



Delivering Disease Prevention[®]



One Health Solutions to Prevent Global Disease
Spring, 2016

Challenge: Zoonotic/Infectious Disease



"Scientists estimate that more than 6 out of every 10 infectious diseases in humans are spread from animals."

([CDC 2015](#))

Solution: One Health



One Health Disease Prevention

US BIOLOGIC focuses on One Health solutions, targeting animal populations to improve human health and food safety.



Public Health – *US BIOLOGIC* is currently implementing an oral wildlife vaccine to reduce wildlife infection of Lyme disease.



Companion Animal – The same oral vaccine technology can be reformulated into pet treats to prevent a wide range of diseases in dogs, cats, and horses.



Poultry and Livestock – In partnership with the USDA, *US BIOLOGIC* is developing an orally delivered poultry vaccine to help improve the prevention of poultry disease while avoiding the use of live parasites and antibiotics resistance.

Example: Reservoir Targeted Vaccines



Rabies



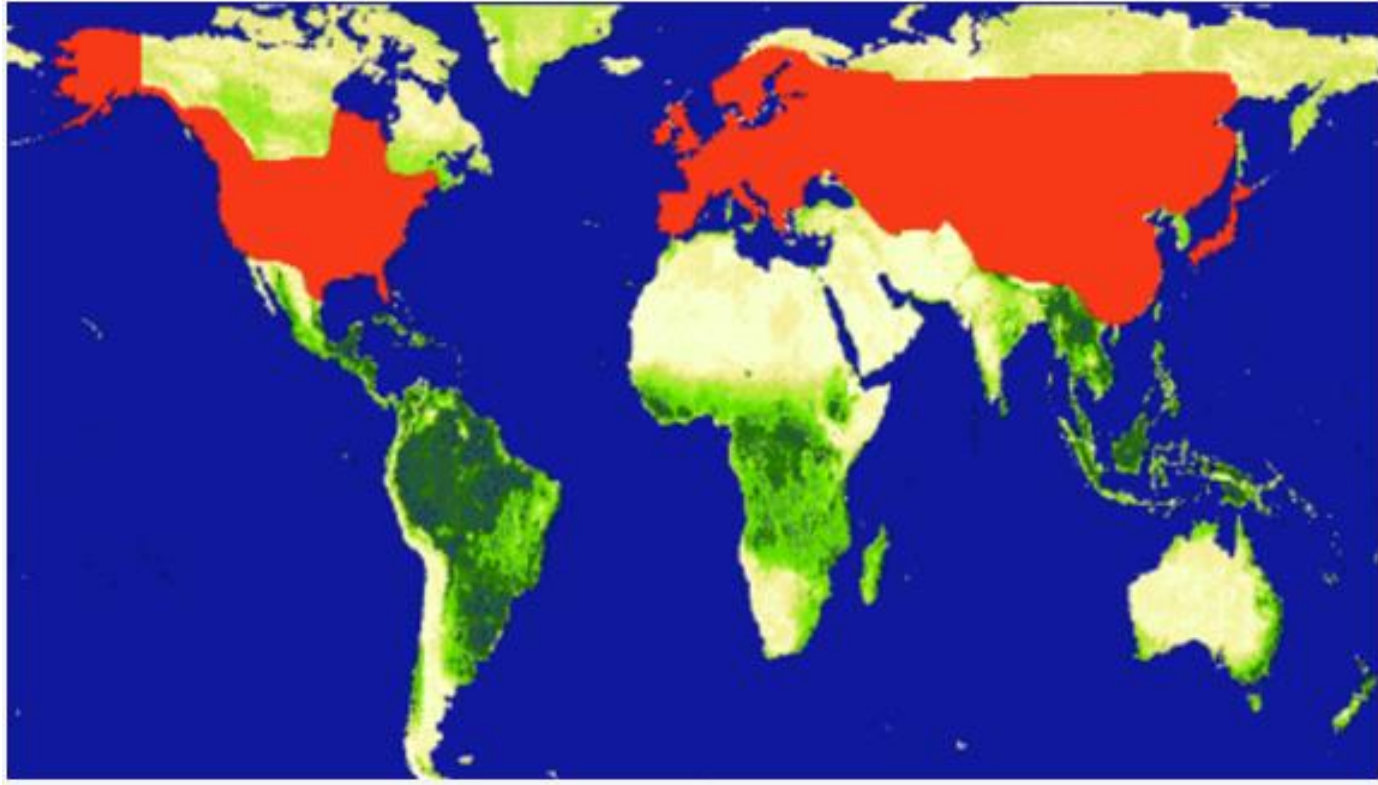
Lyme Disease



Ebola

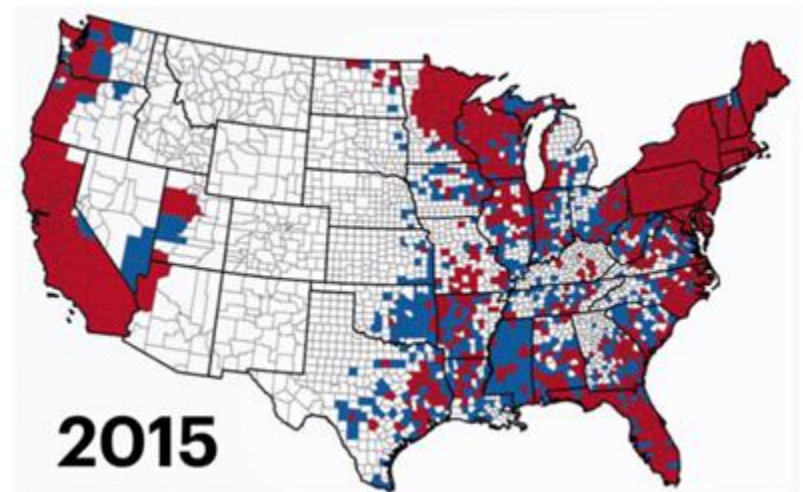
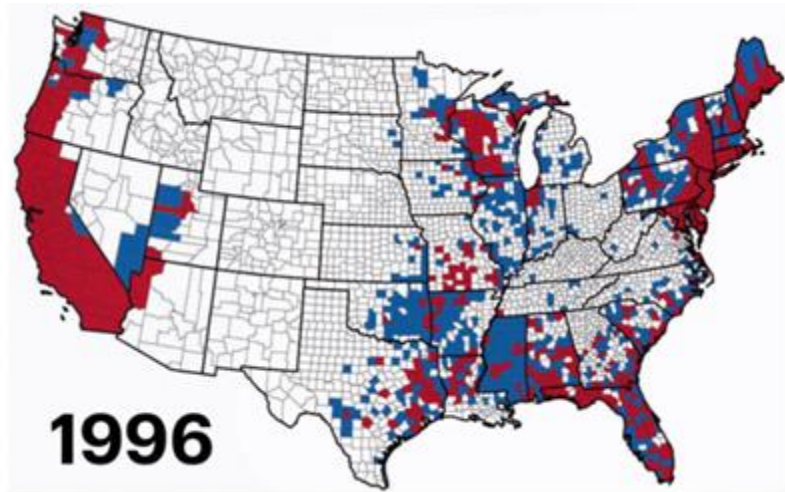
Reservoir Targeted Vaccine (RTV) Prevention Strategies Present a New and Powerful Solution.

Global Lyme Disease Epidemic



World Health Organization – Lyme Zone Countries in Red

U.S. Lyme Disease Epidemic



With an Estimated 300,000+ New Cases Each Year, Lyme Disease is the Most Commonly Reported Vector-Borne Infectious Disease in the United States. [CDC](https://www.cdc.gov)

[Lyme disease-carrying ticks are now in half of all U.S. counties](#)

Cost of Lyme Disease in the U.S.

