Since 1993, CBSN has collected all SPN sterile site isolates from participating Canadian hospitals and private microbiology labs. In total, 186 labs have participated with 42 labs submitting for the entire period.

Only isolates per patient episode are included.

Isolates are shipped to the central lab at Mount Sinai Hospital where they are confirmed as SPN and frozen. For this report, broth microdilution susceptibility testing is interpreted using EUCAST standards. Serotype is determined using latex pneumococcal antisera (Solutis Serum Institute) and Quellung reaction as required.

Figure 1. Canadian regions in the Canadian Bacterial Surveillance Network.

Figure 2. Percent of isolates of serotypes not included in PCV13 (% of isolates)

Figure 3. Percent of adult sterile site isolates of serotypes included in the PCV13, but not PCV7 vaccine. From across Canada 2000 to 2009.

Figure 4. Percent of isolates of serotypes not included in PCV13 (NPCV13) and serotypes 15A, 23A and 19A Canadian isolates from adult sterile sites, 2000 to 2009. Serotypes 3 and 19A were the most common in blood and CSF. Serotype 22F was most common in pleural fluid and serotypes 3, 1A and 16F were most common from other sterile sites. CFS isolates were significantly more likely to be 23A than isolates from blood. Isolates from pleural fluid were least likely to be covered by PCV13 (33% vs 60% of blood).

Table 1. Serotype* distribution of SPN isolates from adult IPD cases, Canada, 2000–2009.

Table 2. Percent of adult sterile site isolates of serotypes included in the PCV13, but not PCV7 vaccine. From across Canada 2000 to 2009.

Results (con’t)

The increased proportion of serotypes in PCV10, but not PCV7, is due to the increase in the percentage of 7F. The majority of the increase in the proportion of serotypes in PCV13, but not PCV10, is due to an increase in the percentage of 19A

Isolates of serotype 19A, identified between 2007 and 2009 were five times more likely to be non-susceptible to penicillin than other serotypes (57% vs 11%), about twice as likely to be resistant to erythromycin (42% vs 20%), and four times more likely to be non-susceptible to ceftriaxone (14% vs 4%). Serotypes 15A and 23A were also associated with antimicrobial resistance (69% and 63% erythromycin resistance, 16% and 63% trimethoprim-sulfamethoxazole resistance, 69% and 5% penicillin non-susceptibility, respectively). In contrast, serotypes 7F and 3 were rarely resistant to antibiotics.