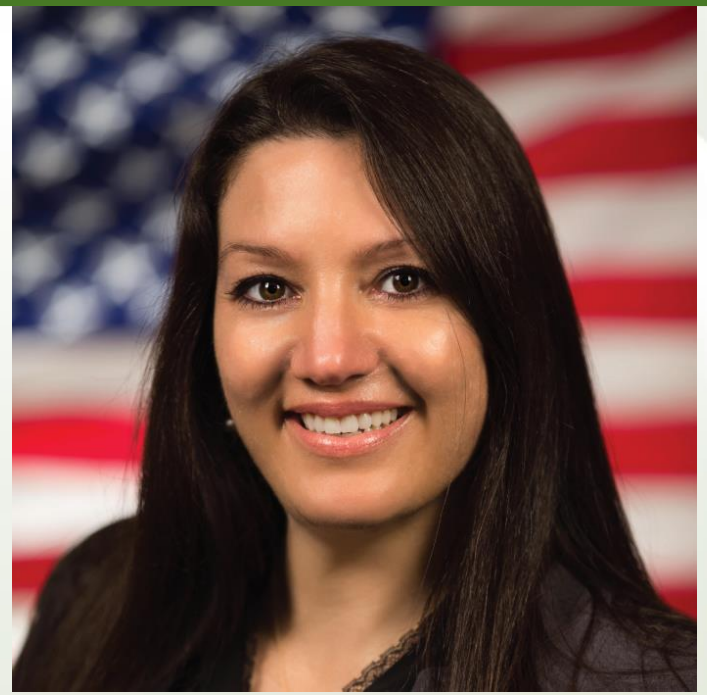
# Tick-Borne Disease Working Group

Meeting #6 | June 21st , 2018

# Welcome

**John N. Aucott, M.D. (Chair)**
Associate Professor, Division of Rheumatology,
Johns Hopkins University School of Medicine;
Director, Johns Hopkins Lyme Disease Clinical Research Center



**Kristen Honey, PhD, PMP (Vice-Chair)**
Innovator in Residence with HHS CTO,
U.S. Department of Health and Human Services (HHS);
Senior Research Scholar, Stanford University

# Recap of Meeting #5

- Areas of agreement
- Areas of controversy
- Formation of writing groups
  - Epidemiology and Ecology
  - Prevention
  - Diagnosis
  - Causes and Treatment
  - Access to Care

https://www.hhs.gov/ash/advisory-committees/tickbornedisease/index.html

# Overview of Work since Meeting #5

1. Consolidating recommendations into new writing groups
    1. Writing of supporting material for Working Group Report
2. Review public comment
3. Receiving, organizing and first look at inventories
4. Developing new recommendations based on public comments and inventories for discussion today.

# Shared Vision

A nation free of tick-borne diseases where new infections are prevented and patients have access to affordable care that restores health

https://www.hhs.gov/ash/advisory-committees/tickbornedisease/index.html

# Mission Statement

The Tick-Borne Disease Working Group's mission, as mandated through the 21st Century Cures Act, is to provide expertise and to review all efforts within the Department of Health and Human Services related to all tick-borne diseases, to help ensure interagency coordination and minimize overlap, and to examine research priorities. As part of this mandate, and in order to provide expertise, we will ensure that the membership of the working group represents a diversity of scientific disciplines and views and is comprised of both federal and non-federal representatives, including patients, and family members or caregivers, advocates of non-profit in the interest of the patient with tick-borne illness, scientists and researchers. A major responsibility of our mission will be develop and regularly update the action of HHS from the past, present and the future.

https://www.hhs.gov/ash/advisory-committees/tickbornedisease/index.html

# Core Values

1. **Respect**: Everyone is valued
2. **Innovation**: Shifting the paradigm, finding a better way
3. **Honesty and Integrity**: Find the truth, tell the truth
4. **Excellence**: Quality, real-world evidence underlies decision-making
5. **Compassion**: Finding solutions to relieve suffering
6. **Collaboration**: Work with citizens and patients as partners
7. **Accountability**: The buck stops here

https://www.hhs.gov/ash/advisory-committees/tickbornedisease/index.html

# Public Comment

- **Order of Public Comment is:**
  - John Barrett
  - Lorraine Johnson
  - Brooke Mullins
  - Kathy Nodolf
  - Tamara CisZczon
  - Marina Carboni
  - Elise Spears
  - Christina Targaczewski
  - Aliza Yarden-Cummings
  - Allison Caruana

- 30 minutes of public speaking today
- 10 speakers
- 3 minutes each
- Written comments may be sent to: tickbornedisease@hhs.gov

# Discussion of Submitted Public Comment

If you took the time to submit written comments, we read them.

