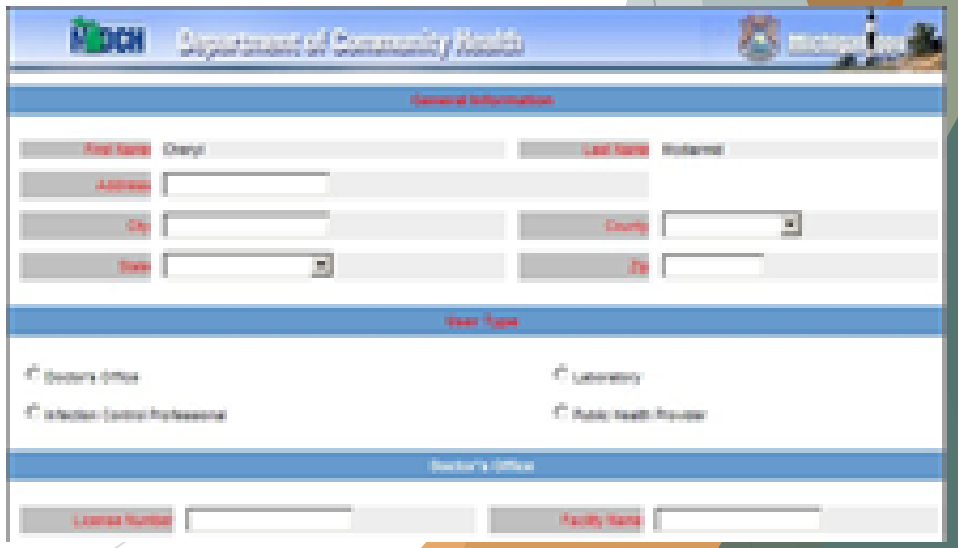
- Healthcare providers that enter cases into MDSS have:
  - Rights to any case that you or another user that shares your facility has entered
  - Access to edit cases that you have rights to until the Local Health Department closes the investigation
  - Ability to run reports on the cases that you have rights to
  - Ability to run reports on de-identified aggregate data from around the state

Accessing MDSS

- You must have a valid MILogin User ID and password
  - MILogin for Non-Michigan.gov emails - https://milogintp.michigan.gov/
  - Providers can sign up from this site and create an account along with personal security settings
- You must request permission to access MDSS
  - Application: Michigan Disease Surveillance System
  - Agency: Department of Health and Human Services
- You must complete the MDSS user registration
- You must be assigned a role within MDSS
  - The appropriate LHD will review your registration information and assign an appropriate access level (role)
  - Your LHD should notify you once your role is assigned
- The MDSS Registration Quick Reference Guide can be found here https://www.michigan.gov/documents/mdhhs/MDSS_Registration_Quick_Reference_Guide_for_MILogin_600255_7.pdf



