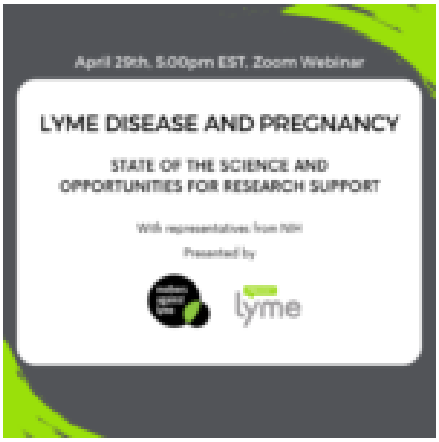
Lyme Disease & Pregnancy Research & Opportunities Webinar

On April 29th, 2021, **Mothers Against Lyme** & **Project Lyme** presented an interactive webinar ***Lyme Disease and Pregnancy: State of the Science and Opportunities for Research Support*** featuring Holly Ahern, MS, MT (ASCP), Sue Faber, RN, BScN, and representatives from the NIH.



It is known that Lyme disease, *Borrelia burgdorferi*, can cross the placenta, causing infection in unborn children, but there is little published research on the topic. This lack of information hurts healthcare providers and patients in terms of diagnosis, treatment and prevention.

The webinar, with more than 200 people registered, gave researchers an opportunity to hear the science on Lyme and pregnancy, and to learn about the application process for newly available funds from the Federal government, as presented by NIH program officers.

Watch the webinar below on YouTube. See links below for pdf's of 2 presentations and supplemental information.

The LDA thanks Project Lyme, Mothers Against Lyme, Holly Ahearn (MS, MT), and Sue Faber RN, BScN for their work on Lyme and pregnancy and for this webinar.

The webinar was recorded and available to view on YouTube.
Click here to watch the webinar See pdf's below.

Below are 2 of the presentations and supplemental information in pdf form.

Lyme disease and Pregnancy – Epidemiology and Pathobiology of *Borrelia*: Implications for Research by Holly Ahern, MS, MT (ASCP), Associate Professor of Microbiology, State University of New York, Adirondack; Vice-President Lyme Action Network; Scientific Advisor for Focus on Lyme; Advisory Board for Mothers Against Lyme, and Mom

Maternal-Fetal Transmission of Lyme Disease: Research Gaps and Opportunities by Sue Faber RN, BScN, Co-Founder and President of LymeHope

Lyme and Pregnancy Webinar Supplemental Information by Sue Faber, RN BScN

Lyme Disease and Pregnancy: State of the Science and Opportunities for Research Support

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Click here for LDA website article with more info on the

webinar

Click below to watch webinar

Govt. Wants Your Input on National Strategy for Vector-Borne Diseases

The Federal Register published the following RFI pertaining to a national strategy for vector-borne disease:

Request for Information (RFI): Developing the National Public Health Strategy for the Prevention and Control of Vector-Borne Diseases in Humans

The development of a national strategy on vector-borne diseases including tick-borne diseases was mandated by Congress. To inform development of the national strategy to address vector-borne diseases, HHS is issuing this Request for Information (RFI). **Click here to view the RFI.**

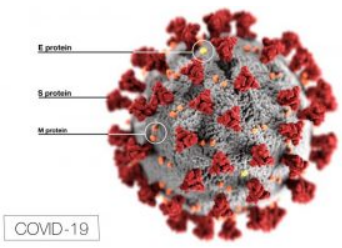
The RFI solicits specific input regarding strategic goals,

benchmarks, gaps, duplicative federally funded programs, and opportunities to enhance coordination data collection, research, and the development of diagnostics, treatments, vaccines, and other related activities across HHS and other federal departments.

To be considered, public comments must be received electronically no later than midnight **Eastern Standard Time (EST) on June 11, 2021**. You may comment by clicking 'submit a formal comment' **on the RFI page** of the Federal Register (**click here to submit your comment**) or you may also comment via **Regulations.gov** at, **https://www.regulations.gov/-commenton/HHS-OASH-2021-0012-0001**. Comments submitted electronically, including attachments, will be posted to the docket unchanged and available to view by the public. Evidence and information supporting your comment can be submitted as attachments. Please provide your contact information or organization name on the web-based form for possible follow-up from HHS. There is a 5,000 character limit on comments and maximum number (10) of attached files and maximum size (10 MB) of each attached file.

Review the Request for Information (RFI).
Submit a formal comment.
Submit your comment via Regulations.gov.

