Provincial Clinical Knowledge Topic
Sexually Transmitted Infection, Adult – Acute Care

Revision History

Version	Date of Revision	Description of Revision	Completed By/Revised By
1.0	May 2017	Document Completed and Disseminated	See Acknowledgements
1.1	December 2017	Addition of chlamydia treatment options for pregnant/lactating patients	Dr Ameeta Singh

Important Information Before You Begin

The recommendations contained in this knowledge topic have been provincially adjudicated and are based on best practice and available evidence. Clinicians applying these guidelines should, in consultation with the patient, use independent medical judgment in the context of individual clinical circumstances to direct care. This knowledge topic will be reviewed periodically and updated as best practice evidence and practice change.

The information in this topic strives to adhere to Institute for Safe Medication Practices (ISMP) safety standards and align with Quality and Safety initiatives and accreditation requirements. Some examples of these initiatives or groups are: Health Quality Council Alberta (HQCA), Choosing Wisely campaign, Safer Health Now campaign and others.

Recommendations regarding treatment of pediatric infection are excluded from these guidelines. In general, children diagnosed with STI should be managed in conjunction with a specialist at a referral centre and be reported to Alberta Child and Family Services Division or appropriate law enforcement agency for investigation of possible sexual abuse.[1]

Rationale

The prevalence of Sexually Transmitted Infections (STI) is rising in Alberta and Canada, and is a common presentation to the Emergency Departments within Alberta. The most common reportable STI, chlamydia has risen from 162.9 per 100,000 in 1997 in Alberta to a high of 413.4 per 100,000 as shown in Table 1[2,3,5] .The national rate has risen from 117 per 100,000 in 1997 to 296/100,000 in 2013.[4]
Similarly gonorrhea rates have risen in Alberta from a nadir of 14.6 per 100,000 in 1997 to 80.8 per 100,000 in 2015; while infectious syphilis rates were less than 0.5 per 100,000 in the late 1990's they have risen to a high of 8.34 per 100,000 in 2015 and cases continue to be diagnosed across the province each year.[2, 3, 5]

Treatment of curable STI is necessary to mitigate sequelae of infection and prevent further transmission. All insertive and receptive sexual practices (oral, vaginal and anal) put individuals at risk for STI. In addition, intimate skin to skin contact may result in transmission of some STI, including herpes simplex virus and human papillomavirus infections.[1]

Table 1. Reported Cases and Rates of Chlamydia, Gonorrhea, and Infectious Syphilis, 2012 - 2015, Alberta

Year	Chlamydia		Gonorrhea		Infectious Syphilis		Mucopurulent Cervicitis		Non-Gonoccocal Urethritis	
	Rate	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate	Cases
2012	403.36	15685	54.05	2102	3.29	128	16.39	314	78.68	1552
2013	401.15	16075	50.26	2014	3.07	123	14.66	289	80.11	1631
2014	403.28	16622	46.32	1909	3.71	153	15.01	304	81.92	1717
2015	413.4	17348	80.81	3391	8.34	350	15.7	324	77.9	1661

Goals of Management

1. To provide appropriate assessment, diagnosis and treatment of patients presenting with symptoms suggestive of Sexually Transmitted Infections
2. To ensure adequate patient follow up and/or partner notification

Clinician Assessment and Documentation

A complete history could include the following if relevant based on patient presentation. Standard assessment and documentation practices should still be followed.

1. History of Present Illness
    - Chronology of symptoms from inception of illness to present, associated symptoms, previous similar symptoms, treatments/effects of treatment, screening for asymptomatic patient
        - All patients: dysuria, sores/lesions/rashes including oral lesions, rectal discomfort/discharge (those reporting receptive anal sex), fever/night sweats, lymphadenopathy
        - Male patients: testicular discomfort/mass/swelling, urethral discharge, time of last void
        - Female patients: abdominal pain, vaginal discharge/odour/itch, dyspareunia, last menstrual period, menstrual abnormalities, gravida, parity, birth control, date and result of last Pap test. If pregnant, estimated date of confinement

2. Past History
    - Blood transfusions/donations, including year and geographic location of transfusion/donation, i.e. in Canada or abroad
    - Born outside of Canada (arrival date and port of entry)
    - Medical care outside Canada (e.g. history of treatment for STI, invasive medical or surgical procedures)
    - STIs
    - Non-prescription injection drug use, especially in the past 6 months
    - Substance abuse and drug equipment sharing
    - Previous test for HIV, including date and result for both patient and their sexual and/or drug equipment sharing partner(s)
    - Previous test for Hepatitis B, and Hepatitis C, including dates and results for patient and if appropriate, both their sexual and/or drug equipment sharing partner(s)
    - Previous test for Hepatitis C, including dates and results for patient and if appropriate, for drug equipment sharing partner(s)
    - Hepatitis B and/or Hepatitis A immunization
    - Significant medical and surgical history

3. Medications & Allergies
    - Medication allergies with specific reference to antibiotics
    - History of present or recent medications. Medication such as antibiotics may interfere with the test results if taken in the week prior to testing.

4. Social History
    - Home situation, significant others and relationships, occupation, cultural beliefs
    - Substance use and percutaneous risk other than drug injection (e.g. tattoos, piercings)
    - Sexual history – sex with males/females/both, age first sexually active, history of sexual abuse/assault, number of partners in past 2 and 12 months, date of contact

relevant to symptoms, health of sex partner(s) if patient identifies sexual health issues with any of their partners, geographic location and origin of sexual contacts, type of sexual contact (e.g. genital-oral, receptive or insertive anal, vaginal, sex toys), safer sex practices, high-risk activities/practices*, partners with high risks
*For further information regarding STI risk factors please refer to the Canadian Guidelines on Sexually Transmitted Infections: (http://www.phac-aspc.gc.ca/std-mts/sti-its/cgsti-ldcits/section-2-eng.php#a2)

5. Physical Examination
    - Mouth and pharyngeal examination (if history warrants), inspection of skin and pubic hair, palpation for lymphadenopathy, examination of external genitalia, perianal inspection (if history warrants)
    - Physical examination specific to patient symptoms & history

Decision Making

Genital Ulcer Disease

Clinical distinction between the possible etiologies of genital ulcers is often unreliable due to an overlap in the historical and physical examination clues for each of the diseases.[6, 7] Therefore, a complete evaluation for the patient with genital ulcers should include diagnostic testing for genital herpes and/or primary syphilis as the most likely diseases under consideration.[6, 8]

Differential diagnosis:

- Genital Herpes (HSV) - most common
- Primary syphilis (*Treponema pallidum*)
- Chancroid (*Haemophilus ducreyi*)
- Lymphogranuloma venereum (*Chlamydia trachomatis*, LGV serovars)
- Donovanosis (*Klebsiella granulomatosis*)
- Non-STI (L1 herpes zoster)
- Non-infectious (friction, trauma, dermatologic conditions)

Clinical Assessment

1. History – length of time lesions present, appearance of lesion(s) at onset, presence/absence of pain at lesion, associated lymphadenopathy, travel history, sexual contacts in period prior to onset (with consideration for endemic areas), associated symptoms (rash, fever, myalgias)
2. Physical Examination:
    - Ulcer(s) – number and location, presence of induration, surrounding erythema, friability, tenderness
    - Lymph Nodes – unilateral/bilateral/absent, size, degree of tenderness, suppuration or drainage
    - Other findings – rash, alopecia, oral/pharyngeal lesions, evidence of secondary bacterial infection

Minimum Testing

Most often, patients with genital ulcer disease in Alberta will have genital herpes. All patients with genital ulcers should be tested for both syphilis and herpes; anyone suspected of having syphilis or herpes should also be tested for HIV [6, 8]. Minimum testing should include:

- Syphilis serology {Syphilis Antibody Test}
- Direct testing from lesion for both:
    - Herpes Simplex Virus (HSV) { HSV and VZV Nucleic Acid Test (NAT)}
    - Syphilis
- HIV serology { HIV Serology (Mixed Ag/Ab Detection) or HIV Serology by Rapid Assay}

Click here for Syphilis and HSV testing options
Click here for HIV testing options

Diagnosis

- **Genital Herpes (HSV)** - The diagnosis of genital herpes is made based on history, clinical findings and results of tests for HSV.[6]
- **Syphilis -** The diagnosis of syphilis is made based on a combination of history (including risk factors), clinical findings, direct examination of lesion material (i.e. Syphilis PCR testing) and/or serologic diagnosis.[6]

- **Chancroid (*Haemophilus Ducreyi*), Lymphogranuloma venereum and Donovanosis –** These are exceptionally rare in Alberta and routine testing is not recommended.[6]

Management/Treatment

- **HSV suspected and/or positive HSV test:**
  - First episode genital herpes can cause a prolonged clinical illness with severe genital ulceration and neurologic involvement. Even persons with mild clinical manifestations can develop prolonged symptoms. Therefore for all patients with primary genital herpes, initiate antiviral therapy as soon as diagnosis is made or suspected.[8] Click here for treatment options for primary herpes
  - For patients with suspected recurrent herpes, initiate antiviral therapy within 24 hours of symptom/lesion onset.[6] Click here for treatment options for recurrent herpes
  - Patients should be referred to their family physician for ongoing care, including discussion of suppressive therapy
- **Syphilis suspected and/or positive syphilis test(s)**
  - Consult with Infectious Diseases specialist on call or STI specialist for all suspect cases. Click here for syphilis treatment options
- **Negative HSV and Syphilis tests:**
  - Consult specialist (ID or STI) [6]
  - Repeat syphilis serology in 4 weeks
  - If lesion persists, consider testing for chancroid (*H. ducreyi*) and/or LGV.

