Screening for sexually transmitted infections: A review of literature to update family practitioners on who, what, where, when and how?

Cornelia C. Campbell
Washburn University
Graduate Project
NU670
Dr. Karen Fernengel
November 26, 2012
Limitations

This project focused on gathering knowledge regarding screening for CT and NG and as such is limited in its’ scope of addressing STI screening in its entirety. Although some of the information can be generalized to sexual healthcare in general (such as sexual health risk-assessment) was limited to screening for CT and NG and did not address other STIs. Additionally it also did not address the treatment of these two infections and the prevention of long-term sequelae. The focus was also more on information and knowledge needed by providers in direct patient-contact situations and did not address STI screening at the organizational and legislative level. As such, issues surrounding minor consent, barriers related to coding, billing and reimbursement, and partner-delivered treatment were not addressed. Considering the vast amount of information available regarding STIs, sexual health promotion and disease prevention, this literature review focused on recent trends, issues and efforts, and limited itself to those occurring in developed societies and western cultures. Success in generalizing this information to populations in developing countries or among non-western cultures may therefore be limited.

Implications for Advanced Practice Nursing

Nursing as a profession is committed to the provision of high quality, cost effective services to healthcare consumers, and in the United States, is currently a major stakeholder in the process of healthcare reform. Advanced practice registered nurses (APRNs) take pride in their ability to provide care in ways that distinctly differentiate them from other healthcare providers, and devote considerable time and effort to develop and maintain skills in patient education, counseling, and patient-centered communication. For APRNs the significance of this comprehensive review of literature lies in its contribution to knowledge development and its’
potential to strengthen APRNs’ ability to meet the healthcare needs of their clients – in this case, focusing on sexual healthcare.

In the rapidly changing healthcare environment, APRNs validate their unique role by demonstrating a clear commitment to improved patient outcomes. Through their unique relationships with patients, nurse practitioners, especially those in primary care roles, are prime candidates to personify health care professionals’ commitment to destigmatize STI screening and increase public awareness of this lingering public health challenge. Where this amalgamation of evidence may represent only a fraction of what is known about STIs, it endeavors to develop a better understanding of how evidence-based recommendations should be applied in the real-life practice situations involving sexual healthcare.

The implications for advance practice nursing therefore include that APRNs should regularly familiarize themselves with the most current STI screening recommendations. They should endeavor to understand the importance of STI screening and the impact of undiagnosed and/or untreated infections. Practitioners should develop an acute awareness of barriers to effective STI screening and sexual risk-assessment unique to their practice population and the predominant cultures and sub-cultures within their geographic area of practice. Increasing quality of care in the area of sexual health care also requires the adoption of innovative approaches to overcome both patient-related and provider-related barriers. Therefore, providers should take the initiative in implementing multi-faceted strategies in their practices by utilizing existing resources and suggested toolkits. In doing so, practitioners can contribute to the continued evaluation of those strategies through research, ultimately allowing sufficient evidence to support the development of new recommendations and appropriate updates of current recommendations. Practitioners already proficient in sexual health risk-assessment or those who already deliver high quality
sexual healthcare are not exempt from the implications of this review. Peer support and education is another hallmark of advanced practice nursing. As such, expert clinicians in the field of sexual healthcare play a vital role as subject-matter experts and peer supporters. They may assist in the development and implementation of practice initiatives to overcome barriers, for instance, hosting a seminar on patient-centered communication with simulated patient-encounters to develop communication skills and aide in overcoming provider discomfort while increasing self-efficacy in this area. Finally, APRNs often take pride in their adherence to evidence-based practice guidelines and, whether it be in the field of sexual healthcare or in the extensive realm of comprehensive care over the lifespan, practitioners should demonstrate this commitment by tailoring their everyday practice habits to closely resemble the standards set through those recommendations.