LDA's List of News & Journal Articles on Covid-19 & Lyme



This illustration, created at the Centers for Disease Control and Prevention (CDC), reveals ultrastructural morphology exhibited by coronaviruses. (Photo Credit: Alissa Eckert, MS; Dan Higgins, MAMS)

The LDA is compiling a list of articles in the news & journals of possible interest regarding Covid-19 & Lyme disease.

Autonomic dysfunction in 'long COVID': rationale, physiology and management strategies (Clinical Medicine – London) Melanie Dani, et al.

Lyme Disease in the Era of COVID-19: A Delayed Diagnosis and Risk for Complications (Case Reports in Infectious Diseases, 2021) Novak, C. B., Scheeler, V. M., & Aucott, J. N.

The Safe Way to Get Your COVID-19 Vaccine: #ScreenB4Vaccine (noorchashm.medium.com 1/28/2021) Hooman Noorchashm, MD, PhD

Reaction of Human Monoclonal Antibodies to SARS-CoV-2 Proteins With Tissue Antigens: Implications for Autoimmune Diseases (Frontiers in Immunology 1/19/21) Aristo Vojdani, Elroy Vojdani and Datis Kharrazian

Ivermectin Could Turn COVID-19 Around. We Need To Find Out If It Works (trialsitenews.com 10/1/2020) by Mary Beth Pfeiffer

Is There a Connection Between COVID-19 and Popular Hypertension Medication (pcornet.org 8/12/2020) National Patient-Centered Clinical Research Network

What happens when coronavirus and Lyme disease intersect? (USAtoday.com 6/22/2020) by Isabel Rose and Dana Parish

Why the Coronavirus Has Been So Successful (The Atlantic 3/20/2020) by Ed Yong

Lessons From Lyme Disease: Six Reasons The CDC's COVID-19 Failure Was Predictable (Forbes 3/13/2020) by Mary Beth Pfeiffer

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Blocking Tick-Borne Infection with Nanobodies

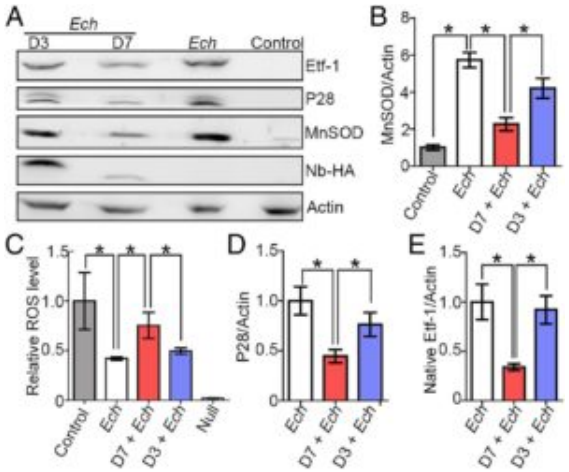

Fig. 8. D7, but not D3, abrogates E. chaffeensis-induced increase in MnSOD and reduction in ROS and inhibits infection. (A) HEK293 cells were transfected with HA-tagged Nbs and infected with E. chaffeensis (Ech) at 1 dpt. Native E. chaffeensis

Etf-1, E. chaffeensis outer membrane proteins P28/OMP-1F, Nbs, MnSOD, and human actin were detected at 2 dpi by Western blotting using their respective antibodies. (B, D, and E) Quantification of relative densities of MnSOD (B), P28 (D), and Etf-1 (E) normalized against actin. (C) ROS production at 2 dpi was analyzed by the fluorescent indicator H2DCFDA. Null, buffer control without H2DCFDA. (B–E) Data are presented as the mean ± SD from three independent experiments with triplicates per sample. *P < 0.05, by one-way ANOVA.

Ohio State University researchers have just published an article on their creation of nanobodies which target the protein that causes *E. chaffeensis* bacteria to be extremely infectious. Nanobodies are small molecules that can be designed to mimic the function and structure of antibodies and may be the solution to inhibit tick-borne bacterial infections that remain inaccessible by most current antibiotics due to the fact that they reside and replicate inside human immune cells.

Researchers conducted a number of experiments in both mice and cell cultures which identified one specific nanobody that could suppress *E. chaffeensis* infection by blocking three ways the protein enables the bacteria to commandeer immune cells.

It is thought that these nanobodies can be developed as a new or complementary therapy for human monocytic ehrlichiosis as well as other tick-borne diseases that are caused by intracellular infections, infections that can be fatal if left untreated or undertreated.

Read Science Daily article here.

Read full text Ohio State research article here.

Read more LDA posts on Ehrlichiosis here.

May, Lyme Disease Awareness Month

HELP US! This page is in progress – a full list of any resolutions submitted will be posted at the end of May with your help. Please contact your state, county or local governing body and ask them to pass a May resolution to spread the word about Lyme & tick-borne diseases. Check on your governing body website to see if there is a place listed to submit a request.