Urethritis

Urethritis involves an inflammatory process in the urethra, and manifests with clinical signs and symptoms such as urethral discharge and/or dysuria. Urethritis must be differentiated clinically from cystitis. In patients with untreated urethritis, there is a risk for the development of epididymo-orchitis.[6]

Microbiologic etiology:

- *Chlamydia trachomatis*
- *Neisseria gonorrhoeae*
- *Mycoplasma genitalium,*
- *Trichomonas vaginalis*
- Herpes simplex virus

Clinical Assessment

1. History – presence and quality of urethral discharge, presence of inguinal lymphadenopathy, travel history, sexual contacts in period prior to onset of symptoms, associated features (rash, joint symptoms, conjunctivitis)
2. Physical Examination:
   - Examination of urethral meatus for evidence of inflammation or discharge
   - Examination of the shaft of the penis for lumps
   - Examination of the inguinal area for lymph nodes
   - Scrotal examination (to exclude epididymal or testicular swelling and tenderness, suggestive of epididymo-orchitis or the presence of scrotal masses)

Minimum Testing

- Urine for chlamydia and gonorrhea NAAT (Chlamydia N. Gonorrhoeae (GC) Test}

Click here for chlamydia and gonorrhea testing options (male)

Click here for chlamydia and gonorrhea testing options (female)

Management/Treatment

If there is a clinical concern for STI, treat patients with urethritis presumptively for gonorrhea and chlamydia pending laboratory results.

- **Gonorrhea Urethritis:**
  - Click here for gonorrhea treatment options - male
  - Click here for gonorrhea treatment options - female
- **Chlamydia Urethritis:**
  - Click here for chlamydia treatment options – male
  - Click here for chlamydia treatment options - female

NOTE: ALL patients with chlamydia should be treated for gonorrhea unless negative test for gonorrhea.

Epididymo-Orchitis (acute)

Acute epididymo-orchitis usually manifests with unilateral testicular pain and tenderness.
Differential Diagnosis:

- Epididymo-orchitis (in men under 35 years of age, chlamydia and gonorrhea account for 2/3 of cases; in men over 35 years of age, UTI pathogens such as coliforms are more common)
- Acute torsion of the testicle (Surgical Emergency)
- Varicocoele
- Spermatocoele
- Hydrocoele
- Other benign or malignant testicular lesions

Clinical Assessment

1. Standard STI examination
2. Physical Examination:
   - Examination of scrotum for tenderness and swelling
   - Palpation of testicles for assessment of size, presence of tenderness or testicular masses
   - Palpation of epididymis for signs of swelling, tenderness or masses
   - With severe pain of acute onset, consider diagnosis of testicular torsion and urgent surgical assessment

Minimum Testing

- Urine for chlamydia and gonorrhea NAAT { Chlamydia N. Gonorrhoeae (GC) Test}
- Urinalysis Random and Midstream Urine Bacterial Culture

Click here for chlamydia and gonorrhea testing options – male

Click here for chlamydia and gonorrhea testing options - female

Diagnosis

- **Epididymitis** – presence of painful, usually unilateral scrotal swelling, with objective evidence of epididymal swelling and tenderness and/or testicular tenderness

- **Testicular Torsion** – severe acute pain onset

Note: If testicular torsion is considered unlikely, the patient should be treated for epididymo-orchitis before results of laboratory tests are available

Management/Treatment

- If torsion ruled out, **treat presumptively for epididymo-orchitis**.Click here for epididymo-orchitis treatment options
- Bed rest, scrotal elevation and support and analgesics are also recommended

Vaginal Discharge (cervicitis and vaginitis)

Patients with vaginal discharge should be assessed for the presence of vaginitis and/or cervicitis, and should be evaluated clinically for pelvic inflammatory disease (PID).[6]
Differential diagnosis of vaginitis:

- Candidiasis
- Trichomoniasis
- Bacterial vaginosis
- Atrophic vaginitis
- Other non-infective vaginitis syndromes

Cervicitis is primarily caused by *Neisseria gonorrhoeae* and/or *Chlamydia trachomatis*.

Clinical Assessment

1. History – presence of vaginal discharge (including change in normal volume and character of discharge), pruritus, dysuria, presence of lesions, presence of foreign bodies, colour and odor of discharge
2. Physical Examination:
    - Examination of external genital skin for lesions
    - Speculum and bimanual examinations

Minimum Testing

The patient with vaginal discharge or in whom cervicitis is suspected, based on presence of endocervical discharge and/or cervical friability, should have testing for:

- Gonorrhea and Chlamydia plus/minus Trichomonas where available (either endocervical, vaginal or urine testing, depending on availability).
- Pregnancy test (urine or serum)

If vaginitis is suspected:

- Collect additional swab of vaginal secretions for candida, bacterial vaginosis and trichomonas (if not collected as above)

Click here for chlamydia and gonorrhea testing options
Click here for bacterial vaginosis, trichomoniasis and candidiasis testing options

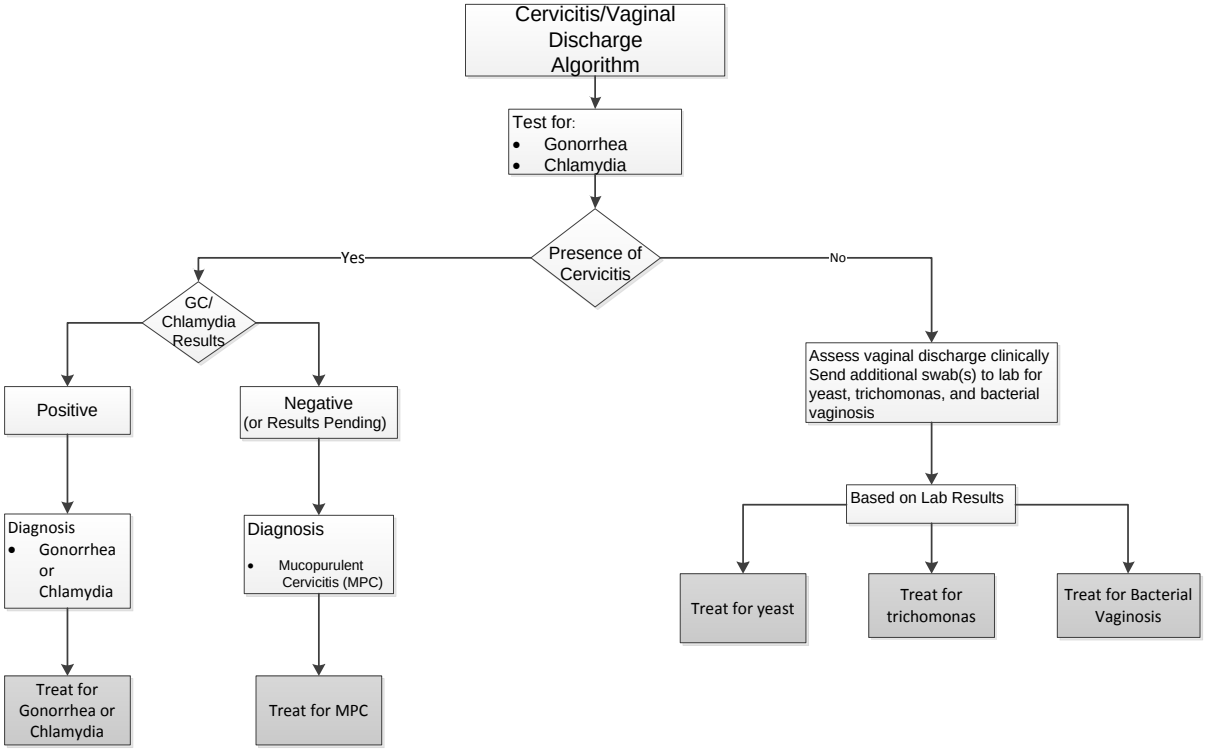
Diagnosis

- **Mucopurulent Cervicitis (MPC)**
    - Diagnosis of MPC should not be made in pregnancy due to poor positive predictive value of any criteria for defining MPC in pregnant women. Speculum examination is required to make this diagnosis.[10]

  - Definitive diagnosis: Inflammation of the cervix with a mucopurulent or purulent cervical discharge and/or sustained endocervical bleeding easily induced by gentle passage of a swab through the cervical os AND negative tests from genitourinary specimens for chlamydia and gonorrhea.[6, 9]
  - Presumptive diagnosis: Contact to known case of chlamydia, NGU and/or epididymo-orchitis.[6]
- **Gonorrhea Cervicitis**
  - Definitive diagnosis: Positive gonorrhea test from endocervix or urine.[6]
  - Presumptive diagnosis: Contact to partner with laboratory-confirmed gonorrhoea, Contact to partner with urethral smear showing gram negative intracellular diplococci, Contact to NGU, epididymo-orchitis, pending gonorrhea result.[6]
- **Chlamydia Cervicitis**
  - Definitive diagnosis: Positive Chlamydia test from endocervix or urine.[6]
  - Presumptive diagnosis: Contact to positive Chlamydia test, Contact to NGU, epididymo-orchitis.[6]
- **Pelvic Inflammatory Disease (PID)**
  - Diagnosis requires: cervical motion tenderness (CMT) with or without adnexal tenderness. Does not require positive tests for gonorrhea or Chlamydia. Lower quadrant abdominal pain, deep dyspareunia, abnormal vaginal bleeding or discharge, or fever/chills may be present.[6]

Cervicitis/Vaginal Discharge Algorithm

Figure 1: *Cervicitis/Vaginal Discharge Algorithm*



Adapted from: Alberta Health Services. The Blue Book. July 2014. Standards for the Management and Evaluation of STI Clinic Clients.