**Implications for Future Research**

This comprehensive review of literature facilitated the identification of several priorities for future research and clinical practice initiatives. High quality, non-invasive screening tests compatible with self-collection are regularly available and research has demonstrated acceptability of these tests in men as well as women. However, actual screening rates for both CT and NG remain low. Research efforts need to focus on strategies to increase the uptake of screening opportunities among those at risk for STIs, and the utilization of opportune moments to screen those who rarely access healthcare services. Although the cost-effectiveness of routine screening of high-risk or at-risk women has been well established, further investigation of the cost-effectiveness of screening in other populations is needed. Cost-saving benefit-analysis is needed in the context of reducing the prevalence of other STIs and addressing HIV transmission through appropriate screening, prevention and early treatment of uncomplicated CT and NG.
Considering that a significant number of new HIV infections may be averted by treatment of asymptomatic STIs, this should be considered a priority when aiming to address HIV issues with a multi-focal approach. Additionally, considering the existence of a reservoir of asymptomatic CT and NG infections, efforts to develop accurate risk profiles and pragmatic screening guidelines should receive serious consideration for its’ potential to positively contribute to the existing efforts of reducing the number of new CT and NG infections annually.

The increased popularity of self-collected and home-collected screening test samples raises concerns regarding the potential adverse effects on clinical interactions. In addition to patients’ and providers’ continued discomfort with sexual health discussions, the use of self-collected screening tests may further add to the problem of missed opportunities to conduct sexual health risk-assessment, complete sexual health examinations, and developing patient-provider relationships based on confidentiality and trust. Research to assess the impact of fewer person-to-person encounters on the quality of patient-provider relationships may be worthwhile options for future research.

Significant knowledge deficits exist regarding the prevention, screening and treatment of STIs in older patients – especially those aged fifty years and older. The first step in addressing the issue of increasing STI prevalence in this group is to increase public awareness as well as awareness among patients and providers. Research focusing on the unique barriers to STI care in this age group, as well as strategies to overcome these barriers is certainly called for.

The conspicuous lack of clinical recommendations guiding sexual and reproductive health care for male adolescents, calls for quality research efforts and scholarly investigations in this area of sexual healthcare. Adding to the body of knowledge, provides the evidence needed to guide the development of new recommendations and facilitate, on patient, organizational and
national level, the delivery of such healthcare. Increasing the delivery of quality sexual and reproductive healthcare to young men has already been identified as a priority in the Healthy People 2020 campaign.

Maximizing opportunistic screening for asymptomatic STIs (CT and NG in particular) also requires further investigation. Initial research utilizing school-based, internet-based and home-based venues yielded promising results but further analysis is required in the areas of cost effectiveness, billing and reimbursement, and internet-security and related confidentiality issues.

Addressing the issue of provider adherence to evidence based practice recommendations, prospective research efforts may need to focus on changing provider behavior through strategies to facilitate increased behavioral intent. These may focus on aspects such as perceived behavioral control (self-efficacy), subjective norms and the expected value of behavior consistent with practice guidelines. As such, investigation into clinician behavioral patterns and overcoming barriers to behavioral change may prove worthwhile endeavors for those invested in education and/or outcomes assessment.

Finally, inequalities related to gender, age, ethnicity and socio-economic status compromise efficacy in screening, preventive education and treatment. Future research in overcoming barriers related to inaccessibility to these services should take priority in anticipation of significant healthcare reform.

**Implementation Plan**

A comprehensive review of literature with focus on STI screening practices was conducted to formulate a synthesis of relevant research findings. The primary purpose was to provide family care practitioners with an amalgamation of current screening recommendations and practical suggestions to enhance their ability to conduct appropriate STI screening. The primary question
addressed was, “What knowledge and skills will assist primary care providers in family practice to optimize screening for STIs?” Secondary to this, the scope of this initiative was limited to focus on those at risk for the two most commonly reported STIs (Chlamydia trachomatis and Neisseria gonorrhea) and addressed the following questions:

a. Who should be the focus of screening efforts?

b. What are the current recommendations and options for screening?

c. Where can patients receive screening?

d. When is the opportune time to recommend or conduct screening?

e. How can patients be approached for screening?

**Description of Project Outputs**

The primary project output was a freestanding literature review presented in the form of a manuscript and submitted for publication in a special issue of the Journal of Clinical Nursing. The findings, recommendations, and implications for advanced practice and future research were summarized in the format of a slide presentation with presentation to peers and advanced practice experts scheduled to occur on December 10, 2012. The same slide presentation has also been adapted for use as an informative discussion with peers and health providers involved in primary and/or sexual health care and education.

