To: Medical Staff, Nursing Staff & Administrative Staff, St. Luke’s Health Network
From: Dr. David Anderson, Chief of Pathology
Date: 5/4/05
Re: Testing for Clostridium difficile Toxins A & B

1. Effective May 9, 2005, the laboratory will replace its current enzyme immunoassay of fecal specimens for C. difficile toxin A with a similar test of broader reactivity to detect BOTH C. difficile toxins A & B.

2. Important considerations include:
   a. The new test name C. difficile toxin" is unchanged. The new test retains the same test code (4120) but does NOT distinguish between toxin A and toxin B in a reactive sample. Therefore, the new test will be reported either as positive for C. difficile toxin A and/or B versus negative for C. difficile toxins A & B.
   b. Specimen to be submitted: fresh stool according to standard collection and handling procedures.
   c. Test availability & turnaround time (TAT): available 7 days a week, reported within 24 hours TAT.
   d. Limitations: Inability to detect toxin A or B in fecal samples from patients suspected of having C. difficile disease may not preclude actual disease but may be caused by factors relating to incorrect specimen collection &/or storage. Detection limits for toxin A are > 0.8 ng/mL and for toxin B > 2.5 ng/mL.
   e. Performance characteristics:
      - Clostridium difficile disease is primarily a nosocomial disease of elderly patients, and practices in our Health Network that have higher numbers of elderly patients may experience high test positive rates.
      - Please consider test results in conjunction with clinical symptoms because some healthy adults and large numbers of healthy infants (up to 50%) will be positive for C. difficile toxin (e.g. carriage rates of 22% to 32% have been reported in cystic fibrosis patients).
      - Sensitivity (95% confidence interval) ranges between 83.3% to 96% in manufacturer’s studies.
      - Specificity is 100% in manufacturer’s studies.
      - Positive predictive value is 100% in manufacturer’s studies.
      - Negative predictive value (95% confidence interval) ranges between 90% - 99.5% in manufacturer’s studies.

3. C. difficile strains that produce high levels of toxin A also produce high levels of toxin B. The same is often true of low level toxin-producing strains. Recently, however, toxin A negative, toxin B positive strains have been identified (1,2). Although toxin A is believed to cause most of the clinical signs, toxin B acts synergistically with toxin A and may thus play an important role in disease.

4. Please refer questions to Ms. Stephanie Barry (x 4594) or Dr. David Anderson (x 4899).

References:
