Epidemiological Analysis of Chlamydia Trachomatis and Neisseria Gonorrhoeae in Saskatoon Health Region

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ABSTRACT

Background: The incidence rates of Chlamydia trachomatis (Ct) and Neisseria gonorrhoeae (GC) in Saskatoon Health Region are approximately double the national average. A descriptive study was designed to try to determine why.

Methods: The objectives of the study were: 1) to determine whether or not the introduction of a new detection method that is less invasive and more sensitive led to more tests being ordered and a higher percentage of positive cases; 2) to determine what percentage of physicians and STI clinic nurses notified Public Health within 72 hours of suspected Ct or GC; 3) to determine what percentage of physicians and STI clinic nurses listed sexual contact information; and 4) to compare recurrence rates between patients treated by physicians and STI clinic nurses.

Results: The number of tests ordered for Ct and GC increased substantially from 10,425 in 1998 to 28,885 in 2003, while the percentage of positive cases decreased from 7.2% to 3.6%. Only 1.3% of physicians and 9.1% of STI clinic nurses notified Public Health within 72 hours of suspected Ct or GC; 3) to determine what percentage of physicians and STI clinic nurses listed sexual contact information; and 4) to compare recurrence rates between patients treated by physicians and STI clinic nurses.

Conclusions: There is a need for additional education for health care providers in the management of sexually transmitted infections in Saskatoon Health Region.

MeSH terms: Chlamydia trachomatis; Neisseria gonorrhoeae; public health; management

La traduction du résumé se trouve à la fin de l'article.
Chlamydia trachomatis and Neisseria gonorrhoeae in Saskatoon Health Region.

METHODS

Notifications of Chlamydia trachomatis (Ct) and Neisseria gonorrhoeae (GC), positive lab reports and case management information are all electronically stored at Population Health Surveillance in the Saskatoon Health Region (Saskatoon). This electronic file was manually cross-checked against patient lab reports and notification forms to validate information stored. An epidemiologist and two health information management professionals were involved in data verification and cleaning. Information was gathered from the years 1998 to 2003. A second case of Ct or GC that was diagnosed within thirty days of an original diagnosis was removed from the analysis. Data on the original number of lab tests ordered was provided directly from the only lab in Saskatchewan.

In June of 2000, the province of Saskatchewan made the administrative decision to switch from the ELISA test procedure to exclusively use the Polymerase Chain Reaction (PCR) test procedure for the diagnosis of Ct and GC. At the same time, urine specimens were used almost exclusively in comparison to swabs. The first objective was to determine whether or not the introduction of a new detection method that is less invasive and more sensitive led to more tests being ordered and a higher percentage of positive cases. The authors reviewed all tests ordered and positive test counts in Saskatoon and used a comparison group from the health region in Regina. The Regina Health Region (Regina) has similar population size (N = 242,827 in 2003) to Saskatoon (N = 282,879 in 2003) and initiated the PCR urine test procedure at the same time as Saskatoon.

The second objective was to determine what percentage of physicians and STI clinic nurses notified Public Health within 72 hours of suspected Ct or GC. In Saskatchewan, physicians and nurses must report within 72 hours any person suspected of being infected with Ct or GC to a public health officer (category 2 communicable disease, The Public Health Act, 1994). Given the vagueness of terms within the Act, like “suspected” and “after forming an opinion”, we used two start times for 72 hours in our study. The first was notification within 72 hours of when a lab test was ordered (suspected case) and the second was notification within 72 hours of a positive lab result (confirmed case).

In Saskatchewan, the Public Health Act also mandates that physicians and nurses ask for information necessary to control the spread of disease, including names, telephone numbers and addresses of the patient’s sexual contacts. The third objective was to determine what percentage of physicians and STI clinic nurses listed sexual contact information, what percentage of sexual contacts could be located and what percentage of sexual contacts located tested positive for Ct or GC.

Given that STI clinic nurses spend 45 minutes on assessment, education and prevention counselling for each patient, recurrence rates within one year of initial occurrence were compared between patients treated by physicians and STI clinic nurses.

Ethics approval was obtained by the University of Saskatchewan Behavioural Research Ethics Board.

