Spreading the Word About Lyme Disease with Tools Targeted for Michigan Health Care Providers

Veronica Fialkowski, MPH

30,000 cases/year reported

10X underreported

estimated 300,000 cases/year diagnosed
THE KAP SURVEY
(KNOWLEDGE, ATTITUDE & PRACTICES)

1090 physicians, physicians’ assistants and nurse practitioners

- 56 from Grand Traverse or Holland
- 34 Grand Traverse
- 22 Holland

Family Medicine: 42%
Emergency Medicine: 21%
Internal Medicine: 15%
Other: 22%
Where has the vector of Lyme disease been found in Michigan?

- 2% (A)
- 7% (B)
- 48% (C)
- 43% (D)

57% INCORRECT

>20% of providers answered that laboratory confirmation would be needed to justify treatment for a patient presenting with EM

Which diagnostic test they would order for a patient with disseminated Lyme disease symptoms?

- 37% INCORRECT
- 63% CORRECT
62% of providers correctly answered which treatment is recommended for Lyme disease.

Lyme disease is a reportable condition.

12% answered:

“There is NO requirement to report Lyme disease in the State of Michigan.”

“I see now that I need to learn more about Lyme disease!”
Lyme disease
Education

Healthcare Provider Education: Lyme Disease Toolkit

Not just targeting physicians.

Because...
Websites are an excellent way to communicate to practitioners.

“From which of the following sources do you get information on the management of TBD?”

- CDC.gov website: 70%
- Other websites: 50%
- Published materials: 40%
- Meetings: 30%
- Guidelines: 20%

Source: AHRQ Primary Care Workforce Facts and Stats #1 and #2.
Lyme Disease Toolkit
Available Resources for Healthcare Providers

Website
Up-to-date information regarding Lyme disease & a one-page tip sheet

Webinar & Free CME
Free on-demand webinar with 0.50 CME credits

Order form
Tick Submission Kit
Submit ticks for identification & testing

Order here

Printed Resources
Posters, brochures & tick ID cards
Order posters for your clinic
Pocket-sized card to ID common ticks in MI
Order "Ticks and Your Health" Brochure

www.michigan.gov/lymeinfo
Lyme Disease Toolkit
Available Resources for Healthcare Providers

Website
Up-to-date information regarding Lyme disease & a one-page tip sheet

Webinar & Free CME Credits
Free on-demand webinar with 0.50 CME credits

Order form
Order forms for your clinic

Tick Submission Kit
Submit ticks for identification & testing

Printed Resources
Posters, brochures & tick ID cards

Order "Ticks & Your Health" Brochure
Order posters for your clinic

Pocket-sized card to ID common ticks in MI

www.michigan.gov/lymeinfo

LYME DISEASE IN MICHIGAN:
What healthcare providers need to know
Evaluation

Pre-test ➔ Webinar ➔ Post-test ➔ Evaluation

Lyme Disease Toolkit
Available Resources for Healthcare Providers

- **Website**
  - Up-to-date information regarding Lyme disease & a one-page tip sheet

- **Webinar**
  - Free on-demand webinar with 0.50 CME credits

- **Order form**
  - Order posters for your clinic

- **Order here**
  - Order "Ticks and Your Health" brochure
  - Order "Ticks Submission Kit" (suitable for identification & testing)

Printed Resources

- Posters, brochures & tick ID cards
- Order posters for your clinic
- Pocket-sized card to ID common ticks in MI
- Order "Ticks and Your Health" brochure

**Website**
- www.michigan.gov/lymeinfo

**Order form**
- Order posters for your clinic
- Order "Ticks Submission Kit" (suitable for identification & testing)

**Order here**
- Order "Ticks and Your Health" brochure

**Printed Resources**
- Posters, brochures & tick ID cards
- Order posters for your clinic
- Pocket-sized card to ID common ticks in MI
- Order "Ticks and Your Health" brochure
Tick removal tips

- Remove as quickly as possible.
- Use tweezers to grasp the head close to the skin.
- Pull gently.
- Use soap and water, or antiseptic on the bite.

...preventing tick bites

- Use a repellent containing no more than 30 percent DEET.
- Use repellents that contain permethrin on clothing.
- See your healthcare provider if you have symptoms of fever, rash, body aches or fatigue after a tick bite.

Michigan Department of Health & Human Services

Available Resources for Healthcare Providers

Website
- Up-to-date information regarding Lyme disease & a one-page tip sheet

Webinar
- Free on-demand webinar with 0.50 CME credits

Tick Submission Kit
- Submit ticks for identification & testing

Printed Resources
- Posters, brochures & tick ID cards
- Order posters for your clinic
- Pocket-sized card to ID common ticks in MI

Order "Ticks and Your Health" Brochure

www.michigan.gov/lymeinfo

Lyme Disease Toolkit

MDHHS

Michigan Department of Health & Human Services
Michigan Department of Agriculture & Rural Development
Michigan Department of Natural Resources
Michigan State University

Order form

Tick Submission Kit
Submit ticks for identification & testing

Order here
2015 ARBOVIRUS SUMMARY
PRELIMINARY RESULTS

National Maps—WNV

A Tale of Two Seasons
Epizootic year for wildlife
- 155 animal cases
  - 50 corvids
  - 87 non-corvids
  - 14 mammals
    - 6 horses
      - 2 WNV, 4 EEE
    - 6 cervids (deer, elk, moose)
      - 3 WNV, 3 WNV/EEE
    - 1 bat, 1 squirrel

Mild year for human cases
- 17 human WNV cases
  - 16 neuro-invasive
  - 2 deaths
  - 3 viremic blood donors
Human Case Demographics

- 17 WNV cases
- 9 males
  - Age range: 22 years - 85 years
  - Median age: 61 years
  - 2 deaths
  - Average age: 83 years
- Onset dates ranged from July 27 - Sept. 21
- 3 WNV Viremic Blood Donors
  - Age range: 29 - 59 years
  - Donation dates ranged from Aug. 20 - Sept. 20.