Annual U.S. Cases of Lyme Disease
[Centers for Disease Control and Prevention](#)

300,000

Direct Medical Costs, Indirect Medical Costs, Lost
Income, Lost Taxes, and Related Lyme Disease
Costs Per Case as reported in the CDC's *Emerging
Infectious Diseases* and adjusted for 2014 dollars.

X \$10,769

Total Annual
Cost Burden

\$3,230,700,000

Emotional and Physical Costs

Clinical Manifestations

- Arthritic Disorders
- Neurologic Disorders
- Lyme Carditis



Integrated Pest Management



Reservoir
Targeted
Vaccine



Education



Behavioral

Integrated Pest Management



Vector Control



Mating Host
Control

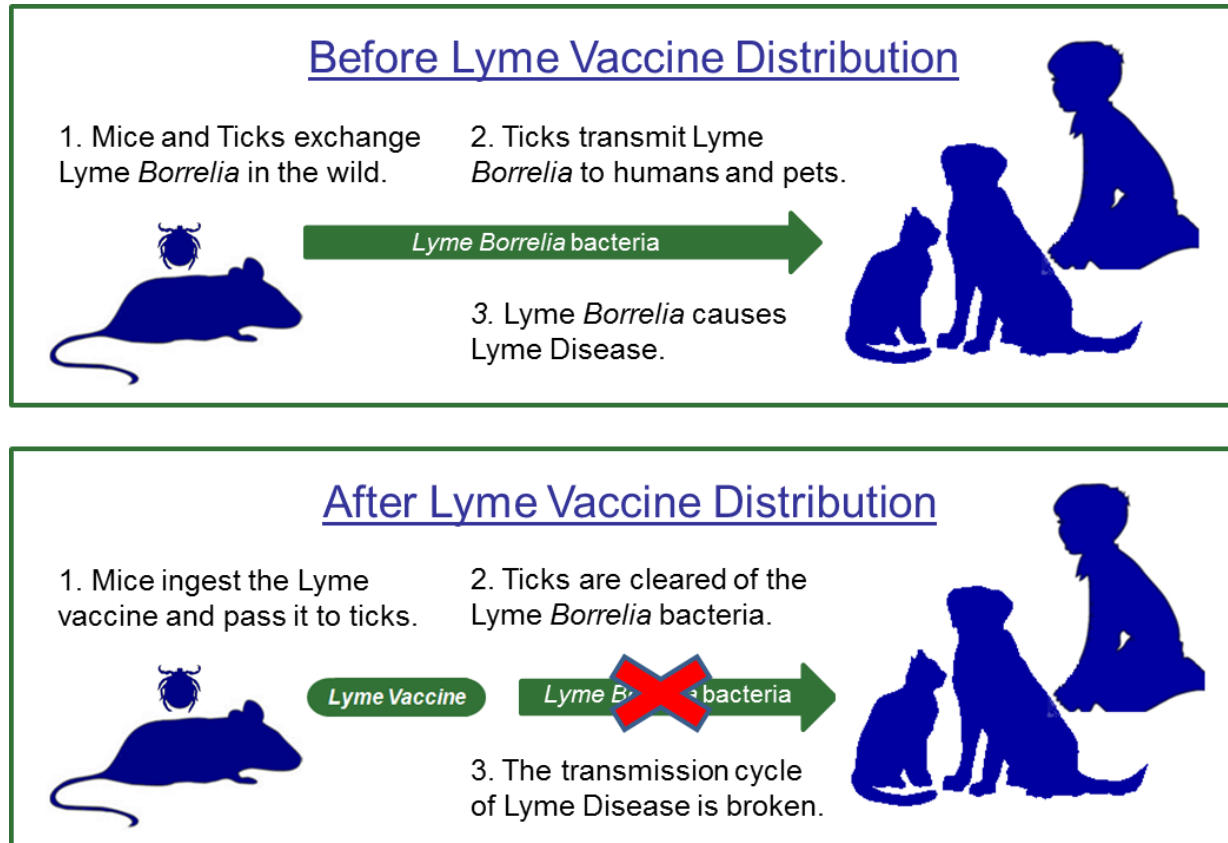


Landscaping

Reservoir Targeted Vaccine (RTV)

