May 1, 2017

Dear Member of the One Hundred and Fifteenth Congress:

Lyme Disease is the fastest growing vector-borne infectious disease in the United States, according to the Centers for Disease Control. Although sometimes thought of as just an "East Coast problem", Lyme disease and associated co-infections are now found in all 50 states and world-wide. Early detection and treatment are essential to prevent the long-term, disabling symptoms associated with chronic Lyme disease.

Chronic tick-borne diseases can be both emotionally and financially devastating to individuals and families and to the productivity of our country. In 2012, approximately half of all adults (49.8%, 117 million) had at least 1 of 10 selected chronic conditions, 24.3% had 1 chronic condition, 13.8% had 2 conditions, and 11.7% had 3 or more conditions.

By one estimate, chronic diseases cost more than \$2.5 trillion each year, and according to the WHO, we spend more on health care expenditures than almost any other country, yet we rank 37^{th} in overall health among 193 countries surveyed. Our total expenditures on health as a percentage of GDP has risen from 9.0% in 1980, to 17.9% in 2010, and that trend is predicted to continue to rise into the next decade. Where do these costs come from?

Treating people with chronic diseases accounts for 86% of our nation's health care costs, and despite these staggering figures, chronic diseases are on the rise. The prevalence of autism in the US has risen from 1/150 cases in 2000 to 1 in 68 in 2012. Every 67 seconds someone in the US is diagnosed with Alzheimer's disease. Autoimmune diseases like rheumatoid arthritis and multiple sclerosis (MS) affect over 50 million Americans. Chronic Fatigue Syndrome/Myalgic Encephalomyelitis and Fibromyalgia together affect 5% of the US population. Per the CDC, infectious diseases like Lyme disease have increased 10-fold since 2013, with close to 400,000 individuals affected every year, and the number of high-risk counties has increased by 320% over the past two decades. These figures do not account for increased numbers of associated tickborne infections. Apart from causing increased morbidity and mortality, what do these diseases have in common? Our medical system claims it has no answers. It often treats end stage manifestations of these illnesses with drugs, which can be expensive and ineffective, without identifying preventable and treatable causes. This aspect of the health care system is broken. Is there a solution?

I have been a physician for more than three decades, and treated over 12,000 Lyme patients who have failed the traditional health care model. Many of these individuals go to 10-20 physicians before getting a proper diagnosis, and oftentimes are diagnosed with Chronic Fatigue Syndrome/Myalgic Encephalomyelitis, Fibromyalgia, an autoimmune illness like rheumatoid arthritis or MS, or early dementia. Lyme is known as the great imitator, mimicking these different illnesses. In searching for answers for these patients, I have identified up to 16 reasons why they remain chronically ill. I call this syndrome "Multiple Systemic Infectious Disease Syndrome" (MSIDS). The first point on the MSIDS map is infections. Ticks now contain

multiple infections which can be transmitted simultaneously with *Borrelia burgdorferi*, the agent of Lyme disease, and patients with Lyme-MSIDS also have evidence of environmental toxins, inflammation and detoxification problems. Why do we need to address chronic infections, environmental toxins and inflammation in our health care model?

The CDC has identified cancer, cardiovascular and respiratory diseases as some of the top leading causes of death and disability in the US. These diseases as well as many others, have now been shown to have a direct link to environmental pollutants. We are constantly exposed to hundreds of environmental toxins every day, and scientific studies have shown that these toxins have been associated with cardiovascular disease, cancer, autoimmune disease, as well as neurodegenerative diseases like ALS, autism and Alzheimer's disease. Lyme disease spirochetes have also now been found in the brains of Alzheimer's patients and have been linked with autoimmune manifestations. Infections and toxins increase inflammation, and inflammation is a common denominator underlying chronic diseases, costing taxpayers billions of dollars every year. I would ask every member of Congress to please ensure that their funding and priorities in health care are commensurate with the severity and extent of the chronic epidemics we face, and ensure that federal agencies are held accountable for fulfilling their mandate to prevent and control diseases.

There is a commonly held belief in medicine, called Pasteur's postulate that there is "one cause for one disease", yet scientific advances have disproven this theory. According to the National Census Bureau, 19% of Americans are disabled, so improved prevention, diagnosis and treatment of chronic illnesses like Lyme disease is essential. I assisted with drafting **H.R. 4701**, **the Tick-borne Disease Research Accountability and Transparency Act**, which became part of the 21st Century Cures Act, H.R. 6, and was signed into law in December 2016 by President Obama. The Act will give patients, advocates and their treating physicians a seat at the table, will increase oversight and accountability over tick-borne research, and requires the Secretary of Health and Human Services, informed by the working group report, to submit a strategic plan to Congress on a regular basis. This plan will include benchmarks to measure progress.