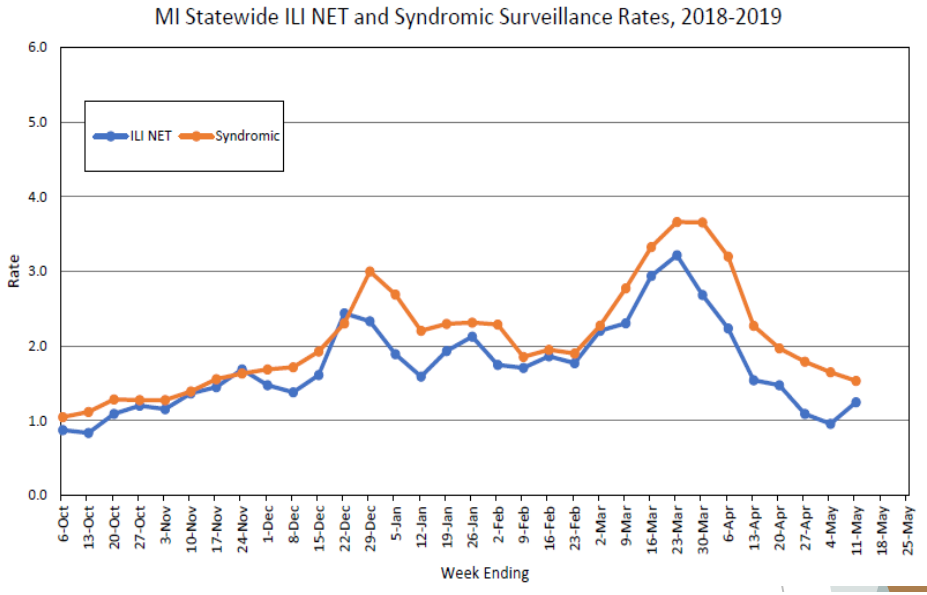




Epidemiology Update

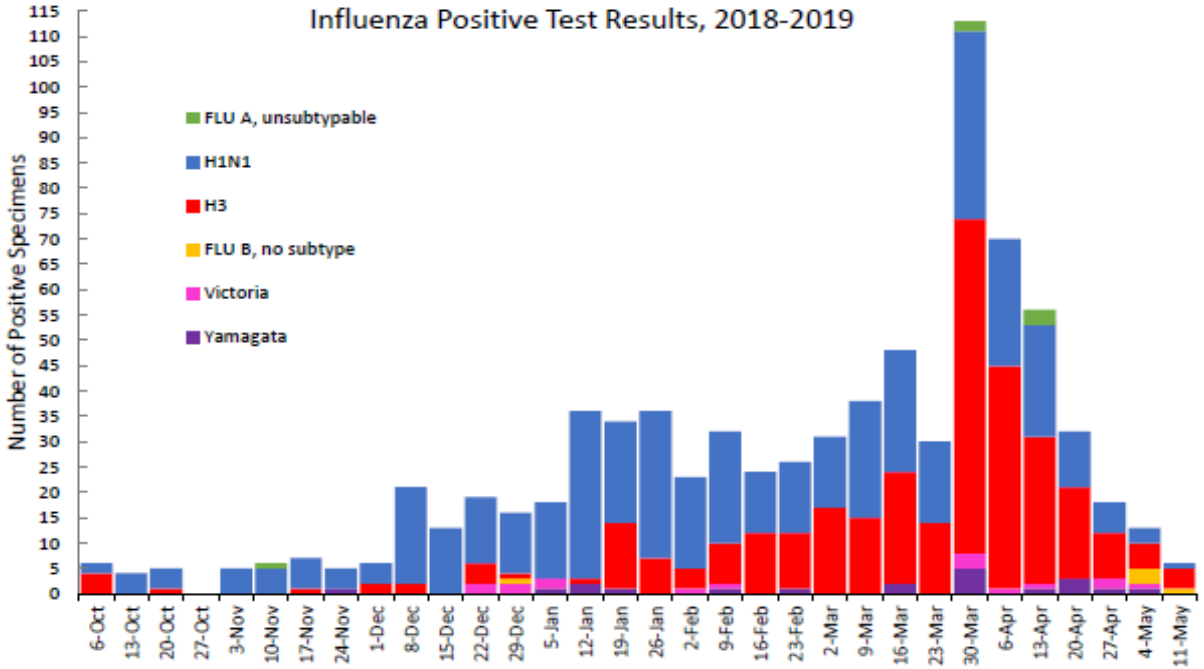
Influenza- Michigan

- Michigan is currently at Local Influenza activity
  - Mid-level
  - Decreased from Regional during the Week Ending April 27
- 1 pediatric influenza death has been confirmed by MDHHS for the 2018-19 season
- For the week ending May 11, the proportion of visits due to ILI was 1.2% which is below the regional baseline of 1.8%
- Syndromic Surveillance shows a similar trend among those visiting emergency departments and urgent care centers
- Laboratory data shows that A/H1N1 predominated in the early season followed by increasing detection of circulating A/H3



National Surveillance

In the United States, 1.5% of outpatient visits were due to influenza-like illness (ILI), which is below the national baseline of 2.2%.



