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Temporal Patterns in Chlamydia Repeat Testing and Positivity Rates in Massachusetts

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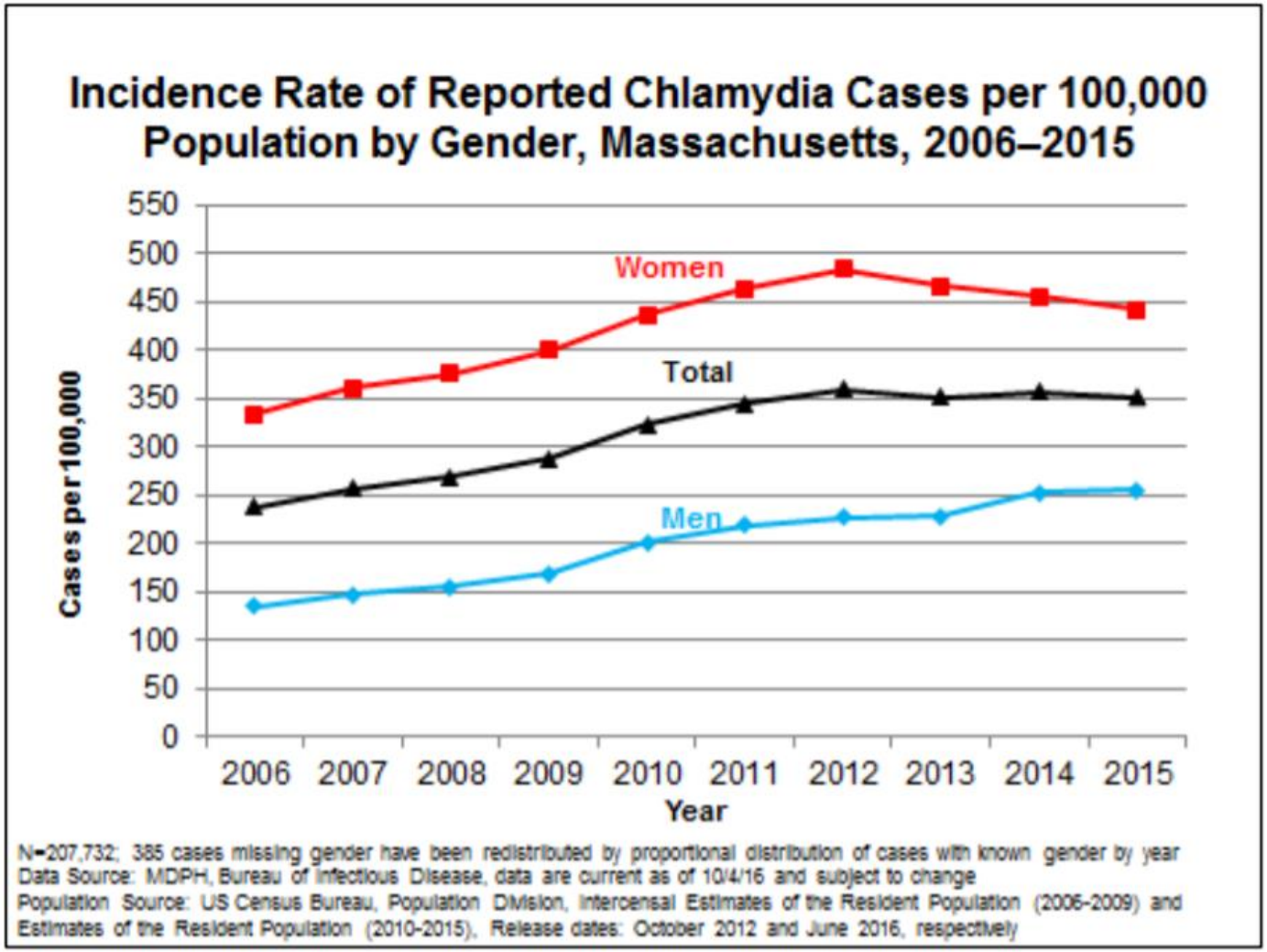
Objective

- Evaluate current rates and temporal trends in adherence with national guidelines recommending chlamydia test-of-cure for pregnant females and test-of-reinfection for all patients.



Massachusetts Department of Public Health Bureau of Infectious Disease and Laboratory Sciences. 2015 Integrated HIV/AIDS, STD and Viral Hepatitis Surveillance Report; 2016.

STD Treatment Guidelines

- For pregnant women, test-of-cure to document chlamydial eradication 3-4 weeks after completion of therapy is recommended.
- For all patients, test-of-reinfection approximately 3 months after treatment is recommended.
- Repeat testing at <3 weeks after completion of therapy is not recommended because it can lead to false-positive results.