1,200+ emails received to date to tickbornedisease@hhs.gov

Public Input Takeaway:

- Lyme disease and tick-borne diseases are not being addressed sufficiently by mainstream medicine and government programs today – this warrants increased research funding, further scientific exploration, and unbiased/fresh review of the latest information from across all disciplines/sectors.

# Public Input: Epidemiology & Ecology

Include 3+ tick experts/entomologists/ecologists/vector biologists on the TBDWG and its Subcommittees

Fund comprehensive cost-of-illness studies

CDC please highlight Lyme/TBD reported in all 48 states of the continental U.S.; update the CDC tick distribution map

Have CDC revert to weekly official statistics (not annual) for Lyme disease

https://www.hhs.gov/ash/advisory-committees/tickbornedisease/index.html

# Public Input: Prevention

Success = awareness + recognition

Renewed efforts at Lyme/TBD prevention needed, yet many “do not want another failed attempt at a vaccine” (i.e., trust lost, Dearborn 1994, compounded by LYMErix). Little trust and extreme concerns expressed about FDA fast-tracking vaccines

Prevention = “easiest plus… highest payoff potential”

Short-term, medium-term, long-term actions needed: People need help now!

# Public Input: Diagnosis

Clarify that "Lyme disease is diagnosed by a combination of medical history, physical exam, and if needed, diagnostic testing"

Recommend table/image to identify pros & cons of currently available testing (especially serology) and diagnostics

Recommend partnering and/or learning from best practices elsewhere:

- Technologies applied to other diseases or in different disciplines
- State level: For example the New York State Department of Health, to co-create a national proficiency test program for tick-borne *borreliosis*

https://www.hhs.gov/ash/advisory-committees/tickbornedisease/index.html

# Public Input: Cause & Treatment

Need ways to determine if/when Lyme infection resolved

Need integrated, interdisciplinary systems biology approach required to understand Lyme/TBD and related immune suppression

Much of Western medicine is siloed and ill-equipped to address complex systems across multiple, integrated systems. Today's medical construct of Lyme/TBD must be revised to match the science.

Go beyond Lyme disease please, including research into coinfections combos

https://www.hhs.gov/ash/advisory-committees/tickbornedisease/index.html

# Public Input: Patient Access to Care

Insurance needs to cover treatment including long-term antibiotics and immunotherapy (patient-centered and at the treating clinician's discretion)

Include patients as participants in Lyme/TBD treatment decisions

Current medical practices often harmful, re-traumatizing already traumatize patients fighting for life yet not believed

Suicide is high among Lyme/TBD patients, and "understandably so"

# Public Input: Patient Access to Care (Cont)

For report language, work with mental-health experts on neuroborreliosis and mental health implications of Lyme/TBD; take extra care to avoid victim blaming

Address special populations: children, pregnant/expectant mothers, Veterans, Service Members, migrant workers, farmers, hunters, outdoor enthusiasts

Fund comprehensive cost-of-illness studies

Evidence-based care and policies needed based on rigorous scientific evidence

Patients need help NOW!

# Public Input: Process

More responsiveness and timeliness wanted from HHS on emails, announcements, posting meeting minutes, updating website, etc.

Many calls for increased **transparency**

**Trust** is essential for success and there is little in Federal government right now, yet many expressed hope that this Working Group will be "reset" to move forward

Encourage Working Group to not shy away from these complex, thorny issues but address them head-on, without delays (i.e., no Parking Lot). Patients need help NOW!

