



SLO Public Health Laboratory Bulletin

September 2008

Molecular Amplification Tests—Tests of Cure??

Laboratory diagnosis of two of the most common infections has advanced significantly in the past decade. Now advanced molecular amplification methods can be relied upon to detect virtually all true cases of infection by ***Chlamydia trachomatis*** and ***Neisseria gonorrhoeae*** when testing a properly collected specimen.

Nucleic acid amplification tests or NAATs have been demonstrated to detect nucleic acid of various types—both DNA and RNA--- with such accuracy that few true infections escape detection. However, the enhanced sensitivity of these assays also requires adjustment in approaches to measuring success of treatment. By the very nature of the test—detecting the genetic material—a positive result does not necessarily mean the agent is still alive and continuing an infection. Dead ***C. trachomatis*** cells or even DNA can give a positive signal long after successful treatment for these organisms.

Twenty-five years ago a test of cure for ***C. trachomatis*** infection could be accomplished by culture. In most cases, cultures were negative within 72 hrs of treatment with an appropriate antibiotic. When direct fluorescent antibody and enzyme immunoassays came into use, positive results could be obtained a week or more after treatment—indicating that dead organisms were still present in some samples. Currently, a number of published studies show that NAATs can detect specific nucleic acid for these agents up to three weeks after treatment. Recognition of this finding is now reflected in insurance payer reimbursement schedules in that reimbursement for amplified tests is denied if the time between date of service for an individual for Chlamydia amplified tests (CPT 87491) and Gonorrhea amplified tests (CPT 87591) is less than one month.

It is also important to recognize that re-infection and treatment failure can result in a repeat positive test a month or more after treatment. ***C. trachomatis*** is rarely determined to develop antibiotic resistance, but treatment failure may indicate a persistent infection or possible development of antibiotic resistance.

Stool cultures - new approaches

Beginning in October, in concert with the initiation of a new computer system and some changes in the appearance of laboratory reports, the SLO Public Health Laboratory will introduce two laboratory testing approaches to stool cultures for bacterial enteric pathogens.

STANDARD Stool culture.

Conventional culture techniques are used for the recovery of Salmonella, Shigella, Campylobacter, and E. coli 0157. Enrichment culture is included to optimize the recovery of Shigella and Salmonella.

COMPREHENSIVE Stool culture.

Conventional culture techniques used for the recovery of Salmonella, Shigella, Campylobacter, and E. coli 0157, are coupled with cultural techniques for the detection and identification of Yersinia enterocolitica, Vibrio and Aeromonas species. An enzyme immunoassay for the detection of shigatoxin(ST) is included to allow the detection of non-O157 strains of Escherichia coli that produce ST. This group is collectively termed non-O157 STEC and is increasingly recognized as a cause of diarrheal disease.

Call the laboratory for more information 805-781-5512.