Management/Treatment

- **Yeast Vaginitis (Candidiasis)** Click here for candidiasis treatment options
  - Treatment is unnecessary for asymptomatic infection.[6,10]
  - Treatment of sexual partners is not routinely recommended unless male partner has candida balanitis.[6,10]
- **Trichomoniasis Vaginitis/Cervicitis** Click here for trichomoniasis treatment options
  - For pregnant women: treatment is recommended only if symptomatic.[6,10]
  - Sexual partners should be treated simultaneously.[6,10]
- **Bacterial Vaginosis** Click here for bacterial vaginosis treatment options
  - If asymptomatic, treatment is unnecessary except in cases of:[6,7,10]
    - pregnant women with history of high-risk pregnancy (previous preterm delivery)
    - prior to IUD insertion
    - prior to gynecologic surgery or upper genitourinary tract instrumentation
    - prior to therapeutic abortion

  - Treatment of male sexual partners is not indicated and does not prevent recurrence. [6,10]
- **Mucopurulent Cervicitis (MPC)** Click here for MPC treatment options
  - If cervicitis is diagnosed clinically, immediate treatment is recommended. Treat presumptively for gonorrhea and chlamydia pending laboratory results.[10]
  - Diagnosis of MPC should not be made in pregnancy due to poor positive predictive value of any criteria for defining MPC in pregnant women. [6,10]
- **Gonorrhea Cervicitis** Click here for gonorrhea treatment options
- **Chlamydia Cervicitis** Click here for chlamydia treatment options
  - All patients with chlamydia should be concurrently treated for gonorrhea unless negative test for gonorrhea.[6]
- **Pelvic Inflammatory Disease (PID)** Click here for PID treatment options
  - Pregnancy test must be done prior to treatment.[6]
  - Removal of an IUD in a case with PID is controversial and should be discussed with the practitioner who inserted the device.[10]

Papular Genital/Anal Lesions

Patients who present with papular genital/anal lesions may be suffering from a variety of infectious or non-infectious conditions. Of genital warts, 90% are caused by HPV 6 or 11. While the minority of persons infected with human papilloma virus (HPV) develop visible genital warts, most are asymptomatic. Males who participate in receptive anal intercourse are at risk of developing infection with HPV and therefore anal carcinomas, while females are at risk of developing cervical or vaginal neoplasia. Another papular skin condition, Molluscum contagiosum, is caused by a pox virus which is often transmitted sexually in adults. The lesions can be severe in HIV infected patients.[6]

Differential diagnosis:

- Lesions caused by Human papillomavirus (HPV) e.g. external genital warts (EGW)
- Molluscum contagiosum
- Other benign and malignant conditions

Clinical Assessment

1. History – associated symptoms
2. Physical Examination:
   - Examination of external genital skin including perianal skin
   - In screening for HPV related lesions:
     - Women: examine cervix and vaginal walls
     - Men: assess for visible intrameatal lesions

Minimum Testing

- No routinely available diagnostic test for HPV or molluscum contagiosum
- Papanicolaou testing if indicated

Diagnosis

The diagnosis of external genital warts and molluscum contagiosum is mostly clinical. For lesions where there is uncertainty about the diagnosis, referral to a specialist for further evaluation or biopsy may be undertaken.

- **Visible External Genital Warts:**
  - May present as multiple growths on the anogenital skin, which occasionally cause bleeding, pruritus and local discharge.
  - Most commonly present as cauliflower-like or papular in appearance but can also present as flat, macular lesions or keratinized, slightly elevated lesions.
- **Molluscum Contagiosum:**
  - Typically flesh coloured, smooth, firm, dome shaped with a central umbilicus.

Treatment

- The treatment of external genital warts and molluscum contagiosum should not be initiated in the Emergency Department. Patients should be referred for treatment initiation and ongoing care to their family physician or local STI Clinic.

Infestations

Two infestations are most commonly associated with sexual contact:

- pubic lice (*Pediculosis pubis*)
- scabies mite (*Sarcoptes scabei*)

Clinical Assessment

Physical Examination:

- The genital area and especially the pubic hair should be examined by eye or with a magnifier for the lice organisms or for the egg cases (nits) attached to the hair.
- A patient suspected of scabies should be examined for the presence of burrows in the genital area, in the interdigital regions and around the wrists and ankles. The intense pruritus of scabies is due to a hypersensitivity to the mite, which may take weeks to develop.
- Crusted ("Norwegian") scabies manifests as dramatic skin crusting and pruritus, and is seen in immunocompromised patients (e.g. HIV/AIDS). It is extremely contagious due to the large number of mites in the crusts.

Minimum Testing

- In cases of uncertainty, low power microscopic examination of pubic hair (for lice) or skin scrapings from suspected burrows (for scabies) can be done

Diagnosis

- **Pubic Lice -** A diagnosis of pubic lice is based on direct observation of the adult louse or the nits attached to pubic hair
- **Scabies -** Scabies is diagnosed based on direct observation of the burrows or of skin scrapings showing the mite itself

Treatment

- Pubic Lice Click here for Pubic Lice treatment options
- Scabies

Order Set: Suspected Sexually Transmitted Infection, Adult Male

Symptoms of suspected chlamydial or gonococcal infection

Order Set Restrictions: Restricted to adult males
Order Set Keywords: Chlamydia, Gonorrhea, Epididymo-orchitis, Urethritis
Order Set Requirements: Allergies

Intravenous Orders (*only if IV antiemetics or analgesics required*)

☐ IV Peripheral Saline Flush/Lock
☐ IV Maintenance: _____mL/hour, reassess by physician after ____ hour(s)
☐ 0.9% NaCl infusion
☐ lactated ringers infusion

Laboratory

Hematology:

☐ Complete Blood Count (CBC)

Chemistry:

☐ Sodium (Na)
☐ Potassium (K)
☐ Chloride (Cl)
☐ CO2 Content
☐ Creatinine
☐ Glucose Random
☐ Urea
☐ Blood Glucose Monitoring – POCT (Point of Care Test)

Urine Tests:

☐ Urinalysis Random
☐ Urine Bacterial Culture

Microbiology:

<u>Chlamydia & Gonorrhea</u>

☐ Chlamydia N. Gonorrhoeae (GC) Test - Urine, Initial Stream (*urethral swabs no longer indicated*)
☐ Chlamydia N. Gonorrhoeae (GC) Test - Swab, Eye (*if suspect ocular infection*)
☐ Chlamydia N. Gonorrhoeae (GC) Test - Swab, Throat (*if sexually transmitted pharyngitis suspected, or for men who have sex with men reporting unprotected oral intercourse*)
☐ Chlamydia N. Gonorrhoeae (GC) Test – Swab, Rectal (*if proctitis suspected, or for men who have sex with men reporting unprotected anal intercourse*)
☐ Joint Aspiration with following tests (*if suspect septic arthritis):*
- Fluid Bacterial Culture and Gram Stain
- Fluid Crystals
- Fluid Protein Total
- Fluid Glucose
- Fluid Cell Count Synovial
- Fluid Differential Synovial

☐ Blood Culture – Adult (*if fever*)

Screen for Concurrent STIs
Individuals at risk for STIs should be screened for the following:

☐ HIV Serology (Mixed Ag/Ab Detection) – blood (HIV Antibody) *(For other HIV Testing Options – Refer to Order Set Hepatitis / HIV laboratory testing. For further information about HIV screening, refer to Public Health Agency of Canada's HIV Screening and Testing Guide)*
☐ Syphilis Antibody Test - blood

Diagnostic Investigations
☐ Ultrasound: Scrotal Study With Doppler *(if concerned about testicular torsion)*

Medications

Acute Epididymo-Orchitis
If infection most likely caused by sexually transmitted chlamydia and gonorrhea:

Preferred
☐ cefTRIAXone 250 mg IM once
AND
☐ doxycycline 100 mg PO BID for 14 days
Alternate
☐ levofloxacin 500 mg PO daily for 10 days (*Levofloxacin may be used if negative for gonorrhea or positive with quinolone susceptible gonorrhea. If positive for gonorrhea and antimicrobial resistance testing is not available, a test of cure must be obtained)*