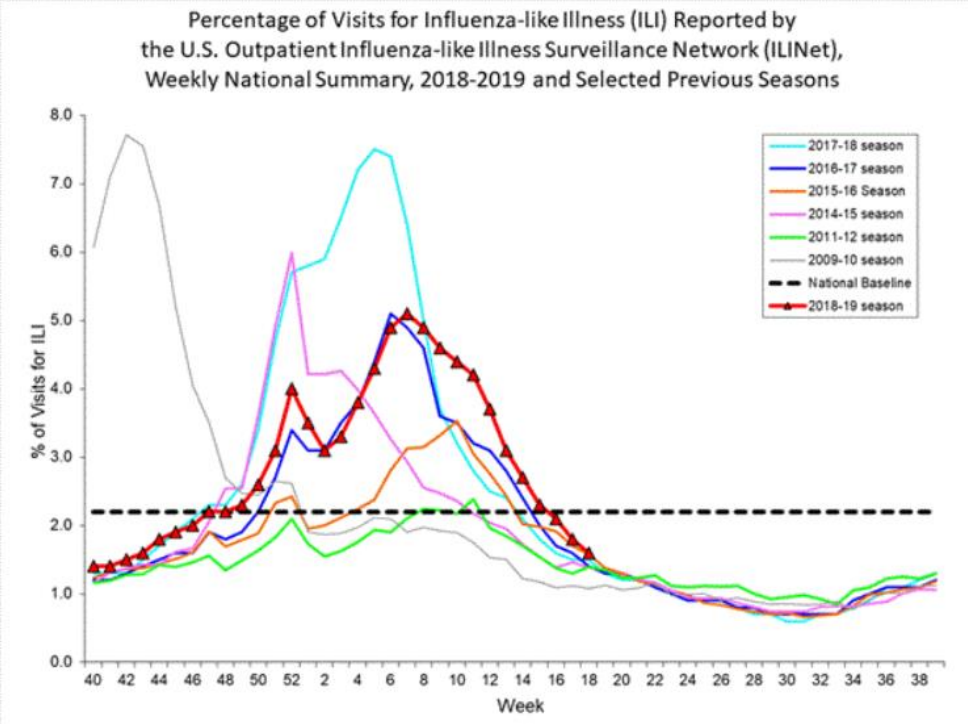
Based on STARLIMS MDHHS BOL Testing Portal

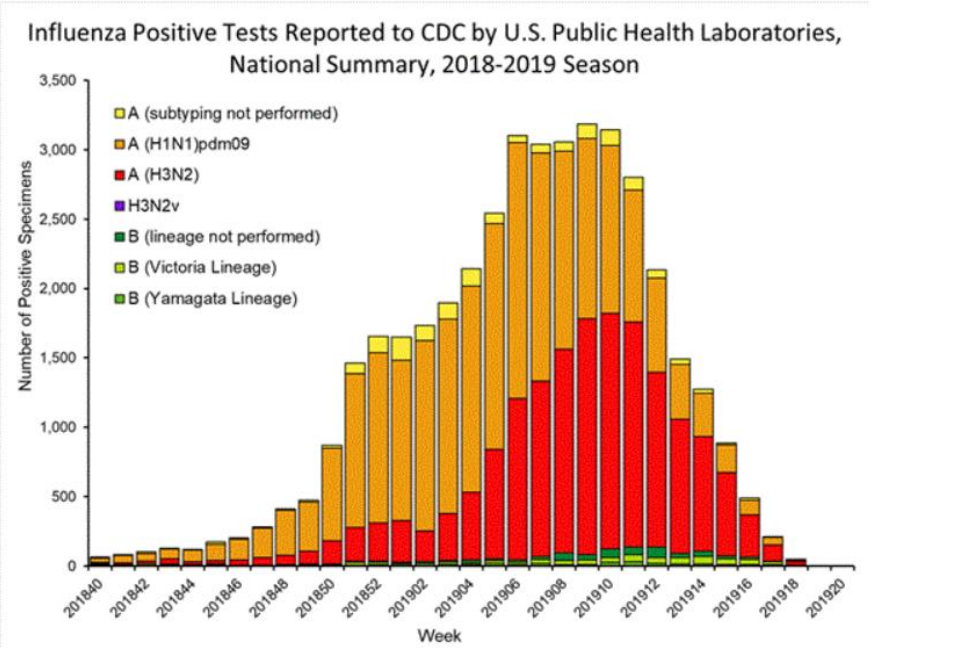
Note: Flu B subtyping will be reported based on MDHHS BOL testing runs (roughly each month) and will be backtracked into this graph