A Tale of Two Seasons

ECOLOGIC

HUMAN

2015 Michigan Arboviurs Activity by MMWR Week

Days of Reporting Cases/Pool

Animal Cases
Human Cases
Mosquito Pools

MMWR Week
Ecological Variables and WNV

• Effects of seasonal temperatures
  - La Dean et al (Ecological Research-2010): ↑ winter temps
  - Paz et al (PLOS One-2013): ↑ summer temps
  - Wimberly et al (AJTMH-2014): winter temps, spring/summer temps, precipitation

• Ecosystems
  - Johnson et al (Urban Ecosystems-2012)- urban ecosystems favor WNV more than adjacent wetlands

• Virus genome
  - Duggal et al (AJTMH-2013): 2012 WNV outbreak not associated with adaptive changes in the virus

Mosquito Bridge Vectors

• Birds are the primary reservoir species for WNV
• Many different mosquito species are competent vectors for WNV (many mosquitoes that prefer to feed on birds)
• In Michigan, Culex pipiens and Culex restuans are probably responsible for most human WNV infections
• They breed in similar habitats and feed on mammals at the same rate (~20% of blood meals)
• Control measures focused on Culex spp are likely to have the most impact in preventing human cases
Michigan Trends

- Hot and dry summers
- Urban/suburban distribution in outbreak years
- *Culex pipiens/restuans* are important bridge vectors
- Mild winters


- The winter of 2011-2012 was the fourth warmest on record (records since 1894) in lower Michigan with monthly temperatures an average of 5.4°F (4.8-5.9°F) above 30-year averages.
  - Mild winters allow for greater survival of overwintering adult *Culex* mosquito populations.
- The 2012 spring season (March – May) was the warmest on record in Michigan.
  - Resulted in early emergence of *Culex* mosquitoes and is a factor in the early amplification of WNV in bird populations.
- The 2012 summer season (June – August) was the 10th warmest on record in Michigan.

2012 Summer precipitation in Grand Rapids

Hot and dry summers lead to more human WNV cases
2012 West Nile Virus Activity* in Michigan

- First WNV+ mosquito pool/neurologic wildlife detected
- Peak Minimum Infection Rate: July 29/1000

2012 Mosquito Surveillance

- 5,649 mosquito pools tested for arboviruses in 2012. (78,713 mosquitoes)
- 2,015 Mosquito Pools tested specifically for WNV - 24 positive (15,711 mosquitoes)

Outbreak Year Comparison: Geography

- Historically the Grand Rapids and Detroit Metro Areas account for a significant percentage of annual WNV cases

2002 MI WNV Outbreak 91%
2012 MI WNV Outbreak 86%
Community Mosquito Surveillance

- Initiated in 2013
- Target human WNV high incidence counties
- Train and equip LHD workforce to conduct mosquito surveillance
- Initiate public health prevention and measures based on surveillance findings

2015 WNV Mosquito Surveillance

2015 Mosquitoes tested for WNV

Statewide
Total # Pools: 2238
Total # Mosquitoes: 24,091
# Positive Pools: 15

Local Health Departments Project
Total # Pools: 402
Total # Mosquitoes: 8,598
# Positive Pools: 8

A Tale of Two Seasons
Resources

- [www.michigan.gov/westnilevirus](http://www.michigan.gov/westnilevirus)
- [www.cdc.gov/westnile](http://www.cdc.gov/westnile)
- [diseasemaps.usgs.gov/mapviewer](http://diseasemaps.usgs.gov/mapviewer)

Updated Rabies Materials

- What is rabies?
- How can you be exposed?
- Prevention
- Signs of rabies in animals
- Rabies in bats and other animals
- Protecting pets and livestock
- What to do if bitten?

Refrigerator Magnet

- When should you capture a bat?
- How to safely capture a bat
- Who to call once you capture a bat
Stickers for Kids

- Brightly colored stickers that are appealing to kids
- Reminds them to “Look but don’t touch” bats
- Teaches them to tell a parent if they find a bat

Communicable Disease Division
Currently Available Publications

ORDER FORM

<table>
<thead>
<tr>
<th>Publication Title:</th>
<th>Amount Requested:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Publication Title:</td>
<td>Amount Requested:</td>
</tr>
<tr>
<td>Publication Title:</td>
<td>Amount Requested:</td>
</tr>
</tbody>
</table>

To Whom shipped (Attn):

Street Address:

City: State: Zip Code:

Phone:

Email:

QUESTIONS?