If infection most likely caused by UTI pathogens:
☐ levofloxacin 500 mg PO daily for 10 days

Gonorrhea/Urethritis (test results pending for gonorrhea and chlamydia)

Urethral/pharyngeal/rectal
Preferred
☐ cefTRIAXone 250 mg IM/IV once
AND
☐ AZIthromycin 1,000 mg PO once

Alternate
☐ ceFIXime 800 mg PO once
AND
☐ AZIthromycin 1,000 mg PO once

OR

☐ AZIthromycin 2,000 mg PO once *(Since azithromycin resistance has been reported, this agent should only be used as monotherapy if there is a strong contraindication to the use of cephalosporins (e.g. history of anaphylactic reaction to penicillin or allergy to cephalosporin)*

Eye*

☐ cefTRIAXone 2,000 mg IV/IM once

AND

☐ doxycycline 100 mg PO BID for 7 days

OR

☐ AZIthromycin 1,000 mg PO once

**For severe eye infections, consult Ophthalmology and STI Services/Infectious Diseases on call*

Chlamydia/Urethritis (with negative tests for gonorrhea)

Urethral or pharyngeal

Preferred

☐ AZIthromycin 1,000 mg PO once

Alternate

☐ doxycycline 100 mg PO BID for 7 days

Eye/rectal Infection

Preferred

☐ doxycycline 100 mg PO BID for 7 days

Alternate

☐ AZIthromycin 1,000 mg PO once

Important disposition / follow up considerations

- Complete STI Notification form for confirmed Chlamydia and Gonorrhea and Non Gonococcal Urethritis
- If positive test for gonorrhea and/or Chlamydia, a STI Services Partner Notification Nurse (PNN) will contact the patient to ensure adequate treatment and help coordinate partner notification and treatment
- Patient can follow up with the family physician or the STI clinic if not improving
- Test of cure (e.g. repeat NAAT test after 3-4 weeks) is recommended for all cases of gonorrhea
- Patients with proven chlamydia or gonorrhea should be rescreened in 6 months as high risk of re-infection

Order Set: Suspected Sexually Transmitted Infection, Adult Female

Symptoms of suspected vaginitis/urethritis or chlamydial or gonococcal infection

Order Set Restrictions: Restricted to adult females
Order Set Keywords: Chlamydia, Gonorrhea, Bacterial Vaginosis, Candidiasis, Trichomonas, Pelvic Inflammatory Disease, PID
Order Set Requirements: Allergies; patient weight (for antibiotic dosing)

Intravenous Orders (*only if IV antiemetics, analgesics or antibiotics required*)
☐ IV Peripheral Saline Flush/Lock
☐ IV Maintenance: _____mL/hour, reassess by physician after ____ hour(s)
☐ 0.9% NaCl infusion
☐ lactated ringers infusion

Laboratory Investigations
Hematology:
☐ Complete Blood Count (CBC)

Chemistry:
☐ Sodium (Na)
☐ Potassium (K)
☐ Chloride (Cl)
☐ CO2 Content
☐ Creatinine
☐ Glucose Random
☐ Urea
☐ Blood Glucose Monitoring – POCT (Point of Care Test)

Urine Tests:
☐ Urinalysis Random
☐ Urine Bacterial Culture
☐ Pregnancy Test, Urine

Microbiology:

<u>Chlamydia & Gonorrhea</u>
☐ Chlamydia /N. Gonorrhoeae (GC) Test - Swab, _____ (*specify source: vagina/endocervix*)
☐ Chlamydia /N. Gonorrhoeae (GC) Test - Urine, Initial Stream (*for patients not undergoing pelvic exam or adolescents*)
☐ Chlamydia /N. Gonorrhoeae (GC) Test - Swab, Eye (*if suspect ocular infection*)
☐ Chlamydia /N. Gonorrhoeae (GC) Test - Swab, Throat (*if sexually transmitted pharyngitis suspected or reports unprotected oral intercourse*)
☐ Chlamydia /N. Gonorrhoeae (GC) Test – Swab, Rectal (*if proctitis suspected or reports unprotected anal intercourse*)
☐ Joint Aspiration with following tests (*if suspect septic arthritis):*
- Fluid Bacterial Culture and Gram Stain
- Fluid Crystals
- Fluid Protein Total
- Fluid Glucose
- Fluid Cell Count Synovial
- Fluid Differential Synovial

☐ Blood Culture – Adult (*if fever*)

Bacterial Vaginosis/Candidiasis/Trichomoniasis

☐ Bacterial Vaginosis/Trichomonas/Yeast – Swab, Vagina
☐ Trichomonas Vaginalis Nucleic Acid Amplification Test (NAAT) – Swab, Vagina (*where available*)

Screen for Concurrent STIs

Individuals at risk for STIs should be screened for the following:

☐ HIV Serology (Mixed Ag/Ab Detection) – blood (HIV Antibody)
(For other HIV Testing Options – Refer to Order Set Hepatitis / HIV laboratory testing. For further information about HIV screening, refer to Public Health Agency of Canada's HIV Screening and Testing Guide).
☐ Syphilis Antibody Test - blood

Diagnostic Investigations

☐ US Pelvis, Female, Transvesical (abdominal)
☐ US Pregnancy, Less 12 Weeks
☐ US Pregnancy, Greater 12 Weeks

Medications

Pelvic Inflammatory Disease (PID)

Pregnancy test must be done prior to treatment

Moderate to Severe PID, preferred:

☐ cefTRIAXone _____ mg IV every 24 hours (*recommended dose 1,000 to 2,000mg)*
AND
☐ doxycycline 100 mg PO BID for 14 days
AND
☐ metroNIDAZOLE 500 mg PO BID for 14 days

Moderate to Severe PID, alternate:

☐ clindamycin 900 mg IV every 8 hours
AND
☐ gentamicin _____ mg IV every 24 hours *(recommended dose 5 to 7 mg/kg)*

Outpatient – non-pregnant/non-lactating, preferred:

☐ cefTRIAXone 250 mg IM/IV once
AND
☐ doxycycline 100 mg PO BID for 14 days
WITH OR WITHOUT
☐ metroNIDAZOLE 500 mg PO BID for 14 days (add if suspicion of anaerobic infection i.e. bacterial vaginosis, tubo-ovarian abscess and or HIV co-infection)

Outpatient – non-pregnant/non-lactating, alternate:

☐ levofloxacin 500 mg PO daily for 14 days

WITH OR WITHOUT

☐ metroNIDAZOLE 500 mg PO BID for 14 days (add if suspicion of anaerobic infection i.e. bacterial vaginosis, tubo-ovarian abscess and or HIV co-infection)

Gonorrhea/ Cervicitis (test results pending for gonorrhea and chlamydia)

Cervicitis/pharyngeal/rectal

Preferred

☐ cefTRIAXone 250 mg IM/IV once

AND

☐ AZIthromycin 1,000 mg PO once

Alternate

☐ ceFIXime 800 mg PO once

AND

☐ AZIthromycin 1,000 mg PO once

OR

☐ AZIthromycin 2,000 mg PO once *(Since azithromycin resistance has been reported, this agent should only be used as monotherapy if there is a strong contraindication to the use of cephalosporins; e.g. history of anaphylactic reaction to penicillin or allergy to cephalosporin)*

Eye*

☐ cefTRIAXone 2,000 mg IV/IM once

AND

☐ doxycycline 100 mg PO BID for 7 days

OR

☐ AZIthromycin 1,000 mg PO once

**For severe eye infections, consult Ophthalmology and STI Services/Infectious Diseases on call*

Chlamydia/ Cervicitis (with recent negative tests for gonorrhea and clinical evidence of mucopurulent cervicitis)

Cervicitis/pharyngeal

Preferred - non-pregnant, non-lactating

☐ AZIthromycin 1,000 mg PO once

Alternate - non-pregnant, non-lactating

☐ doxycycline 100 mg PO BID for 7 days

Preferred – pregnant/lactating

Note: available data suggests that azithromycin is safe and effective in pregnant and lactating women.

☐ AZIthromycin 1,000 mg PO once

Alternate – pregnant/lactating

☐ amoxicillin 500 mg PO TID for 7 days

Eye/Rectal Infection (confirmed or suspected)

Preferred

☐ doxycycline 100mg PO BID for 7 days

Alternate

☐ AZIthromycin 1,000mg PO once

Preferred – pregnant/lactating

Note: available data suggests that azithromycin is safe and effective in pregnant and lactating women.