Most recent MDHHS BOL Flu B subtyping run: **May 2, 2019**

Influenza - United States

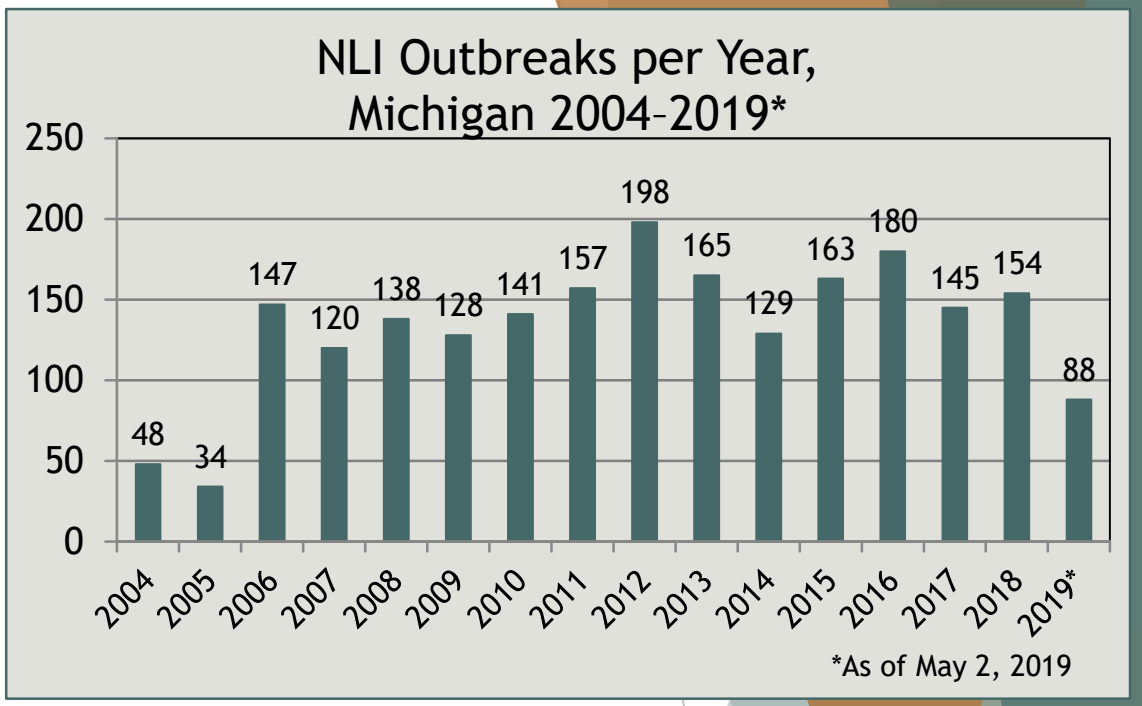
- Influenza activity continues to decrease
  - Levels of ILI fell below the national baseline for the first time in 22 weeks during the week ending April 20
  - ILI activity peaked nationally during week 7, week ending February 16
- A total of 106 influenza-associated pediatric deaths have been reported nationally for the 2018-2019 season
- Nationally, during the week ending May 4, A/H3 viruses were reported more frequently than influenza A/H1N1 viruses
  - However, overall for the 2018-2019 flu season, A/H1N1 viruses remain predominant nationally
- Interim estimates of 2018-19 seasonal influenza vaccine effectiveness released in February 2019 estimated the seasonal influenza vaccine was 47% effective for preventing influenza
- WHO has made recommendations on the composition of the 2019-20 influenza vaccine
  - Changes in the A/H1N1 component and the A/H3 component from the 2018-19 vaccine

