Sexual Assault and Domestic Violence Services
Sexually Transmitted Infections and HIV Treatment Update
Jennifer Keeler, PHC-NP, SANE
February 28, 2013

Objectives:
- Review the normal versus abnormal findings
- Review common sexually transmitted infections (STIs)
- Review the 2011 updates to the Canadian Guidelines on STIs
- Review Human Immunodeficiency virus (HIV) trends and post exposure treatment (PEP)

Assessment:
- Assessment of the male and female genital-urinary (GU) systems during initial examination or during follow-up appointments to screen for STIs may demonstrate a wide range of normal and abnormal variations.
- Nurses working in clinics need to recognize abnormal findings that may or may not be related to the sexual assault and offer the patient recommendations for follow-up for further assessment and treatment.
- According to the Canadian Guidelines (2008) there has been a steady increase in the three reportable STIs – chlamydia, gonorrhoea, and infectious syphilis in Canada, the United States and the United Kingdom.
- Possible explanations for this increase include:
  - Introduction of the nucleic acid amplification tests (NAATs).
  - Safer sex burn-out.
  - Innovations in HIV therapy leading to treatment optimism and increased risk taking.
  - Earlier age of sexual activity with a high rate of sexually monogamous relationships.
Assessment:

- With the increased rate of STIs, the sexual assault/domestic violence (SA/DV) nurse must be aware of this significance in patients seen in clinics:
  - Burden of disease.
  - Potential complications associated with STIs.
- Examples include:
  - Pre-existing ulcers or inflammation from infections such as syphilis chancre, herpes ulcers can increase risk of acquiring and transmitting HIV.
  - Untreated infections in women such as chlamydia and gonorrhea can lead to pelvic inflammatory disease, chronic pelvic pain, ectopic pregnancy and infertility.
  - Persistent human papillomavirus (HPV) plays an important role in the development of cervical dysplasia and carcinoma.

Variations of Normal:

- The SA/DV nurse must be aware of the variations that are possible in both the male and female GU examination.
- There must also be a sensitivity to the possible anxiety that variations both normal and abnormal can cause in patients seen in the sexual assault clinics.
- There are many normal variations of the female cervix and the male penis and the SA/DV nurse will often need to differentiate between normal versus abnormal during the clinical examination.

External Genital Lesions: Cancer of the Vulva

Symptoms and Signs:
  - Pigmented lesions.
  - Bleeding.
  - Persistent ulceration.
  - Persistent pruritus.
  - Recalcitrant lesions.
Vaginal Discharge:

<table>
<thead>
<tr>
<th>Vaginal Discharge</th>
<th>Bacterial Vaginosis</th>
<th>Candidiasis</th>
<th>Trichomoniasis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Common symptoms</td>
<td>Vaginal discharge</td>
<td>Itch</td>
<td>External dysuria</td>
</tr>
<tr>
<td></td>
<td>Fishy odour</td>
<td></td>
<td>Superficial dyspareunia</td>
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</tbody>
</table>

Syndromes:

<table>
<thead>
<tr>
<th>Vaginal discharge</th>
<th>Vaginal discharge</th>
<th>Erythema and edema of vaginal and vulva</th>
</tr>
</thead>
<tbody>
<tr>
<td>White or grey</td>
<td>White or grey</td>
<td></td>
</tr>
<tr>
<td>Vaginal discharge</td>
<td>Erythema and edema of vaginal and vulva</td>
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</tbody>
</table>

Sexual Transmission:

- Not usually
- More common if sexually active
- Recent history of antibiotic use
- Pregnancy
- Corticosteroids
- Uncontrolled diabetes
- Immune-compromised
- Multiple partners

Predisposing Factors:

- Often absent
- More common if sexually active
- New sexual partner
- Intrauterine device use
- Current or recent antibiotic use
- Pregnancy
- Corticosteroids
- Uncontrolled diabetes
- Immune-compromised
- Multiple partners