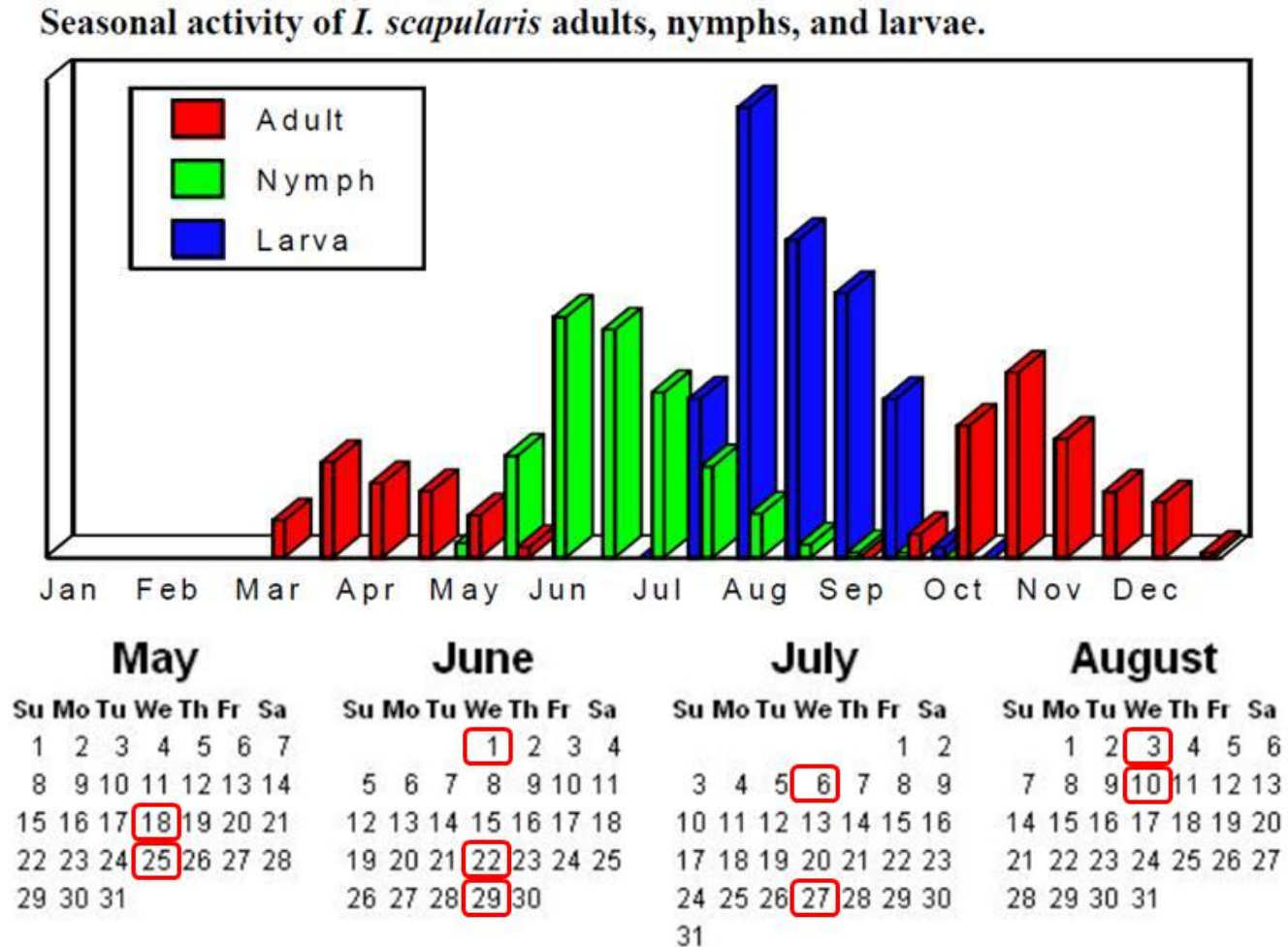


RTV for Lyme Disease



A disease prevention platform that can address multiple diseases.