May is Lyme Awareness month. Let's not forget the role of Lyme disease, chronic infections and toxins increasing costs of chronic illness. If we change the paradigm of American health care, emphasizing a more personalized, precision medical approach as modeled by the MSIDS model, perhaps we can together solve the health care challenges facing us in the 21st century. I have enclosed a copy of my new bestselling book: "How Can I Get Better? An Action Plan for treating Resistant Lyme & Chronic Disease" that describes the diagnosis, treatment, and prevention of chronic illnesses. Let's make American healthy again. I look forward to working with you in the future.

Very truly yours,

Richard Horowitz, M.D.

References:

- Ward BW, Schiller JS, Goodman RA. Multiple Chronic Conditions Among US Adults: A 2012 Update. Prev Chronic Dis 2014;11:130389. doi: http://dx.doi.org/10.5888/pcd11.130389
- WHO Statistical Information System (WHOSIS)
 http://www.photius.com/rankings/total_health_expenditure_as_pecent_of_gdp_2000_to_2005.html and
 http://www.who.int/whosis/
- 2013 CIA World Factbook and Other Sources: http://www.geographic.org/world_fact_book_2013/united_states/united_states_economy.html
- 4. The World Health Report 2000 Health systems: Improving performance. Published by the World Health Organization, Geneva, Switzerland. ISBN 92 4 156198 X. Full report is available on www.who.int/whr
- 5. Kochanek KD, Murphy SL, Xu JQ, Tejada-Vera B. Deaths: Final data for 2014. National vital statistics reports; vol 65 no 4. Hyattsville, MD: National Center for Health Statistics. 2016.
- WHO. International statistical classification of diseases and related health problems, tenth revision (ICD-10). 2010 ed. Geneva, Switzerland. 2011.
- National Center for Health Statistics. U.S. census populations with bridged-race categories. 2016. https://www.cdc.gov/nchs/nvss/bridged_race.htm
- 8. Arias E. United States life tables, 2008. National vital statistics reports; vol 61 no 3. Hyattsville, MD: National Center for Health Statistics. 2012.
- 9. National Vital Statistics Report https://www.cdc.gov/nchs/data/nvsr/nvsr61/nvsr61_03.pdf
- 10. http://lymestats.org/
- 11. Facts and Statistics. Autism Society http://www.autism-society.org/what-is/facts-and-statistics/
- 12. Yoon PW, Bastian B, Anderson RN, Collins JL, Jaffe HW. Potentially preventable deaths from the five leading causes of death—United States, 2008–2010. MMWR Morb Mortal Wkly Rep 2014;63:369–74.
- 13. https://www.ncbi.nlm.nih.gov/pubmed/24785982
- 14. Heron M. Deaths: leading causes for 2014. Natl Vital Stat Rep 2016;65(5):1–96. https://www.cdc.gov/nchs/data/nvsr/nvsr65/nvsr65_05.pdf
- 15. Bauer UE, Briss PA, Goodman RA, Bowman BA. Prevention of chronic disease in the 21st century: elimination of the leading preventable causes of premature death and disability in the USA. Lancet 2014;384:45-52.
- 16. https://www.ncbi.nlm.nih.gov/pubmed/24996589
- 17. Ryerson AB, Eheman CR, Altekruse SF, et al. Annual report to the nation on the status of cancer, 1975–2012, featuring the increasing incidence of liver cancer. Cancer 2016;122:1312–37. https://www.ncbi.nlm.nih.gov/pubmed/26959385
- 18. Jamal A, Homa DM, O'Connor E, et al. Current cigarette smoking among adults—United States, 2005–2014. MMWR Morb Mortal Wkly Rep 2015;64:1233–40. https://www.cdc.gov/mmwr/preview/mmwrhtml/mm6444a2.htm
- Scheib LJ, Greer SA, Ritchey MD, George MG, Casper ML. Vital signs: avoidable deaths from heart disease, stroke, and hypertensive disease—United States, 2001–2010. MMWR Morb Mortal Wkly Rep 2013;62:721–7. https://www.cdc.gov/mmwr/preview/mmwrhtml/mm6235a4.htm
- Centers for Disease Control and Prevention. Final 2013 reports of nationally notifiable infectious diseases. MMWR Morb Mortal Wkly Rep. 2014;63:702 . https://www.cdc.gov/mmwr/preview/mmwrhtml/mm6332a6.htm
- 21. Johnson L, Wilcox S, Mankoff J, Stricker RB (2014) Severity of chronic Lyme disease compared to other chronic conditions: A quality of life survey. PeerJ 2: e322. https://peerj.com/articles/322/
- 22. Nelson CA, Saha S, Kugeler KJ, Delorey MJ, Shankar MB, et al. (2015) Incidence of clinician-diagnosed Lyme disease, United States, 2005–2010. Emerg Infect Dis: 21.4. https://wwwnc.cdc.gov/eid/article/21/9/15-0417_article