☐ AZIthromycin 1,000 mg PO once

Trichomoniasis

(*Treatment is recommended even if asymptomatic*)

☐ metroNIDAZOLE 2,000 mg PO once

Bacterial Vaginosis

Preferred:

☐ metroNIDAZOLE 500 mg PO BID for 7 days

Alternate:

☐ clindamycin 300 mg PO every 12 hours for 7 days

Candidiasis

(Treatment is unnecessary for asymptomatic infection)

Non-pregnant/non-lactating:

☐ fluCONazole 150 mg PO once. If persistent symptoms, have patient follow up with family physician

OR

☐ clotrimazole 2 % Vaginal Cream 5g 1 applicator full INTRA-VAGINALLY before bed (qhs) for 3 days (*NOTE: Other topical agents are equally effective*)

Pregnant/lactating:

☐ clotrimazole 2 % Vaginal Cream 5g 1 applicator full INTRA-VAGINALLY before bed (qhs) for 7 days *(NOTE: Other topical agents are equally effective)*

Male Partner with candida balanitis *(Treatment of sexual partners is not routinely recommended unless male partner has candida balanitis)*:

☐ clotrimazole 1% cream BID for 7 days

Important disposition / follow up considerations

- Complete STI Notification form for confirmed Chlamydia and Gonorrhea and Mucopurulent cervicitis
- If positive test for gonorrhea and/or Chlamydia, a STI Services Partner Notification Nurse (PNN) will contact the patient to ensure adequate treatment and help coordinate partner notification and treatment
- A PNN will not contact patient for partner treatment of trichomoniasis; patient should be advised to have partner(s) follow up with GP/STI clinic for treatment
- Patient can follow up with the family physician or the STI clinic if not improving
- Test of cure (e.g. repeat NAAT test after 3-4 weeks) is recommended for all cases of gonorrhea
- Patients with proven chlamydia or gonorrhea should be rescreened in 6 months as rates of re-infection are high.

Order Set: Suspected Sexually Transmitted Infestations and Lumps

Symptoms of suspected genital infestations/warts/molluscum

Order Set Restrictions: Restricted to adult patients
Order Set Keywords: Pubic Lice, Scabies
Order Set Requirements: Allergies

NOTE: The treatment of external genital warts and molluscum contagiosum should not be initiated in the Emergency Department. Patients should be referred for treatment initiation and ongoing care to their family physician or local STI Clinic.

Medications

Pubic Lice

☐ permethrin 1% creme rinse TOPICALLY; wash the affected area and apply according to package instructions

Scabies

☐ permethrin 5% cream TOPICALLY; apply to the body from the neck down, leave for 8 to 14 hours; shower and wear clean clothes

☐ diphenhydrAMINE _____mg PO/IV once PRN for itching *(recommended dose 25 to 50mg)*

Important disposition / follow up considerations

- Permethrin is safe for use in pregnancy
- For suspected pubic lice, scabies, patient should be advised to:
  - Wash in hot water (50^0C) or dry clean all clothes and bedding. Alternatively, place in plastic bags for 1 week
  - Vacuum all mattresses
  - Sexual partners within last month should be treated
- Patient can follow up with the family physician or the STI clinic if not improving within 1 week as they may require re-treatment.
- Pruritus may be controlled with antihistamines, mild topical corticosteroids

Order Set: Suspected Sexually Transmitted Genital Ulcers, Adult

Symptoms of genital ulcer disease

Order Set Restrictions: Restricted to adult patients
Order Set Keywords: Genital Herpes, Herpes, HSV, Syphilis
Order Set Requirements: Allergies

Intravenous Orders (*only if IV antiemetics or analgesics required*)

☐ IV Peripheral Saline Flush/Lock
☐ IV Maintenance: _____mL/hour, reassess by physician after ____ hour(s)
- ☐ 0.9% NaCl infusion
- ☐ lactated ringers infusion

Laboratory Investigations

Hematology:

☐ Complete Blood Count (CBC)

Chemistry:

☐ Sodium (Na)
☐ Potassium (K)
☐ Chloride (Cl)
☐ CO2 Content
☐ Creatinine
☐ Glucose Random
☐ Urea
☐ Blood Glucose Monitoring – POCT (Point of Care Test)

Urine Tests:

☐ Urine Dipstick Testing
☐ Urinalysis Random
☐ Urine Bacterial Culture
☐ Pregnancy Test, Urine

Microbiology:

<u>Genital Herpes (Herpes simplex virus, HSV)/Syphilis</u>

☐ HSV and VZV Nucleic Acid Test (NAT) - Swab, lesion
☐ Syphilis Nucleic Acid Test (NAT) – Swab, lesion
☐ Syphilis Antibody Test – blood

<u>Screen for Concurrent STIs</u>

☐ Chlamydia/Neisseria gonorrhoea (GC) Test - Urine, Initial Stream
☐ HIV Serology (Mixed Ag/Ab Detection) – blood (HIV Antibody) *(For other HIV Testing Options – Refer to Order Set Hepatitis / HIV laboratory testing. For further information about HIV screening, refer to Public Health Agency of Canada's HIV Screening and Testing Guide)*

Medications

Genital Herpes (HSV)

Primary First Episode:

☐ valACYclovir 1,000 mg PO BID for 10 days

Severe Primary Disease:

☐ acyclovir _____ mg IV every 8 hours (*recommended dose 5 to 10 mg/kg*)

Recurrent Lesions – Episodic Therapy:

☐ valACYclovir 500 mg PO BID for 3 days

OR

☐ valACYclovir 1,000 mg PO daily for 3 days

Syphilis

Prior to treatment, consult STI Services or Infectious Diseases on call:

☐ Consult – STI Services (during business hours)

☐ MD Consult – Infectious Diseases (outside of business hours)

☐ penicillin G benzathine **(*Long Acting*)** 2.4 million units IM once. Administer as 1.2 million units in each gluteal muscle.

Note: *this is a special long-acting preparation of penicillin required for the treatment of syphilis*

OR

☐ doxycycline 100 mg PO BID for 14 days *(penicillin allergy only)*

Neurosyphilis:

☐ penicillin G sodium 4 million units IV every 4 hours for ____days (*if admitted; recommended duration 10-14 days*)

☐ cefTRIAXone 2 g IV every 24 hours (*if outpatient*)

Important disposition / follow up considerations

- Consult infectious diseases or if during business hours, STI services for all patients with suspect syphilis
- Patients with suspect or confirmed syphilis with neurologic symptoms (including eye/ear symptoms), require a lumbar puncture (test for cell count and differential, protein, glucose, CSF VDRL) and may require ophthalmologic or ENT assessment
- If positive test for syphilis or HIV, an STI Services Partner Notification Nurse (PNN) will contact the patient to ensure adequate treatment and help coordinate partner notification and treatment
- Complete Syphilis History Form for confirmed syphilis (will be sent to testing MD by STI Services after positive test result)
- Patient can follow up with the family physician or the STI clinic if not improving

Order Set: Hepatitis/HIV Laboratory testing

Order Set Restrictions: Restricted to adult patients
Order Set Keywords: Hepatitis A, Hepatitis B, Hepatitis C, HIV, Human Immunodeficiency Virus
Order Set Requirements: Allergies

Laboratory Investigations

Hepatitis A

For suspected acute illness

☐ Hepatitis A Antibody, IgM

Hepatitis B

For suspected acute illness

- *For diagnosis of acute or chronic Hepatitis B carrier status, request 'Hepatitis B Surface Antigen'*
- *Re-screen clients annually with ongoing risks for Hepatitis B (not immunized and/or no documented immunity) and/or who present with symptoms of acute Hepatitis (i.e. jaundice, abdominal pain, nausea, vomiting) by requesting 'Hepatitis B Surface Antigen/ testing only*
- *'Hepatitis B Core Antigen, IgM Antibody' is helpful in assessing an acute infection or if the patient is in the "window period" when Hepatitis B Surface Antigen is absent and Hepatitis B Surface Antigen, Antibody is not yet detectable, or reactivation of IgM in chronic carriers.*

For assessment of immunity status

- *To determine if immune to Hepatitis B, request 'Hepatitis B Surface Antigen, Antibody'*
- *Perform pre-immunization serology for Hepatitis B if no history of Hepatitis B immunization and/or no previous documented immunity to Hepatitis B (i.e. Hepatitis B Surface Antigen, Antibody greater than or equal to 10 IU/L) by requesting 'Hepatitis B Surface Antigen' and 'Hepatitis B Surface Antigen, Antibody'*

☐ Hepatitis B Surface Antigen
☐ Hepatitis B Surface Antigen, Antibody
☐ Hepatitis B Core Antigen, IgM Antibody

For diagnosis of previous exposure to hepatitis B virus, request 'Hepatitis B Core Antigen, Antibody'.

☐ Hepatitis B Core Antigen, Antibody

For chronically infected

- *'Hepatitis Be Antigen' and 'Hepatitis Be Antigen, Antibody' are helpful in the evaluation of a chronically infected patient for treatment or monitoring.*

☐ Hepatitis Be Antigen
☐ Hepatitis Be Antigen, Antibody

Hepatitis C

☐ Hepatitis C Antibody

For suspected acute HCV in patient with negative HCV antibody, for documenting if carrier status and to determine viral load prior to treatment

☐ Hepatitis C Virus Quantitative Nucleic Acid Test

HIV

☐ HIV Serology by Rapid Assay – blood. *RESTRICTED USE: Only available for significant occupational exposure on source patient, woman in labour and delivery, or acutely ill patient (rapid result required for immediate patient care).*

☐ HIV Serology (Mixed Ag/Ab Detection) – blood (HIV Antibody)

Hepatitis B Post-Exposure Prophylaxis

Please refer to the Alberta Guidelines for Non-Occupational, Occupational and Mandatory Testing and Disclosure Act Post-Exposure Management and Prophylaxis: HIV, Hepatitis B, Hepatitis C and Sexually Transmitted Infections

Human Immunodeficiency Virus Post-Exposure Prophylaxis (HIV PEP)

Please refer to the Alberta Guidelines for Non-Occupational, Occupational and Mandatory Testing and Disclosure Act Post-Exposure Management and Prophylaxis: HIV, Hepatitis B, Hepatitis C and Sexually Transmitted Infections

Contact Management

Bacterial Vaginosis

- No data supports a benefit to treatment of partners; therefore no specific partner notification is required.