Do not let this process compromise evidence-based, rigorous science that is needed.

https://www.hhs.gov/ash/advisory-committees/tickbornedisease/index.html

# Discussion of Inventory

1. Inventories received to date:
   - CDC, NIH, DOD,[CMS, VA: Negative Input]
2. CDC &NIH addresses 5 of the 6 TBDWG focus areas except Access to Care
3. DOD addresses 2 of the 6 focus areas [Disease vector & Surveillance and Vaccines Topics]
4. Strategic Plans: CDC and DOD
5. Human Surveillance: CDC, NIH; Animal Surveillance: CDC, NIH, DOD
6. Total past & current projects FY 10-18: **1,493 [**CDC-69; NIH-1274; DOD-150**]**

# Discussion of Inventory

1. Total Publications FY 10-17: **743** [CDC-467; NIH-235; DOD-41]
2. Approximate General Funding FY 10 - 18: **$507 M**
   - CDC - $52.1 M (FY 13-18)
   - NIH - $426.5 M (FY 10-17)
   - DOD - $28.4 M (FY 10-18)
3. Identified Research Gaps:
   - Improve early and accurate diagnosis and treatment;
   - Strengthen national surveillance;
   - Understand the immunological mechanism of immune protection for Lyme disease or other TBDs - Interaction of TB pathogens with human host
   - New rapid and accurate lab tests
   - Antibiotic combo and/or therapeutic options for treating acute and persistent illness

# Tick-Borne Disease Working Group

Meeting #6 | June 21, 2018

## LUNCH BREAK 11:45 A.M. EDT

# Transparency & Innovation

**PROPOSED MOTION:**

Create a Transparency & Innovation Subcommittee to further support HHS transparency, responsiveness, and innovation efforts, specifically by engaging directly with all stakeholders – including the Lyme/TBD patients and advocates -- in order to co-create solutions, together, and "translate" this information into recommendations for the Working Group. ~~We will leverage open data, open science, and open innovation (e.g., crowdsourcing, citizen science, prizes, challenges, and innovative public-private partnerships) to accelerate next-gen solutions and alleviate suffering today.~~

# Table of Contents

## Overview to walk through



https://www.hhs.gov/ash/advisory-committees/tickbornedisease/index.html

# Causes/Treatment Chapter

- Patient Story Recommended

| Impact – compelling people, compelling story | Anecdote that represents data-driven, evidence-based common problem, so the story conveys some bigger idea highlighted by the report | Diversity |
|---|---|---|
| Ruben Lee Sims is a Vietnam Veteran who served our country, earning the Vietnam War Campaign Ribbon and recognized as the "USAF Comptrollers Top Enlisted Management Analyst of the Year" in 1977. Five years later, multiple tick bites derailed life as he knew it. The U.S. Department of Veterans Affairs (VA) was not equipped to diagnose Lyme disease. The military discharged Mr. Sims in 1984 due to "hypochondriasis with psychogenic pain disorder." In 1985, a non-military doctor in San Diego was close to diagnosing Lyme disease, but since Mr. Sims had not traveled to New England, the doctor said that the symptoms cannot be Lyme. The psychogenic pain is now confirmed Lyme disease, based on VA diagnosis — 34 years later. With proper diagnosis and treatment, physical and mental symptoms resolved. He shares his story to reach Veterans, especially homeless Veterans who may be affected by tick-borne diseases. | • Misdiagnosed for 33 years by VA<br>• Neuroborreliosis and mental health<br>• Neuroborreliosis and mental health<br>• Lyme and financial strain => homelessness<br>• Unable to work 30+ years without treatment<br>• Symptoms, both physical and mental, resolved with proper Lyme diagnosis and treatment | Race<br><br>Vulnerable population<br><br>Disease presentation |

# Epidemiology and Ecology Chapter

- Prior voted on recommendations
  1. TO FUND STUDIES AND ACTIVITIES ON TICK BIOLOGY AND TICK BORNE DISEASE ECOLOGY INCLUDING SYSTEMATIC TICK SURVELLIANCE EFFORTS PARTICULARLY IN REGIONS BEYOND THE NORTHEAST AND UPPER MIDWEST.
  2. Have public health authorities formally recognize alternative, validated systematic approaches to tick-borne disease surveillance FOR HUMANS, such as systematic sampling of tick-borne disease reports for investigation, that reduce the burden on tick-borne disease reporters but allow for comparability of surveillance findings across states and over time. (AGREE ON INTENT NOT EXACT LANGUAGE)
  3. Public health authorities shall annually and when opportune (such as during Tick-Borne Disease Awareness Month) inform doctors, insurers, state and local health departments, the press and the public through official communication channels, that the Lyme disease surveillance criteria are not to be used SOLELY for diagnostic purposes.

https://www.hhs.gov/ash/advisory-committees/tickbornedisease/index.html

# Epidemiology and Ecology Chapter

- New proposed recommendations
  - **Recommendation 1.2:** Fund systematic studies and activities to identify and characterize novel tick-borne disease agents in the United States.
  - **Recommendation 1.3:** ~~Fund~~ Support economic studies and activities to estimate the total cost of illness associated with tick-borne diseases in the United States, beginning first with Lyme disease and including both financial and societal impacts.

