Counselling for Chlamydia Case Management

A Rapid Review

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Region of Peel
working with you

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Key Messages

1. For Sexually Transmitted Infection (STI) incidence:

    - Brief duration counselling (<30 mins) does not reduce STI incidence among adolescents or adults.

    - Moderate duration counselling (30 to 120 mins) can reduce STI incidence among adolescents but not adults.

    - Longer duration counselling (>two hours) can reduce STI incidence among adolescents and adults.

2. For condom use:

    - Brief duration counselling (<30 mins) does not increase condom use among adults.

    - Moderate duration counselling (30 to 120 mins) does not increase condom use among adults.

    - Longer duration counselling (>two hours) can increase condom use among adolescents and adults.

3. Longer duration counselling (>two hours) is more effective in the short term and when conducted in-person or provided to ethnic minority clients.

4. Clients at highest risk for acquiring an STI should receive longer duration counselling (>two hours).

Executive Summary

Research Question

What is the effectiveness of brief counselling on repeat STIs, safer sexual behaviours, or sexual risk behaviours among individuals who test positive for chlamydia?

Context

There is a high incidence of chlamydia in Peel region. The Healthy Sexuality (HS) Program uses a significant amount of limited resources to deliver brief counselling to those who test positive for chlamydia. We must consider whether brief counselling as part of chlamydia case management is an adequate and efficient means to decrease STI incidence.

Methods and Results

A search for published and grey literature returned 601 results. After assessing for relevance, quality, and overlap, three guidelines and one systematic review were included in this review.

Synthesis of Findings

For STIs, brief duration counselling (<30 mins) does not reduce STI incidence among adolescents or adults. Moderate duration counselling (30 to 120 mins) can reduce STI incidence among adolescents but not adults. Longer duration counselling (>two hours) can reduce STI incidence among adolescents and adults.

For condom use, brief duration counselling (<30 mins) does not increase condom use among adults. Moderate duration counselling (30 to 120 mins) does not increase condom use among adults. Longer duration counselling (>two hours) can increase condom use among adolescents and adults.

Longer duration counselling (>two hours) is more effective in the short term and when conducted in-person or provided to ethnic minority clients. Clients at highest risk for acquiring an STI should receive longer duration counselling (>two hours).

Recommendations

1. Discontinue brief counselling for those who test positive for chlamydia.
    a. Continue conducting chlamydia case management to ensure adequate treatment for those who have not received treatment or require follow-up.
2. Reallocate public health nursing resources from chlamydia brief counselling to other priority work.
3. Explore other interventions that are effective and feasible to increase safer sex behaviours and reduce STI incidence.
4. Consider how findings can be applied to brief counselling for other STIs such as individuals who test positive for gonorrhea who have received first-line treatment and follow-up.
5. Investigate options for longer duration counselling for individuals at highest risk of acquiring or transmitting virulent STIs (e.g., core transmitters).

1 Issue

Chlamydia is the most commonly reported STI in Peel and Ontario (1). Chlamydia cases[1] comprise a majority (84 per cent in 2017) of all reportable STI cases in Peel region.

Local and provincial data indicate that chlamydia rates, and other reportable STI rates, are rising (1). Data show an increasing trend in chlamydia since 2007 locally and provincially (1). Of the reportable STIs, chlamydia is the least likely to develop serious sequelae[2].

The HS Program at the Region of Peel - Public Health (ROP-PH) prevents or reduces the burden of STIs and blood-borne infections, and promotes healthy sexuality (2,3). HS public health nurses conduct case management for all reportable[3] STIs in Peel region. STI case management often involves brief counselling (<10 minutes by telephone) in which a public health nurse provides education or information about STI prevention, transmission, and treatment. As a result, the HS Program's case management requirements are becoming more burdensome each year.

We must determine whether brief counselling as part of chlamydia case management is an effective use of our limited resources. This review will examine whether brief counselling can prevent repeat STIs and promote safer sexual behaviour among individuals who test positive for chlamydia.

[1] A case refers to an individual who has tested positive for an STI.
[2] Sequelae are secondary health condition(s) resulting from the initial infection.
[3] Chlamydia, gonorrhea, syphilis, and HIV/AIDS are reportable STIs.

2 Context

The HS Program uses a significant amount of limited resources to deliver brief counselling to those who test positive for chlamydia. We must consider whether brief counselling for those who test positive for chlamydia is an effective means to decrease STI incidence.

Mandate

We are mandated to ensure individuals who test positive for reportable STIs receive appropriate treatment and counselling by either a community healthcare provider or public health (4). The College of Physicians and Surgeons of Ontario requires testing physicians to communicate a positive test result to the patient and make reasonable efforts to ensure appropriate treatment and follow-up[4] (5). If public health cannot obtain treatment and counselling confirmation from the healthcare provider ordering the testing, we must contact the individual to ensure treatment and counselling is provided (4).

Current Practice

The HS program provides brief counselling to individuals who test positive for chlamydia as part of case management. Brief counselling is didactic, administered over the telephone, and lasts less than 10 minutes. Due to staffing limitations, a temporary change was made. As of December 2017, the HS program provides brief counselling

[4] Follow-up refers to clinically appropriate actions taken after receiving a patient's test results.

only to chlamydia cases deemed priority[5] (level four case management; Appendix A). This temporary change in counselling practice resulted in significantly fewer individuals receiving brief counselling for chlamydia, requiring fewer public health resources. Data from the same six-month period (December to May) before and after this change indicate that the number of chlamydia cases have remained relatively stable (Appendix B).

Health Burden and Resource Constraints

Counselling requirements continue to grow each year as STI rates rise locally and provincially. In 2017, there were 4139 chlamydia cases, comprising 84 percent of all reportable STI cases locally (6). Over the past five years (2013 to 2017), chlamydia rates increased locally from 229.0 to 274.8 per 100,000 and provincially from 255.9 to 313.8 per 100,000 (7).

Compared to chlamydia, Public Health is mandated to follow more extensive counselling and case management practices for gonorrhea, infectious syphilis, and HIV (4). This mandate is due to an increased likelihood of developing serious sequelae or treatment resistance with these infections. Although HIV rates remained relatively stable from 2013 to 2017, rates of gonorrhea and infectious syphilis increased locally and provincially (7).

Expert Opinion

[5] Priority cases for chlamydia are those who are untreated or whose treatment is unknown, less than 16 years of age, pregnant, co-infected with another STI, positive for lymphogranuloma venereum, or have three or more previous STI diagnoses.

We approached 13 Canadian experts in the field of STIs regarding whether brief counselling is an essential component of chlamydia case management. Four experts responded. No definitive recommendations on counselling for chlamydia cases were provided.

Public Health Consultation

We contacted 11 Canadian public health units to understand their current practices for chlamydia counselling during case management. Five of the seven public health units that responded indicated they limit their brief counselling efforts for chlamydia case management (Appendix C).

3 Literature Review Question

What is the effectiveness of brief counselling[6] on repeat STIs, safer sexual behaviours or sexual risk behaviours among individuals who test positive for chlamydia?

P - Population	Individuals who test positive for chlamydia
I - Intervention	Brief counselling
C - Comparison	Any comparison
O – Outcome	Primary: Repeat STIs Secondary: Safer sexual behaviours, sexual risk behaviours

[6] Brief counselling is a single interactive confidential session of <30 minutes in which a healthcare provider gives education or information about STI prevention, transmission, and treatment. Delivery methods include in-person, electronic, or by telephone.

4 Literature Search

In May 2018, a search of published and grey literature was conducted. The search was limited to synthesized evidence from the past 10 years. Databases searched were Academic Search Premier, Cumulative Index of Nursing and Allied Health Literature (CINAHL), Medline, Medline In-Process, Global Health, Healthstar, PsycINFO, and Cochrane Database of Systematic Reviews (Appendix D). Health Evidence™ was also searched.

Grey literature sources were Centers for Disease Control (CDC), CDC Community Guide, British Columbia Centres for Disease Control (BCCDC), Public Health Agency of Canada (PHAC), Provincial Infectious Diseases Advisory Committee (PIDAC), National Institute for Health and Care Excellence (NICE), World Health Organization (WHO), Public Health Ontario (PHO), National Guideline Clearing House, Turning Research into Practice (TRIP), and Google Customized Search (Appendix D).