Epidemiology of STIs in Canada:

<table>
<thead>
<tr>
<th>Infection</th>
<th>How common in clinical practice</th>
<th>Trends in incidence</th>
<th>Most affected</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chlamydia</td>
<td>Very common: diagnosed and reported</td>
<td>Steadily increasing since 1997</td>
<td>Young women: 15-24 years of age, Young men: 20-39 years of age</td>
</tr>
<tr>
<td>Gonorrhea</td>
<td>Second most common: diagnosed and reported</td>
<td>From 1997 - 2007: 94% increase in MSM</td>
<td>Males: 2/3 of reported cases, Young men: 20-29 years of age, Young women: 15-24 years of age</td>
</tr>
<tr>
<td>Infectious Syphilis</td>
<td>Previously rare: diagnosed and reported</td>
<td>National increase since 1997</td>
<td>MSM (both HIV + and -): 15-39 years of age, Sex workers and their clients, Acquisition in endemic regions, Regional outbreaks in Canada</td>
</tr>
</tbody>
</table>

Epidemiology of STIs in Canada:

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<th>Trends in Incidence</th>
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</thead>
<tbody>
<tr>
<td>Human Papillomavirus</td>
<td>Very common: 70% of adult population will have had at least one genital HPV infection over their lifetime</td>
<td>Not reportable: true incidence not known</td>
<td>All ages</td>
</tr>
<tr>
<td>Genital Herpes (HSV 1 and 2)</td>
<td>Common</td>
<td>Not reportable: true incidence not known</td>
<td>Adolescents and adults: women and men; women are more affected than men</td>
</tr>
</tbody>
</table>
Epidemiology of STIs in Canada:

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<th>How Common in Practice</th>
<th>Trends in Incidence</th>
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</tr>
</thead>
<tbody>
<tr>
<td>HIV</td>
<td>Rare in general practice</td>
<td>3,529 new cases reported in 2004, 3,775 new cases reported in 2011</td>
<td>HIV+ test reports in Canada.</td>
</tr>
<tr>
<td>Hepatitis B</td>
<td>Approximately 700 acute cases per year</td>
<td>Reportable</td>
<td>In Canada.</td>
</tr>
</tbody>
</table>

Hepatitis B: Approximately 700 acute cases per year. Reportable. Acute infection twice as high for men than women. Infants born to HBsAg+ mothers. Injection drug users who share equipment. Multiple sex partners. Sexual and household contacts of acute or chronic carrier.

Common Normal and Abnormal Findings on Genitourinary Examination:

Cervicitis:
- Signs and Symptoms:
  - Mucopurulent cervical discharge.
  - Cervical friability.
  - Vaginal discharge.
  - Strawberry cervix.
- Possible causes:
  - Neisseria gonorrhoea (incubation period: 2-7 days).
  - Chlamydia trachomatis (incubation period: 2-3 weeks but up to 6 weeks).
  - Trichomonas vaginalis (incubation period: 4-28 days).
  - Herpes simplex virus (incubation period: average is 6 days).
  - 60% asymptomatic.
  - 40% symptomatic (80% with typical genital symptoms and 20%, atypical, including cervicitis).

Gonorrhea: Manifestations in Youth and Adults

<table>
<thead>
<tr>
<th>Females</th>
<th>Males</th>
<th>Females and Males</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cervicitis</td>
<td>Urethritis</td>
<td>Pharyngeal infection</td>
</tr>
<tr>
<td>Acute Inflammatory Disease</td>
<td>Epididymitis</td>
<td>Conjunctivitis</td>
</tr>
<tr>
<td>Urethritis</td>
<td>Proctitis</td>
<td>Disseminated gonococcal infections: arthritis, dermatitis, endocarditis, meningitis</td>
</tr>
<tr>
<td>Panhantitis</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Disseminated Gonococcal Infections (DGI)

- 1-2% of mucosal infections will progress to DGI.
- Gonorrhea enters bloodstream and is disseminated.
- More common in women.
- Gonorrhea often asymptomatic therefore DGI occurs before symptoms.
- Often seen shortly after menses.
- Symptoms:
  - Arthritis: dermatitis: painful macular-papular to pustular lesions, often with hemorrhagic component of rash and nails.
  - Migratory polyarthralgia: knees, elbows, distal joints of fingers and toes.
  - Fever: usually < then 39 degrees Celsius.
- If left untreated can lead to septic arthritis (often knee), gonococcal meningitis and endocarditis.