Candidiasis (Yeast Vaginitis)

- No testing, treatment or notification of partners is needed.
- Treatment of sexual partners is not routinely recommended unless male partner has candida balanitis; use a topical azole cream twice a day for 7 days. Fluconazole 150 mg single oral dose is also acceptable.

Chancroid

- Contacts of patients with chancroid should be examined and treated for chancroid regardless of presence or absence of symptoms, if their contact was within 14 days of onset of symptoms in the infected person

Chlamydia

Definitive Diagnosis

- All contacts in last 2 months, regardless of symptoms or signs, must be located, examined, tested and treated. It may be necessary to extend this time period until a sexual contact is identified.

Presumptive Diagnosis

- Obtain contact information as above and follow up with the contact only if laboratory test confirms infection.

Acute Epididymo-Orchitis

- All contacts of patients with sexually transmitted acute epididymo-orchitis in last 2 months, regardless of symptoms or signs, must be located, examined, tested and treated for uncomplicated gonorrhea and chlamydia infections. It may be necessary to extend this time period until a sexual contact is identified.
- **Note:** Only need to treat contacts for CT if the index case is GC negative. If unaware of index GC status or results not back, treat contact for both CT and GC.

Genital Herpes (HSV)

- Patient is instructed to inform all sexual partners of their risk and to encourage them to seek information and assessment if symptomatic.

- Patient must be counselled that condoms may not be 100% protective and that asymptomatic shedding can occur between outbreaks.

Gonorrhea

Definitive Diagnosis

- All contacts in last 2 months, regardless of symptoms or signs, must be located, examined, tested and treated. It may be necessary to extend this time period until a sexual contact is identified.

Presumptive Diagnosis

- Obtain contact information as above and follow up with the contact only if laboratory test confirms infection.

Hepatitis

- Followed by Communicable Disease Control

Human Immunodeficiency Virus

- Partner notification must be undertaken in all cases of AIDS and HIV infection.
- Identification and contact tracing of all known sexual and needle-sharing partners of HIV infected patients must be undertaken. It may be necessary to go back several years. Knowledge of a previous negative test can assist in determining the time frame for contact identification.
- A partner notification nurse (PNN) or HIV Liaison Nurse will interview the newly diagnosed HIV positive patients for contact information.
- It is the responsibility of the HIV Partner Notification Nurse or HIV Liaison Nurse to do follow up interviews with the newly diagnosed HIV positive patient to continue to gather and follow up with partner information.
- Trace back period - Ideally, this should be based on the estimated date of seroconversion.
    - If date of seroconversion is known, then all partners/contacts in the six months prior to this should be traced.
    - If date of seroconversion or duration of infection is unknown then trace back period should be at least one year prior to the positive test or as far back as practical.
- Pregnant contacts will be given priority for follow up and offered testing in consultation with HIV Partner Notification Nurse or HIV Liaison Nurse.
- All confirmed cases of HIV should be reported nominally to the MOH by phone; the HIV/AIDS case report form is usually completed by the HIV program staff or PNN.

Human Papillomavirus (HPV)/External Genital Warts (EGW)

- It is patient's responsibility to inform contact (s)
- For female contacts, encourage routine Pap tests as per Alberta Cervical Cancer Screening Guidelines.

Molluscum Contagiosum

- Advise contacts with symptoms to seek treatment otherwise no specific follow up is required

Muco-Purulent Cervicitis (MPC)

Definitive Diagnosis

- All contacts in last 2 months, regardless of symptoms or signs, must be located, examined, tested and treated. It may be necessary to extend this time period until a sexual contact is identified.

Presumptive diagnosis

- Obtain contact information as above and advise patient you will wait for positive culture/NAAT confirmation (gonorrhea or chlamydia) before initiating a contact investigation.

Non-Gonoccocal Urethritis (NGU)

Definitive Diagnosis

- All contacts in last 2 months, regardless of symptoms or signs, must be located, examined, tested and treated. It may be necessary to extend this time period until a sexual contact is identified.

Presumptive Diagnosis

- Obtain contact information as above and follow up with the contact only if laboratory test confirms infection.

Pelvic Inflammatory Disease (PID)

- All contacts in last 2 months, regardless of symptoms or signs should be, examined, tested and treated for uncomplicated gonorrhea and chlamydia infections. It may be necessary to extend this time period until a sexual contact is identified. Active pursuit of contacts would only occur if case positive for gonorrhea or chlamydia.
- **Note:** Only need to treat contacts for CT if the index case is GC negative. If unaware of index GC status or results not back, treat contact for both CT and GC.

Pubic Lice

- Sexual partner(s) within the last month should be treated

Scabies

- All household contacts and recent sexual partner(s) in the last month should be treated.

Syphilis

Primary, Secondary, and Early Latent Syphilis

- Interview for contacts for 12 months prior to onset of symptoms or date of specimen collection if asymptomatic
- Contacts should be tested and treated presumptively
- If contact refuses treatment, repeat STS monthly until:
    - 3 months following last contact with infected person (primary syphilis)
    - 6 months following last contact with infected person (secondary syphilis)
    - 1 year following last contact with infected person (early latent syphilis)

Late Latent Syphilis

- STS performed on sexual partners of long duration and on children of infected females.

Presumptive

- Patients treated presumptively as contacts to confirmed infectious syphilis (Primary, Secondary, or Early latent) should be interviewed for contacts and follow up of contacts would only be initiated on confirmation of infectious syphilis.

Trichomoniasis

- Partners of patients with trichomoniasis should be treated regardless of symptoms and no testing is required, and sex should be avoided until both partners are asymptomatic.

Disposition Planning

1. Outpatient follow-up

Bacterial Vaginosis

- No specific follow-up is necessary for most patients with BV
- Patients should be advised to see GP for re-treatment if symptoms recur (see recurrent BV treatment guidelines).
- Pregnant patients should be advised to see GP in 1 month for evaluation of therapy

Candidiasis (Yeast Vaginitis)

- No specific follow-up or contact management is necessary for isolated yeast vaginitis
- patients with persistent /recurrent yeast vaginitis should see GP

Chlamydia

All chlamydia cases:

- TOC is not routinely indicated if recommended treatment is administered, symptoms and signs disappear and there is no re-exposure to an untreated partner unless:
  - compliance is sub-optimal or uncertain
  - patient is pregnant
  - non-genital site involved (e.g. eye, pharynx, rectum)
  - regimen other than the preferred treatment was used
- TOC, using a nucleic acid amplification test (NAAT), if needed, should be performed 3-4 weeks after the completion of effective treatment to avoid false-positive results due to the presence of non-viable organisms.
- TOC Test Type Recommendations:
  - NAAT: all sites (urine, cervix, pharynx, rectum, eye)
  - For non-genital sites, test of cure is done from site of positive infection (rectal, pharyngeal, eye).
- Re-screening of all individuals diagnosed with chlamydia is recommended after 6 months.
- Infants born to untreated mothers must be tested for C. trachomatis. Newborns must be treated if test results are positive. For further information regarding treatment of infants born to patients with untreated chlamydia, please refer to the Canadian Guidelines on Sexually Transmitted Infections (http://www.phac-aspc.gc.ca/std-mts/sti-its/cgsti-ldcits/section-5-2-eng.php)

.

Epididymo-Orchitis

- Follow-up should be arranged to evaluate the response to treatment.
    - If a recommended regimen has been given and correctly taken and the patient has failed to improve after 48-72 hours, they should be assessed for an alternate diagnosis.
    - If the patient's symptoms and signs have disappeared and there is no re-exposure to an untreated sexual partner, then repeat diagnostic testing for *N. gonorrhoeae* and *C. trachomatis* is not routinely recommended.