Application Matched to Tick Cycle



Timed vaccine application to accommodate multiple cohorts of mice

Public / Private Application



Private Application

- Residential, farms, ranches, universities, schools, camps, corporate campuses, country clubs, golf courses, etc.



Two-Sided Trails

- Fields, forests, etc.
- Each one-sided mile = 20 protected acres



One-Sided Trails

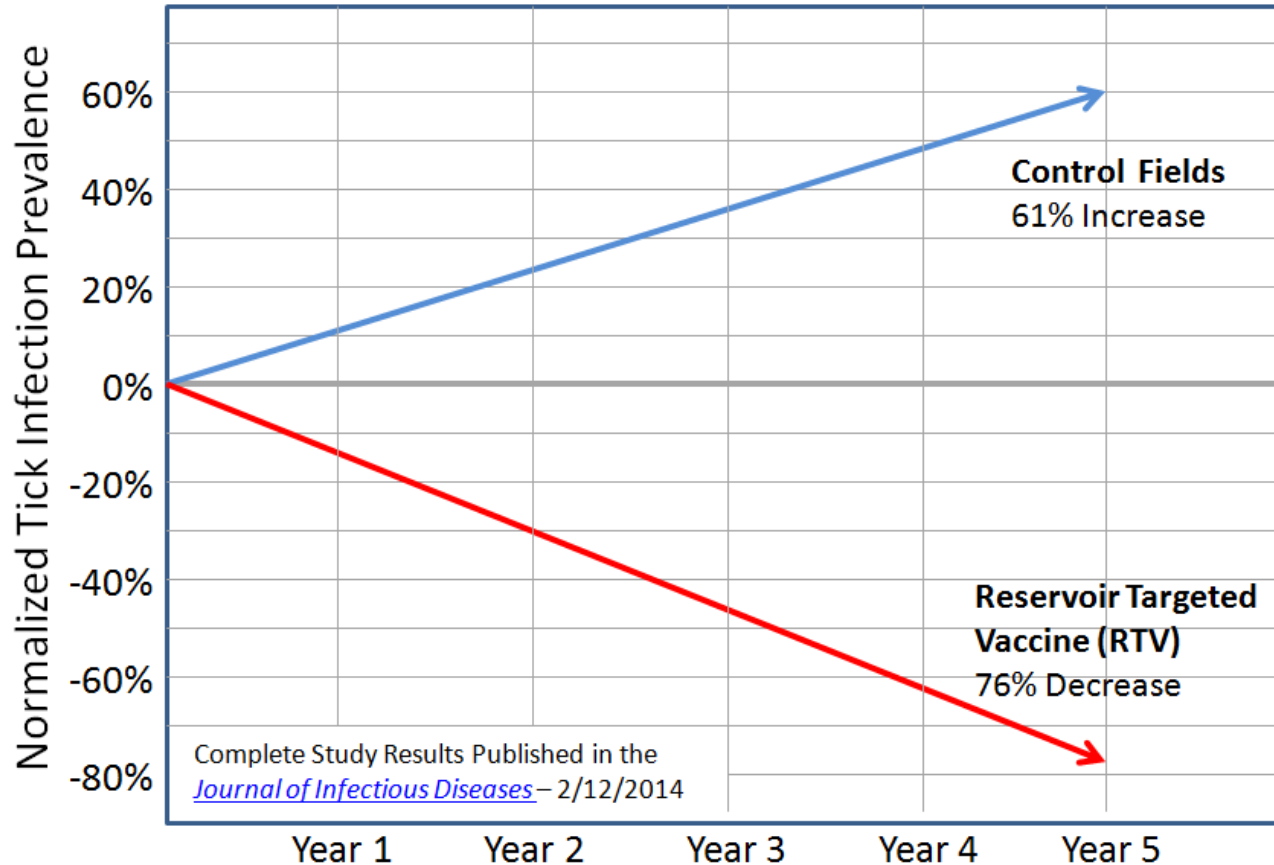
- Lakes, rivers, etc.
- Each one-sided mile = 10 protected acres