ESP – EMR Support for Public Health

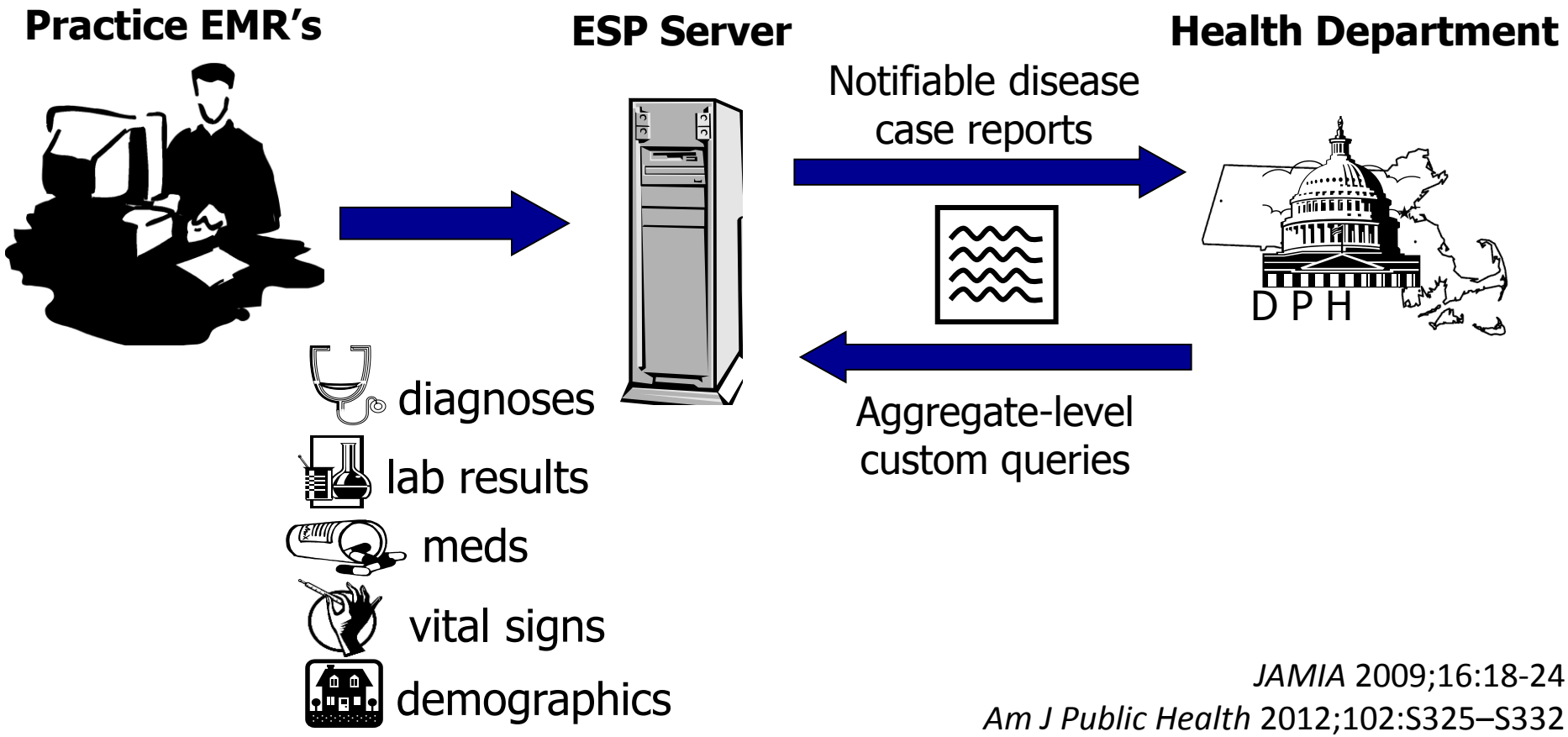
Software and architecture to extract, analyze, and transmit electronic health information from providers to public health

- Surveys codified EMR data for patients with conditions of public health interest
- Generates secure electronic reports for the state health department
- Designed to be compatible with any EMR system

JAMIA 2009;16:18-24
MMWR 2008;57:372-375
Am J Pub Health 2012;102:S325–S332

Electronic medical record Support for Public Health

ESP: Automated disease detection and reporting for public health



JAMIA 2009;16:18-24
Am J Public Health 2012;102:S325–S332
Am J Public Health 2014;104:2265-2270

Methods

- Identified patients infected with *C. trachomatis* from 3 multi-site independent clinical practice groups, which together cover about 1.4 million people (~20% of the Massachusetts population).
- Included all patients with a positive culture or nucleic acid amplification chlamydia between January 1, 2010 and December 31, 2015.
- Follow-up chlamydia tests were identified from 1 to 365 days following the index test result.

