

SEXUALLY TRANSMITTED DISEASE MANAGEMENT ASSESSMENT FOR THE
CENTRAL FLINT HILLS REGION

By

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Abstract

This is a report of my 480 hours of field experience completed at the Fort Riley Department of Public Health (FRDPH) during the summer of 2013 under the supervision of Dr. Paul Benne LTC, MC, Chief of the Fort Riley Department of Public Health (FRDPH), Fort Riley, Kansas. The FRDPH is interested in the health of soldiers, their families, and Army civilian employees at Fort Riley, as well as the health of the surrounding community.

My field experience consisted of rotations through the various branches of the department and completion of objectives for each. My research project was to develop and distribute a questionnaire to health clinics in the central Flint Hills region in order to assess factors in the screening, testing, and treatment of sexually transmitted diseases (STDs) that might be improved upon to lower incidences of STDs in the community.

The purpose of this report is to describe my field experience at the FRDPH, including my observations and experiences during the rotations through the branches of the department, and my research project. This report will also discuss the relevance of the MPH core competency coursework and emphasis area courses to my field experience.

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Chapter 1 – Fort Riley Department of Public Health

Overview

The Fort Riley Department of Public Health (FRDPH), located in Fort Riley, Kansas, is interested in the health of soldiers and their families, as well as Army civilian employees, and the surrounding community. The department, headed by Dr. Paul Benne, LTC, MC, Chief of the Department of Public Health, consists of six branches: public Health Nursing, Occupational Health, Industrial Hygiene, Environmental Health, the Army Hearing Program, and Veterinary Services.

Industrial hygiene works to identify, evaluate, and mitigate health hazards in the work place. This department creates solutions to minimize hazards and illnesses, as well as educate workers on occupational health and safety practices. Its goal is to reduce losses due to occupational hazards.

Occupational health works in partnership with industrial hygiene. Occupational health is responsible for assessing risks of civilian jobs and exposures, while industrial hygiene investigates and inspects facilities and risks. Occupational health performs physical exams, vision and hearing conservation exams, and evaluates health effects that may occur on the job or at home. Evaluations include civilian pre- and post-deployment physicals, and pre-employment physicals.

The Army Hearing Program, which functions as a part of the occupational health branch of the department, is responsible for the screening, prevention, diagnosis, and aftermath of hearing loss for soldiers and Army civilian employees on post. They work to decrease the amount of noise soldiers are exposed to, and educate soldiers on hearing conservation.

Environmental health works to ensure that military operations do not result in damage to the surrounding environment and handle environmental hazards such as air quality, insects and vector-borne diseases, waste and medical waste management, and water quality.

Veterinary services provides veterinary care to military animals, as well as the personal animals belonging to military members and their beneficiaries.

The mission of Public Health Nursing is to ensure soldier readiness by using evidence-based services that include health promotion programs, health assessments of communities and clinics, emergency preparedness, and many others.

While the FRDPH is invested in the health and readiness of the soldiers on stationed on Fort Riley, it is also involved and interested in the health of the surrounding communities. They work with local public health departments and clinics assess the needs of the population, to promote and educate on health topics, and to prevent and respond to disease outbreaks (United States Army Public Health Command). The FRDPH mission is “to promote health and prevent disease, injury, and disability

of Soldiers and their Families, military retirees, and Department of the Army civilian employees” (Department of Public Health). As the populations on post change and the surrounding communities grow and evolve, Fort Riley continues to assess, evaluate, and serve the needs of the population through assessments and education.

History

In 1853, Fort Riley was established in order to provide a safe haven for travellers on the Santa Fe and Oregon trails. Within a year a temporary hospital was established, and 1855 saw the opening of the first permanent hospital on post. Irwin Army Community Hospital (IACH) is the current hospital, which opened in 1958. Today, IACH houses the FRDPH and its many branches (Department of Public Health).

Chapter 2 – Field Experience

During my field experience at FRDPH, I completed rotations through each of the branches of the department, completing objectives for each along the way. I shadowed staff in each area as they went about their routines, I also attended department meetings and learned about how the FRDPH communicates and works with neighboring health departments.

The industrial hygiene rotation consisted of noise measurements, air sampling and ventilation tests, ergonomics evaluations, and mold inspections. I was able to observe motor pool inspections, during which we evaluated a variety of factors such as ventilation, noise exposure, and safety and protective measures such as availability of personal protective equipment, and proper storage and separation of chemicals. I also observed ergonomics evaluations during which an individual is examined in their workspace. We looked for ideal joint angles while the individual was seated at their desk and made alterations to provide a more ergonomically oriented workspace to prevent pain and discomfort from long term use.

During the occupational health rotation, I was given an overview of their responsibilities and was able to go through some of the tests they perform on the civilians they see in order to better understand what their evaluations include. I was able to take the eye exam that is given to patients, and, since the Army Hearing Program is a part of occupational health, I also was able to undergo the hearing test given to patients, and received an overview on hearing conservation. I sat in on a training lecture for hearing conservation officers that included instruction on the duties of the officer, as well as training on and explanation of various forms of hearing protection.