Recreational Areas

- Parks, playgrounds, campgrounds, hiking trails, golf courses, sports fields, etc.
- Application by protected acre

Reduction in Infected Ticks



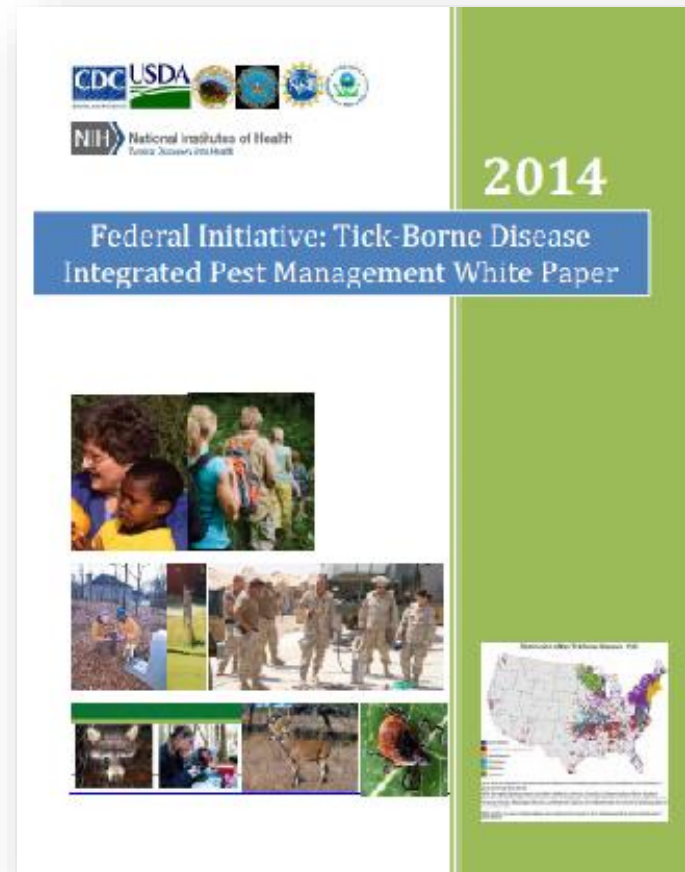
Recent studies in partnership with the state of **Connecticut** have reported equally compelling reductions in tick infection.

Biodiversity & Healthy Ecosystems

“EPA recognizes the importance of healthy ecosystems for our health and well-being, and conserving biodiversity is a primary way to sustain healthy ecosystems and the services they provide to us.”

US BIOLOGIC is committed to protecting biodiversity and healthy ecosystems.

<http://www.epa.gov/pestwise/ticks/tick-ipm-whitepaper.pdf>



US BIOLOGIC Technology Recognition

HON. STEVE COHEN
OF TENNESSEE
IN THE HOUSE OF REPRESENTATIVES
Monday, December 2, 2013

Mr. COHEN. Mr. Speaker, today I would like to recognize the work of Memphis-based U.S. Biologic in their work to halt the spread of Lyme disease. U.S. Biologic was recently awarded a grant of \$1 million from the Global Food and Health Innovation Challenge to expand their research on this important topic and I am proud to honor the hard work of their dedicated research team, especially Maria Gomes-Solecki.

I believe that our Nation's true department of defense is made up of the doctors and researchers who work hard to find cures and prevention methods for the diseases that threaten the lives and livelihoods of Americans every day. The research of people like Dr. Gomes-Solecki is integral in our mission to make the United States a safer place for the grandchildren of our generation, and I encourage more federal investment in the initiatives of the National Institutes of Health, as well as private funding like that provided through the Global Food and Health Innovation Challenge.

I congratulate U.S. Biologic and Dr. Gomes-Solecki on their achievement and I look forward to more developments from some of the Nation's most advanced researchers who are based in my district.