Genital Herpes (HSV)

- A negative test before 8 weeks could be a false-negative test, and should be repeated when as soon as possible if lesions reappear
- For patients who present with lesions and test negative for syphilis and herpes advise repeat syphilis serology in 4 weeks
- Counselling is an essential part of management.
- Expert consultation may be of value, particularly in the management of pregnant patients and discordant couples

Gonorrhea

- TOC is now routinely recommended for all cases of gonorrhea
- Re-screening of all individuals diagnosed with gonorrhea is recommended after 6 months.
- Treatment failure or re-exposure:
    - Check sensitivities (will require culture)
    - Repeat smear and/or cultures
    - Re-interview for contacts
    - Re-treat according to guidelines
    - Advise patient to return for test of cure
- For treatment of infants born to patients with untreated gonorrhea please refer to the Canadian Guidelines on Sexually Transmitted Infections (http://www.phac-aspc.gc.ca/std-mts/sti-its/cgsti-ldcits/section-5-6-eng.php)

Hepatitis C

Counselling

- Counselling on modes of transmission, prevention of transmission of infection and partner notification and need for follow up if applicable is essential
- Review window period (6 months) for HCV antibody testing as per patient history

Human Immunodeficiency Virus

Continuing Care and Treatment:

- Persons newly diagnosed with HIV infection will require ongoing medical monitoring of their CD4 counts, viral load measurement and screening for other blood-borne pathogens.
- Refer to HIV program in Edmonton or Calgary

Post-test Counselling:

- If the test result is negative, interpret as:
    - No detectable antibodies at present. Re-testing may be required at 1 and 3 months after last potential exposure.

  - Occupational exposure, cases of sexual assault, and contacts to HIV require baseline testing followed by additional testing at 1 and 3 months.
  - Reinforce condom use with all sexual contacts, and avoidance of needle/syringe sharing.
- If the test result is positive, interpret as:
  - Infection with HIV. A confirmatory test has been done to rule out a false-positive result. This is not diagnostic of AIDS
  - First, discuss what is important to the infected person. Answer questions honestly and with compassion
  - Explore available support systems i.e. family, friends, HIV service organizations, family physician, clergy
  - Discuss the importance of the partner notification process and describe how this is done within public health
  - Provide guidance regarding how to avoid transmission by protecting others from blood and body fluids including sexual secretions.

Disclosure issues:

- Persons living with HIV infection are to be advised of the medico-legal requirement to disclose their HIV status to all potential sexual or drug-injecting partners in advance of the activity. Specifically, they are to be advised of the following, and this discussion is to be documented, signed and dated:
  - There is an obligation to use condoms for all vaginal, anal and oral sexual contacts
  - There is an obligation to disclose HIV status to all vaginal, anal and oral sexual contacts
  - There is an obligation not to share any drug use equipment (needles, syringes, crack pipes), razors, toothbrushes
  - There is an obligation to disclose HIV status to drug use partners. Advise that donating blood, organs, tissue, sperm or breast milk must NOT be done
  - Persons living with HIV should advise their family physician and other health care providers such as their dentist
  - Disclosure in the workplace is usually not required, although physicians, dentists and registered nurses are required to disclose to their professional association.

Human Papillomavirus (HPV)/External Genital Warts

- Refer to GP/STI clinic for ongoing follow up

Molluscum Contagiosum

- Refer to GP/STI clinic for ongoing follow up

Cervicitis

- Patient to see GP after one month for test of cure if:
  - Less than 14 years of age
  - Pregnant
  - An alternate regimen was used
- Patients who remain persistently symptomatic 3-4 weeks after treatment for gonorrhea and chlamydia and in whom a diagnosis of MPC has been made AND

persistent or re-infection with gonorrhea and/or chlamydia has been ruled out should be treated with doxycycline 100 mg PO bid x 7 days.

Urethritis

- Advise patient to see GP in 4 weeks after completion of treatment if symptoms persist
- Patients who remain persistently symptomatic 3-4 weeks after treatment for gonorrhea and chlamydia and in whom a diagnosis of NGU has been made and persistent or repeat infection with gonorrhea has been ruled out should be treated with doxycycline 100 mg PO BID x 7 days.

Pelvic Inflammatory Disease (PID)

- All patients treated for a diagnosis of PID should return to GP or STI clinic for reassessment in 48-72 hours to ensure response to treatment.
- Refer to a specialist for consideration of hospitalization if the individual:
    - is pregnant
    - does not respond clinically to oral antimicrobial therapy
    - is unable to follow or tolerate an outpatient oral regimen
    - has severe illness, nausea and vomiting, or high fever
    - has a tubo-ovarian abscess
    - is immunocompromised, such as with HIV infection
    - is a youth/adolescent (particularly if compliance is an issue)
    - surgical emergencies such as appendicitis cannot be excluded
- Removal of an IUD in a patient with PID is not routinely recommended. Consult with MD who inserted IUD if patient is severely ill (nausea, vomiting, severe pain) at the initial visit and/or there is no clinical improvement at 48-72 hours.

Pubic Lice and Scabies

- Patients should self-examine or be re-examined in 7-10 days to assess need for re-treatment. Permethrin resistance is well described although still uncommon. Ensure that the treatment was applied properly
- For those with scabies it is important to inform them that the itching is related to hypersensitivity and may persist long after the mites are dead. Scabies can be re-treated
- 2 weeks after initial treatment, but beyond this only if live mites are demonstrated
- Pruritis may be controlled with anithistamines and mild topical corticosteroids
- Patients should be given handouts on their infestation to reinforce partner/household management.

Syphilis

STI services will coordinate follow up with responsible physician in all syphilis cases

- Primary, Secondary, Early Latent Syphilis
    - Recall at 1, 3, 6, and 12 months for follow-up syphilis serology; this can be terminated if patient seroreverts (i.e. – RPR non-reactive)
    - If treated with oral therapy contact in two weeks to determine adherence to regimen.

- Test for HIV at 1 and 3 months

- Late Latent Syphilis
  - Repeat syphilis serology will be based on physician recommendation. If not specified should be done at 12 and 24 months unless RPR non-reactive.
  - If treated with oral therapy, contact in 4 weeks to determine adherence to regimen
  - If drugs lost or did not adhere to treatment, additional or alternate therapies may be provided in consultation with clinic physician.
- Presumptive (with non-reactive serology)
  - If treated with long acting benzathine penicillin, no follow-up needed
  - *HIV patients (any stage)*
    - Follow-up syphilis serology at 1, 3, 6, 12 and 24 months and yearly thereafter
- Neurosyphilis
  - Follow-up as per clinic physician
  - *Adequate Serologic Response*
  - *Primary:* 4 fold drop at 6 months, 8-fold drop at 12 months, 16-fold drop at 24 months
  - *Secondary:* 8-fold drop at 6 months and 16-fold drop at 12 months
  - *Early Latent:* 4-fold drop at 12 months

Note: A four-fold drop = 2-tube drop (e.g. change from 1:32 dilutions to 1:8 dilutions)

Trichomoniasis

- Trichomoniasis is a non-reportable STI. No specific follow-up is needed unless the patient has persistence or recurrence of symptoms

2. Patient education / discharge instructions (Appendix B)

- Hepatitis B immunization should be recommended to all individuals with STI who have not already been immunized. In some situations, Hepatitis A immunization may be recommended. [1] Patients should attend the STI clinic or local public health clinic for immunizations
- Patients and contacts should abstain from unprotected sexual intercourse until treatment in both is completed or for 7 days after single dose therapy.[1]
- It is important to note that partner notification is a critical component of STI control and important in preventing further spread and re-infection. [1]
- It is mandated under the Public Health Act that every attempt is made to identify, locate, examine and treat partners/contacts of all cases.[1]
- Physician/case manager are required to provide partner names and locating information on the Notification of Sexually Transmitted Infections form and forward to STI Services.[1]
- If testing and/or treatment of partners is not confirmed on the STI Notification Form, STI Services will initiate follow-up by a Partner Notification Nurse (PNN).
    - PNNs re specially trained to conduct notification of partners and contacts in a confidential manner that protects the identity of the index case
    - The phone number for your designated PNN is available by calling STI services.[1]
- STI Services initiates follow-up on all out of province/country referrals of cases and partner(s).[1]
- Counselling about safer sex practices is important and effective in inducing behaviour change in individuals with or at risk for STI. This can in turn prevent re-infection and acquisition of new infections. Safer sex options include use of barrier contraceptives, reducing numbers of sexual partners, delaying onset of sexual debut and abstinence.[1]

Keywords

- STI
- Sexually transmitted disease
- STD
- Bacterial Vaginosis
- Candidiasis
- Cervicitis
- Chancroid
- Chlamydia
- Discharge
- Dysuria
- Epididymitis
- Epididymo-orchitis
- Genital herpes
- Genital ulcer disease
- Gonorrhea
- Hepatitis A
- Hepatitis B
- Hepatitis C
- Herpes
- HIV
- Human Immunodeficiency Virus
- LGV
- Lymphogranuloma venereum
- MPC
- Mucopurulent cervicitis
- NGU
- Non-gonococcal urethritis
- Orchitis
- Pelvic inflammatory disease
- Pelvic pain
- Penile ulcer
- PID
- Syphilis
- Trichomonas
- Urethral discharge
- Urethritis
- Vaginal discharge
- Vaginitis
- Vulvovaginal candidiasis