**Dissemination Plan**

Dissemination of the project outputs have been planned to match the output formats. A manuscript, based on a comprehensive review of literature on the subject of screening for chlamydia and gonorrhea, has been submitted for publication in a special issue of the Journal of Clinical Nursing: Sexual and Reproductive Health. A presentation of the findings, methods and implications for advanced practice nursing has been scheduled for December 10, 2012 at 11:00
at the Washburn University School of Nursing. A visual presentation method will aide in
providing an overview of the project to faculty members and fellow students. Additionally, a
visual presentation providing an overview of the project, its’ outcomes, implications for
advanced practice and recommendations for future research have been added to the online
portfolio of the author.
## Appendix A

### Table 1

*Medical subject headings, keywords, search limiters and search expanders utilized in literature search*

<table>
<thead>
<tr>
<th>Medical subject headings (MeSH)</th>
<th>Keywords</th>
<th>Search limiters</th>
<th>Search expanders</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sexually transmitted disease</td>
<td>Sexual health</td>
<td>Human subjects</td>
<td>SmartText searching</td>
</tr>
<tr>
<td>Sexually transmitted disease, bacterial</td>
<td>Sexually transmitted infection</td>
<td>English language</td>
<td>Apply related words</td>
</tr>
<tr>
<td>Chlamydia trachomatis</td>
<td>Sexually transmitted disease</td>
<td>Peer reviewed</td>
<td>Search within full text of articles</td>
</tr>
<tr>
<td>Chlamydia infection</td>
<td>Chlamydia</td>
<td>Evidence-based practice</td>
<td>Prevention and control</td>
</tr>
<tr>
<td>Gonorrhea</td>
<td>Gonorrhea</td>
<td></td>
<td>Epidemiology</td>
</tr>
<tr>
<td>Risk assessment</td>
<td>Screening</td>
<td></td>
<td>Etiology</td>
</tr>
<tr>
<td>Venereal disease</td>
<td>Primary care</td>
<td></td>
<td>Diagnosis</td>
</tr>
<tr>
<td></td>
<td>Family practice</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Primary prevention</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Secondary prevention</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Note:* MeSH terms, keywords, limiters and expanders were used in several different combinations to allow refinement of search results.
Table 2

*Comparison of screening recommendations for Chlamydia trachomatis in women*

<table>
<thead>
<tr>
<th>Population</th>
<th>USPSTF</th>
<th>CDC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pregnant Women</td>
<td></td>
<td></td>
</tr>
<tr>
<td>24 years &amp; younger</td>
<td>Routine screening recommended – moderate to substantial net benefit (Class B)</td>
<td>Screen</td>
</tr>
<tr>
<td>25 years &amp; older -</td>
<td>Routine screening recommended – moderate to substantial net benefit (Class B)</td>
<td>Screen</td>
</tr>
<tr>
<td>at increased risk*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>25 years &amp; older -</td>
<td>Routine screening not recommended – apply individualized considerations; routine screening has no net benefit or risks outweigh benefits (Class C)</td>
<td>Routine screening not recommended</td>
</tr>
<tr>
<td>not at increased risk</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-Pregnant Women</td>
<td></td>
<td></td>
</tr>
<tr>
<td>24 years &amp; younger</td>
<td>Routine screening recommended – substantial net benefit (Class A)</td>
<td>Screen</td>
</tr>
<tr>
<td>25 years &amp; older -</td>
<td>Routine screening recommended – substantial net benefit (Class A)</td>
<td>Screen</td>
</tr>
<tr>
<td>at increased risk*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>25 years &amp; older -</td>
<td>Routine screening not recommended – apply individualized considerations; routine screening has no net benefit or risks outweigh benefits (Class C)</td>
<td>Routine screening not recommended</td>
</tr>
<tr>
<td>not at increased risk</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

NOTE: USPSTF = U.S. Preventive Services Task Force; CDC = Centers for Disease Control and Prevention.

