prescribed treatments fully respected the recommended first-line treatments (ceftriaxone 250 mg or cefixime 800 mg in combination with azithromycin 1g). Among the 731 (59%) episodes with a test of cure performed, 47 (6.4%) were positive; specific questionnaires for the treatment failure assessment were available for 28. After analysis, 5 episodes were classified as retained or suspected treatment failure, including 4 pharyngeal infections and 2 cases who received azithromycin monotherapy. In 2018 (preliminary data), 15 additional assessment questionnaires were completed, adding 5 treatment failures (3 suspected and 2 retained).

Conclusion The results of the sentinel network help to guide Quebec public health decision-making. When certain B-lactam allergy forces clinicians to prescribe an alternative treatment, a dual therapy including gentamicin is now recommended. Overrepresentation of azithromycin monotherapies among treatment failures in the sentinel network also contributed to this recommendation change.

Disclosure No significant relationships.

P678 AN EFFECTIVE GONOCOCCAL LIPOOLIGOSACCHARIDE (LOS) VACCINE: WE KNOW ENOUGH TO MAKE ONE

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Background Long-lived gonococcal LOS IgG, induced during an initial challenge, prevented re-infection in 7/8 subjects ($v. = 1/6$; $p=0.026$), but treatment within three days of urethritis onset prevented an antibody response. This suggested that recidivism was related to early treatment. These data form the basis for an effective LOS vaccine.

Methods MS, NMR Spectroscopy and immunochemistry were used to structure the LOS made by the challenge strain, MS11mkC. Gonococci in scrapings of diagnostic slides were LOS genotyped. A multiplexed indirect immunofluorescent assay for LOS IgG was used to quantify LOS IgG.

Results MS11mkC LOS are genetically identical to those of gonococci within PMNs, with two α oligosaccharide chains, nLc4 (Gal β 1-4GlcNAc β 1-3Gal β 1-4Glc β) and GalNAC-nLc4 (GalNAC β 1-3-nLc4). Protective MS11mkC LOS IgG should protect against all circulating gonococci. The multiplex assay detected IgG specific for the nLc4 terminal Gal residue, the internal nLc3 GlcNAc and the basal Lc2 disaccharide. Concentrations ($\mu\text{g/mL}$) of IgG in sera of contacts of persons with gonorrhea, specific for the three antigens, summed to the concentrations that bound the native nLc4 α chain and were greater in sera from those seen ≥ 7 days after exposure than those seen earlier ($p = 0.04$ for the nLc4 Terminal Gal comparison). Contacts of persons with gonorrhea who resisted infection circulated higher concentrations of IgG specific for the nLc4 terminal Gal than those who became infected during exposure ($\Delta = 1.78 \mu\text{g/mL}$; $p = 0.10$). The $1.78 \mu\text{g/mL}$ difference is close to the $2 \mu\text{g/mL}$ that provides protection against meningococcal infection.

Conclusion An effective gonococcal vaccine can be made based on the human challenge study and an understanding of the immunochemistry of LOS. Gonococcal LOS is not pyrogenic in rabbits and can be made less so by deletion of *lptA*. A seed strain that is suitable for industrial production is available, as is an immunogenicity assay.

Disclosure No significant relationships.

P679 NEISSERIA GONORRHOEA (GC) CULTURE POSITIVITY BY INDICATION FOR CULTURE AND ANATOMIC SITE, SEATTLE, WASHINGTON, 2017–2018

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Background In order to increase the number of gonococcal isolates available for antimicrobial susceptibility surveillance, we expanded indications for GC culture in a municipal STD clinic in Seattle, Washington. We evaluated GC culture positivity by clinical criteria.

Methods In 2017–2018, GC culture specimens were collected from STD clinic patients who met these criteria: (1) contact to GC, (2) GC NAAT+ not yet treated, or (3) symptomatic urethritis/cervicitis with intracellular diplococci on gram stain. Clinicians inoculated Modified Thayer-Martin agar plates at the bedside and incubated in a candle jar. Patient characteristics and indication for culture were abstracted from medical records; culture positivity was compared by indication, anatomic site, and patient group with Fisher's exact test.

Results Clinicians collected a total of 3,884 specimens, of which 1,107 (29%) were GC culture positive. Culture positivity among 74 endocervical, 1,611 pharyngeal, 1,154 rectal, and 1,045 urethral isolates was 30%, 17%, 29%, and 46%, respectively. Among contacts to GC, endocervical culture positivity was 6/26 (23%), pharyngeal 79/752 (11%), rectal 88/549 (16%), and urethral 71/445 (16%). Urethral culture positivity in male contacts without urethral discharge was low (6/221 [3%]). Pharyngeal culture positivity among GC contacts who were men who have sex with men was similar to heterosexual men (10% of 719 vs 12% of 17, $p=0.68$) but lower than pharyngeal positivity among women (43% of 14, $p<0.01$). Among patients with a recent NAAT+ screening test, cultures were positive in 12/35 (34%) endocervical, 133/514 (26%) pharyngeal, 168/337 (50%) rectal, and 30/94 (32%) urethral specimens. Most (91% of 476) men with urethritis and intracellular diplococci on gram stain were culture positive.

Conclusion Men with symptomatic urethritis had the highest GC culture yield (91%), followed by persons with recent GC NAAT+ (26–50%). Cultures in GC contacts had a modest yield (11%–23%). These criteria were appropriate for obtaining GC isolates for antimicrobial surveillance.

Disclosure No significant relationships.

P680 OROPHARYNGEAL GONORRHOEA IN THE ABSENCE OF UROGENITAL GONORRHOEA IN A SEXUAL NETWORK OF MALES AND FEMALES

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Background We describe a sexual network consisting of two males and five females who were tested for gonorrhoea at