5 Relevance Assessment

Two reviewers independently screened titles and abstracts to assess the relevance of the search results. Two reviewers also conducted full text review of the published and grey literature. Discrepancies were discussed until consensus was reached. Articles were assessed for relevance using the following criteria:

- Inclusion criteria: English language; published between 2008 and 2018; synthesized literature that includes adult populations who have tested positive for chlamydia; intervention includes brief, single-session, one-to-one counselling; outcomes include repeat STIs, safer sex behaviours, or sexual risk behaviours.

- Exclusion criteria: Developing countries; intervention focuses only on multiple counselling sessions, motivational interviewing, cognitive behavioural therapy, peer-to-peer counselling, HIV counselling, health education programs, or partner notification.

6 Results of the Search

The searches identified 601 articles (Appendix E). After removing 50 duplicates and 538 non-relevant articles, 13 articles received full text assessment. Eight of these were excluded. Three guidelines and two systematic reviews were selected for critical appraisal.

7 Critical Appraisal

A minimum of two reviewers independently appraised the quality of the three guidelines and two systematic reviews. The AGREE II tool (8) and the Health Evidence™ Quality Assessment tool (9) were used to conduct critical appraisal. Discrepancies in appraisal scores were resolved through discussion until consensus was reached.

One guideline and one systematic review received strong quality ratings. Two guidelines received moderate quality ratings. One systematic review was excluded due to weak quality.

8 Description of Included Studies

Three guidelines and one systematic review were included. The descriptions are provided in order of decreasing level of synthesis and quality. There was no significant study overlap between the guidelines and systematic review. However, the Centers for

Disease Control (CDC) guideline (10) did reference the United States Preventative Task Force (USPTF) guideline (11). The review team included both guidelines because the USPTF guideline provided more detailed information on the intervention and outcomes of interest. The studies included participants with any STI; they did not focus solely on chlamydia. The counselling interventions from included studies were of mixed durations[7].

USPTF (2014). Behavioral counselling interventions to prevent sexually transmitted infections: United States Preventative Task Force recommendation statement (11).

This guideline was rated as strong quality. The objective was to address the benefits and harms of counselling interventions in primary care to prevent STIs among adolescents (age range 11 to 19) and adults (age range 13 to 71). Evidence was derived from a systematic review conducted by members of the USPTF (12,13). The systematic review included 31 controlled trials that examined the effectiveness of counselling sessions in reducing STI incidence (12,13). Included trials were conducted in highly developed countries as defined by the World Health Organization. The population of interest was sexually active adolescents and adults who were at increased risk of acquiring or transmitting an STI. Studies were assessed for quality and recommendations were graded. High risk for acquiring an STI was defined as sexually active adolescents. High risk also included adults who (a) had current STIs or STIs in the past year; (b) had multiple sex partners; or (c) did not consistently use condoms.

[7] Counselling durations varied in intensity and included both single or multiple sessions. Some brief duration counselling were feasible to conduct in primary care offices, while other longer duration counselling required referral from primary care to specialized and trained staff.

The guideline identified sub-populations with higher STI prevalence (Appendix F). The counselling interventions ranged in duration and intensity and included one-to-one in-person counselling, computer-delivered counselling, videos, and/or small group workshops. The interventions were conducted in primary care or outpatient clinical settings including reproductive health clinics, STI clinics and mental health clinics. The guideline focused on clinical outcomes (e.g., STI incidence), behavioural outcomes (e.g., condom use), and harms of the intervention. See Appendix F.

PIDAC (2009). Sexually transmitted infections case management and contact tracing best practice recommendations (14).

This guideline was rated as moderate quality. The objectives were to help with STI case management and STI contact tracing, and prevent harm to infected cases and contacts. Evidence was derived from 22 randomized trials that examined the effectiveness of counselling sessions in reducing STI incidence. A majority of included trials were conducted in the United States. The population of interest was those who test positive for an STI and their contacts. The recommendations were graded, but individual quality ratings for each trial were not provided. High risk was defined as individuals (a) with a current, repeat, or previous STI; (b) of younger age; (c) reporting more than one sex partner in 12 months; (d) with concurrent STIs; or (e) with a high risk partner. The counselling interventions ranged in duration and intensity and included one-to-one counselling in-person, computer-derived counselling, videos, and/or small group workshops. The outcome of interest in this guideline was behaviour change to reduce future STI risks and avoid reinfection. See Appendix F.

CDC (2015). Sexually transmitted diseases treatment guidelines (10).

This guideline was rated as moderate quality. The objective was to provide clinical guidance for preventing and controlling STIs, including effective strategies for education and counselling. Evidence was derived from three randomized trials, one systematic review, and one guideline that examined the effectiveness of counselling interventions in reducing STI incidence. The included studies were conducted in the United States. The population of interest was individuals at risk for acquiring an STI, including those who had tested positive. Guideline authors did not provide information about quality assessment. The counselling interventions ranged in duration and intensity and included one-to-one counselling in-person, computer-derived counselling, videos, and/or small group workshops. The outcomes of interest were STI treatment, alleviation of STI signs and symptoms, prevention of STI sequelae, and prevention of STI transmission. See Appendix F.

Eaton et al. (2012): Meta-analysis of single-session behavioral interventions to prevent sexually transmitted infections: Implications for bundling prevention packages (15).

This systematic review was rated as strong quality. The objective was to examine whether single-session counselling reduces STI incidence or increases condom use in adolescents and adults (age range 13 to 36). Evidence was derived from 20 randomized and non-randomized control trials consisting of 29 interventions. A majority of included trials were conducted in the United States. The population consisted of all adolescents and adults, including those who had tested positive for an STI. Evidence was assessed for quality. The interventions included single-session counselling focused on reducing sexual risk. The counselling durations varied; average length was 79

minutes. The intervention formats included one-to-one in-person counselling, computer-delivered counselling, videos/ DVDs, audiotapes, and/or small group workshops. The intervention settings included brothels, physician offices, STI clinics, and women's health clinics. The outcomes of interest were STI incidence and condom use. See Appendix F.

9 Synthesis of Findings

Overall, longer duration counselling[8] reduces STI incidence and increases condom use among adolescents and adults.

Refer to Table 1.

Table 1. Effectiveness of Counselling Interventions on STI Incidence and Condom Use

	Outcomes	
Counselling Duration	**STI Incidence**	**Condom Use**
Brief Duration (<30 mins)	**-**	**-**
Moderate Duration (30 to 120 min)	**+/-**	**-**
Longer Duration (>two hours)	**+**	**+**
Effective (+) Mixed effect (+/-) No effect (-)		

[8] Terms for STI counselling in the literature included risk reduction counselling, behavioural counselling, and preventative counselling. These terms were used interchangeably.

STI Incidence

Brief duration counselling (<30 mins) does not reduce STI incidence among adolescents or adults.

Brief duration counselling did not show a significant reduction in the odds of acquiring an STI among adolescents or adults compared to control interventions [OR 0.17; 95% CI 0.02, 1.47 (one study, n=219) and OR 0.83; 95% CI 0.66, 1.04; I^2=24.2% (four studies, n=42,238), respectively] (11,12,13).

Moderate duration counselling (30 to 120 mins) can reduce STI incidence among adolescents but not adults.

Moderate duration counselling showed a 43 per cent reduction in the odds of acquiring an STI among adolescents compared to control interventions [OR 0.57; 95% CI 0.37, 0.86; I^2=0% (two studies, n=1,021)] (11). Moderate duration counselling did not show a significant reduction in the odds of acquiring an STI among adults compared to control interventions [OR 0.85; 95% CI 0.66, 1.10; I^2= 66.2% (six studies, n=13,351)] (11).

Longer duration counselling (>two hours) can reduce STI incidence among adolescents and adults.

Longer duration counselling resulted in a 62 per cent reduction in the odds of acquiring an STI among adolescents compared to control interventions [OR 0.38; 95% CI 0.24, 0.60; I^2=65% (five studies, n=2,423)] (11). Longer duration counselling showed a 30 per cent reduction in the odds of acquiring an STI among adults compared to control interventions [OR 0.70; 95% CI 0.56, 0.87; I^2=23% (nine studies, n=6,418)] (11).

Single-session counselling of various durations (average intervention duration 79 minutes), resulted in a 35 per cent reduction in the odds of acquiring an STI among adolescents and adults compared to control interventions [OR 0.65; 95% CI 0.55, 0.77; I^2=70% (number of interventions=29)] (15). Greater effects were observed when the counselling intervention was longer duration (15). Counselling that is longer duration and tailored to the individual is more effective at reducing STI incidence than a didactic teaching session alone (no data provided) (14).

Condom Use

Brief duration counselling (<30 mins) does not increase condom use among adults.

