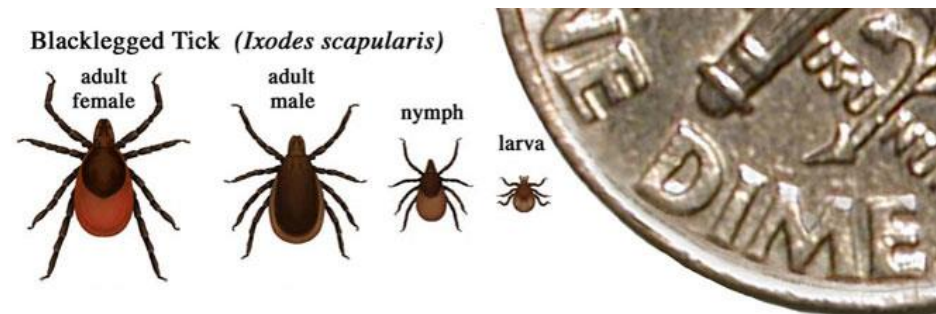
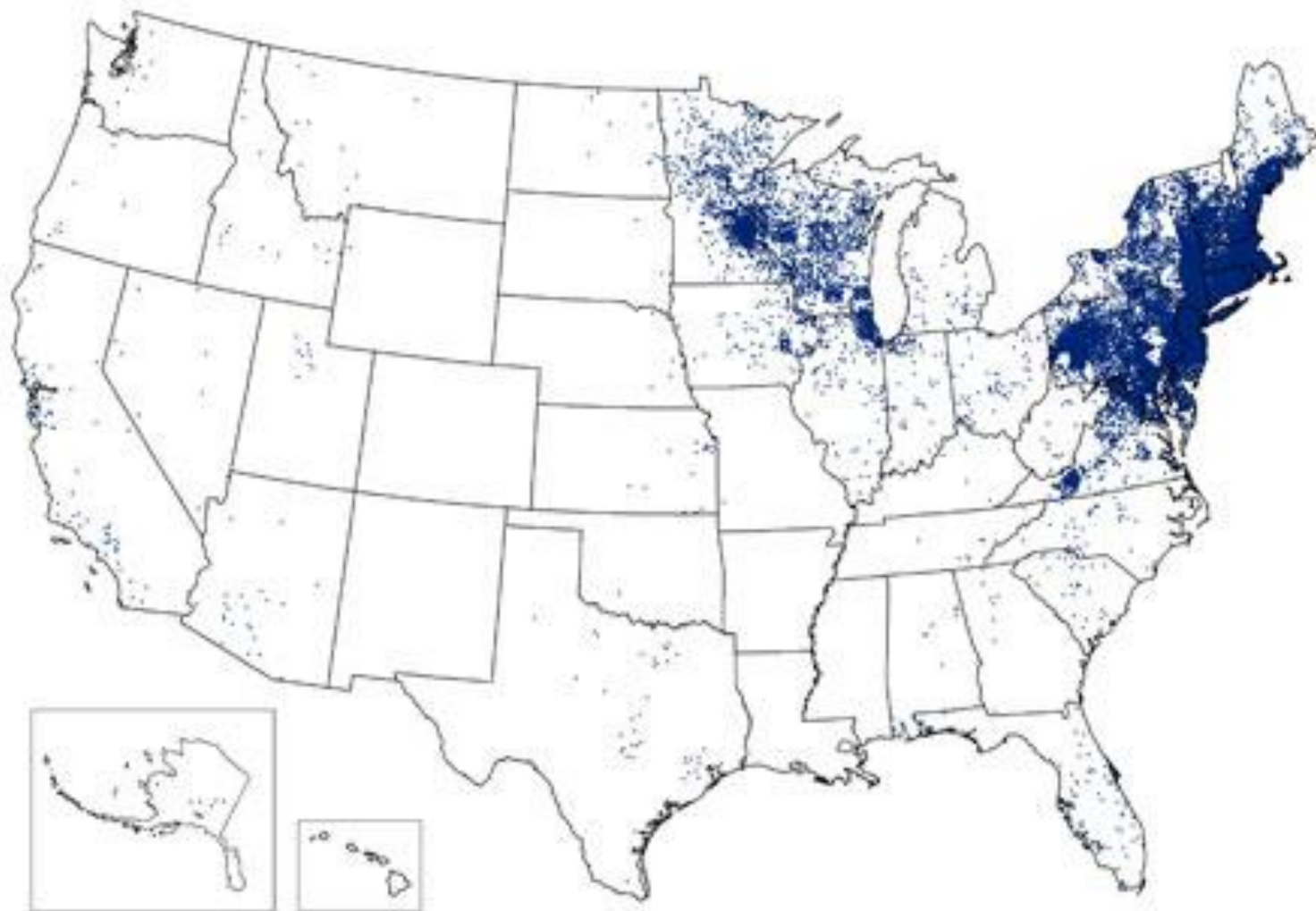