# Epidemiology and Ecology Chapter

- New proposed recommendations continued

***5/16 AGREED ON INTENT NOT EXACT LANGAUGE* VOTE REQUIRED:**

- **Recommendation 1.4:** Have public health authorities formally recognize complimentary, validated systematic approaches to tick-borne disease surveillance for humans, such as systematic sampling of tick-borne disease reports for investigation that reduce the burden on tick-borne disease reporting but allow for comparability of surveillance findings across states and over time.

FORMER LANGUAGE FOR REFERENCE:

Have public health authorities formally recognize alternative, validated systematic approaches to tick-borne disease surveillance FOR HUMANS, such as systematic sampling of tick-borne disease reports for investigation, that reduce the burden on tick-borne disease reporters but allow for comparability of surveillance findings across states and over time.

# Epidemiology and Ecology Chapter

- New proposed recommendations continued

***5/16 AGREED BUT WORDING IMPROVED* VOTE REQUIRED:**

- **Recommendation 1.5: The Lyme disease surveillance criteria are not to be used ALONE for diagnostic purposes**; public health authorities shall annually and when opportune (such as during Tick-Borne Disease Awareness Month) communicate this and inform doctors, insurers, state and local health departments, the press, and the public through official communication channels including the CDC's Morbidity and Mortality Weekly Report (MMWR).

FORMER LANGUAGE FOR REFERENCE:

Public health authorities shall annually and when opportune (such as during Tick-Borne Disease Awareness Month) inform doctors, insurers, state and local health departments, the press and the public through official communication channels, that the Lyme disease surveillance criteria are not to be used SOLELY for diagnostic purposes.

# Epidemiology and Ecology Chapter

- No Minority Opinions

# Epidemiology & Ecology Chapter

- Patient Story Recommended continued

| Impact – compelling people, compelling story | Anecdote that represents data-driven, evidence-based common problem, so the story conveys some bigger idea highlighted by the report | Diversity |
|---|---|---|
| Neil Spector, MD – top oncologist and cancer researcher, near-death experience with Lyme Disease<br><br>Dr. Spector was an outdoor enthusiast and marathon runner in New England, a region highly endemic area for Lyme disease. He first began having health issues, including arrhythmia and arthritis pain, in the early 1990s. Symptoms worsened with time: cardiac rhythm disturbances, arthritis, muscle pains and weight loss — and when prescribed antibiotics for an unrelated condition, symptoms improved. His Lyme disease diagnosis was confirmed in 1997. As a patient with Lyme carditis, Dr. Spector underwent a heart transplant to save his life. | • Demonstrates how healthy, outdoors lifestyle as an avid runner = increased exposure risk<br>• Misdiagnosed<br>• Lyme carditis — heart transplant required<br>• Demonstrates the seriousness of Lyme/TBD infections, which can be fatal | Disease presentation (Lyme carditis) |

# Prevention Chapter

- Prior voted on recommendations
  1. BUILD TRUST – TRANSPARENT MECHANISM BY WHICH ALL STAKEHOLDERS EXAMINE AND DISCUSS PAST VACCINE ACTIVITIES AND POTENTIAL ADVERSE EVENTS TO INFORM FUTURE VACCINE DEVELOPMENT IN LYME DISEASE
  2. SUPPORT SAFE AND EFFECTIVE Human Vaccines to Prevent Lyme Disease WITH TRANSPARENT MECHANISM BY WHICH ALL STAKEHOLDERS EXAMINE AND DISCUSS PAST VACCINE ACTIVITIES AND POTENTIAL ADVERSE EVENTS TO INFORM FUTURE VACCINE DEVELOPMENT IN LYME DISEASE
  3. FUND ADDITIONAL STUDIES AND ACTIVITIES ON THE DEVELOPMENT AND EVALUATION OF NOVEL AND TRADITIONAL TICK CONTROL METHODS THAT HAVE SHOWN PROMISE IN OTHER AREAS OF PUBLIC HEALTH ENTOMOLOGY