Brief duration counselling did not show a significant increase in the odds of condom use among adults compared to control interventions [OR 1.10; 95% CI 0.87, 1.39; I^2=0% (three studies, n=2,064)] (11,12,13). Only one trial examined whether brief duration counselling increased condom use in adolescents (13). The trial found that brief duration counselling increased condom use among adolescents compared to the control intervention at three months follow-up but not at nine months follow-up (13).

Moderate duration counselling (30 to 120 mins) does not increase condom use among adults.

Moderate duration counselling did not show a significant increase in the odds of condom use among adults compared to control interventions [OR 1.21; 95% CI 1.00, 1.46; I^2=28% (four studies, n=7,614)] (11). Only one trial examined whether moderate duration counselling increased condom use in adolescents (13). The trial found that

moderate duration counselling did not increase condom use among adolescents compared to the control intervention (13).

Longer duration counselling (>two hours) can increase condom use among adolescents and adults.

Longer duration counselling resulted in 29 per cent greater odds of condom use among adults compared to control interventions [OR 1.29; 95% CI 1.13, 1.48; I^2=0% (four studies, n=7,802)] (11). Three trials examined the effects of longer duration counselling on condom use among adolescents, mixed effects were found (13).

Single-session counselling of various durations (average intervention duration 79 minutes), resulted in a small but significant increase in condom use among adolescents and adults compared to the control group [*d* 0.22; 95% CI 0.07, 0.36; I^2=83% (number of interventions=13)] (15).

Longer duration counselling (>two hours) is more effective in the short term and when conducted in-person or provided to ethnic minority[9] clients.

Longer duration counselling achieved greater effectiveness when follow-up was completed closer to the intervention (intervention follow-up ranged from two months to two years and two months) (15). Counselling was more effective when conducted in-person (individually or in a group setting) rather than delivered using computer, audiotape or video (15). Counselling achieved greater effectiveness when it was provided to ethnic minority participants or if the control group differed from standard care (e.g., wait list only) (15).

[9] Ethnic minority groups included African Caribbean Black, Hispanic, and Asian ethnicities.

Successful interventions provided information about STIs and transmission, skill training[10], or targeted counselling to the age, sex, or ethnicity of participants (11). From the available evidence, it could not be determined whether intervention characteristics were related independently to effectiveness (11,15).

Evidence did not distinguish findings by type of STI due to an insufficient number of studies reporting STI type separately. Counselling was not associated with adverse effects (11).

Clients at highest risk for acquiring an STI should receive longer duration counselling (>two hours).

Longer duration counselling should be offered to those at highest risk for acquiring STIs (10,11,14). Individuals at highest risk are defined as adolescents who are sexually active (11,14,15). Highest risk also includes adults who have current STIs, multiple partners within the past year, do not consistently use condoms, or are part of a population with higher prevalence of STIs (e.g., men who have sex with men) (11,14,15).

Public health should consider whether there are enough resources to undertake longer duration counselling to engage higher risk cases in intensive behaviour change (14). Management may also consider leveraging community partnerships, secondments of staff, or training other service providers to increase availability of longer duration

[10] Skill training involved teaching skills and knowledge related to how to use a condom, communicate or negotiate safer sex, problem solve and/or set goals.

counselling services (14). Staff should consider involvement in, or advocacy for, behaviour change interventions that are multi-level[11] in their approach (14).

10 Applicability and Transferability

The rapid review project team met with an ROP-PH Associate Medical Officer of Health, Director, Manager, Supervisors, and public health nurses. An applicability and transferability (A&T) worksheet was used to consider the findings and recommendations in our local context (Appendix G).

Political Acceptability

This practice change would likely be politically acceptable.

- The local government is likely to view this change positively, as it demonstrates fiscal responsibility and evidence-informed decision making.
- This change would fall within our mandate.
- Some healthcare providers may perceive this change negatively, as a transfer in professional responsibility. However, healthcare providers conducting the testing are required to communicate results to the patient and make reasonable efforts to ensure appropriate treatment and follow-up for a positive test result.

Social Acceptability

This practice change would likely be socially acceptable.

[11] Multi-level interventions involve the couple, their network, and/or their community and include legal, policy, or systematic considerations.

- The general public may view this change as less invasive to privacy, since follow-up would be conducted by the healthcare provider conducting the testing. Some members of the general public may be indifferent to this practice change.

- ROP-PH should consider whether it is ethical to put so many resources into brief counselling and case management for an infection with low morbidity. Further, ROP-PH could focus its limited resources toward effective interventions for safer sexual behaviour change to reduce incidence of more virulent reportable STIs.

Available Resources

This practice change will save resources that could be allocated to other priority work.

- Resource savings for discontinuing brief counselling for chlamydia (level three case management) could include the time public health nurses spend contacting a case and conducting brief counselling as well as the time Healthy Sexuality assistants or public health nurses spend documenting and inputting data.

- Some administrative requirements for chlamydia case management would remain unchanged such as confirming treatment and follow-up with the testing healthcare provider.

- Public health nursing resources could be refocused toward other priority work.

Organizational Expertise and Capacity

This practice change aligns with organizational priorities but will require an implementation plan and a change management plan.

- ROP-PH current strategic priorities align with discontinuing brief counselling for chlamydia.
- If brief counselling for those who test positive for chlamydia is discontinued, the HS Program would need to develop:
    - Clear policy, procedure, and messaging.
    - A change management plan for internal staff.
    - Surveillance strategies for the continued monitoring of HS Program data.

<u>Transferability</u>

- Evidence from this rapid review is generalizable to the Peel population, although the populations differ slightly in ethnicity.
- Healthcare providers have the knowledge and skill to provide chlamydia treatment and follow-up. Resources could be provided to support primary care physicians with chlamydia counselling. However, given that brief counselling is ineffective, it was concluded that the ROP-PH should instead encourage healthcare providers conducting the testing to complete treatment and follow-up.
- ROP-PH should consider providing other effective and feasible population-level interventions to promote safer sex behaviours and reduce STI incidence.

- Discontinuing this intervention could result in missed interactions with vulnerable populations such as clients younger than 16, pregnant women, or those with safety or consent issues. However, the HS program interacts with vulnerable clients in other ways such as through providing clinical services and conducting case management of other reportable STIs.

11 Recommendations

1. Discontinue brief counselling for those who test positive for chlamydia.
    a. Continue conducting chlamydia case management to ensure adequate treatment for those who have not received treatment or require follow-up.
2. Reallocate public health nursing resources from chlamydia brief counselling to other priority work.
3. Explore other interventions that are effective and feasible to increase safer sex behaviours and reduce STI incidence.
4. Consider how findings can be applied to brief counselling for other STIs such as individuals who test positive for gonorrhea who have received first-line treatment and follow-up.
5. Investigate options for longer duration counselling for individuals at highest risk of acquiring or transmitting virulent STIs (e.g., core transmitters).

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Appendices

Appendix A: Chlamydia Case Management Procedure

Appendix B: Chlamydia and Repeat Infection Data

Appendix C: Public Health Consultation

Appendix D: Literature Search

Appendix E: Literature Search Flowchart

Appendix F: Data Extraction Tables

Appendix G: Applicability & Transferability Worksheet

Appendix A: Chlamydia Case Management Procedure

Case management procedure currently level four:

Region of Peel
Working for you

Policy No. HS 09 005A App. I
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Effective Date: October 2016

LEVELS OF CHLAMYDIA CASE MANAGEMENT

Level	Expectation	Notes
1	Case management as per current policies and procedures	
2	Index Cases: -Case management as per current policies and procedures -Inquire as to number of contacts in last 60 days Contacts: -Offer index case option of contact notification via self referral or via public health. Inquire if contact is pregnant, < 16 years of age or co-infected with gonorrhea/syphilis/human immunodeficiency virus (HIV)	If case will inform contacts, discharge. If public health will inform contacts, attempt to call/text the contact x 2. If no success, discharge. If contact is high risk (<16 years, co-infected, pregnant, exposed to lymphogranuloma venereum (LGV), make 2 calls/texts and send letter prior to discharge.
3	Index Cases: -Case management as per current policies and procedures. -Inquire as to number of contacts in last 60 days Contacts: -Instruct index to inform all contacts, unless contact is <16 years of age, co-infected with gonorrhea/syphilis/HIV, pregnant or exposed to LGV **Note:** If case management (counselling, treatment, index instructed to notify contacts) has been completed by another health department and the case and contact are not < 16 years of age, co-infected or pregnant, the case can be discharged. The PHN is not required to contact the client.	If contact is high risk (<16 years of age, co-infected, pregnant, exposed to LGV) make 2 calls/texts and send letter prior to discharge.
4	Index Cases: -Case management of high risk index cases only as per current policies and procedures: • untreated or unknown treatment • <16 years of age • pregnant • co-infected with gonorrhea, syphilis or HIV • LGV -Inquire as to number of contacts in last 60 days Contacts: -Instruct index case to inform contacts	

Reviewed October 2016

Appendix B: Chlamydia and Repeat Infection Data

Chlamydia cases by date: Peel Region, December 1, 2016 to May 31, 2018

Group (Date range)	***Group A:*** **Post-change in case management (Level 4)** (Dec 1, 2017 - May 31, 2018)	***Group B:*** **Pre-change in case management (Level 3; comparable time period to Group A)** (Dec 1, 2016 - May 31, 2017)
Number of chlamydia cases	1,941	1,949
Number of clients	1,870	1,884
Number of clients with more than one chlamydia infection (within time period for group)	70 • 69 clients → 2 cases • 1 client → 3 cases	63 • 61 clients → 2 cases • 2 clients → 3 cases

Note: Counts for each grouping in this table are not mutually exclusive at the individual (client) level (e.g., clients can be counted in group one and two if they had cases in both time periods).