Diagnosis of Gonococcal Infections:

- Culture of secretions on selective media is gold standard.
- Urethral specimens from males: sensitivity and specificity of 95%.
- Endocervical specimens from adult females: sensitivity of 45-65% and specificity of 90%.
- Nucleic acid amplification tests (NAAT) - PCR, AC2, SDA, GenProbe, BDProbetec:
  - Tests on secretions or urine
  - Highly sensitive and specific
  - Permits dual testing for chlamydia.
  - Generally not indicated for test of cure as may remain (+) for at least 2-3 weeks after effective treatment.

Treatment for Gonococcal Infections:

- Co-infection with Chlamydia trachomatis is common.
- Treat for chlamydia unless negative test confirmed.
- Due to the rapid increase in quinolone resistant Neisseria gonorrhoeae, quinolones such as ciprofloxacin and ofloxacin are no longer preferred drugs for the treatment in Canada. Canadian Guidelines still recommends the use of higher dose ceftriaxone in non-pharyngeal infections in the heterosexual population.
- British Association of Sexual Health and HIV and the International Union against STI all recommend ceftriaxone plus azithromycin or doxycycline as 1st line.

<p>| Urethral, endocervical, rectal, pharyngeal infection (except pregnant or nursing women): |</p>
<table>
<thead>
<tr>
<th>Preferred</th>
<th>Alternatives</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cefixime 800mg PO in a single dose</td>
<td>Azithromycin 2g PO in a single dose</td>
</tr>
<tr>
<td>Or Ceftriaxone 125mg IM in a single dose</td>
<td>Associated with a significant incidence of GI adverse effects – take with food or anti-emetic may help.</td>
</tr>
<tr>
<td>Or for children greater than 3 years, cephalosporin or penicillin sensitive</td>
<td>Or Spectinomycin 2g IM in a single dose</td>
</tr>
<tr>
<td>Erythromycin 500mg PO in a single dose</td>
<td>Not effective for pharyngeal infection.</td>
</tr>
</tbody>
</table>
### Chlamydia Infections:

<table>
<thead>
<tr>
<th>Females</th>
<th>Males</th>
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<tr>
<td><strong>Symptoms and Signs:</strong></td>
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</tr>
<tr>
<td>Often asymptomatic</td>
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</tr>
<tr>
<td>Cervicitis</td>
<td>Urethritis</td>
</tr>
<tr>
<td>Vaginal discharge</td>
<td>Urethral itch</td>
</tr>
<tr>
<td>Dysuria</td>
<td>Dysuria</td>
</tr>
<tr>
<td>Lower abdominal pain</td>
<td>Testicular pain</td>
</tr>
<tr>
<td>Abnormal vaginal bleeding</td>
<td>Conjunctivitis</td>
</tr>
<tr>
<td>Dyspareunia</td>
<td>Proctitis (commonly asymptomatic)</td>
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<td>Proctitis (commonly asymptomatic)</td>
</tr>
<tr>
<td>Proctitis (commonly asymptomatic)</td>
<td></td>
</tr>
<tr>
<td><strong>Major sequelae</strong></td>
<td><strong>Major sequelae</strong></td>
</tr>
<tr>
<td>Pelvic inflammatory disease</td>
<td>Epididymo-orchitis</td>
</tr>
<tr>
<td>Ectopic pregnancy</td>
<td>Frailty syndrome</td>
</tr>
<tr>
<td>Fertility</td>
<td></td>
</tr>
<tr>
<td>Chronic pelvic pain</td>
<td></td>
</tr>
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<td>Frailty syndrome</td>
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### Diagnosis of Chlamydia Infections:

- **Culture:**
  - Preferred method for medico-legal purposes.
  - Culture of infected site which contains epithelial cells, not discharge.
  - Excellent specificity.
  - Low sensitivity (40-70%).
  - Currently, only culture is recommended for throat specimens.