Methods (continued)

We assessed the percentage of **pregnant female cases** with:

- Test-of-cure: repeat test at 3 to 5 weeks
- Late test-of-cure: repeat test at 6 to 7 weeks
- Test-of-reinfection: repeat test at 8 to 16 weeks
- Late test-of-reinfection: repeat test at 17 weeks to 1 year
- Both a test-of-cure and a test-of-reinfection (during recommended time periods): repeat test at 3 to 5 weeks and 8 to 16 weeks
- Both a test-of-cure and a test-of-reinfection (maximally generous time periods): repeat test at 3 to 7 weeks and repeat test 8 weeks to 1 year

Methods (continued)

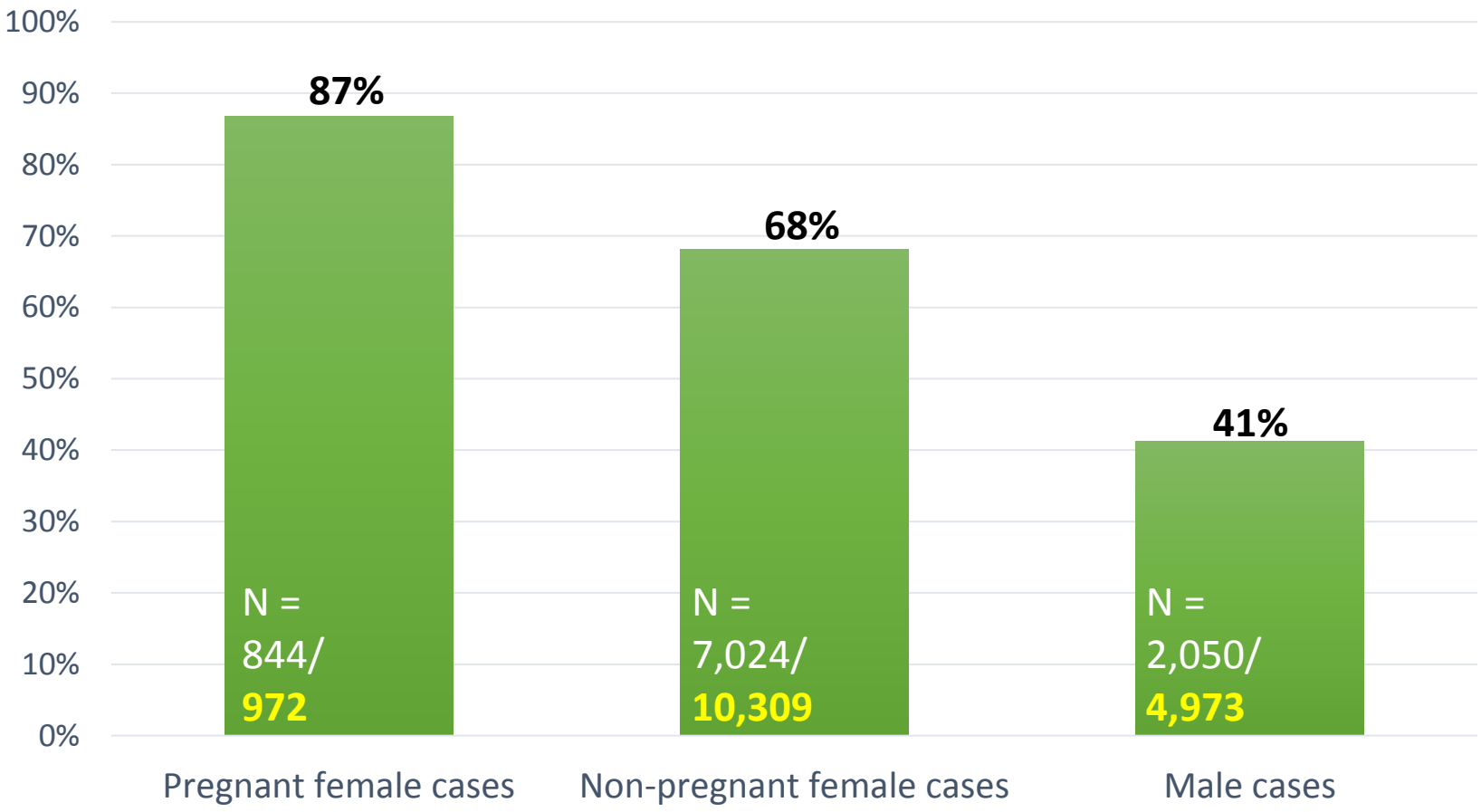
We assessed the percentage of **non-pregnant female and male cases** with:

- Early test-of-reinfection: repeat test at 3 to 7 weeks
- Test-of-reinfection: repeat test at 8 to 16 weeks
- Late test-of-reinfection: repeat test at 17 weeks to 1 year

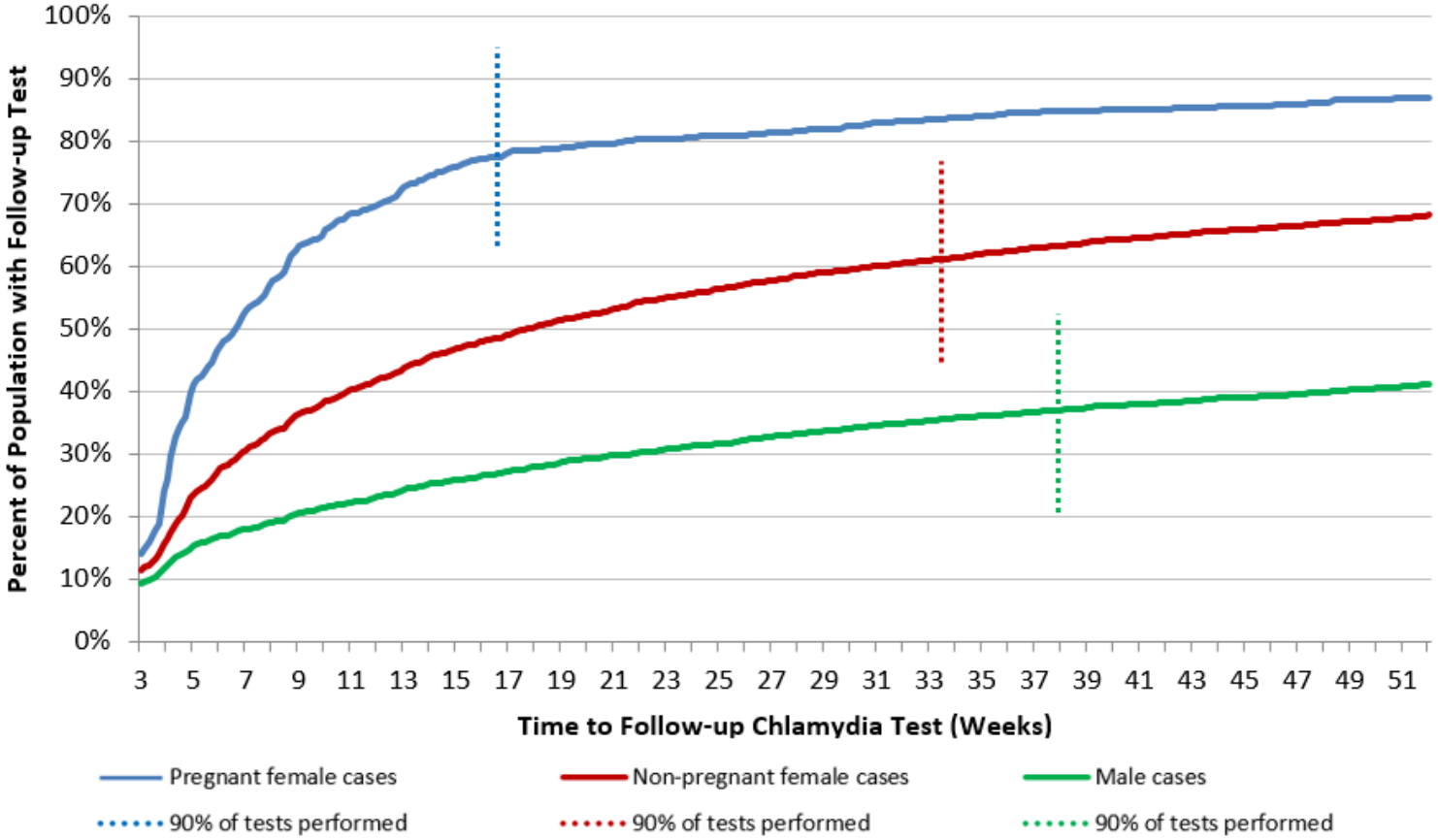
Methods (continued)

- A trend analysis was performed to evaluate any significant increases or decreases during the query period
- Fit binomial regression models using generalized estimating equations (GEE) with an independence working correlation structure
- Selected best fitting model (linear vs. fully flexible) using the quasi-likelihood under the independence model criterion (QIC)

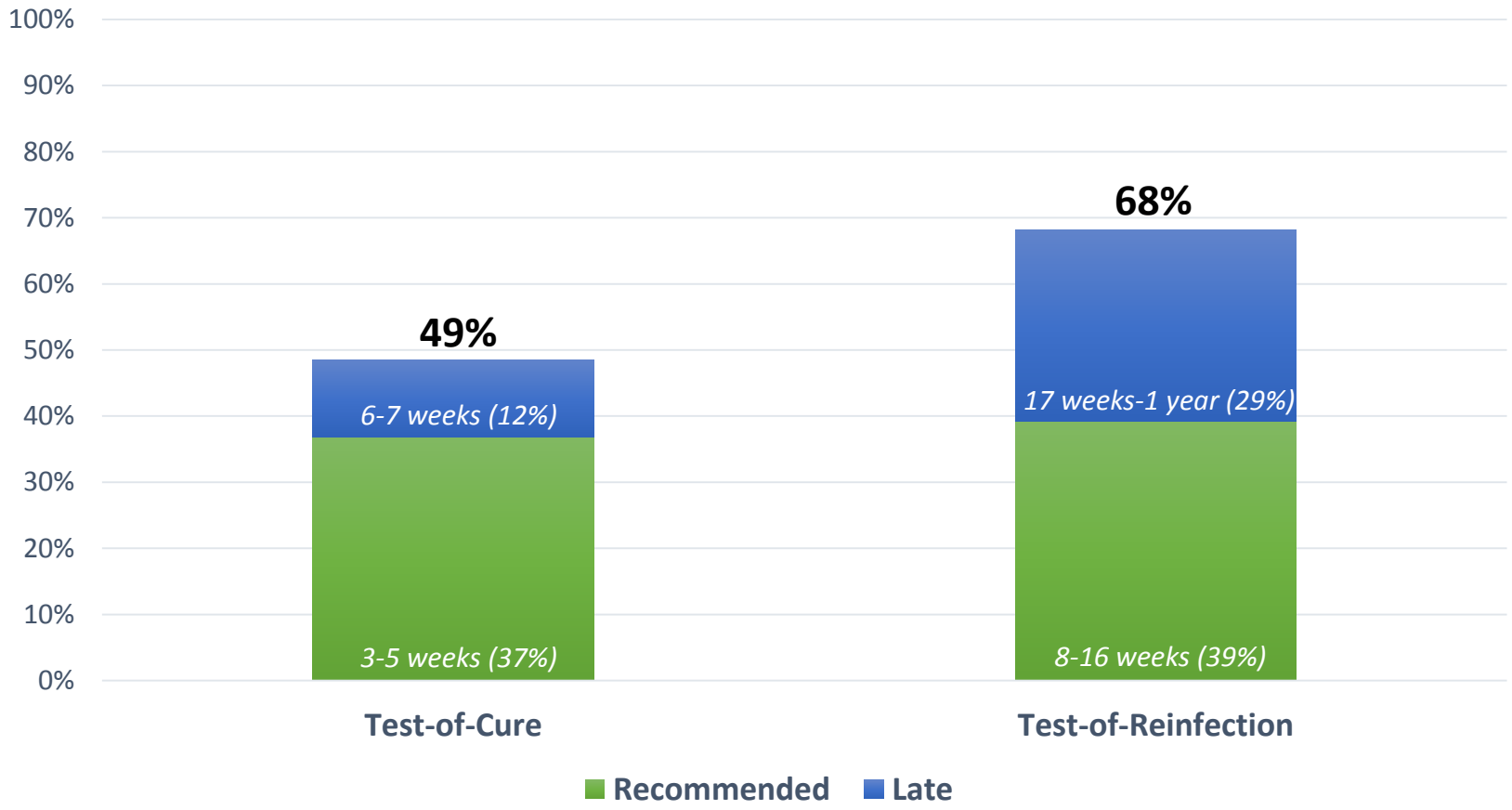
Cases Retested within 1 Year



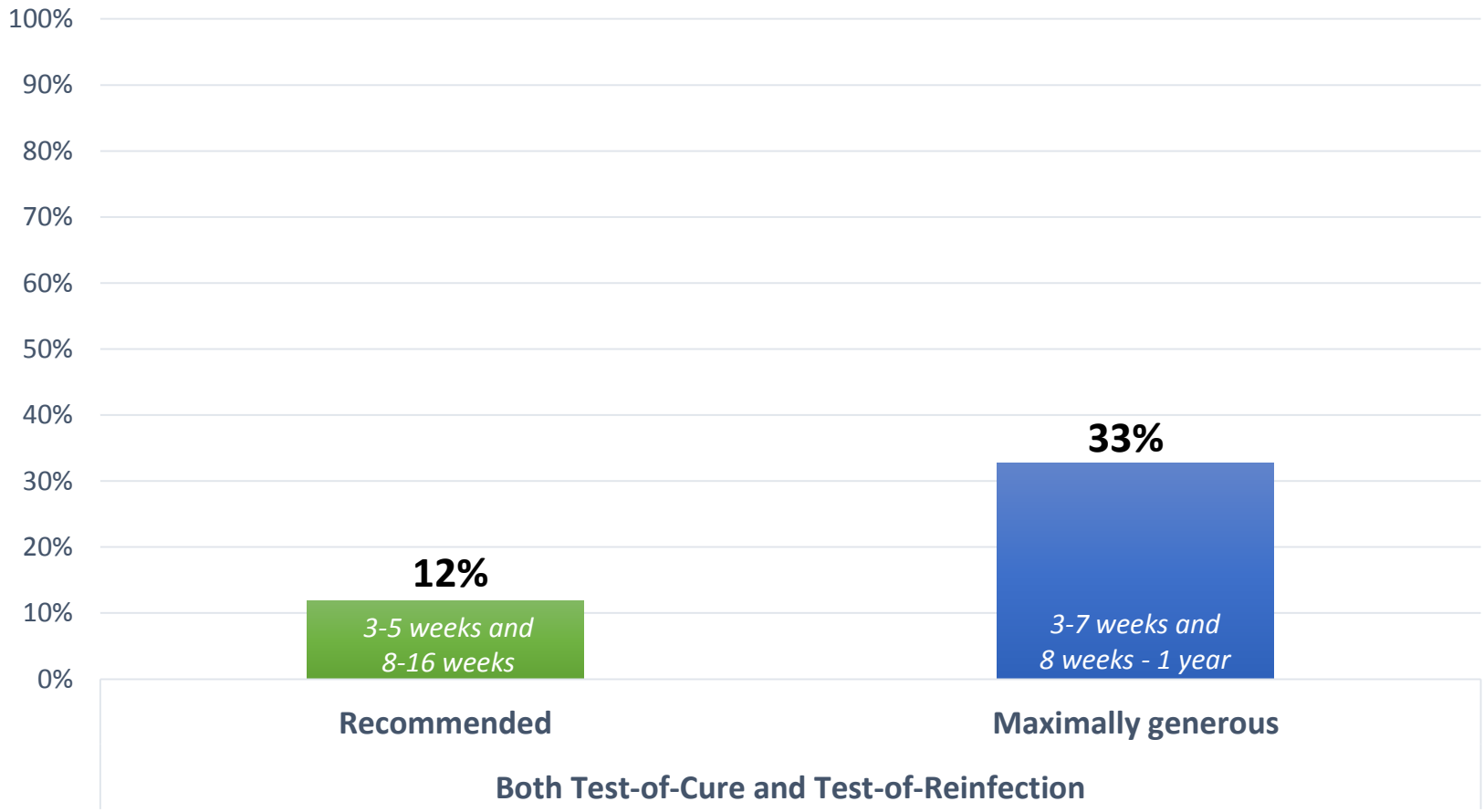
Cumulative incidence curve for time to first follow-up chlamydia test