Source: Ontario Ministry of Health and Long-Term Care, integrated Public Health Information System (iPHIS) database, extracted by Region of Peel - Public Health [2018/07/31]

Appendix C: Public Health Unit Consultation

Health Unit or Agency	Response
Niagara Region Public Health	Brief counsel all positive cases, regardless of physician counselling.
Fraser Health Authority and BCCDC	
Ottawa Public Health	Only brief counsel priority cases (e.g. pregnant, untreated, <18, MSM), regardless of physician counselling.
Winnipeg Regional Health Authority	
Toronto Public Health	Only brief counsel cases that meet criteria for both priority case and physician did not counsel.
Hamilton Public Health	
York Region Public Health	

Appendix D: Search Strategy

Ovid Search

Database: EBM Reviews - Cochrane Database of Systematic Reviews <2005 to May 2, 2018>, Global Health <1973 to 2018 Week 16>, Ovid Healthstar <1966 to March 2018>, Ovid MEDLINE(R) <1946 to April Week 4 2018>, Ovid MEDLINE(R) In-Process & Other Non-Indexed Citations <May 02, 2018>, PsycINFO <2002 to April Week 4 2018>
Search Strategy:

---

1 exp Chlamydia Infections/ (28589)
2 "chlamydia".ti,ab. (42008)
3 exp Sexually Transmitted Diseases/ (472288)
4 "Sexually transmitted disease*".ti,ab. (34691)
5 exp Counseling/ (84886)
6 "counsel*".ti,ab. (207999)
7 "brief counsel*".ti,ab. (974)
8 ("review*" or "synth*" or "meta-analys*" or "guideline*").ti,pt. (4811408)
9 1 or 2 or 3 or 4 (510243)
10 5 or 6 or 7 (247176)
11 8 and 9 and 10 (2030)
12 remove duplicates from 11 (1404)
13 limit 12 to english language [Limit not valid in CDSR; records were retained] (1325)
14 limit 13 to yr="2008 -Current" (491)
15 remove duplicates from 14 (491)
16 exp HIV/ or exp HIV-2/ or exp HIV-1/ (320159)
17 ("HIV" or "human immunodeficiency virus*").ti. (435677)
18 16 or 17 (523690)
19 15 not 18 (122)
20 remove duplicates from 19 (122)

EBSCO Search

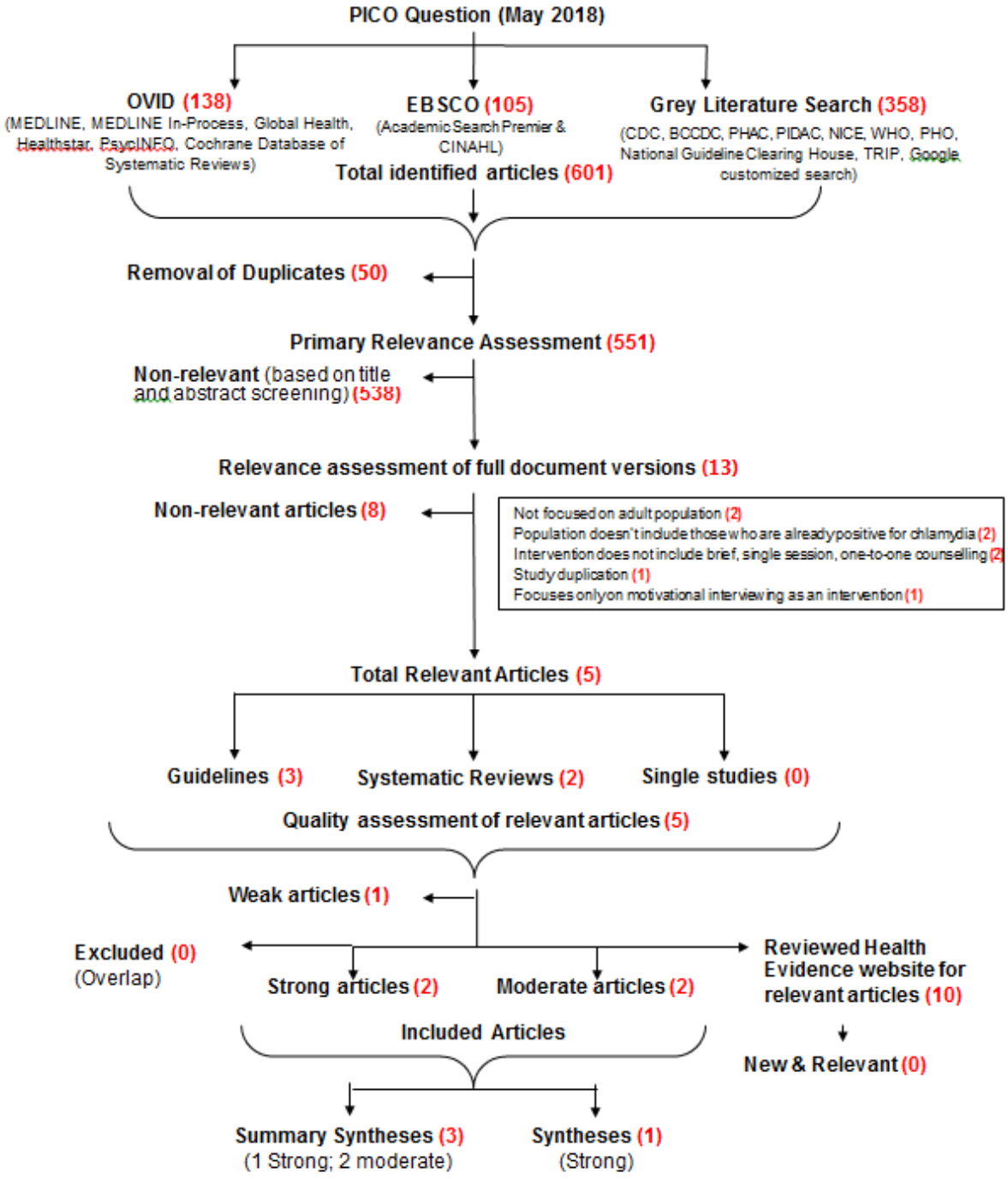
S16	S12 NOT S15	**Search modes** - Boolean/Phrase	View Results (94) Vi
S15	S13 OR S14	**Search modes** - Boolean/Phrase	View Results (109,059)
S14	TI "HIV"	**Search modes** - Boolean/Phrase	View Results (106,295)
S13	(MH "Human Immunodeficiency Virus+")	**Search modes** - Boolean/Phrase	View Results (4,863)
S12	S7 AND S8 AND S9	**Limiters** - Published Date: 20080101-20181231; English Language; Exclude MEDLINE records **Search modes** - Boolean/Phrase	View Results (167)
S11	S7 AND S8 AND S9	**Limiters** - Published Date: 20130101-20181231 **Search modes** - Boolean/Phrase	View Results (193)
S10	S7 AND S8 AND S9	**Search modes** - Boolean/Phrase	View Results (726)
S9	S5 OR S6	**Search modes** - Boolean/Phrase	View Results (242,619)
S8	S1 OR S2 OR S3 OR S4	**Search modes** - Boolean/Phrase	View Results (92,053)
S7	"review*" OR "synth*" OR "meta-analys*" OR "guideline*"	**Search modes** - Boolean/Phrase	View Results (6,666,139)
S6	"counsel*" OR "brief counsel*"	**Search modes** - Boolean/Phrase	View Results (240,868)
S5	(MH "Counseling+")	**Search modes** - Boolean/Phrase	View Results (21,451)
S4	"sexually transmitted disease*"	**Search modes** - Boolean/Phrase	View Results (31,231)
S3	(MH "Sexually Transmitted Diseases+") OR (MH "Sexually Transmitted Diseases, Viral+") OR (MH "Sexually Transmitted Diseases, Bacterial+") OR (MH "Sexually Transmitted Diseases, Protozoal+") OR (MH "Sexually Transmitted Diseases, Fungal+")	**Search modes** - Boolean/Phrase	View Results (62,602)
S2	"chlamydia"	**Search modes** - Boolean/Phrase	View Results (12,968)
S1	(MH "Chlamydia+") OR (MH "Chlamydia Infections+") OR (MH "Chlamydia Trachomatis") OR (MH "Chlamydophila Pneumoniae")	**Search modes** - Boolean/Phrase	View Results (6,707)