- **NAATS:**
  - Are the most sensitive and specific and should be used whenever possible for urine, urethral and cervical specimens.
  - Blood and mucus can affect performance (increase false negatives).
  - Both *C. trachomatis* and *N. gonorrhoeae* can be detected from a single specimen.

- **Serology:**
  - Not useful in diagnosing acute infection.
  - Culture is recommended for pharyngeal swabs.

### Epididymitis: Inflammation of the Epididymis

- Usually acute onset of unilateral testicular pain and swelling.
- Often with tenderness of the epididymis and vas deferens.
- Occasionally with erythema and edema of the overlying skin.
- May also have urethral discharge, hydrocele, erythema and/or edema of the scrotum, fever.
- Men < 35 years: 2/3 are secondary to STIs
  - 47% *Chlamydia trachomatis*, 20% *Neisseria gonorrhoeae*
  - Predisposing factors: sexually transmitted urethritis
- Men > 35 years: 75% of cases attributed to coliforms or pseudomonas.
  - Predisposing factors: underlying structural pathology of chronic bacterial prostatitis.
Treatment of Chlamydia Infections:

- Empirical co-treatment if N. Gonorrhea is diagnosed due to the high probability of co-infection (20-42%)

Adults (non-pregnant and non-lactating): urethral, endocervical, rectal, conjunctival infection:

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<th>Preferred</th>
<th>Alternative</th>
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<tr>
<td>Doxycycline 100mg PO bid for 7 days</td>
<td>Ofloxacin 300mg PO bid for 7 days</td>
</tr>
<tr>
<td>Or</td>
<td>Or</td>
</tr>
<tr>
<td>Azithromycin 1g PO in a single dose if poor compliance expected.</td>
<td>Erythromycin 2g/day PO in divided doses for 7 days</td>
</tr>
<tr>
<td>Or</td>
<td>Or</td>
</tr>
<tr>
<td>Erythromycin 1g/day PO divided doses for 14 days</td>
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If used, test of cure should be performed 3-4 weeks after completion.

External Genital Lesions: Human Papillomavirus (HPV) Infections

- One of the most common STIs
- Considered to be the most prevalent STI in Canada
- Infections are often acquired early (15-19 years of age)
- Majority (>80%) of these infections clear spontaneously within 18 months.
- Over 130 HPV types:
  - 40 of them can infect the ano-genital epithelium
  - Infection with one HPV genotype does not protect against infection with other types.
- Most common:
  - 6 and 11 – cause external warts
  - 16 and 18 - associated with precancerous or cancerous cervical lesions.
- Incubation period is 1 - 8 months
- The average time from acquiring high risk genotype HPV to the detection of cervical cancer is 20 years

Hepatitis B

- Most common cause of sexually transmitted hepatitis.
- Incubation period:
  - Percutaneous exposure: days
  - Mucous membranes: 4-8 weeks
- Risk factors:
  - Injection drug use: 34%
  - Multiple heterosexual sex partners: 24%
  - Men who have sex with men: 7.3%
  - Sex with HBV-infected individuals: 12%
  - Hepatitis B carrier in family: 2.4%
Hepatitis B: Post Exposure Prophylaxis

- No treatment if Hepatitis B series completed.
- If not immunized or status unknown:
  - Start Hepatitis B vaccine series.
  - National Advisory Committee on Immunization preferred schedule is 0, 1, and 6 months.
  - Hepatitis B Immune Globulin (Human) – (HBIG)
    - Single dose of HBIG (0.06mL/kg) within 14 days of sexual contact.
    - Recommend begin the hepatitis B vaccine series concurrently with the HBIG.
  - Administration of vaccine with HBIG may improve the efficacy of post-exposure treatment.