Click here to submit your state or county proclamation/resolution to LDA for inclusion on this page.

2021 May Lyme Awareness Proclamations

Proclamation

MAY 2021
AS
TICK-BORNE DISEASE AWARENESS MONTH

Many states and counties take steps to raise awareness regarding Lyme and tick-borne diseases during May. Declaring “May Lyme Awareness Month” is one move to help remind people spring is here, ticks are out, prevention & proper education are your best tools to staying healthy.

Proclamations are issued by governors and resolutions are adopted by the legislature. The LDA salutes and thanks all the governors, legislators, Lyme groups, and advocates who help raise awareness throughout the year. Your efforts make a difference!

See if your state has joined in May Lyme Awareness & Read the state proclamations.

New Jersey

Texas

Colorado

Click images for pdf versions

NJ Governor Proclamation – May 2021 as TBD Awareness Month

STATE OF NEW JERSEY
EXECUTIVE DEPARTMENT

Proclamation

MAY 2021
AS
TICK-BORNE DISEASE AWARENESS MONTH

State of NJ Joint Resolution Occurring Each Year

ASSEMBLY JOINT RESOLUTION
No. 64
STATE OF NEW JERSEY
213th LEGISLATURE

PRE-FILED FOR INTRODUCTION IN THE 2008 SESSION

Sponsored by:
Assemblyman UPENDRA J. CHIVUKULA
District 17 (Middlesex and Somerset)
Assemblyman ERIC MUNOZ
District 21 (Essex, Morris, Somerset and Union)

Co-Sponsored by:
Senators Madden, Redd and Baroni

SYNOPSIS
Designates May of each year as "Lyme Disease Awareness Month."

CURRENT VERSION OF TEXT
As reported by the Assembly Health and Senior Services Committee with technical review.

A JOINT RESOLUTION designating the month of May of each year as "Lyme Disease Awareness Month."

WHEREAS, Lyme disease is a bacterial infection that is spread by certain arthropods, primarily ticks, and is a significant public health problem in New Jersey; and

WHEREAS, If untreated, Lyme disease, in its later stages, can result in neurological disorders including, but not limited to, chronic and severe fatigue, encephalitis, meningitis, memory loss, dementia and seizures, severe arthritis, cardiac dysfunction, vision loss, gastrointestinal disorders, paralysis, death and stroke; and

WHEREAS, New Jersey has a disproportionately large share of the nation's total number of reported Lyme disease cases; according to data compiled by the Centers for Disease Control and Prevention (CDC), 2,432 new cases of Lyme disease in New Jersey were reported in 2006, which represented the third highest total after New York and Pennsylvania; and

WHEREAS, The CDC states that only 10% of cases meeting its surveillance criteria are actually reported; thus, using this estimate, some 24,320 new cases of Lyme disease may have occurred in New Jersey in 2006; and

WHEREAS, Although Lyme disease has received increased public attention in the last decade, it is still frequently misdiagnosed and is much more problematic to treat once it has spread and caused serious, permanent and life-threatening conditions; and

WHEREAS, While Lyme disease can be difficult to treat, it can be prevented if certain precautionary steps are taken, including wearing long sleeves, tucking pants into socks when in a wooded area and using insect repellent; and

WHEREAS, Increased public awareness can help the State to combat this public health problem by encouraging the prevention of the disease and ensuring its early detection and proper treatment; now, therefore,

BE IT RESOLVED *by the Senate and General Assembly of the State of New Jersey:*

1. The month of May of each year is designated as "Lyme Disease Awareness Month" to recognize the importance of prevention, early detection and effective treatment of the disease throughout the State.

2. The Governor is respectfully requested to annually issue a proclamation recognizing May as "Lyme Disease Awareness Month" in New Jersey and calling upon public officials and the citizens of New Jersey to observe the month with appropriate activities and programs.

3. This joint resolution shall take effect immediately.

Resolution above is from the NJ state legislature declaring every May Lyme Disease Awareness Month.

City of Richardson, Texas Proclamation Signed by the Mayor

Proclamation

CITY OF RICHARDSON, TEXAS

WHEREAS:

WHEREAS:

WHEREAS:

WHEREAS:

WHEREAS:

WHEREAS:

WHEREAS:

NOW, THEREFORE, I, Paul Voelker, Mayor of the City of Richardson, Texas, do hereby proclaim May 2021, as:

LYME DISEASE AWARENESS MONTH

in the City of Richardson, and urge all citizens to visit www.TXLymeAlliance.org to learn more about this disease and its impact on victims and families, make a donation, or get involved.