Grey Literature Search

Website	Search Terms	Hits	Title Screen	Full Text Screen	Relevant
Centers for Disease Control (CDC)	(Counsel*) AND (Chlamydia*)	1863	First 50	1	1
CDC Community Guide	(Counsel*) AND (Chlamydia*)	1	1	0	0
British Columbia Centers for Disease Control (BCCDC)	(Counsel*) AND (Chlamydia*)	40	40	1	0
Public Health Agency of Canada (PHAC)	(Counsel*) AND (Chlamydia*)	90,554	First 50	0	0
Provincial Infectious Diseases Advisory Committee (PIDAC)	(Counsel*) AND (Chlamydia*)	23	23	1	1
National Institute for Health and Care Excellence (NICE)	(Counsel*) AND (Chlamydia*)	8	8	0	0
World Health Organization (WHO)	(Counsel*) AND (Chlamydia*)	0	0	0	0
	(Counsel Chlamydia)	733	First 50	0	0
Public Health Ontario (PHO)	(Counsel*) AND (Chlamydia*)	23	23	0	0
National Guideline Clearing House	(Counsel*) AND (Chlamydia*)	13	13	1	1
Turning Research into Practice (TRIP)	(Counsel*) AND (Chlamydia*)	389	First 50	0	0
Google Customized Search	(Counsel*) AND (Chlamydia*)	602,000	First 50	0	0
	TOTAL	**695,647**	**358**	**4**	**3**

Titles of potentially relevant guidelines or reviews are included in Table 2 below. Search conducted on April 25, 2018. Relevance consensus on May 10, 2018.

Appendix E: Literature Search Flowchart



Appendix F: Data Extraction Tables

Data Extraction Guideline #1	
Last revised: 2018/07/17	
Behavioral Counseling Interventions to Prevent Sexually Transmitted Infections: U.S Preventative Services Task Force Recommendation Statement Guideline: http://annals.org/aim/fullarticle/1906847/behavioral-counseling-interventions-prevent-sexually-transmitted-infections-u-s-preventive Systematic Review: http://annals.org/aim/fullarticle/1906844/behavioral-sexual-risk-reduction-counseling-primary-care-prevent-sexually-transmitted Evidence Synthesis: https://www.uspreventiveservicestaskforce.org/Home/GetFile/1/1703/sties114final/pdf	
Note: Only evidence and recommendations relevant to the PICO question are outlined in the below table.	
Guideline General Information and Quality Rating	
Author(s), Date, Country	LeFevre ML on behalf of U.S. Preventative Services Task Force, 2014, United States
AGREE II Quality Assessment	Strongly rated (6/7) and recommended for use by two independent reviewers (JS & DP). • The guideline scored well on stakeholder involvement, rigour of development, clarity of presentation, editorial independence, and scope and purpose. • Information was missing for applicability; more specifically information was not provided on potential resource implications, barriers and facilitators to applying the recommendations, and guideline monitoring criteria.
Generalizability to local population	Generalizability: • Population can be generalized to the Peel population.
Details of Guideline	
Objective	To address the benefits and harms of counselling interventions in primary care to reduce risky sexual behaviour and prevent STIs among adolescents and adults.
Population	• All sexually active adolescents and adults who are at increased risk for acquiring or transmitting an STI (e.g., individuals with current STIs or an STI in the past year). • Includes all adults (age range 13 to 71) and adolescents (age range 11 to 19); inclusive of pregnant women and individuals of any sexual

	orientation.
	
	High Risk Definition:
	• All sexually active adolescents are at increased risk for STIs.
	• Other risk groups include adults with current STIs or other infections within the past year, adults who have multiple sex partners, and adults who do not consistently use condoms.
	• Other populations with a particularly high prevalence of STIs:
	  ○ African Caribbean Black
	  ○ Indigenous
	  ○ Latinos
	  ○ Men who have sex with men
	  ○ Persons with low incomes living in urban settings
	  ○ Current or former inmates
	  ○ Military recruits
	  ○ Persons who exchange sex for money or drugs
	  ○ Persons with mental illness or a disability
	  ○ Current or former intravenous drug users
	  ○ Persons with a history of sexual abuse
	  ○ Patients at public STI clinics

Target Audience	Clinicians and those making clinical practice decisions.

Included Evidence	• Evidence was derived from a systematic review conducted by members of the U.S Preventative Task Force which examined 31 controlled trials on the effectiveness of counselling sessions to prevent STIs.
	• These trials involved interventions that:
	  ○ Ranged in intensity from low (<30 mins), moderate (30 to 120 mins), and high (>two hours).
	  ○ Included one-to-one counselling in-person, computer-delivered counselling, videos and/or small group workshops.

Focus of the systematic review and literature review that informed this guideline	<u>The systematic review:</u> • Examines the benefits and harms of behavioural counselling for sexual risk reduction to prevent STIs in primary care among adolescents and adults of any sexual orientation or level of reported sexual activity. • Informs the 2014 U.S. Preventative Task Force recommendation and updates the previous review that formed the basis of the 2008 U.S. Preventative Task

	Force recommendation. • Includes randomized controlled trials.
Date of Search	2013
Databases Searched	Medline, PubMed, Cochrane Central Register of Controlled Trials, and CINAHL. Searches for unpublished literature were completed using websites for government and professional agencies. Manual searches were conducted of reference lists and grey literature. Key informants were also consulted.
Inclusion and Exclusion Criteria	<u>Inclusion Criteria</u> • English language • Good[12] or fair[13] quality randomized control trials. • Evaluates counselling interventions targeting risky sexual behaviours to prevent STIs in adolescents and adults (alone or in combination with other behaviours). • Interventions conducted in, or participants be recruited from, primary care or other outpatient clinical settings, including reproductive health clinics, STI clinics, and mental health clinics. • Study populations are from developed countries as defined by the World Health Organization. • Control groups include any of the following: ○ Usual care ○ Attention control ○ Minimal intervention (<15 min) ○ Wait list ○ No intervention • Outcomes at three months post baseline could include: ○ Clinical outcomes: STI incidence, major sequelae of STIs, and STI morbidity or mortality) ○ Behavioural outcomes: risky sexual behaviours (e.g., multiple partners), protective behaviours (e.g., condom use) ○ Harms of the intervention <u>Exclusion Criteria</u> • Excluded studies limited to persons with HIV (or populations with a very high prevalence of HIV),

[12] Good quality studies had adequate randomization procedures, allocation concealment, blinding of outcome assessors, reliable outcome measures, comparable groups at baseline and follow-up, low attrition, acceptable statistical methods, and adequate and faithful adherence to the intervention.
[13] Fair quality studies did not meet most of the good quality criteria.

	inmates and parolees, and persons in inpatient or residential settings because results limited to these groups may not be applicable to general primary care populations.
Number and Type of Studies Included	31 randomized control trials.
Quality of included studies	Individual quality ratings were provided for each trial. Only good or fair quality evidence were included. The majority of included trials were fair (i.e., moderate) quality. • Evidence on low-intensity counselling (<30 minutes) were gathered from 2/9 good quality trials and 7/9 fair quality trials. • Evidence on moderate-intensity counselling (30 to 120 minutes) were gathered from 1/12 good quality trials and 11/12 fair quality trials. • Evidence on high-intensity counselling (>two hours) were gathered from 5/18 good quality trials and 13/18 fair quality trials.
Results of the Guideline	