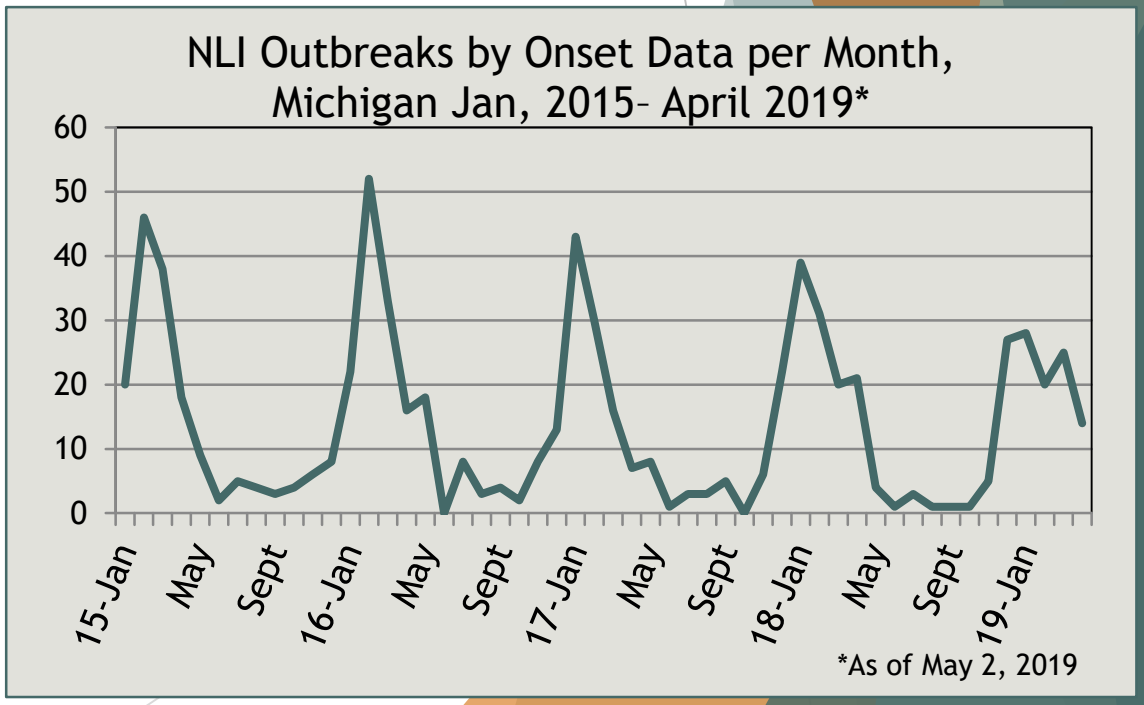




Norovirus and Norovirus-like illnesses

- Norovirus and norovirus-like illnesses and outbreaks continue to be reported
- 2018
  - 154 norovirus and norovirus-like outbreaks
- 2019 to date
  - 90 reported outbreaks
  - 48 tested were positive for the GII serotype
  - 8 tested positive for the GI serotype
  - 4 Sapovirus positive
  - 67 were not tested
- Facilities are required to report outbreaks within 24 hours of outbreak detection to the LHD or MDHHS
- Any information pertinent to the outbreak should be reported
  - E.g., Number ill, onset, incubation, duration, organism, control measures
- Facilities are encouraged to submit specimens from reported outbreaks
  - The state bureau of laboratories will test stool samples for norovirus
  - Norovirus negative samples will be also tested for sapovirus and astrovirus