Given under my hand and seal of office this 1st day of May 2021.

RICHARDSON TEXAS

Colorado Proclamation Signed by the Governor

State of Colorado

Proclamation

WHEREAS, Colorado residents, pets and visitors are exposed to tick habitats through work, play, outdoor recreation pursuits or travel, placing them in closer contact with ticks which are carried by wildlife, birds and domestic animals; and

WHEREAS, tick bites can transmit serious and potentially fatal diseases & conditions such as Lyme disease, Colorado Tick Fever, Spotted Fever Rickettsiosis (such as Rocky Mountain Spotted Fever), Tularemia, Babesiosis, Ehrlichiosis, Anaplasmosis, Tick-Borne Relapsing Fever, Tick Paralysis, Alpha-gal syndrome and others, resulting in fever, rash and other symptoms which appear like many diseases, making diagnosis difficult; and

WHEREAS, the rate of Lyme disease and other tick-borne infections is continuing to spread rapidly across the United States, with a Centers for Disease Control and Prevention new estimated annual case number released in 2021 of 476,000 for Lyme disease alone in the US; and

WHEREAS, according to the CDC 2018 study report, tick-borne disease cases more than doubled in the United States in 13 years (2004-2016) and were 77% of all vector borne disease reports; and

WHEREAS, Colorado reported eight cases of Lyme disease in 2019, the largest annually reported Lyme case number in Colorado history; and

WHEREAS, the rate of Lyme and other tick-borne diseases in Colorado are likely underreported, due to limited education and prevention awareness, surveillance activities, and the difficulty of diagnosis; and

WHEREAS, when Lyme and other tick-borne diseases are not quickly and accurately diagnosed or treated, may result in severe illness, disability, or death; and may mimic many other diseases, including COVID 19, making diagnosis more difficult; and

WHEREAS, support group participation as witnessed by Colorado Tick-Borne Disease Awareness Association and Colorado Lyme and TBD Support Group, by Colorado patients afflicted by Lyme and other tick-borne diseases continues to grow annually; and

WHEREAS, the best protection against tick-borne diseases is awareness, prevention, education, prompt accurate diagnosis, and adequate treatment;

THEREFORE, I Jared Polis, Governor of the State of Colorado, do hereby proclaim, May 2021, as

LYME & OTHER TICK-BORNE DISEASES AWARENESS MONTH

in the State of Colorado.

GIVEN under my hand and the Executive Seal of the State of Colorado, this first day of May, 2021

Jared Polis
Governor

Burrascano Blog/COVID Testing: Dogs/Ticks at Beach/RI Patients/COVID Treatment/New Lyme Test/4-Poster & Ticks/Babesiosis/Multiplex & COVID/Periodontitis & COVID/MO Study/UMaine Citizen Scientists/COVID Pill/May Lyme Awareness/Guest Blogs

Pregnancy, Breastfeeding & Lyme Bibliography

Any woman who has Lyme disease and is considering becoming pregnant or who is pregnant, or who is bitten by a tick during pregnancy, should see a Lyme disease doctor, one who understands the serious medical implications of Lyme during pregnancy. The Lyme bacteria, *Borrelia burgdorferi*, can cross the placenta and can cause death of the fetus. The Lyme Disease Association (LDA) has compiled the following list of articles related to Lyme and pregnancy and Lyme and breastfeeding for informational purposes only, for your review and review by your physician.

Project Lyme & Mothers Against Lyme Webinar – **"Lyme Disease & Pregnancy: State of the Science & Opportunities for Research"** featuring Holly Ahern, MS, MT (ASCP), Sue Faber, RN, BScN, & Representatives from the NIH. **(2021)**

CDC Focus on Maternal-Fetal Transmission of Lyme Disease (2020)

Bale JF, Jr., Murph JR (1992). "Congenital infections and the nervous system." Pediatr Clin North Am 39(4): 669-90.

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Carlomagno G; Luksa V; Candussi G; Rizzi GM; Trevisan G Acta Eur Fertil 1988 Sep-Oct;19(5):279-81 Dept. of Obstetrics and Gynecology, University of Trieste School of Medicine. Lyme Borrelia positive serology associated with spontaneous abortion in an endemic Italian area.

Donta S, Aberer E, Ziska M. (1996). "Clinical Conference: Chronic Lyme Disease." Journal of Spirochetal and Tick-Borne

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Faber S. (2017). “Research findings on Lyme and Pregnancy/Congenital Transmission.” YouTube Video Retrieved from **https://www.lymehope.ca/advocacy-updates/sharing-our-research-findings-on-lyme-and-pregnancycongenital-transmission-with-minister-of-health-and-public-health-agency-of-canada** *The opinions presented in the video are those of the presenter and not necessarily of the Lyme Disease Association.*

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Lawrence RM, Lawrence RA (2001). “Given the Benefits of Breastfeeding, What Contraindications Exist?” Pediatric Clinics of North America Volume 48, Issue 1, February 2001

MacDonald A.B. (1989). “Gestational Lyme borreliosis. Implications for the fetus.” Rheum Dis Clin North Am 15(4): 657-77.

MacDonald A.B. (1986). “Human fetal borreliosis, toxemia of pregnancy, and fetal death.” Zentralbl Bakteriol Mikrobiol Hyg [A] 263(1-2): 189-200.

MacDonald A.B., Benach J.L., et al. (1987). “Stillbirth following maternal Lyme disease.” NY State J Med 87(11): 615-6.

Maraspin, V., Cimperman J., et al. (1999). “Erythema migrans in pregnancy.” Wien Klin Wochenschr 111(22 23): 933-40.

Markowitz, L. E., Steere AC, et al. (1986). “Lyme disease during pregnancy.” JAMA 255(24): 3394-6. Because the etiologic agent of Lyme disease is a spirochete, there has been concern about the effect of maternal Lyme disease on pregnancy outcome.

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Breastfeeding

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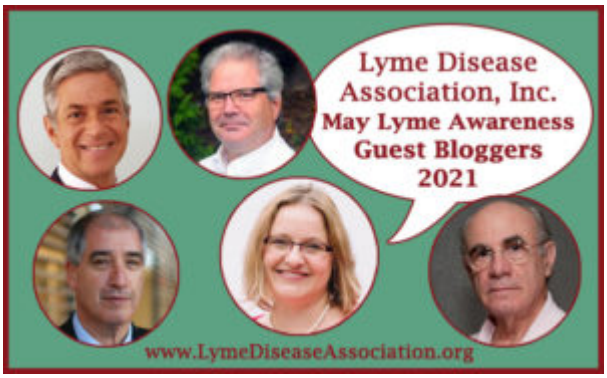
Pregnancy & Breastfeeding

Centers for Disease Control & Prevention (CDC) website

During Pregnancy & While Breastfeeding
"Lyme disease acquired during pregnancy may lead to infection of the placenta and possible stillbirth, however, no negative effects on the fetus have been found when the mother receives appropriate antibiotic treatment. There are no reports of Lyme disease transmission from breast milk." **http://www.cdc.gov/ncidod/dvbid/LYME/ld_transmission.htm**

Look For: May Guest Blogs for May Lyme Awareness



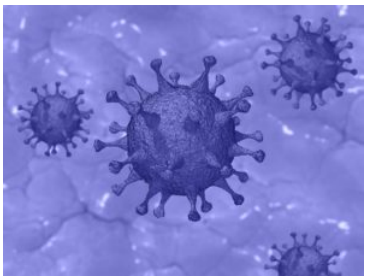
Each May, the LDA asks experts in the area of Lyme & tick-borne diseases to write a blog to educate the public in an opinion piece on a specific topic or one they choose. One blog is published each week. For Lyme/TBD awareness 2021, LDA will present the following:

Joseph Burrascano, MD *Lyme Testing*
Adrian Baranchuk, MD *Lyme Carditis 2021 Update*
Kenneth Liegner, MD *Lyme & TBD Where we are 2021*
Sue Faber, RN, BScN *Lyme & Pregnancy*
James Occi, PhD (Cand.) *Ticks*

The opinions expressed by the authors are their own opinions. Check ***LDA Guest Blogs page*** on our website each week in May to see the new blog or to read past blogs by other guest experts. Go to the ***President's Blog page*** to read posts by the LDA president.

Year's End May See Pill to

Treat COVID



Pfizer CEO, Albert Bourla, announced yesterday that an antiviral pill to treat Covid-19 may be available by the end of the year. The pill, taken orally at home, would be effective at the first sign of Covid-19 infection or exposure, and is expected to be effective against variants.

Pfizer is testing two antivirals, one intravenous and the other oral, but is focusing on the oral drug, due to it's ease of use.

Last month Pfizer started Phase 1 clinical trials of the drug, called PF-07321332, which contains protease inhibitors that bind to viral enzymes, preventing viral replication. Protease inhibitors are used successfully for HIV and hepatitis C. Phase 3 testing is now underway in the U.S. and Belgium for the drug.

See article in Forbes.com "Pfizer CEO Says Antiviral Pill To Treat Covid Could Be Ready By The End Of The Year" (4/28/2021)

Read additional LDA posts on COVID here.