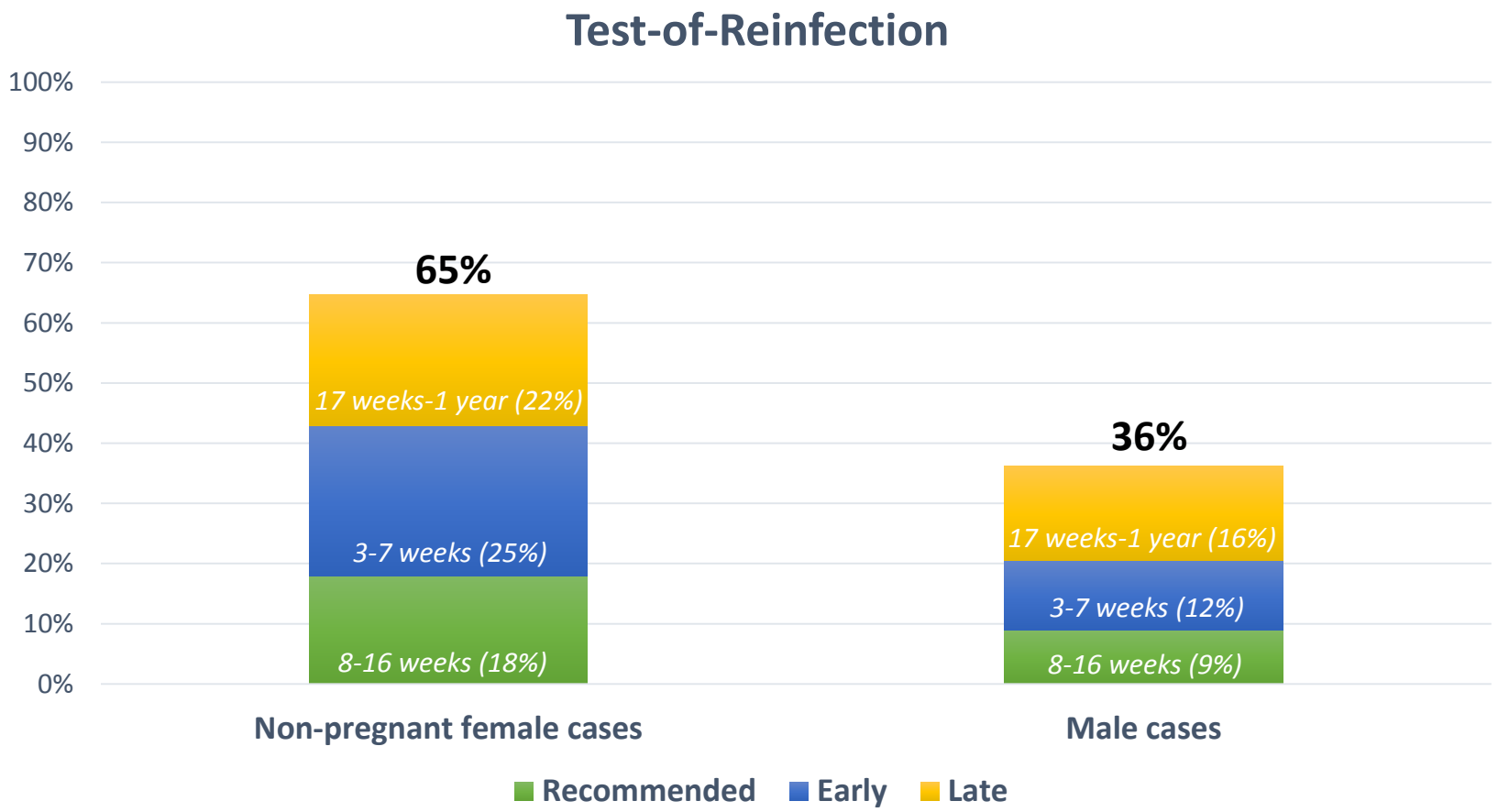
Pregnant Female Cases



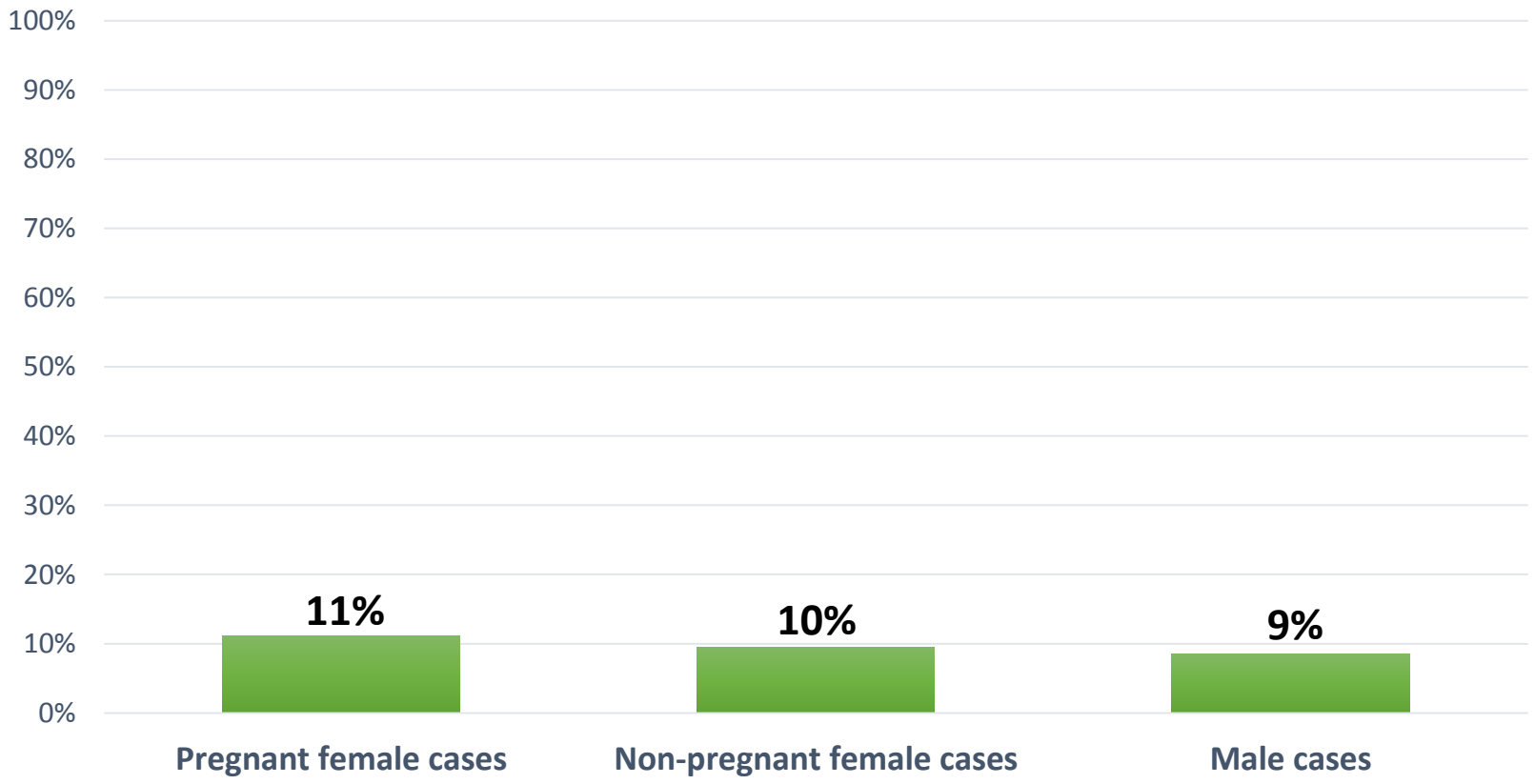
Pregnant Female Cases



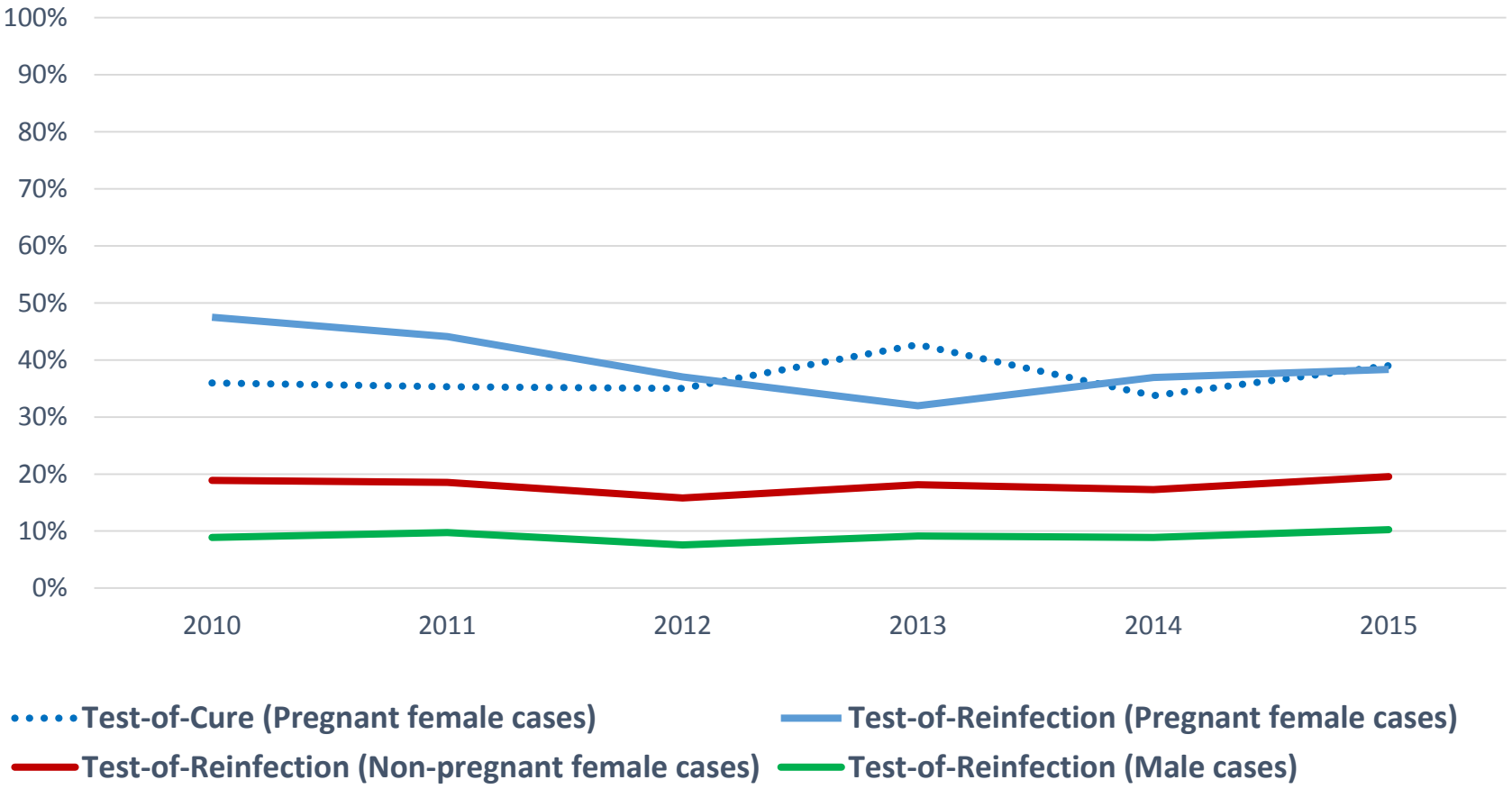
Non-Pregnant Female and Male Cases



Cases Retested Inappropriately Early (<3 weeks)



Percent of cases retested within recommended time period by year



Key Findings

- We found considerable under-testing for cure in pregnant women and for reinfection in all patients during the recommended time periods.
- We saw no evidence in improvements between 2010 and 2015.
- We observed inappropriately early testing among all groups.

Limitations

- We were only able to identify chlamydia retesting if a second test was ordered within the same practice group as the index positive test result.
- It is possible that there was some misclassification of pregnancy status.
- Our results may not accurately reflect retesting rates for the statewide Massachusetts population or for patients who do not seek follow-up care within the same practice group where they had their original positive test.

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