Measles – Michigan

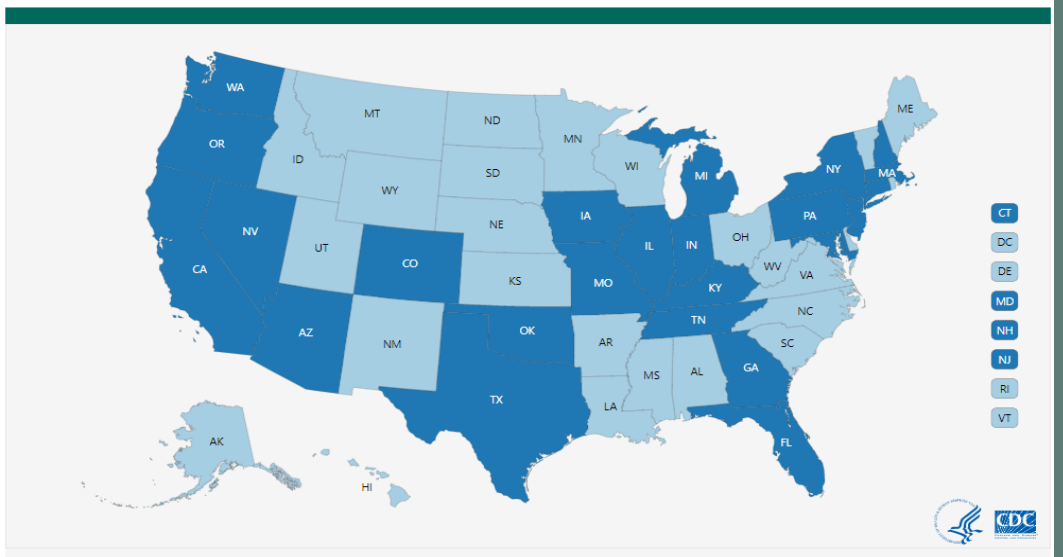
- On March 13, 2019, MDHHS and the Oakland County Health Division confirmed a case of travel-related measles among a visitor from Israel following a stay in New York
- As of May 20, 2019 there have been 44 cases of measles in Michigan in 2019
  - 40 cases in Oakland County (associated with the Israeli traveler)
  - 1 in Wayne County (associated with the Israeli traveler)
  - 1 in the City of Detroit (unknown association)
  - 1 in St. Clair County (associated with international travel)
  - 1 in Washtenaw County among an international traveler who was diagnosed with measles following a visit to the county, during which he was contagious
- Infected individuals range in age from 8 months to 63 years; a majority of the cases involve adults
- MDHHS is encouraging clinicians to be vigilant for the possibility of additional measles cases
  - Patients who are suspected to have measles should be isolated immediately and provided a surgical mask
  - Suspect cases of measles should be immediately reported to the LHD
  - Upon approval from the LHD, specimens should be collected and sent to MDHHS Bureau of Laboratories for testing

Measles – United States

- From January 1 to May 20, 2019, 880 individual cases of measles have been confirmed in 24 states
  - 0 deaths
  - 66 people have been hospitalized
  - 1/3 with pneumonia
  - Vaccination Status:
    - 503 not vaccinated
    - 125 unknown vaccination status
    - 76 vaccinated
  - 13 outbreaks in 23 states in 2019
- This is the greatest number of cases reported in the U.S. since 1994 and since measles was declared eliminated in 2000
- This year's outbreak was sparked by 126 infections acquired by travelers overseas since early 2018 (most from Israel, Ukraine, and the Philippines)
- Of the 44 cases imported so far in 2019, 34 were not in immigrants or foreign visitors, but in Americans who had traveled overseas

States with Reported Measles Cases

2019 ** (as of May 17, 2019)

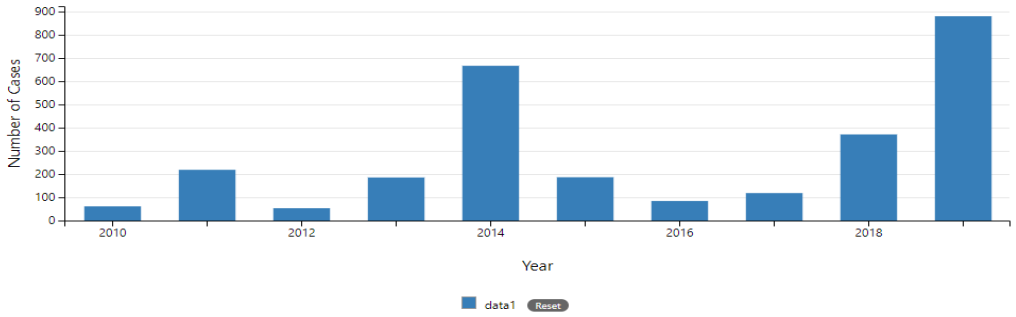


Measles Reported

■ reported cases ■ no reported cases

Number of Measles Cases Reported by Year

2010-2019**(as of May 17, 2019)