References

1. Alberta Health and Wellness. Alberta Treatment Guidelines for Sexually Transmitted Diseases in Adolescents and Adults. 2012. http://www.health.alberta.ca/documents/STI-Treatment-Guidelines-2012.pdf . Updated May 2015. Accessed April 24th, 2015
2. Interactive Health Data Application. Alberta. http://www.ahw.gov.ab.ca/IHDA_Retrieval/ihdaData.do Accessed October 23rd, 2015
3. Alberta Health and Wellness. Sexually Transmitted Infections Report 1998-2002 http://www.health.alberta.ca/documents/STI-Surveillance-2002.pdf Accessed April 2015
4. Public Health Agency of Canada. Notifiable Disease Surveillance System. http://dsol-smed.phac-aspc.gc.ca/dsol-smed/ndis/index-eng.php Updated July 2015. Accessed October 23rd, 2015
5. Interactive Health Data Application. Alberta. http://www.ahw.gov.ab.ca/IHDA_Retrieval/redirectToURL.do?cat=81&subCat=466. Accessed May 30, 2016
6. Alberta Health Services. The Blue Book. July 2014. Standards for the Management and Evaluation of STI Clinic Clients. http://www.albertahealthservices.ca/info/Page1730.aspx Accessed October 2015
7. Public Health Agency of Canada. Canadian Guidelines on Sexually Transmitted Infections http://www.phac-aspc.gc.ca/std-mts/sti-its/cgsti-ldcits/section-1-eng.php#a3. Updated February 1, 2013. Accessed April 24, 2015
8. Public Health Agency of Canada. Executive Summary- Report on Sexually Transmitted Infections in Canada: 2011. http://www.phac-aspc.gc.ca/sti-its-surv-epi/rep-rap-2011/index-eng.php Updated August 28, 2014. Accessed April 24, 2015
9. Centre for Disease Control. 2010. Sexually Transmitted Diseases Treatment Guidelines. Genital HSV Infections. http://www.cdc.gov/std/tg2015/herpes.htm Updated June 8th, 2015. Accessed November 2015
10. Centre for Disease Control. 2010. Sexually Transmitted Diseases Treatment Guidelines. Urethritis and Cervicitis. http://www.cdc.gov/std/treatment/2010/urethritis-and-cervicitis.htm. Reviewed January 28th, 2011. Accessed November 2015

Appendix A - Analytics

Baseline Analytic – Outcome Measure

Name of Measure	Order set Usage for topic: Sexually Transmitted Infection, Adult – Acute Care
Definition	For all patients presenting with suspected sexually transmitted infection, number of times any of the 5 associated order sets are used. Overall, by region, by sites, and by units
Rationale	Intended to measure if the order sets cited in the knowledge topic are being used and what % of time. May indicate areas with adoption issues or gaps in topic
Notes for Interpretation	Site capacity, rural considerations, roll out of provincial CIS
Cited References	n/a

Clinical Analytics – Outcome Measure #1

Name of Measure	Adherence to Guidelines
Definition	Of the tests and medications ordered for patients with suspected sexually transmitted infections, how often do they match the guidelines laid out in this document?
Rationale	Intended to show benefit/impact to patient care
Notes for Interpretation	Should be compared to adherence to provincial/national guidelines prior to release of knowledge topic, if possible
Cited References	*n/a*

Clinical Analytics – Outcome Measure #1A

Name of Measure	Adherence to Gonorrhea and Chlamydia testing Guidelines
Definition	Looking for variance in recommended testing practices: 1. Frequency of urethral swabs being sent in males rather than urine testing; 2. Frequency of urine testing in females rather than vaginal or urethral swabs; 3. Frequency of endocervical swabs versus vaginal swabs?

Rationale	Goal is to standardize GC and chlamydia testing based on best evidence investigation practices.
Notes for Interpretation	Opportunity to determine whether or not it is equipment variance (wrong type of swabs OR lack of access to urine testing OR education/compliance issue leading to failure to follow the guidance.
Cited References	CDC. Recommendations for the Laboratory-Based Detection of Chlamydia trachomatis and Neisseria gonorrhoeae — 2014. MMWR 2014; 63(No. RR-2)

Clinical Analytics – Outcome Measure #2

Name of Measure	Ceftriaxone dosage
Definition	For patients presenting with suspected sexually transmitted infection, who receive ceftriaxone, how often does the dosage ordered match the recommended dose?
Rationale	Intended to show benefit/impact to patient care of knowledge topic
Notes for Interpretation	If possible should be contrasted with ceftriaxone ordering prior to release of knowledge topic
Cited References	*n/a*

Clinical Analytics – Outcome Measure #3

Name of Measure	Follow Up post ED presentation
Definition	Of the total number of patients who present to Emergency Departments with suspected sexually transmitted infection, how many follow up with either their family physician or STI clinic within 7-14 days?
Rationale	Allows for ensuring compliance with meds, improvement (i.e. test of cure) and to increase opportunity for contact tracing
Notes for Interpretation	Access to primary care options including family physician or STI clinics may vary by community
Cited References	*n/a*

Clinical Analytics – Outcome Measure #4

Name of Measure	Consultation for genital ulcers
Definition	Of patients presenting with symptoms of genital ulcers, how often is a consult requested for STI services or Infectious Diseases?
Rationale	To help ensure appropriate consultation and measure effect on consultation services over time
Notes for Interpretation	If it possible should compare with rate of consultation for genital ulcers prior to release of this knowledge topic
Cited References	n/a

Clinical Analytics – Outcome Measure #5

Name of Measure	STI Notification form completion – gonorrhea and chlamydia
Definition	Of patients diagnosed with gonorrhea and chlamydia in the emergency department, for how many of them is the STI Notification form filled out?
Rationale	To determine effect of knowledge topic release on rate of notification
Notes for Interpretation	If possible, should compare with rate of notification prior to release of knowledge topic. STI services should be able to provide this information
Cited References	n/a

Clinical Analytics – Outcome Measure #6

Name of Measure	Patient follow up by Partner Notification Nurses (PNNs)
Definition	Number of patients given follow up by PNNs following visit to the Emergency Department for sexually transmitted infections
Rationale	To measure impact of the knowledge topic on PNN services
Notes for Interpretation	If possible, should compare with rate of PNN follow up prior to release of knowledge topic. STI services should be able to provide this information
Cited References	n/a

Appendix B - Patient Education and Discharge Material

Some STI Patient teaching information is available here:
http://www.health.alberta.ca/health-info/STI-STD.html

Chancroid, post-visit:
https://myhealth.alberta.ca/health/AfterCareInformation/pages/conditions.aspx?hwid=ut3234

Chlamydia, post visit:
https://myhealth.alberta.ca/health/AfterCareInformation/pages/conditions.aspx?hwid=uh3093

Exposure to STI, post visit:
https://myhealth.alberta.ca/health/AfterCareInformation/pages/conditions.aspx?hwid=uh3103

Genital Herpes, post visit:
https://myhealth.alberta.ca/health/AfterCareInformation/pages/conditions.aspx?hwid=uh3108

Gonorrhea, post visit:
https://myhealth.alberta.ca/health/AfterCareInformation/pages/conditions.aspx?hwid=uh3128

Gonorrhea & Chlamydia, about testing:
https://myhealth.alberta.ca/health/AfterCareInformation/pages/conditions.aspx?hwid=abk8848

HIV Testing, post visit:
https://myhealth.alberta.ca/health/AfterCareInformation/pages/conditions.aspx?hwid=ut2621

Pelvic Inflammatory Disease, post visit:
https://myhealth.alberta.ca/health/AfterCareInformation/pages/conditions.aspx?hwid=te8200

Syphilis, post visit:
Syphilis -
https://myhealth.alberta.ca/health/AfterCareInformation/pages/conditions.aspx?hwid=uh3138
Late Syphilis -
https://myhealth.alberta.ca/health/AfterCareInformation/pages/conditions.aspx?hwid=uh3133

Trichomoniasis, post visit:
https://myhealth.alberta.ca/health/AfterCareInformation/pages/conditions.aspx?hwid=uh3143

Safer Sex, post visit:
https://myhealth.alberta.ca/health/AfterCareInformation/pages/conditions.aspx?hwid=zc1381

Acknowledgements

We would like to acknowledge the contributions of the clinicians who participated in the development of this topic. Your expertise and time spent are appreciated.

Name	Title	Zone
Knowledge Lead		
Michael Bullard	Physician, Emergency Medicine	Provincial
Topic Lead		
Ameeta Singh	Physician, Infectious Diseases	Edmonton Zone
Working Group Members		
Tim Graham	Physician, Emergency Medicine	Edmonton Zone
Shawn Dowling	Physician, Emergency Medicine	Calgary Zone
Vincent DiNinno	Physician, Emergency Medicine	South Zone
Ron Read	Physician, Infectious Diseases	Calgary Zone
Clinical Support Services		
Taciana Pereira Jeremy Slobodan Susan Fryters	*on behalf of* Pharmacy Information Management Governance Committee (PIM-GC) - Pharmacy Services	Provincial
James Wesenberg Deirdre Church Prenilla Naidu	*on behalf of* Laboratory Services - Provincial Networks	Provincial
Gordon Askew	*on behalf of* Diagnostic Imaging Services	Provincial

Additional Contributors

Thank you to the following clinicians who participated in the colleague review process. Your time spent reviewing the knowledge topics and providing valuable feedback is appreciated.
Chris Hall, Jennifer Gratrix, Lindsay Bertholet, Petra Smyczek, Primrose Sotocinal, Tyson Kaban