Lyme Disease

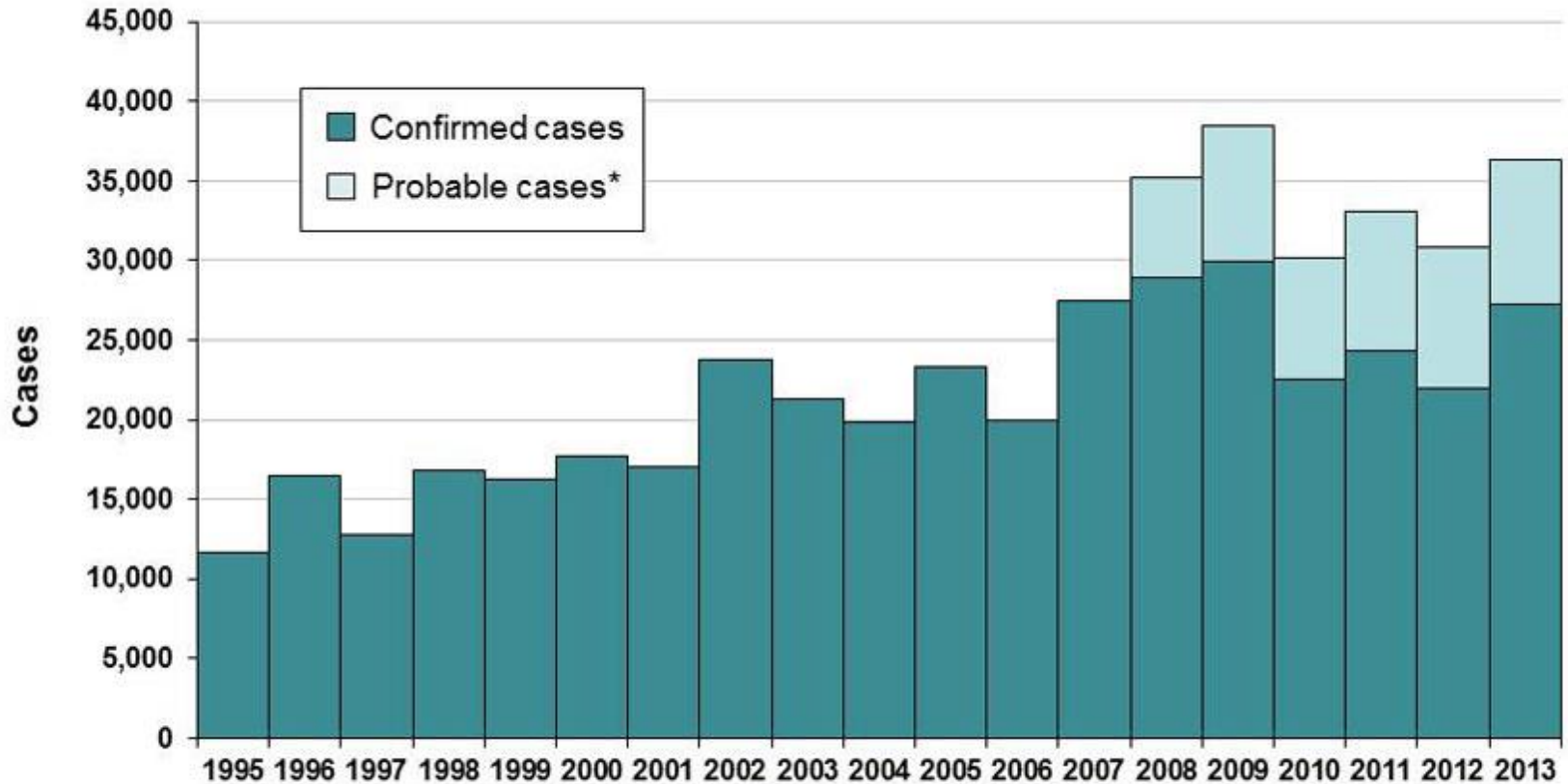
- Pathogenic neurological disease
- Caused by several related spirochetes bacteria
- 20,000 to 40,000 per year in the US
- Spirochete have several hosts
 - Ticks, mammals (deer, mouse, human) and birds
- Different strains have different neurological effects.
 - Neurological symptoms such as facial palsy and neuropathy
 - Cognitive defects such as impaired memory
- Treated with antibacterial drugs
 - Doxycycline, amoxicillin, cefuroxime



Reported Cases of Lyme Disease -- United States, 2013



1 dot placed randomly within county of residence for each confirmed case



Team Workshop 1: Provide several epidemiological hypothesis for the increased number of Lyme disease cases in the US?



Team Workshop 2: Imagine that spirochetes have become completely resistant to amoxicillin and you are tasked to develop a new antibiotic. Use all the tools available to you to

1. Determine the amoxicillin mechanism of action (MOA)
2. Propose a new target for an antibiotic drug
3. List the steps you would perform to identify potential drug target leads
4. List the methods you would use to validate these leads
5. Elect a member of your team to explain to the class your new target, the type of drug and its MOA



Team Workshop 3 (Homework): Drug Discovery due on the Tuesday following Spring break.

1. Use the RCSB to obtain the PDB file of decorin binding protein
2. Submit a search to FINDSITE (must use colorado.edu email) using this structure and choose ONE of the 5 small molecule databases.
3. Send me a one page (PPT) summary of your results before class on Tuesday after spring break (March 29) that includes
 - A. Image of drug binding sites
 - B. Potential drug classes i.e. type of drug
 - C. Your #1 candidate and why you chose this one
 - D. Name of team member who will present results



Remember

- Before 12 PM of the next class day:
 - go to b.socrative.com/student/login and complete the quiz