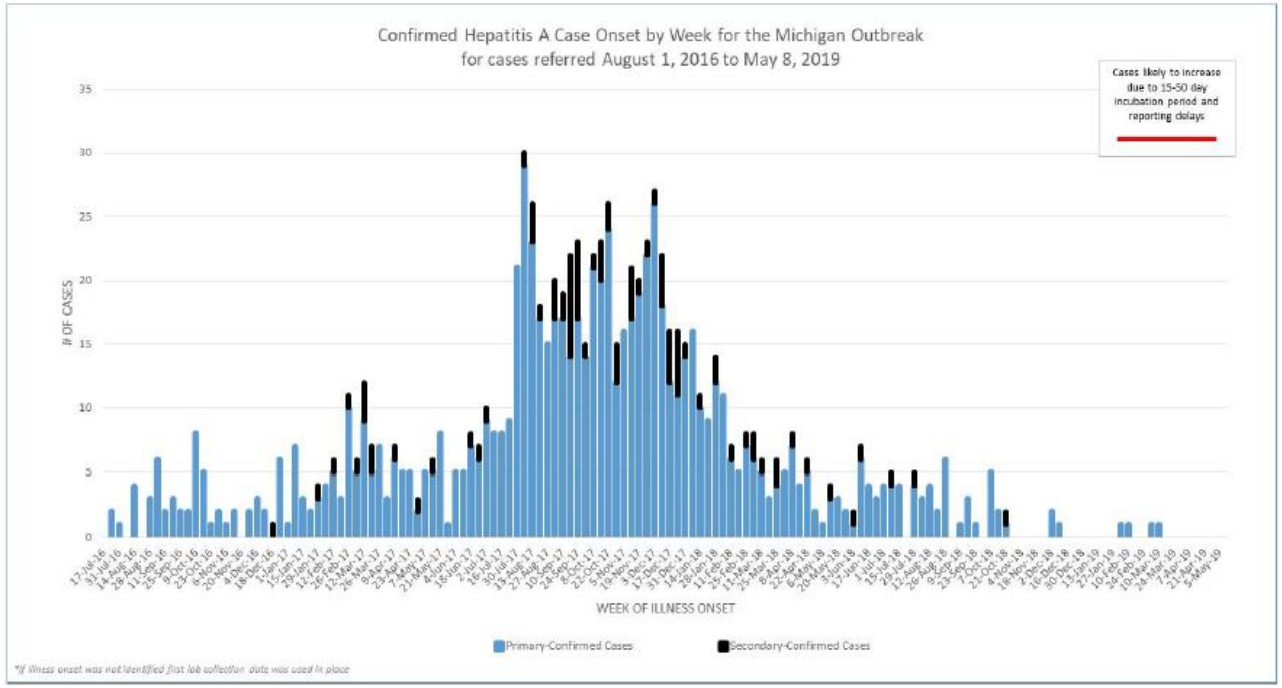
Data Table

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
data1	63	220	55	187	667	188	86	120	372	880

*Cases as of December 29, 2018. Case count is preliminary and subject to change.
Cases as of May 17, 2019. Case count is preliminary and subject to change. **Data are updated every Monday.