# Prevention Chapter

- Prior voted on recommendations continued
  4. Education - Inform clinicians and general public of regional and specific risks related to tick illnesses

# Prevention Chapter

- New proposed recommendations
  - None
- Minority Opinions
  - Lyme disease vaccine development (Pat Smith)
- Patient Story
  - None

# Prevention Chapter

- Figures

**Table 1: How Vaccines Can Potentially Prevent Lyme Disease**

| |
|---|
| **Rodent-Targeted Vaccines**<br>• Kill the spirochete in ticks that feed on mice<br>• Reduce the prevalence of infection among ticks and mice in the treated environment |
| **Human Vaccines**<br>**OspA-Based Vaccines**<br>• Block transmission of *B. burgdorferi* by killing the spirochete in ticks<br>**OspA/OspC-Based Vaccines**<br>• Block transmission of *B. burgdorferi* by killing the spirochete in ticks and mammals<br>**Anti-Tick Vaccines**<br>• Neutralize the tick's attachment proteins that facilitate a blood meal, which impairs tick feeding<br>• Target the tick's immunomodulatory proteins that affect host immune response, which:<br>o Reduces transmission and/or acquisition of the causative organism<br>o Reduces or partially controls the spirochete load<br>o Impairs tick feeding<br>• Target allergy or physiology proteins that facilitate tick engorgement or regulate important functions, which impacts pathogen transmission |

# Diagnosis Chapter

- Prior voted on recommendations
  1. Need TO EVALUATE NEW TECHNOLOGY OR APPROACHES FOR THE DIAGNOSIS OF LYME DISEASE AND OTHER TICK-BORNE DISEASES
  2. NEED TO INCLUDE Special populations, ESPECIALLY CHILDREN, IN LYME DISEASE AND OTHER TICK-BORNE DISEASES DIAGNOSTIC STUDIES
  3. ALLOCATE RESOURCES TO IMPROVE THE EDUCATION, DIAGNOSTICS

https://www.hhs.gov/ash/advisory-committees/tickbornedisease/index.html

# Diagnosis Chapter

- New proposed recommendations
  - None
- Minority Opinions
  - Patient access to full Lyme Disease Western blot band results (Pat Smith)

# Diagnosis Chapter

- Patient Story Recommended

| Impact – compelling people, compelling story | Anecdote that represents data-driven, evidence-based common problem, so the story conveys some bigger idea highlighted by the report | Diversity |
|---|---|---|
| David Roth - compelling person. Highly successful business man. Had abrupt onset illness with initially negative Lyme serology which only seroconverted later into prolonged illness | • common problem of lack of sensitivity of early serology | Man vs. typical female sufferer |

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# Tick-Borne Disease Working Group

Meeting #6 | June 21, 2018

## BREAK 3:35 P.M. EDT

# Causes and Treatment Chapter

- Prior voted on recommendations
  1. Promote research on animal models of B. burgdorferi infection and the mechanisms of disease processes in humans with an emphasis on pathologies that are currently lacking, e.g., neuroborreliosis.
  2. Continued research into the pathogenesis (that is, immune response, cross-reactivity, autoimmunity, bacterial persistence, CO-INFECTIONS AND OTHER MECHANISMS) of persistent symptoms in patients who have received standard treatment regimens FOR TICK-BORNE DISEASES INCLUDING LYME DISEASE.
  3. CONDUCT ADDITIONAL CLINICAL TRIALS APPROPRIATE TO THE TARGET POPULATIONS WHERE GAPS MAY EXIST
  4. IMPROVE THE EDUCATION AND RESEARCH ON THE PATHOGENESIS OF ALPHAGAL MEAT ALLERGY.

https://www.hhs.gov/ash/advisory-committees/tickbornedisease/index.html

# Causes and Treatment Chapter

- Prior voted on recommendations continued
  5. (INCLUDING TRANSMISSION VIA THE BLOOD SUPPLY AND PREGNANCY), AND TREATMENT OF OTHER TICK-BORNE DISEASES AND CO-INFECTIONS.