*— Increased risk for pregnant and non-pregnant women is defined as the presence of any one or more of the following: (a) high-risk sexual behavior, (b) age younger than 25 years, and/or (c) high community prevalence.
Table 3

*Comparison of screening recommendations for Neisseria gonorrhea in women*

<table>
<thead>
<tr>
<th>Population</th>
<th>USPSTF</th>
<th>CDC</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Pregnant Women</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>24 years &amp; younger</td>
<td>Routine screening recommended – moderate to substantial net benefit</td>
<td>If at increased risk</td>
</tr>
<tr>
<td></td>
<td>(Class B)</td>
<td></td>
</tr>
<tr>
<td>25 years &amp; older -</td>
<td>Routine screening recommended – moderate to substantial net benefit</td>
<td>Screen</td>
</tr>
<tr>
<td>at increased risk*</td>
<td>(Class B)</td>
<td></td>
</tr>
<tr>
<td>25 years &amp; older -</td>
<td>Insufficient evidence exist to recommend for or against screening</td>
<td>Routine screening not</td>
</tr>
<tr>
<td>not at increased risk</td>
<td>(Class I)</td>
<td>recommended</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Non-Pregnant Women</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>24 years &amp; younger</td>
<td>Routine screening recommended – moderate to substantial net benefit</td>
<td>If at increased risk</td>
</tr>
<tr>
<td></td>
<td>(Class B)</td>
<td></td>
</tr>
<tr>
<td>25 years &amp; older -</td>
<td>Routine screening recommended – moderate to substantial net benefit</td>
<td>Screen</td>
</tr>
<tr>
<td>at increased risk*</td>
<td>(Class B)</td>
<td></td>
</tr>
<tr>
<td>25 years &amp; older -</td>
<td>Screening not recommended – no net benefit/evidence that harms</td>
<td>Routine screening not</td>
</tr>
<tr>
<td>not at increased risk</td>
<td>outweigh benefits (Class D)</td>
<td>recommended</td>
</tr>
</tbody>
</table>

**NOTE:** USPSTF = U.S. Preventive Services Task Force; CDC = Centers for Disease Control and Prevention.

*— Increased risk for pregnant and non-pregnant women is defined as the presence of any one or more of the following: (a) high-risk sexual behavior; (b) age younger than 25 years, and/or (c) high community prevalence.
Table 4  
Comparison of screening recommendations for Chlamydia trachomatis and Neisseria gonorrhea in men

<table>
<thead>
<tr>
<th>STI</th>
<th>USPSTF</th>
<th>CDC</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Not at increased risk</td>
<td></td>
</tr>
<tr>
<td>Chlamydia</td>
<td>Insufficient evidence exist to recommend for or against screening (Class I)</td>
<td>Insufficient evidence to recommend routine screening</td>
</tr>
<tr>
<td>Gonorrhea</td>
<td>Screening not recommended – no net benefit/evidence that harms outweigh benefits (Class D)</td>
<td>Insufficient evidence to recommend routine screening</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>At increased risk**</td>
<td></td>
</tr>
<tr>
<td>Chlamydia</td>
<td>Insufficient evidence exist to recommend for or against screening (Class I)</td>
<td>Screen</td>
</tr>
<tr>
<td>Gonorrhea</td>
<td>Insufficient evidence exist to recommend for or against screening (Class I)</td>
<td>Screen</td>
</tr>
</tbody>
</table>

NOTE: USPSTF = U.S. Preventive Services Task Force; CDC = Centers for Disease Control and Prevention.

**— Increased risk for men is defined as the presence of any one or more of the following: (a) high-risk sexual behavior, and/or (b) a high community prevalence.
Appendix B

Figure 1: Core relationships between the primary determinants of behavioral intentions, behavioral intentions, and behavior in the theory of reasoned action and the theory of planned behavior. (Perkins et al., 2007, figure 1)
References


http://dx.doi.org/10.1080/08870446.2011.613995


Guttmacher Institute. (2012a). State policies in brief: Minor’s access to STI services. Retrieved from Guttmacher Institute website:
http://www.guttmacher.org/statecenter/spibs/index.html