Human Immunodeficiency Virus (HIV):

- A retrovirus that causes acquired immunodeficiency syndrome (AIDS).
- Different from many other viral diseases
- Infects, disables and destroys cells (CD4+ T lymphocytes) of the immune system that would ordinarily control this virus.
- Chronic, progressive illness that leaves infected people susceptible to opportunistic infections and cancers.
- Classified as types 1 and 2
  - HIV-1 principally responsible for the global pandemic.
- HIV replicates rapidly
  - Several billion new virus particles may be produced every day.
  - Makes many mistakes while copying DNA resulting in different strains or mutations.
  - Without treatment a person usually develops AIDS within 10 years.

HIV:

- Men who have sex with men represent the largest number and proportion.
- Heterosexual exposure has now surpassed injection drug use as the second largest exposure category.
- Increase proportion of persons migrating to Canada from HIV endemic countries.
- Women:
  - Over 25% of the HIV (+) reports in Canada were women compared with 10% prior to 1995.
  - Highest group aged 15-19 years.
  - Nearly 50% of Aboriginal peoples were women compared with 20% of Caucasian.
- Believed that 25% of people with HIV infection are unaware of their HIV status.
HIV Laboratory Diagnosis:

- Must have informed consent.
- Nature of the test with pre and post test counselling.
- 3 main tests:
  - HIV antibody test:
    - Shows whether a person has been infected with HIV.
    - Also known as ELISA (Enzyme-Linked Immunosorbent Assay) tests.
    - (+) test requires confirmatory testing (Western blot) using the same specimen.
  - Antigen test:
    - Early in infection P24 is produced in excess and can be detected in serum.
    - Once HIV established in the body it will fade to undetectable levels.
    - Detect HIV earlier than standard antibody tests.
    - Some modern tests combine P24 with antibody identification to enable earlier and more accurate results.
  - PCR tests:
    - Come in two forms: DNA PCR and RNA PCR.
    - Babies born to HIV positive mothers are usually tested using a DNA PCR because they retain their mother's antibodies for several months (antibody test inaccurate).
    - Blood supplies in most developed countries are screened for HIV using an RNA PCR test, which can produce positive results several days before a DNA test.
    - PCR tests are not often used to test for HIV in adults, as they are very expensive and more complicated to administer than a standard antibody or P24 test.

HIV Laboratory Diagnosis:

- Point-of-care rapid tests for HIV antibodies are available.
- All (+) tests require a confirmatory test such as Western blot analysis.
- Negative tests do not require repeat tests.
- Most people develop detectable HIV antibodies within 6-12 weeks of infection.
- Rare cases may take up to 6 months.

HIV Treatment:

- Highly active retroviral treatment therapy (HAART) has been effective in reducing the viral load.
- HIV levels remain suppressed and the CD4 count remain greater than 200.
- Quality of life can be improved and prolonged.
- Women are more likely to develop AIDS and die at higher CD4 counts than men.
- Decision to start HAART must take into account the gender of the patient.
- Initial physiologic events after HIV exposure suggest that it can take several days for infection to become established in the lymphoid and other tissues.
- During this time interruption in viral replication could be possible to prevent the exposure from becoming an established infection.
HIV Post Exposure Prophylaxis (PEP):

- Because of the highly mutating nature of the HIV a combination of antiviral drugs is recommended to attack the virus at different points in its life cycle to prevent development of drug resistance.

- HIV PEP 28 day course of antiviral drugs
  - Optimally started within an hour of being exposed, no longer than 72 hours.

THANK YOU

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References:


References: