#477 Implications of a Change in the Case Definition of Lyme Disease Surveillance — Maine, 2007

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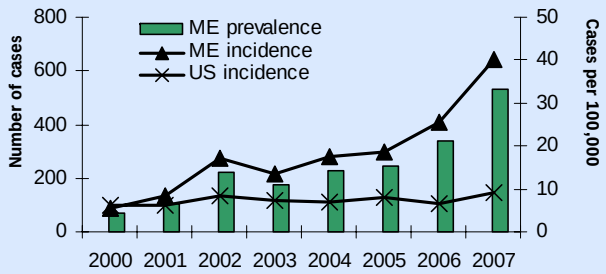
BACKGROUND

- Lyme disease (LD) is vector-borne bacterial disease caused by spirochete *Borellia burgdorferi*
- Vector of LD in U.S is *Ixodes scapularis*
- Erythema migrans (EM) occurs within 1 month of infection in 70-80% of cases and is considered most reliable early sign of LD
- Late manifestations include rheumatologic, neurologic, and cardiac complications
- LD is endemic with increasing incidence in Northeast and upper Midwest
- LD case definition adopted by Council of State and Territorial Epidemiologists (CSTE) in 1996
- New LD surveillance case definition adopted in 2008

LD prevalence and incidence, Maine and U.S. — 2000-2007



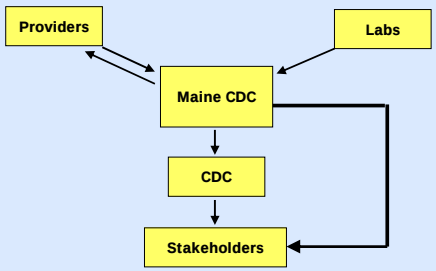
OBJECTIVE

To determine impact of 2008 change in case definition on LD surveillance in Maine

METHODS

- LD surveillance system previously evaluated using CDC guidelines
- Used 2007 case reports from Maine CDC LD surveillance system
- 2007 cases initially classified based on 1996 CSTE LD surveillance case definition
- 2007 cases then reclassified as confirmed, probable, suspect, or not based on 2008 CSTE LD surveillance case definition

Maine LD surveillance process



LD CSTE SURVEILLANCE CASE DEFINITIONS

1996 Confirmed

Erythema migrans rash with known exposure

or

At least one late manifestation and laboratory confirmation

2008 Confirmed

Erythema migrans rash with or without known exposure

or

At least one late manifestation and laboratory confirmation

2008 Probable

Any other physician diagnosed LD and laboratory confirmation

2008 Suspect

Erythema migrans without laboratory confirmation

or

Laboratory confirmation without clinical information

1996 Laboratory confirmation

Recommended two-tier testing (LD EIA reflex to IgG/IgM immunoblot)

2008 Laboratory confirmation

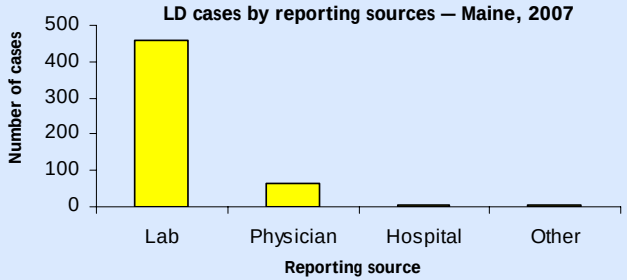
Mandatory two-tier testing (LD EIA reflex to IgG/IgM immunoblot)

or

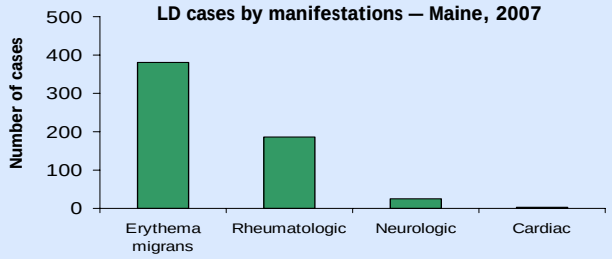
Single IgG immunoblot

RESULTS

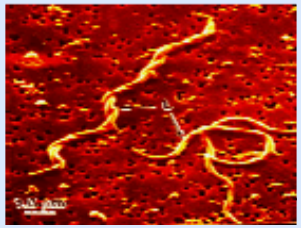
LD cases by reporting sources — Maine, 2007



LD cases by manifestations — Maine, 2007



- In 2007, 529 confirmed cases were identified based on 1996 case definition
- Among 529 confirmed cases, 461 reports came from laboratories, 62 reports came directly from physicians, 3 reports came from hospitals, and 3 reports came from inter-state notifications
- 381 cases reported erythema migrans, 186 cases reported rheumatologic symptoms, 24 cases reported neurologic symptoms, and 2 cases reported cardiac symptoms

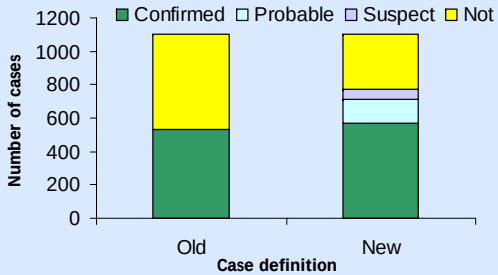


B. burgdorferi

I. scapularis

RESULTS

LD cases by old and new case definition, Maine — 2007



- Among 1,103 reports in 2007, on basis of 1996 definition, 529 (40 cases/100,000 population) confirmed cases were identified and 574 were classified as non-cases
- Using 2008 definition, 568 (43 cases/100,000 population) confirmed cases were identified, 141 cases were identified as probable, 60 cases were identified as suspect, and 334 were classified as non-cases
- Confirmed cases increased by 7% and non-cases decreased by 42% with change in case definition
- Confirmed cases with the 2008 case definition that were not cases according to the 1996 case definition involved late manifestations with laboratory confirmation (notably an IgG positive immunoblot) where arthritis accounted for 90% [35 cases] and Bell's palsy accounted for 10% [4 cases]

LIMITATIONS

- Laboratory information was incomplete on most LD case reports
- Subset of physicians/clinical laboratories request immunoblot only therefore reducing number of confirmed cases based on laboratory requirements of new case definition

SUMMARY

- Burden of LD disease increasing while resources remain unchanged
- Change in LD case definition had small effect on confirmed cases although non-cases dropped substantially

RECOMMENDATIONS

- Adopt electronic laboratory reporting to reduce workload of verifying laboratory information
- Educate health care providers and clinical laboratories of 2008 CSTE case definition and importance of two-tier testing
- Consider effect of change in case definition when examining future LD trends
- Adapt LD surveillance system to maximize data quality with minimal resources

ACKNOWLEDGMENTS

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DISCLAIMER

The findings and conclusions in this poster have not been formally disseminated by the CDC and should not be construed to represent any agency determination or policy.