Models of Lyme Borreliosis

Lyme borreliosis (LB) is an infection caused by the spirochetal bacteria *Borrelia burgdorferi*. The Infectious Disease Society of America (IDSA) is a trade group promoting the interests of infectious disease specialists who promote the restrictive model through an extensive public relations campaign.

Restrictive Model of Lyme Borreliosis	Biological Model of Lyme Borreliosis
Clinicians should diagnose LB only when certain of *Bb* infection. They should rely heavily on seeing an EM rash and blood tests for antibodies interpreted rigidly.	Clinicians should diagnose LB just as they do any other medical condition, by evaluating the complete clinical presentation, history, and test results.
LB rarely causes serious disability or death.	LB causes disability and possibly death. This is well-documented.
LB should be regarded as new disease where knowledge of other diseases is used selectively to reinforce a policy that it should be diagnosed as seldom as possible.	LB is a spirochetal infection similar to syphilis. Until we have substantial evidence to believe otherwise, we should use our knowledge of syphilis to diagnose and treat.
LB is caused exclusively by lengthy attachment of specific species of ticks during summer months.	While LB can be caused by tick bites, there are many confirmed cases where it is highly unlikely, nearly impossible, that a tick transmitted the infection. Also, a person can be bitten by a tick and infected without seeing or feeling it, so depending on observed tick bite for diagnosis is extremely risky.

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LB is highly isolated to specific geographic areas, particularly in the U.S.	LB has been found in every state. With modern transportation, the infection is readily transported from state to state by humans and animals. There is no active surveillance of areas assumed to be non-endemic. Doctors can be sanctioned for testing in non-endemic areas and when positive test results **are** found, they are declared false solely because of location.
LB should be treated with a strictly limited set of antibiotics for a predetermined number of days.	Any practical antibiotic treatment should be used based on literature, experience, and the case at hand. The antibiotics that work best should be used until the infection is under control.
If a patient remains ill after the predetermined course of antibiotics, it should be assumed that a new disease process is causing the illness and antibiotic treatment should be stopped.	As with any infectious disease, if a course of antibiotics is not successful in treating an infected person, the most likely reason is that the infection has not been controlled or eliminated. The most responsible course is to continue treating with antibiotics.
When DNA/RNA tests (PCRs) are positive for *Bb* after treatment, this is because dead bacteria remain in the body.	A positive PCR for *Bb* is the most definite objective evidence of continued infection, although often insensitive to detecting *Bb* infection. Experimentally infected mammals rapidly clear dead *Bb*.

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If any other cause of illness is possible, that should be diagnosed before LB, even if that diagnosis is for a condition where there is no effective treatment.	After considering all possibilities, if LB is the most likely cause, treatment for LB should be initiated. Response should be monitored to assess whether observations support or contradict the working diagnosis.
Antibiotic treatments carry high risk of causing side effects and/or serious complications.	Antibiotics are among the safest drugs available. The benefits of successful antibiotic treatment far outweigh any side effects.
Antibiotic treatment for LB creates clinically significant antibiotic-resistant bacteria.	Antibiotic-resistant bacteria are not well understood. The most likely cause is under-treating an infection with a single antibiotic, selecting for mutants not susceptible to that antibiotic. Responsible treatment for LB rarely, if ever, produces antibiotic-resistant bacteria. *Bb* antibiotic resistance has not been observed.
If a patient shows improvement in symptoms from antibiotic treatment longer than the predetermined course, assume that this is from medicinal effects not related to killing or controlling bacteria. Anti-inflammatory and neuroprotective side effects have produced the improvement.	If a patient improves from antibiotics, by far the most likely reason is control or elimination of bacteria. Anti-inflammatory drugs alone are unsuccessful for treating LB, usually worsening the condition. If antibiotics have anti-inflammatory effects, this is a beneficial side effect.

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There is one type of human antibody response to *Bb* infection, IgM followed by IgG response which should be used to assess test results.	Human antibody response is highly variable. There are many studies and observations showing that *Bb* antibody response does not follow standard models. New IgM response often appears late in the illness.
Coinfections are not important.	There are many microbial infections, such as Babesia, Bartonella, and Anaplasma that interact with *Bb* making diagnosis and treatment complex.
There are distinct, fairly rigid disease stages of LB.	The commonly quoted disease stages of LB were borrowed from textbook descriptions of syphilis, the disease it most resembles. There has been little research or observation of LB human disease course. The only accurate way to do this would be to experimentally infect humans, not treat them, and observe. This, of course, is unethical and not performed.
Extreme fatigue, muscular aches, neurological pain, cognitive and psychological disturbance are rarely caused by LB. Any other possible cause should be diagnosed first.	All of these are well-known symptoms of LB. When they appear in combination and there is no better explanation, LB should be diagnosed and treated.
The IDSA's first priority is treating and preventing infectious diseases.	The IDSA's first priority is protecting the income, position, and convenience of infectious disease specialists.

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IDSA doctors would be the specialists most likely to provide effective LB diagnosis and treatment.	The IDSA is motivated to treat conditions where they get paid the most and can expect an easy, successful outcome by prescribing drugs best fitting pharmaceutical companies' business models. LB does not satisfy any of these criteria. It is in IDSA members best interest to deny *Bb* infection and let other specialties diagnose and treat, assuming cases of MS, Parkinson's, chronic fatigue, fibromyalgia or psychiatric disorders. IDSA members have well-compensated careers without treating LB. By not diagnosing LB, they escape responsibility for outcome.
If the IDSA were wrong they would be corrected by independent scientists.	IDSA members or like-minded reviewers exert editorial control at most prominent medical journals, particularly in the U.S. Papers presenting dissenting research are regularly suppressed. The IDSA ignores dissenting research that contradicts their model.

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The IDSA can make decisions about LB by considering only evidence from randomized placebo-controlled trials.	Little in medicine has been validated by a clinical trials. Clinical judgement and extrapolation from what we know from other conditions is important. It is irresponsible to withhold treatment until a placebo-controlled trial is completed. It is also easy to manipulate clinical trials to produce predetermined results. The IDSA picks and chooses what parts of their model requires confirmation by a clinical trial. Observations of thousands of cases can show more than a biased clinical trial that circumvents serious review.
If IDSA members were not diagnosing and treating LB responsibly, other doctors would step in to fill the void.	The IDSA participates in medical board actions that sanction doctors responsibly and successfully treating LB. Nearly all doctors in the U.S. s they could lose their license simply for testing and treating LB. It is easiest and most profitable for them to not contradict the IDSA. Medical insurers support the IDSA model and virtually all clinicians are paid by insurers. Many doctors condone, promote and enjoy patient-bashing encouraged by the restrictive model.
IDSA doctors are mainstream doctors. Doctors who treat LB practice alternative medicine.	There is nothing alternative about treating an infection with antibiotics until it is under control. Treating doctors utilize mainstream medicine to its full extent and best practice.

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Doctors who treat LB are preying on uninfected patients for financial gain.	Treating doctors show no signs of exceeding normal physician income. Most, maybe all, are at the lower end of physician income levels—if they succeed in not being run out of business. The easiest route to financial success in medicine is to cooperate with medical insurers and pursue income sources unrelated to treating patients. Doctors who treat LB often do so because a family member had the disease and after finding successful treatment for a loved one they could not in good conscience return to the restrictive model.