analysis or risk incorrect sensitivity and specificity results. In these cases, options such as composite reference standard (recommended), latent class analysis, or discrepant analysis are needed in order to accurately assess the test.[3,7] All three of these methods require an additional sample to be collected or test to be performed and further add to the laboratory workup and analysis.[7]

Finding a balance between the need for narrow confidence intervals and the practical problems of finding a large and appropriate sample population is critical. Poorly designed or reported studies can lead to premature adoption of tests and the incorrect care of patients.[2,7,8] We believe that (a) studies should use larger sample sizes, and (b) the test should be evaluated in the population among which it is to be implemented, in order to provide the most accurate and meaningful results. Reporting confidence intervals and study population demographics will assist in this endeavor. Finding an appropriate balance will become increasingly more important as diagnostic tests, especially surveillance for MDROs, are used more routinely due to legislative requirements and the critical need to quickly and accurately test patients.

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How Long Is Long Enough? Determining the Optimal Surgical Site Infection Surveillance Period

To the Editor—Debate regarding the optimal postoperative surveillance period for detection of surgical site infections (SSIs) centers on the need for accurate case ascertainment balanced against efficient use of surveillance resources. Traditional surveillance definitions require a 1-year follow-up period for surgeries with an implantable device, the rationale being that indolent infections may not manifest for some time after the operative period. This prolonged duration for SSI surveillance places a burden on infection prevention and control resources and potentially delays reporting of adverse events in a timely manner to the surgical team.

A previous article retrospectively reviewed SSIs in total hip and knee replacements, coronary artery bypass grafts (CABGs), and mastectomies with implants for time to identification of a SSI.[1] Most deep or organ-space infections were captured within 90 days. This article describes an analysis of 10 years of SSI historical data at Vancouver Coastal Health to determine the proportion of infections identified within designated time frames of 1, 3, 6, 9, and 12 months.

Prospectively collected SSI data for cardiac, orthopedic, neurosurgical, spinal, thoracic, and vascular services were available from 2000 to 2010–2011 at our 3 facilities (1 tertiary care adult hospital and 2 community hospitals). The specific procedures followed included CABG, hip and knee replacements, craniotomies, spinal procedures with instrumentation/implants, thoracotomies, and vascular grafts. Standard definitions for SSI as described by the Centers for Disease Control and Prevention National Healthcare Surveillance Network were used.[2] Cases were identified by routine surveillance by infection preventionists, assessment of laboratory data, review of the surgical case list, voluntary surgeon reporting, and review of hospital readmissions with a diagnosis of infection; this methodology remained consistent throughout the 10-year analysis period. Cases where an SSI was detected beyond the standard 1-year follow-up were excluded from the analysis.

A total of 50,128 procedures were followed at our 3 facilities over the 10-year period, and 888 SSIs (1.7 SSI/100 proce-

TABLE 1. Surgical Site Infection Case Identification by Surgical Specialty over Time

Service (no. of infections)	1 month	3 months	6 months	9 months	12 months
Cardiac (205)	86 (177)	92 (189)	96 (198)	97 (200)	100 (205)
Ortho (135)	79 (107)	86 (116)	94 (127)	99 (133)	100 (135)
Neuro (69)	75 (52)	88 (61)	93 (64)	99 (68)	100 (69)
Spinal (327)	92 (302)	97 (317)	99 (323)	99 (324)	100 (327)
Thoracic (40)	83 (33)	95 (38)	98 (39)	100 (40)	100 (40)
Vascular (112)	83 (93)	97 (109)	100 (112)	100 (112)	100 (112)
Total (888)	86 (764)	93 (830)	97 (863)	99 (877)	100 (888)

NOTE. Columns 2–6: data shown as percentage (no.) of infections.

dures) were identified. Thirteen cases had an SSI detected beyond the standard 1-year follow-up and were excluded from the analysis. Table 1 outlines SSI case identification by surgical specialty over time. The majority (86%) of infections was identified within the first month of the operative event, and by 3 months most surgical services identified over 90% of SSIs. Hip and knee replacements and craniotomies with implants required 6 months to capture over 90% of cases.

In contrast to the article by Lankiewicz et al,[1] our data were prospectively collected in a consistent manner across our surgical centers over a 10-year period. Our review supports their recommendation for a shorter surveillance follow-up period and extends their observations to include spinal, thoracic, neurosurgical, and vascular surgeries.

The ultimate goal of an SSI prevention program is to reduce infections. Systematic surveillance methodology is crucial to obtain valid and reliable data to evaluate the success of such programs.[3] Equally as important, however, is the timely communication of SSI rates, particularly when assessing performance improvement initiatives. Surveillance need not capture every case in order to be effective; it simply needs to detect sufficient cases to permit informed decision making as well as to allow benchmarking with peer facilities. As can be seen by this large, consistently collected set of data, these criteria can be met by limiting case ascertainment to 3 months when 93% of all SSIs were detected. Although orthopedic (hip and knee replacements) and neurosurgical (craniotomies, shunts) procedures did not quite capture 90% of SSIs at 3 months, the actual number of cases that would be missed if 3-month follow-up was practiced would be, on average, only 1.9 cases/year for orthopedic and 0.8 cases/year for neurosurgical procedures. One could argue that a 1-month follow-up would be adequate; however, using this scenario a total of 124 SSIs in all 6 surgical specialties (12.4 SSI/yr) would have been missed.

Healthcare time spent following cases for 1 year can be more appropriately allocated, particularly when one considers that SSIs occurring after such long periods may either be not preventable or not related to the surgical procedure. A 3-month follow-up period with more timely dissemination of results would capture 93% of all SSIs and be a more efficient and relevant use of surveillance resources.

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Beyond Bundles and Coated Catheters: Effective Interventions to Decrease Central Line–Associated Bloodstream Infections (CLABSI)

To the Editor—Central line–associated bloodstream infections (CLABSIs), as defined by the Centers for Disease Control and Prevention, are a common nosocomial infection problem. Because of necessarily high rates of central venous catheter