Relevant recommendations	Recommendation: **All sexually active adolescents and adults at higher risk for an STI should be offered, or referred to, high-intensity behavioural counselling** (pg. 894; Grade B[14]).
	*see pg. one for high risk definition
	
	Behavioural Counselling Benefits:
	• Moderate quality evidence indicates that high-intensity (>two hours) behavioural counselling has a moderate net benefit on STI incidence in adolescents and adults.
	• Evidence of counselling benefit increases with intervention intensity.
	  ○ High-intensity counselling (>two hours) interventions were the most effective at reducing STI incidence in adolescents and adults.
	  ○ Moderate-intensity counselling (30 to 120 minutes) interventions were less beneficial; some evidence of effectiveness in adolescents only.
	  ○ Low-intensity counselling (<30 minutes) interventions were least effective; and not

[14] Grade B indicates the service is recommended. There is a high degree of certainty that the net benefit is moderate or there is moderate certainty that the net benefit is moderate to substantial.

	shown to be effective in adolescents or adults. • There was increased condom use among adults who received high-intensity behavioural counselling. *Behavioural Counselling Harms:* • No consistent evidence was found to indicate sexual risk-reduction counselling is harmful. *Method of Delivery:* • Counselling interventions can be delivered through primary care clinicians or through referral to trained behavioural counsellors. • Methods included face-to-face counselling, videos, and written materials.
Evidence supporting relevant recommendations	**<u>STI Incidence</u>** **High-Intensity Counselling** *Adolescents:* • Evidence from five trials were utilized; all of which had significant findings; one was rated good quality and four were rated fair quality. • The evidence suggests that high-intensity counselling showed a 62 per cent reduction in the odds of acquiring an STI after 12 months compared to control interventions. ○ Odds ratio (OR) 0.38; 95% CI 0.24, 0.60; I^2=65% (n=2,423). ○ Heterogeneity was high in this analysis because of the very large effect size for the outcome of chlamydia infection in one study. *Adults:* • Evidence from nine trials were utilized; two of which had significant findings; two were rated good quality and seven were rated fair. • High-intensity interventions resulted in a 30 per cent reduction in the odds of acquiring an STI. ○ Odds ratio (OR) 0.70; 95% CI 0.56, 0.87; I^2=23% (n=6,418). **Moderate-Intensity Counselling** *Adolescents:* • Evidence from two trials were utilized; only one of which had significant findings; both were rated fair

	quality.
	• The evidence from the one trial suggests that moderate-intensity counselling showed a 43 per cent reduction in odds of acquiring an STI after 12 months compared to control interventions.
	  ○ Odds ratio (OR) 0.57 95% CI 0.37, 0.86; I^2=0% (n=1,021).
	Adults:
	• Evidence from six moderate-intensity counselling trials were utilized and did not show a significant reduction in the odds of acquiring an STI compared to control interventions.
	  ○ Non-significant odds ratio (OR) 0.85 95% CI 0.66, 1.10; I^2=66.2% (n=13,351).
	
	Low-Intensity Counselling
	Adolescents:
	• Low-intensity counselling did not show a significant reduction in the odds of acquiring an STI compared to control interventions.
	  ○ Non-significant odds ratio (OR) 0.17; 95% CI 0.02, 1.47 (1 study, n=219).
	
	Adults:
	• Low-intensity counselling did not show a significant reduction in the odds of acquiring an STI compared to control interventions.
	  ○ Non-significant odds ratio (OR) 0.83; 95% CI 0.66, 1.04; I^2=24.2% (4 studies, n=42,238).
	
	<u>Condom Use</u>
	
	High-Intensity Counselling
	Adolescents:
	• No meta-analysis was conducted for adolescents.
	• Evidence from three trials were reported.
	• The evidence showed mixed effectiveness.
	
	Adults:
	• Evidence from four fair quality rated trials were utilized.
	• The evidence suggests that individuals who received high-intensity counselling had 29 per cent greater odds of condom use compared to control

	interventions. ○ Odds ratio (OR) 1.29; 95% CI 1.13, 1.48; I^2=0% (n=7,802). **Moderate-Intensity Counselling** *Adolescents:* • No meta-analysis was conducted for adolescents. • Evidence from one trial was reported. • The trial showed moderate-intensity counselling did now increase condom use. *Adults:* • Moderate-intensity counselling did not show a significant increase in the odds of condom use compared to control interventions. ○ Non-significant odds ratio (OR) 1.21; 95% CI 1.00, 1.46; I^2= 28% (n=7,614). **Low-Intensity Counselling** *Adolescents:* • No meta-analysis was conducted for adolescents. • Evidence from one trial was reported. • The trial showed moderate-intensity counselling increased condom use at three months follow-up but not at nine months follow-up. *Adults:* • Low-intensity counselling did not show a significant increase in the odds of condom use compared to control interventions. ○ Low-intensity: non-significant odds ratio (OR) 1.10; 95% CI 0.87, 1.39; I^2=0% (n=2,064). <u>Successful interventions:</u> • Provided basic information about STIs and STI transmission; • Assessed the risk of transmission; • Provided skill training (such as condom use, communication about safer sex, problem solving, and goal setting); or • Included a targeted approach to the age, sex, and ethnicity of the participants. • The review did not find evidence to determine whether the following intervention characteristics

	were related independently to effectiveness: ○ Degree of cultural tailoring; ○ Group versus individual format; ○ Condom negotiation as an intervention component; ○ Counselor characteristics; ○ Setting; or ○ Type of control group. <u>Harms of Counselling:</u> • Evidence from two fair quality and one good quality trial explicitly reported no adverse effects associated with counselling. • No studies reported an overall paradoxical effect on the incidence of STIs. • No consistent evidence was found that counselling interventions increased sexual activity in adolescents.
Comments and limitations	• Low risk populations, illicit drug users, adults with psychiatric conditions and men (particularly MSM and adolescent men) were underrepresented in the sample. • Intervention intensity was difficult to ascertain, some trials did not provide details of contact time so that had to be estimated. • More data are needed in mixed-sex populations and broadly applicable interventions that could be used in primary care. • Few mobile and web-based interventions were included; research assessing the effect of these interventions on STI risk reduction in primary care is limited. • Reliability of self-reported behavioural outcomes is unknown.

Data Extraction Guideline #2	
Last revised: 2018/07/16	
Sexually Transmitted Infections Case Management and Contact Tracing Best Practice Recommendations https://www.publichealthontario.ca/en/eRepository/STIs%20Case%20Management%20Contact%20Tracing.pdf	
Note: Only evidence and recommendations relevant to the PICO question are outlined in the below table.	
General Information and Quality Rating	
Author(s), Date, Country	Provincial Infectious Diseases Advisory Committee (PIDAC), 2009, Canada
AGREE II Quality Assessment	Moderate (4/7) rated and recommended for use by three independent reviewers (JS, DP, & JM). • The guideline scored well on clarity in presentation and scope and purpose. • Moderate scoring was given for stakeholder involvement due to a lack of information on target population preferences. • Information was missing for rigour of development, editorial independence, and applicability. More specifically, information was limited on the criteria for selecting evidence, methods for formulating recommendations, potential resource implications, and monitoring criteria.
Generalizability to local population	<u>Generalizability:</u> • Population can be generalized to the Peel population.
Details of Guideline	
Objective	To aid with STI case management and contact tracing practices and prevent harm to infected cases and contacts.
Population	Those who test positive for an STI and their contacts. *High Risk Definition:* • All cases with an STI can be considered to have a marker for exposure which places them at increased risk when compared to the general population and should receive risk reduction counselling; this is particularly important for persons presenting with repeat STIs. • Higher risk cases may be characterized by young age, especially for females; reporting more than one sex partner concurrently or recently (e.g., six to 12 months); having had a previous STI; having more

	than one STI; having a high risk partner (e.g., a partner with other concurrent partners, or a partner with HIV).
Target Audience	Public Health Units (PHUs) and all individuals diagnosed with an STI.
Included Evidence	Evidence used: • Four randomized trials on the effectiveness of individual counselling sessions (intervention ≤one hour) • Four randomized trials on the effectiveness of multi-session individual counselling interventions (intervention >one hour and ≤10 sessions) • 14 randomized trials on the effectiveness of group counselling interventions (intervention >one hour and >10 sessions) • Intervention formats included one-to-one counselling in-person, computer-delivered counselling, videos, and small group workshops.
Focus of the systematic review and literature review that informed this guideline	Not applicable.
Date of Search	2007
Databases Searched	Medline search and unpublished literature search using Google.
Inclusion and Exclusion Criteria	No information provided on search criteria for inclusion or exclusion.
Number and Type of Studies Included	22 randomized trials.
Quality of included studies	• Individual quality ratings for each trial were not provided. • However, an overall quality rating was given for all of the evidence supporting each recommendation. ○ Evidence from recommendation 3.1 received an overall quality grade of IIA.[15] ○ Evidence from recommendation 3.2 and 3.3 received an overall quality grade of IIIB[16].
Results of the Guideline	
Relevant recommendations	Recommendation 3.1: **All cases with an STI should be offered client-centered risk reduction counselling.**

[15] Grade IIA indicates that there is strong evidence to support the recommendation for use. Evidence contains at least one well designed clinical trial without randomization or uncontrolled experiment.