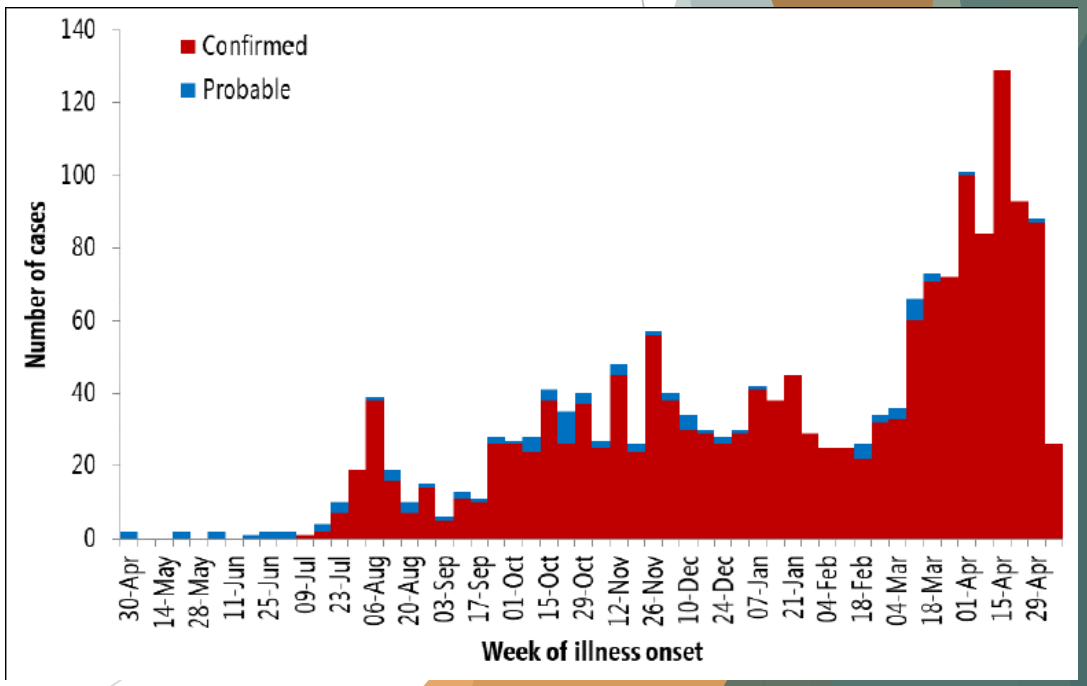
Hepatitis A – Michigan

- Michigan has been experiencing an outbreak of hepatitis A virus since August of 2016
  - Transmission appears to be through direct person-to-person spread and illicit drug use
  - Those with history of injection and non-injection drug use, homelessness or transient housing, and incarceration are thought to be at greater risk in this outbreak setting
  - Notably, this outbreak has had a high hospitalization rate
- As of May 15, 2019 there have been a total of 913 cases
  - 733 (80.3%) hospitalizations
  - 28 (3.1%) deaths
  - 428 (51.9%) documented substance abuse
  - 112 (13.6%) homeless/transient living
  - 162 (19.2%) loss to follow-up



Ebola Outbreak – Democratic Republic of Congo (DRC)

- Case Count: 1,816
- Deaths: 1,209 (66%)
- 101 cases among healthcare workers (33 deaths)
- Surge of cases and reported deaths in April
- Current vaccination strategies being employed on the ground include:
  - Site by site vaccination
  - Simultaneous vaccination of contacts and their contacts in the community
  - Healthcare worker vaccination
  - Targeted geographic vaccination of areas where contacts of contacts cannot be clearly identified due to insecurity
- WHO Risk Assessment
  - National: very high
  - Regional: very high
  - Global: low
- Multiple barriers in the response including intense insecurity in conflict zone, Ebola treatment centers and vaccination teams attacked by organized armed militia and community members, and community mistrust



Monitoring of Travelers from Ebola-Impacted Areas

- Currently, CDC does not require active monitoring of persons traveling from Ebola-impacted areas
- CDC recommends self-monitoring for 21 days
- On April 16, CDC published Ebola Recommendations for Organizations
  - Aid organizations sending workers to the outbreak are responsible for ensuring their health and safety, including their safe return
  - Includes a pre-departure assessment for symptoms of the virus for any workers traveling from Ebola outbreak areas to the United States
  - Of note, the CDC said workers may opt to receive the Ebola vaccine as part of ongoing studies based at the National Institutes of Health
  - Organizations should oversee self-monitoring activities
  - Organizations should notify state and local health departments of workers' travel plans during the 21-day period

References

- General Communicable Diseases, MDSS, and Michigan Health Alert Network (MIHAN)
  - www.michigan.gov/cdinfo
  - www.michigan.gov/mdss
  - www.michigan.gov/mihan
- Influenza
  - www.michigan.gov/flu
  - www.cdc.gov/flu
- Measles
  - www.michigan.gov/measlesoutbreak
  - www.cdc.gov/measles
- Hepatitis A
  - www.michigan.gov/hepatitisaoutbreak
  - https://www.cdc.gov/hepatitis/hav/
- CDC Ebola Recommendations for Organizations
  - https://wwwnc.cdc.gov/travel/page/recs-organizations-sending-workers-ebola
- WHO Ebola Situation Reports
  - https://www.who.int/ebola/situation-reports/drc-2018/en/

Thank You!

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