

### Lyme Wars

#### Let's tackle the testing

The two tier testing system endorsed by the Centers for Disease Control and Prevention (CDC) has a high specificity (99%) and yields few false positives. But the tests have a uniformly miserable sensitivity (56%)—they miss 88 of every 200 patients with Lyme disease (table). By comparison, AIDS tests have a sensitivity of 99.5%—they miss only one of every 200 AIDS cases. In simple terms, the chance of a patient with Lyme disease being diagnosed using the commercial tests approved by the Food and Drug Administration and sanctioned by the CDC is about getting heads or tails when tossing a coin, and the poor test performance assures that many patients with Lyme disease will go undiagnosed.

#### Sensitivity and specificity of commercial two tier testing for Lyme disease

| Study  | Sensitivity | Specificity |
|--|-------------|-------------|
| Schmitz et al. <i>Eur J Clin Microbiol Infect Dis</i> 1993;12:419-24 | 66%         | 100%        |
| Engstrom et al. <i>J Clin Microbiol</i> 1995;33:419-27               | 55%         | 96%         |
| Ledue et al. <i>J Clin Microbiol</i> 1996;34:2343-50                 | 50%         | 100%        |
| Trevejo et al. <i>J Infect Dis</i> 1999;179:931-8                    | 29%         | 100%        |
| Nowakowski et al. <i>Clin Infect Dis</i> 2001;33:2023-7              | 66%         | 99%         |
| Bacon et al. <i>J Infect Dis</i> 2003;187:1187-99                    | 68%         | 99%         |
| Mean of all studies  | 56%         | 99%         |

Until we scrap the worthless commercial tests for Lyme disease and find a better way to make the diagnosis of this protean illness, the “Lyme wars” will continue unabated.

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1 Tonks A. Lyme wars. BMJ 2007;335:910-2. (3 November.)