RESULTS

Detection methods

Saskatoon and Regina introduced PCR testing and urine specimens at the same time in June of 2000. In Saskatoon, the number of tests ordered for Ct and GC increased substantially from 10,425 in 1998 to 28,885 in 2003. In Regina, testing counts also increased considerably from 9,272 lab tests in 1998 to 22,960 in 2003. The largest increase in tests ordered in both cities occurred in 2000 with the introduction of PCR and urine specimens. Despite similar disease counts (1,053 in Saskatoon and 1,031 in Regina in 2003), Saskatoon health care practitioners ordered
Of the 5,603 incidence cases of Ct or GC from 1998 to 2003, 3,039 (54%) were initially seen by a physician, 1,571 by an STI clinic nurse (28%), and 993 (18%) by another source (prison or primary care nurse). Of the 3,039 cases who had initial contact with a physician, only 41 were reported to Public Health within 72 hours of a suspected infection (1.3%; 95% CI 0.9-1.8). The percentage of physicians who notified Public Health within 72 hours of positive test confirmation from the lab was 75.7% (95% CI 73.1-78.4). Additional time did not result in extra notifications. The mean duration of time between a physician ordering a test, confirmation of a positive test result (26.2%; 95% CI- 23.9-28.7), 541 had a negative test result, 245 refused to be tested and 515 agreed to be tested but did not present for testing. Of sexual contacts located and tested, 464 out of 1,005 (46.2%; 95% CI 43.3-49.0) tested positive for Ct or GC.

Recurrence rates of Ct or GC within one year of initial visit were compared between patients primarily treated by physicians vs. STI clinic nurses. Out of 3,039 cases treated by physicians, 220 (7.2%) patients developed a recurrence within one year from the initial date seen. Out of 1,737 cases treated by STI clinic nurses, 100 patients developed a recurrence within one year (5.7%). The relative risk was 1.26 (95% CI 1.00-1.58).

The timely reporting of Ct and GC and the national average.

In Saskatoon, the introduction of PCR and urine testing resulted in significant increases in the number of tests ordered for Ct and GC, but the percentage of positive lab test results reduced by 50% (7.2% to 3.6%). This finding is not consistent with a study from Nova Scotia, although the overall percentage positive is similar.4 One study from England suggests the percentage positive can be as high as 17.4%.7 Given that Saskatoon and Regina have approximately the same number of positive cases per year, it remains unclear why Saskatoon health care practitioners ordered approximately 6,000 more tests in 2003.

Physicians and nurses play a critical role in preventing and treating sexually transmitted infections.5 A number of reports indicate the need for additional education for health care providers in the management of sexually transmitted infections.8-10,14-16 Future research needs to address optimal notification time of suspected infections to Public Health, assess effectiveness of strategies to increase reporting of sexual contact information and determine what factors impact likelihood of repeat infection.

REFERENCES


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RÉSUMÉ

**Contexte :** Les taux d’incidence de Chlamydia trachomatis (Ct) et de Neisseria gonorrhoeae (GC) dans le district de santé de Saskatoon sont environ le double de la moyenne nationale. Nous avons mené une étude descriptive pour tenter d’expliquer ce phénomène.

**Méthode :** L’étude avait les objectifs suivants : 1) déterminer si l’introduction d’une nouvelle méthode de dépistage, moins effractive et plus sensible, a entraîné ou non une augmentation des tests prescrits et du pourcentage de tests positifs; 2) déterminer le pourcentage des médecins et des infirmières de cliniques d’ITs ayant avisé la santé publique des cas suspects de Ct ou de GC dans un délai de 72 heures; 3) déterminer le pourcentage des médecins et des infirmières de cliniques d’ITs ayant indiqué les coordonnées des contacts sexuels des cas; et 4) comparer les taux de récurrence chez les patients traités par les médecins et par les infirmières de cliniques d’ITs.

**Résultats :** Le nombre de tests de dépistage de Ct et de GC prescrits a considérablement augmenté entre 1998 et 2003 (de 10 425 à 28 885), mais le pourcentage de tests positifs a diminué, passant de 7,2 % à 3,6 %. À peine 1,3 % des médecins et 9,1 % des infirmières de cliniques d’ITs ont avisé la santé publique des cas suspects dans un délai de 72 heures. Un peu plus de la moitié (51,2 %) des médecins ont indiqué les coordonnées des contacts sexuels, contre 85,4 % des infirmières de cliniques d’ITs. Les taux de récurrence de Ct ou de GC moins d’un an après le traitement initial étaient inférieurs de 26 % chez les patients traités par les infirmières de cliniques d’ITs que chez les patients traités par les médecins (5,7 % contre 7,2 %).

**Conclusion :** Les dispensateurs de soins du district de santé de Saskatoon auraient besoin d’une formation complémentaire sur la gestion des infections transmises sexuellement.