# Causes and Treatment Chapter

- New proposed recommendations
  - ~~**Recommendation 1:** DoD: Commence study of TBD incidence and prevalence of U.S. active and retired military and military families. Compile data on impact of TBD on military readiness. Create education and preparedness programs specifically geared to unique risks faced by military in training and deployment. See~~ see next slide for the actual recommendation that was voted on
  - **Recommendation 3 ~~2~~:** NIH: Create NIH TBD strategic plan, with public input during creation and implementation, to address tick-borne diseases including all stages of Lyme disease and coordinate research funding across NIAID, NINDS, NIAMS and NIMH to increase knowledge of pathogenesis, improve diagnosis and develop and test new therapeutics for tick borne diseases. Update every 5 years.
  - **Recommendation 4 ~~3~~:** CDC: ~~Create specific *Babesia* section within CDC and~~ Dedicate funding within CDC with performance indicators to study babesiosis incidence, prevalence, treatment resistance, and prevention including maternal-fetal and transplantation/transfusion transmission risk. Consider using advanced data tools such as patient registries to study potential role of *Babesia* in tick borne disease patients with continuing manifestations of disease after initial treatment.

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# Causes and Treatment Chapter

- New proposed recommendations
  - **Recommendation 1:** DoD: Commence study of TBD incidence and prevalence of U.S. active duty and their dependents. Compile data on impact of TBD on military readiness. Create education and preparedness programs specifically geared to unique risks faced by military in training and deployment and their families.
  - **Recommendation 2:** VA: Commence study of TBD incidence and prevalence of veterans and eligible family members.

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# Causes and Treatment Chapter

- Minority Opinions
  - Rob Smith

# Causes and Treatment Chapter

- Patient Story Recommended

| Impact – compelling people, compelling story | Anecdote that represents data-driven, evidence-based common problem, so the story conveys some bigger idea highlighted by the report | Diversity |
|---|---|---|
| Retired Colonel Nicole Malachowski, USAF. Had an expanding EM rash on her hip after training in NC. Dx spider bite, TBD not mentioned, was given 10 days of abx and a cream. Over the next month, developed malaise, parasethsias, and then a few months later developed neurological symptoms that manifested when she was piloting an F-15 over the Atlantic Ocean. A year later, received another tick bite during training in Rhode Island, told to wait to see if rash developed. No mention from doctor of co infections. Tested CDC positive for Bb. Treated with 28 days doxy but did not resolve symptoms. Dx from Spaulding TBD center with co infections anaplasma, babesia, RFS infection. Saw two dozen doctors across eight specialties, including doctors at VA and at top tier academic institutions, no one knew what was wrong. Misdiagnosed with CFS, and fibromyalgia. Had to medically retire from Air Force, can never fly again in military or for commercial airlines. | • Contracted LD in state adjacent to endemic state, rash misdiagnosed and so insufficiently treated, late stage neurologic symptoms missed by many specialties | Female, military |

# Access to Care Chapter

- Prior voted on recommendations
  1. CREATE A FEDERAL REPOSITORY FOR INFORMATION ON LYME DISEASE AND OTHER TICK-BORNE DISEASES TO ENCOMPASS:
  2. Allocate increased funding for tick-borne disease in the area of research, treatment, and prevention PROPORTIONAL TO BURDEN OF ILLNESS AND NEED
  3. Protection from job discrimination due to Lyme and TBDs
  4. Protection for students of all ages from discrimination due to Lyme and TBDs
  5. TESTING AND DIAGNOSTIC BANDS – HOW THEY ARE USED TODAY AND WHAT THAT IS DOING TO PATIENTS.

# Access to Care Chapter

- New proposed recommendations continued

***5/16 AGREED ON INTENT NOT EXACT LANGAUGE* VOTE REQUIRED:**

- **Recommendation 3:** Ensure the rights of ~~all~~ ~~patients~~ those dealing with Lyme disease and TBDs by reducing the burden of the processes under which patients are currently diagnosed and treated and by which they access care. Basic protections must include, but not necessarily be limited to, those that:

*(3a) Protect patients from employment discrimination.*

*(3b) Protect students of all ages from discrimination.*

*(3c) Protect patients from ~~medical~~ healthcare and disability insurance coverage and reimbursement policies that are unduly burdensome.*

*(3d) Protect the rights of licensed and qualified clinicians to use individual clinical judgment, as well as recognized guidelines, to diagnose and treat patients in accordance with the needs and goals of each individual patient.*

FORMER LANGUAGE FOR REFERENCE:

(#3) Protection from job discrimination due to Lyme and TBDs

(#4) Protection for students of all ages from discrimination due to Lyme and TBDs

# Access to Care Chapter

- Minority Opinions
  - None

# Access to Care Chapter

- Patient Story Recommended

| Impact – compelling people, compelling story | Anecdote that represents data-driven, evidence-based common problem, so the story conveys some bigger idea highlighted by the report | Diversity |
|---|---|---|
| Julia Bruzzese, who testified at open hearing. Told not to worry after presenting to NYC pediatrician with bullseye rash, was documented in her medical records. 6 years later she developed severe systemic symptoms, could no longer walk. Was told that a negative ELISA meant she didn't have Lyme disease. Had multiple co infections, none of which were diagnosed by doctors. She was accused of faking her illness. | • Doctors didn't understand that she should be treated for Lyme. (Medical education)<br>• Acute diagnostic wasn't available (diagnostics)<br>• She missed immense amounts of school, was dismissed by medical establishment, who did not recognize her symptoms (access to care)<br>• Multiple co-infections which were not diagnosed and doctors were not aware of them | Pediatric population, female |

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# Discussion of Images and Infographics

### Background

- Figure 1. # Cases Lyme disease in US over time (p 3)
- Figure 2. Cases of PTLDS over time (n/a)
- Figure 3. Funding of Lyme disease vs other illnesses (n/a)

### Epi and Ecology

- Figure 4. Disease cases by state 2004-2016 (p 9)
- Figure 5. Distribs of scapularis & pacificus (p 10)
- Figure 6. Tick life cycle (p 12)

### Prevention

- Figure 7. Applying DEET (p 16)
- Figure 8. Walk in the woods (p 18)
- Figure 9. Landscaping prevention (p 20)
- Table 1. Vaccine Table (in word document for Chapter, prior slide)

### Diagnosis

- Figure 10. EM rash (p 24)

### Cause and Treatment

- Figure 11. RMSF, Babesia, Anaplasma (p 31)
- Figure 12. B. burgdorferi organisms (p 32)

### Access to Care

- Figure 13. Health claim form (p 37)
- Figure 14. Provider and patient talking (p 40)

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# Technical Issue Briefs

- Work is still being done to finalize the Working Group Report to Congress
- This topic will be addressed at the July 24, 2018 meeting.

https://www.hhs.gov/ash/advisory-committees/tickbornedisease/index.html

# Review of Meeting #6 and Next Steps

| Report Process | Due Dates |
|---|---|
| Incorporate new approved recommendations into WG Report | June 22, 2018 |
| Finalize content and writing of report based on final list of recommendations | June 25 – July 8, 2018 |
| TBDWG members review of final document<br>• Minor adjustments made | July 9 – 13, 2018 |
| Final report "locked down" due | July 16, 2018 |
| Final report copyedited and 508 compliance occurs | July 17 – 23, 2018 |
| Final Virtual Meeting #7 to vote on final WG report chapter by chapter | July 24, 2018 |
| Final Report released for HHS agencies, DoD, and VA for comment | July 30, 2018 |

https://www.hhs.gov/ash/advisory-committees/tickbornedisease/index.html

# Review of Meeting #6 and Next Steps cont'd

| Report Process | Due Dates |
|---|---|
| HHS agencies, DoD, and VA review due | August 30, 2018 |
| Document revision due | September 30, 2018 |
| Final HHS agencies, DoD, and VA clearance complete | November 1, 2018 |
| Revision and final desktop publishing complete | November 14, 2018 |
| Final review for typographical errors plus 508 compliance complete | November 21, 2018 |
| Submit final report to Congress | December 18, 2018 |
| Final report posted on the TBDWG webpage for public comment | December 18 2018 |

https://www.hhs.gov/ash/advisory-committees/tickbornedisease/index.html

# Before We Adjourn . . .

# Thank You!

**to everyone who worked to make**
**this meeting possible, and**
**to everyone who has provided input and suggestions,**
**and to those of you who have joined us today.**