The environmental health rotation gave me the opportunity to observe water quality sampling around post and learn about their water system, and perform membrane filtration tests. I also observed a waste management inspection at IACH, inspections at child development centers around post, as well as food service inspections at various facilities during my rotation. Another aspect to the

environmental health branch is vector surveillance. I observed the setting and checking of mosquito traps, and the identification of mosquitos caught.

My rotation through the veterinary services branch consisted of observing a veterinarian performing exams on the personal animals belonging to military personnel or beneficiaries. This included a tour and overview of their services. I also observed an inspection of the commissary, and meals, ready to eat (MREs).

The public health nursing rotation consisted of an overview of the duties of the branch such as surveillance of diseases and health related behaviors on post, such as alcohol consumption, smoking, sexual health, and vaccination. I was also informed of the policies in place to handle contagious diseases and disease tracking.

Tuberculosis Investigation

During my time on the Public Health Nursing rotation, I was able to observe a tuberculosis (TB) screening and testing clinic run in response to the identification of an active TB case in a local school. Because TB is a mandatory reportable disease, the Kansas Department of Health and Environment (KDHE) was made aware of the index patient's positive disease status by the original health clinic. Public Health Nursing contacted KDHE to confirm the case and to obtain a list of exposed individuals to contact for screening and testing. The FRDPH reached out to the community to offer a screening and testing clinic to those who were military beneficiaries who were exposed to the positive patient. Each patient was required to fill out a TB screening questionnaire to determine his or her risk factors; however, because each student contacted shared a classroom with the positive case, every student was considered exposed and subjected to an intradermal tuberculin skin test (TST). Some students had previously received a bacilli Calmette-Guerin (BCG) vaccination, which can produce a false-positive with the TST, or had had a prior positive TST allowing for false positives. These students were sent to IACH for QuantiFERON- TB testing (QFT). In total, 159 students were contacted, 130 of whom were military beneficiaries. The list of contacts contained many students who were found to have not had sufficient contact with the index patient to require testing. After successfully contacting 124 patients via phone call, it was determined that 58 students would require testing. 7 individuals were referred out for testing by other clinics because they were travelling or had since moved and Public Health Nursing screened and tested 29 patients, three of whom were treated for TB.

From this experience, I learned the importance of rapid response to a positive test. The investigation was not initiated as quickly as it should have been, resulting in a contacts list that was not as accurate and narrowed down as it could have been. This was the reason for so many contacts being taken off of the list and not recommended to obtain TB screening or testing. I also learned the importance of having good working relationships with local health departments and health clinics. Being able to assist possible contacts in finding convenient clinics for testing removes a significant barrier to treatment, which translates into more individuals being tested. Additionally, this experience reinforced the importance of having

sympathy and understanding for the patient being seen. Many of the individuals and their families who came to the screening clinic were nervous about the process and possible diagnosis. Being able to provide the patients with sincere support and accurate information about the risks and processes they were potentially facing helped to reassure and educate both the patients and their families.

Tuberculosis

According to the World Health Organization, TB is the number one cause of death or disability in people between the ages of 15 to 59 in the world (WHO BCG (Tuberculosis) 2013). *Mycobacterium* contains 55 different species. The hallmark symptoms of TB include significant rapid weight loss, persistent severe cough, and fever. Typically, an individual who becomes infected will have no symptoms, the disease will be contained by the immune system, and they will not be contagious. This is known as latent TB. However, especially in immune-compromised patients, or very young children, active disease may occur. An individual with latent TB can develop active TB years after infection due to advanced age or a weakened immune system (WHO BCG (Tuberculosis) 2013).

Tuberculin Testing

Patients are generally considered for TB testing if suspected to be a possible active TB patient, if they have an elevated risk of having been exposed, if they have an elevated risk of developing active TB, or if they are routinely exposed to vulnerable or high-risk populations (Mazurek 2003).

The predominant method of TB testing in the United States is the TST, or Mantoux test (Nayak 2012). In 1890, Robert Koch came out with the TST and it has been largely unchanged since Mantoux developed the intradermal test in 1912 (Nayak 2012). Although it has been in use for over a century, the interpretation of a positive skin test is still debated. The reliability of a positive result is dependent on the patient as well as the usual concerns with sensitivity and specificity that exist for any test. The tuberculin most commonly used in TST is purified protein derivative (PPD), which comes from *Mycobacterium tuberculosis* isolations. Due to similarities in various species of *Mycobacterium*, it is possible for a patient to produce a false-positive result if they had been exposed to a species other than the *M. tuberculosis* strain, such as a non-tuberculous strain. A false-positive can also occur in a patient who has previously been administered a BCG vaccination. Occasionally a false-negative may occur and can be due to a patient's immune system being unable to respond to the challenge, the patient became infected less than 6 weeks prior to testing, the patient has a very old TB infection, among others. TST relies on a delayed hypersensitivity reaction to produce a positive result. If a patient's immune system has been exposed to *M. tuberculosis*, T-cells will recognize the organism and result in the release of lymphokines to the injection site, giving rise to the raised induration 24 to 72 hours after administration, indicating a positive test (Nayak 2012).