- 23. Kugeler KJ, Farley GM, Forrester JD, Mead PS (2015) Geographic distribution and expansion of human Lyme disease, United States. Emerging Infectious Diseases 21: 1455-1457. https://wwwnc.cdc.gov/eid/article/21/8/pdfs/14-1878.pdf
- Eisen RJ, Eisen L, Beard CB (2016) County-scale distribution of Ixodes scapularis and Ixodes pacificus (Acari: Ixodida e) in the continental United States. Journal of Medical Entomology 2016 Mar;53(2):349-386. https://www.ncbi.nlm.nih.gov/pubmed/26783367
- 25. Newman EA, Eisen L, Eisen RJ, Fedorova N, Hasty JM, et al. (2015) Borrelia burgdorferi sensu lato spirochetes in wild birds in northwestern California: Associations with ecological factors, bird behavior and tick infestation PLoS ONE 10: e0118146. http://journals.plos.org/plosone/article?id=10.1371/journal.pone.0118146
- 26. Berndtson K (2013) Review of evidence for immune evasion and persistent infection in Lyme disease. International Journal of General Medicine 6: 291–306. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3636972/
- 27. Selmi C. The worldwide gradient of autoimmune conditions. Autoimmun Rev. 2010; 9: A247-A250. https://www.ncbi.nlm.nih.gov/labs/articles/20144744/
- 28. Parks CG, Miller FW, Pollard KM, Selmi C, Germolec D, Joyce K, et al. Expert panel workshop consensus statement on the role of the environment in the development of autoimmune disease. Int J Mol Sci. 2014; 15: 14269-14297. https://www.ncbi.nlm.nih.gov/pubmed/25196523
- 29. Allen HB, Morales D, Jones K, Joshi S. Alzheimer's Disease: A novel hypothesis integrating spirochetes, biofilm, and the immune system. J Neuroinfect Dis. 2016;7:200. doi:10.4172/2314-7326.1000200.
- 30. Bu X- L, et al. A study on the association between infectious burden and Alzheimer's disease. Eur J Neurol. 2015 Dec;22(12):1519–25. doi: 10.1111/ene.12477. Epub 2014 Jun 9.
- 31. Jung C- R, Lin Y- T, Hwang B- F. Ozone, particulate matter, and newly diagnosed Alzheimer's disease: A population-based cohort study in Taiwan. J Alzheimer's Dis. 2015;44:573–584. DOI 10.3233/JAD-140855
- 32. Annen, K. et al. Two cases of Transfusion- Transmitted Anaplasma phagocytophilum. Am J Clinl Path. Apr 2012;137(4):562–565.
- 33. Fernandes EC, et al. Exposure to air pollutants and disease activity in juvenile- onset systemic lupus Erythematosus Patients. Arthr Care Res. Nov 2015;67,(11):1609–1614.
- 34. Rudenko, N., et al. Isolation of live Borrelia burgdorferi sensu lato spirochetes from patients with undefined disorders and symptoms not typical for Lyme borreliosis. Clin Microbiol Infect. Dec 2015 7. pii: S1198-743X(15)00991- X. doi 10.1016/j.cmi.2015.11.009.
- 35. Kumar P, Marshall BC, Deblois G, Koch WC. A cluster of transfusion- associated babesiosis in extremely low birthweight premature infants. J Perinatol. 2012;32:731–733.
- 36. Grandjean P, Landrigan PJ. Neurobehavioural effects of developmental toxicity. Lancet Neurol. 2014;13:330–338. Published online February 15, 2014. http://dx . doi . org / 10 . 1016 / S1474 4422 (13)70278 3
- 37. Chen A, Yolton K, Rauch SA, Webster GM, Hornung R, Sjödin A, Dietrich KN, Lanphear BP.
- 38. Prenatal Polybrominated Diphenyl Ether Exposures and Neurodevelopment in U.S. Children through 5 Years of Age: The HOME Study. Environmental Health Perspectives, 2014; DOI:10.1289/ehp.1307562
- 39. Sagiv SK, Th urston SW, Bellinger DC, Amarasiriwardena C, Korrick SA. Prenatal exposure to mercury and fish consumption during pregnancy and attention- defi cit/hyperactivity disorder– related be havior in children. Arch Pediatr Adolesc Med. 2012 Dec;166(12):1123–31. doi: 10.1001/archpediatrics.2012.1286.
- 40. Shelton JF, Geraghty EM, Tancredi DJ, Delwiche LD, Schmidt RJ, Ritz B, et al; and the CHARGE Study. Neurodevelopmental disorders and prenatal residential proximity to agricultural Pesticides. Environ Health Perspect. doi:10.1289/ehp.1307044. http://ehp.niehs.nih.gov/1307044/.
- 41. Horowitz RI. Why can't I get better? Solving the mystery of Lyme and chronic disease". St Martin's Press, NYC, 2013.
- 42. Horowitz RI. How can I get better? An action plan for treating resistant Lyme and chronic disease. St Martin's Press, NYC, February 2017.