[16] Grade IIIB indicates that there is moderate evidence to support the recommendation for use. Evidence includes opinions from respected authorities based on clinical experience, descriptive studies, or reports of expert committees.

	Client-centred counselling is more effective than a didactic teaching session alone: models which have shown benefit in at least one well-designed study include AIDS Risk Reduction Model and motivational interviewing techniques. (pg. 30-32; Grade IIA[4]) • Counselling can have multiple goals including ensuring successful treatment of the current STI and/or behaviour change to reduce future STI risks and avoid re-infection. • Counselling may incorporate a range of information provision, skills training, and addressing barriers to behaviour change. Recommendation 3.2: **Higher risk cases warrant more intensive efforts which may require engaging in longer term counselling interventions.** (pg. 30-32; Grade IIIB[5]) Recommendation 3.3: **Persons with repeat STIs should be offered more intensive counselling and follow-up, particularly those who subsequently present with another STI.** (pg. 30-32; Grade IIIB[5])
Evidence supporting relevant recommendations	**Evidence from recommendation 3.1** Client-Centered Risk Reduction Counselling • Strongly rated evidence from one book was utilized to evaluate theoretical approaches to behaviour change resulting in STI prevention. • This evidence suggests that theory based client-centred risk reduction counselling (i.e., multi-session high-intensity interventions) are more effective than a didactic teaching session alone in reducing STI incidence or sexual risk behaviour. **Evidence from recommendation 3.2 and 3.3** Intensive Counselling Efforts • Moderately rated evidence from 22 randomized trials were utilized to evaluate behaviour change interventions to prevent STIs. • Evidence from these trials suggests that longer interventions (intervention >one hour and >three sessions; average intervention duration=12 hours) may have more impact on STI prevention than brief

	interventions (intervention ≤one hour and one to two sessions; average intervention duration=52 mins). • Limited evidence from these trials suggests that brief counselling (intervention ≤one hour and one to two sessions; average intervention duration=52 mins) may have some impact on STI prevention.
Practice Implications	• PHU STI programs need to determine the optimal approach to counselling including partnering with clinical care providers and community agencies to engage high risk cases in intensive behaviour change interventions. This could include secondments of PHU staff to provide these services, or provision of training and support to other service providers. • PHUs may need to partner with other community organizations to involve more peer support for behaviour change. • In addition to interventions focused on individual cases, PHUs need to consider involvement in and advocacy for multilevel interventions (couple, network, community, and legal/policy/systemic interventions). • Resource allocations need to be reviewed to determine whether there are enough resources to undertake the interventions proven to impact risk behaviours and allow a focus on high risk populations in particular.
Comments and limitations	• Published summaries and reviews of existing prevention models indicate that there are relatively few published rigorous evaluations of interventions. • More research is needed on adaptation of interventions shown to be successful in one context to other settings. • Research is needed to determine cost-effectiveness of alternative STI prevention interventions and the optimal mix of service levels (i.e., individual, partners, community, specific institutions, and the general population). This would help to determine what resources should be directed to patient counselling interventions vs. other interventions.

Data Extraction Guideline #3	
Last revised:	
Sexually Transmitted Diseases Treatment Guidelines, 2015 https://www.cdc.gov/std/tg2015/tg-2015-print.pdf	
Note: Only evidence and recommendations relevant to the PICO question are outlined in the below table.	
General Information and Quality Rating	
Author(s), Date, Country	Centers for Disease Control and Prevention (CDC), 2015, United States
AGREE II Quality Assessment	Moderate (4/7) rated and recommended for use by two independent reviewers (JS & DP). • The guideline scored well on clarity of presentation, editorial independence, and scope and purpose. • Moderate scoring was given for stakeholder involvement due to a lack of information on target population preferences. • Information was missing for rigour of development, editorial independence, and applicability. More specifically, information was limited on the search strategy, criteria for selecting evidence, study methodology, methods for formulating recommendations, potential resource implications, barriers or facilitators to applying the recommendations, and whether the interests of the funding body influenced the recommendations.
Generalizability to local population	Generalizability: • Population can be generalized to the Peel population.
Details of Guideline	
Objective	To provide clinical guidance for the prevention and control of STIs; including effective strategies for STI education, counselling, pre-exposure vaccination, screening, diagnosis, treatment and follow-up.
Population	Those at risk for an STI, including those who have tested positive.
Target Audience	Physicians and healthcare providers.
Included Evidence	Evidence used: • Three randomized trials, one systematic review, one cohort study and one guideline on the effectiveness of counselling sessions to prevent STIs. • Intervention length ranged from brief (<30 minutes) to long (≥ two hours) duration. • Intervention formats included one-to-one counselling

	face-to-face, computer-delivered counselling, videos and small group workshops.
Focus of the systematic review and literature review that informed this guideline	Not applicable.
Date of Searches	2012 & 2013
Databases Searched	Medline
Inclusion and Exclusion Criteria	Inclusion Criteria • Outcomes include one of the following: 1) STI treatment 2) Alleviation of STI signs and symptoms 3) Prevention of STI sequelae 4) Prevention of STI transmission
Number and Type of Studies Included	Three randomized trials, one systematic review, one guideline, and one cohort study.
Quality of included studies	Included evidence was assessed for quality. However, individual quality ratings for each study were not provided.
Results of the Guideline	
Relevant recommendations	Recommendation: **All healthcare providers should routinely obtain a sexual history from patients and encourage risk reduction using prevention counselling** (pg. two). Recommendation: **Prevention counselling should be offered to all sexually active adolescents and to all adults at higher risk for an STI (i.e., those who have received an STI diagnosis, have had an STI in the past year, or have multiple sexual partners)** (pg. three). Recommendation: **For persons who are being treated for an STI other than HIV (or whose partners are undergoing treatment), counseling that encourages abstinence from sexual intercourse until completion of the entire course of medication is crucial** (pg. two).
Evidence supporting relevant recommendations	Prevention Counselling to all Sexually Active Adolescents and Adults with an STI diagnosis, STI in past year, or multiple sexual partners • Evidence from one guideline, one systematic review, two randomized control trials, and one observational cohort study were utilized to evaluate the effect of counselling interventions on STI incidence. Quality ratings were not provided for these studies.

	• This evidence suggests that high-intensity client-centered behavioural counseling should be offered and involves tailoring a discussion of risk reduction to the individual situation. • The observational cohort study indicated that brief risk reduction counselling provided by healthcare providers during HIV primary-care visits coupled with routine STI screening may reduce STI incidence in persons with HIV infection. <u>Counseling Messaging for Positive Cases: Encourage Abstinence until Treatment Completion</u> • Evidence from one randomized control trial were utilized to examine the effectiveness of counselling messages for avoiding unprotected sexual intercourse for those being treated for an STI. A quality rating was not provided for this evidence. • This randomized control trial suggests that women whose sexual partners use condoms may benefit from a hierarchical message that includes condoms, whereas women without such experience might benefit more from an abstinence-only message.
Comments and limitations	• Guideline authors did not identify any limitations.