**Winner of \$1 Million
Global Food & Health
Innovation Challenge**



**Top Memphis
Innovation**

NewScientist



REUTERS

**THE
HUFFINGTON
POST**

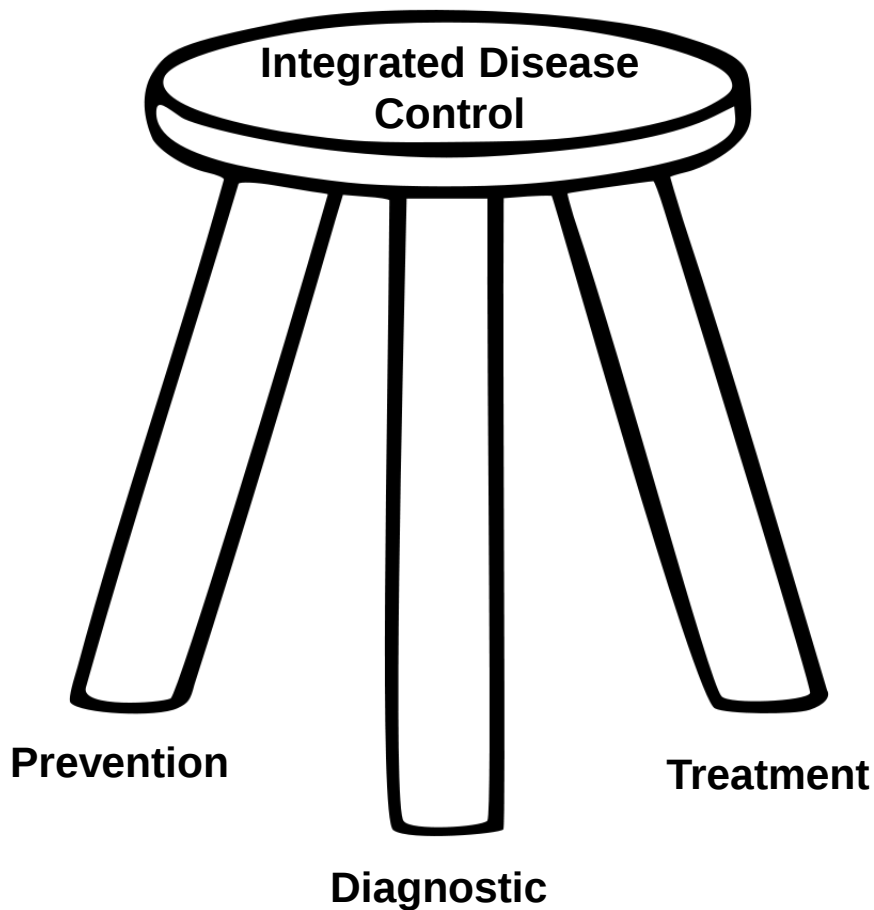


NBC NEWS

nature

**National Media
Recognition**

Integrated Disease Control



1. An integrated “One Health” approach involving medical doctors, veterinarians, and ecologists is imperative for optimal disease control.
2. Implementing evidence-based solutions to reduce the prevalence of *Borrelia* at its source is critical to sustainable long-term disease control.
3. The disease prevention platform must be expanded to prevent all tick-borne disease.
4. Prevention programs will be leveraged to scientifically support and fund human diagnostic and treatment research.
5. Big Data integration is required to identify, protect, and monitor disease hot zones and human incidence of tick-borne disease.

US BIOLOGIC Leadership Team



Mason Kauffman
Chief Executive Officer



Chris Przybyszewski
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Steve Zatechka, PhD
Chief Operating Officer



Ed Robb, DVM
Chief Science Officer



Tom Monath, MD
Board Member
Retired Director, CDC
Retired Chief, USAMRIID
One Health Leader



Dave Williams
Board Member
Retired Chairman &
CEO of SANOFI



Gov. Tommy Thompson
Board Member
WI Governor for 14 years
U.S. Secretary of Health
& Human Services



Mike Shmerling
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Delivering Disease Prevention



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