Data Extraction Systematic Review #1	
Last revised:	
Meta-Analysis of Single-Session Behavioral Interventions to Prevent Sexually Transmitted Infections: Implications for Bundling Prevention Packages https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3477958/	
Note: Only evidence and recommendations relevant to the PICO question are outlined in the below table.	
General Information and Quality Rating	
Author(s), Date, Country	Eaton et al., 2012, United States
AGREE II Quality Assessment	Strong (9/10) rated and recommended for use by three independent reviewers (JS, DP, & JM). • The meta-analysis scored well on clearly focused question, inclusion criteria, search strategy, level of evidence included, transparency of results, combining findings, comparing results across studies, and data supporting the results. • The methodological quality of each primary study was not provided.
Generalizability to local population	Generalizability: • Population can be generalized to the Peel population.
Details of the Review	
Objective	To examine whether single-session, risk-reduction counselling interventions targeting STIs have positive effects on STI incidence or condom use.
Population	All adolescents and adults; including those who test positive for an STI. The average age of participants was 29.5 years (ranging from 13 to 36 years old).
Target Audience	Those making clinical practice decisions.
Included Evidence	Review and Meta-Analysis: • 20 randomized and non-randomized control trials on the effectiveness of single-session sexual risk reduction counselling interventions on STI outcomes.
Date of Search	2011
Databases Searched	Medline, PubMed, PsycInfo, CINAHL, ERIC, and proquest electronic databases. The search also included all international subdatabases in the World Health Organization's Global Health Library and the syntheses of HIV/AIDS Risk Reduction Project's database. Manual searches were conducted of reference lists and grey literature.
Inclusion and Exclusion Criteria	Inclusion Criteria • Single-session counselling interventions focused on

	sexual risk. • Control arm included. • Outcome includes at least one STI outcome. <u>Exclusion Criteria</u> • Focuses on standard HIV test counselling. • Campaign, popular opinion leader, theatre, or diary based interventions.
Number & Type of Studies Included	20 randomized and non-randomized control trials consisting of 29 different interventions.
Quality of included studies	• Quality was assessed using the Methodological Quality Items by Jaded et al. Domains assessed included: random assignment, quality control, pretest evaluation, follow-up, objective measures, attrition, double-blinding, and analysis. • Individual quality ratings for each trial were not provided.
Characteristics of the Included Studies	

Demographics of the sample	• Average age is 29.5 years.
	• Females (37%)
	• Ethnicities:
	  ○ White (36%)
	  ○ African Caribbean Black (29%)
	  ○ Hispanic (26%)
	  ○ Asian (1%)
	  ○ Other racial and ethnic backgrounds (8%)

Study settings	• A majority (15/20) of the trials were conducted in the United States.
	• Intervention settings included:
	  ○ Brothels (one trial)
	  ○ Physician offices (five trials)
	  ○ STI clinics (13 trials)
	  ○ Women's health clinics (one trial)

Description of interventions	• Interventions varied considerably in their design, duration, and components. • Total intervention length averaged 79 minutes; interventions ranged from low-intensity (average 21 minutes), moderate-intensity (average 57 minutes), and high-intensity (average three and a half hours). • The average length of time between intervention and follow-up was 58 weeks (shortest follow-up was two months; longest follow-up was two years and two months). • Intervention formats included one-to-one counselling

	conducted in-person, computer-delivered counselling, small group workshops, videos, audiotapes or DVDs.
	• A majority of the interventions (21/29) utilized education and skill building strategies.
	• Several interventions (4/29) utilized motivational interviewing strategies.
	• Most interventions (23/29) had adults as participants; several (6/29) involved adolescents.
	• Control groups:
	  ○ Received standard care (e.g., providing treatment and following prevention guidelines)
	  ○ Were given sexual health content, or
	  ○ Were added to a wait list.

Outcome measures	<u>STI incidence (29 interventions):</u>
	• All trials used biological outcomes to confirm STI incidence.
	• STI incidence was gathered in the 29 interventions using:
	  ○ Medical records, inclusive of chart and lab results (23/29).
	  ○ Disease surveillance systems (3/29).
	  ○ Self-reported data (2/29).
	  ○ A combination of medical records and surveillance (1/29).
	• A majority of trials (19/20) reported an aggregate measure of multiple STIs that included HIV.
	  ○ Some of these trials (10/20) specifically reported on chlamydia, gonorrhoea, or trichomoniasis.
	
	<u>Condom use (20 interventions):</u>
	• Self-report was utilized to measure condom use and the number of unprotected sex acts.

Results of the Review	

Overall conclusion	• Single-session behavioural counselling interventions (averaging 79 minutes):
	  ○ Reduced STI incidence; and
	  ○ Demonstrated some positive effects on sexual risk through increased condom use.
	  ○ When compared to other published systematic reviews, these effects rival that of both multi-session behavioural interventions and biomedical prevention trials (e.g.,

	circumcision, preexposure prophylaxis, vaccines). • Single-session behavioural counselling interventions are recommended during routine health care visits. ○ The lower cost of single-session counselling offers high public health utility. • Interventions involving members of ethnic minority (i.e., African Caribbean Black, Hispanic, Asian) were most effective in reducing STI incidence. • The effectiveness of these counselling interventions decreased with longer follow-up time.

Evidence supporting (main results)	**<u>STI Incidence</u>**
	• Individuals who received single-session behavioural counselling interventions had a 35 per cent reduction in the odds of STI incidence compared to the control group.
	  ○ Odds ratio (OR) 0.65; 95% CI 0.55, 0.77; I^2=70% (number of interventions=29).
	  ○ Although effect sizes exhibited heterogeneity, there were no trials for which the control group exhibited a significant reduction in STIs relevant to the intervention group.
	• Interventions achieved greater efficacy when:
	  ○ The intervention was of longer duration.
	  ○ Participants were of ethnic minority (i.e., African Caribbean Black, Hispanic, Asian).
	  ○ Participants were exclusively African Caribbean Black.
	  ○ Follow-up for evaluation was conducted at intervals nearer to the completion of the intervention.
	  ○ The control group was a wait list or providing relevant content (rather than receiving standard care).
	  ○ The intervention was conducted in-person individually or in a group (rather than computer, audiotape, or video delivery).
	
	<u>Condom Use</u>
	• Individuals who received single-session behavioural counselling interventions demonstrated a small but significant increase in condom use compared to the control group.
	  ○ Cohen's D value (*d*) 0.22; 95% CI 0.07, 0.36; I^2=83% (number of interventions=13).

	○ Although effect sizes exhibited heterogeneity, no trials exhibited a significant reversal such that the treatment group exhibited less condom use than the control group. ○ Many trials (8/13) demonstrated reductions in sexual risk taking among intervention participants relative to controls. Remaining trials (5/13), demonstrated intervention and control groups had similar rates of sexual risk reduction at follow-up.
Comments and limitations	• Unable to offer evidence on differences and similarities in the effectiveness of single-session interventions in preventing individual STIs because an insufficient number of studies reported results separately for STIs. • Condom use was reported differently across studies (e.g., the number of unprotected sex acts, the percentage of unprotected sex acts, or event-level condom use). • Some studies did not report behavioural outcomes; unable to include all studies in analysis investigating condom use. • Variability in the definition for “standard care” in control groups across studies. • The presence of heterogeneity creates limitations with respect to making conclusive statements regarding these findings.

Appendix G: Applicability and Transferability Worksheet

eidm evidence-informed decision making

Stopping an existing program
Applicability and Transferability Worksheet

Factors	Questions	Notes
Applicability (feasibility)		
Political acceptability or leverage	• Will stopping the intervention be allowed or supported in the current political climate? • What will the public relations impact be for local government? • Will the public and target groups accept and support the end of the program in its current format? • Is this intervention expected or required by local or provincial legislation/bylaws?	
Social acceptability	• Will my target population miss the intervention? • Is it ethical to stop the intervention?	
Available essential resources (human and financial)	• Who/what resources will be saved by stopping the program? • What are the financial and human costs of stopping the intervention? • What other options will be offered if this intervention/program is stopped? • How might people who are doing this project be redeployed?	
Organizational expertise and capacity	• Is the intervention in line with Peel Public Health's 10-year Strategic Plan (i.e., 2009-2019, 'Staying Ahead of the Curve')? Will we miss an opportunity to support the strategic plans by taking away this program? • What steps will we need to take if we decide to stop this program? • What barriers/structural issues or approval processes within the organization need to be addressed? • How will using the evidence to stop the current program affect the reputation of the organization? • What is the emotional attachment of the staff to this program and how will we deal with that?	

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Transferability (generalizability)		
Magnitude of health issue in local setting	• Are there other (more effective) ways to achieve the same goals?	
Magnitude of the "reach" and cost effectiveness of the intervention above	• Will we miss the opportunity to interact with a large proportion of the population if we stop doing this intervention?	
Characteristics of target population	• Is the local population comparable to the study population? • Will any differences in characteristics (ethnicity, socio-demographic variables, number of persons affected) influence the effectiveness of the intervention locally?	
Proposed Direction (after considering the above factors):		

Form Completed by: _____

Worksheet adapted from: Buffet C., Ciliska D., and Thomas H. National Collaborating Centre for Methods and Tools. November 2007. *Can I Use this Evidence in my Program Decision? - Assessing Applicability and Transferability of Evidence.*