The other tuberculin test available is a blood test that tests interferon-gamma (IFN-gamma) levels in whole blood. The amount of reaction in response to added PPD is how the test is determined to be positive or negative. Some of the benefits of this test over TST are that it requires only one doctor's visit to perform, and its results are not as vulnerable to interpretation bias. A downside to performing this test is that it requires a blood draw, and must arrive at a lab within 12 hours of sample collection, both of which require specially trained personnel and specialized facilities. It is subject to the same interpretation complications as TST, such as the level of risk of the patient to having been exposed to TB (Mazurek 2003).

In either test, a positive result means that the patient has been exposed to TB in the past, but makes no distinction between latent TB or an active disease state. A negative test means that the patient is probably not infected, although neither test has total confidence (CDC 2014). In patients with symptoms of active TB, the TST is the preferred test, as well as in patients with an elevated risk of developing active TB if they were to become infected. These patients would be those with weakened immune systems, certain comorbidities, or underweight individuals (Mazurek 2003).

Tuberculosis Vaccination

The BCG vaccine is not typically utilized in the United States because of the low threat of infection, its inconsistent effectiveness in protecting a patient from adult pulmonary TB, and its ability to cause a false-positive TST, however, it is commonly used in countries with high rates of TB infection. In these areas, approximately 80 percent of the population is vaccinated. BCG does not prevent those with latent TB from developing active disease, which is the most common cause of spreading TB, but it is still a valuable component in the fight against TB.

The BCG vaccine, given via intradermal injection, is made from an attenuated strain of *Mycobacterium bovis* that contains both living and dead organisms; therefore, vaccinated individuals are exposed to the organism and can produce a false-positive result on a TST (BCG (Tuberculosis) 2013). TST in vaccinated patients can result in a severe, though rare, positive reaction such as swelling and erythema of the arm. Despite the possibility of vaccination resulting in false-positive TST for up to several years after vaccination, it is recommended that vaccination history not be accounted for in interpreting the results of a TST, rather exposure risks should remain the ultimate factor in determination of a result (Nayak 2012).

Chapter 3 – Field Experience Project

Introduction

Each year in the United States, 19 million new sexually transmitted disease infections are documented, costing 17 billion dollars in medical care costs (STD Trends, 2010). It is estimated that half of the new cases are in individuals 15 to 25 years of age. Some STDs can be easily treated and resolved if testing and treatment

are sought early in the course of infection. However, because diseases such as chlamydia, gonorrhea, and syphilis often do not present with symptoms, early diagnosis does not always occur. Chlamydia is the most common curable STD in the United States (Incidence, Prevalence CDC 2013). If left untreated, STDs such as chlamydia and gonorrhea can lead to pelvic inflammatory disease, ectopic pregnancy and infertility in women. (Incidence, Prevalence CDC 2013) Herpes papilloma virus (HPV) can lead to cervical cancers (Incidence, Prevalence CDC 2013). The risk of spreading STDs can be significantly reduced by correct and consistent condom use.

Chlamydia

Chlamydia, the most commonly diagnosed bacterial STD, is caused by *Chlamydia trachomatis*, and can cause symptoms such as cervicitis, proctitis, and urethritis in both men and women (Chlamydia CDC Fact Sheet – detailed). It can be spread during oral, anal or vaginal sex and if left untreated, infection can lead to pelvic inflammatory disease, infertility, and ectopic pregnancy in women (Chlamydia CDC Fact Sheet – detailed). The CDC recommends chlamydial testing be performed using a urine sample, or a vaginal swab in women, a urethral swab in men or sample collection from the site of exposure. Since asymptomatic infection is not uncommon, screening for risk factors is an especially important step in preventing spread of the disease. Recommended treatment is either a one-time oral dosing of 1g of azithromycin, or regimen of twice per day for seven days of 100 mg of doxycycline (STD treatment guidelines CDC 2010). Because of the prevalence of chlamydial infections, it is the most costly STD in terms of medical costs accrued (Incidence, prevalence CDC 2013).

Gonorrhea

Gonorrhea is caused by the bacteria *Neisseria gonorrhoeae* and is the second most commonly diagnosed bacterial STD. In men, the symptoms of the disease typically send them to seek testing before complications can develop. In women, however, symptoms are not generally noticed until more severe disease develops. As with chlamydia, this can lead to pelvic inflammatory disease, ectopic pregnancy, and infertility in women. Co-infection with chlamydia is common enough that the CDC recommends a patient who tests positive for chlamydia also are treated for gonorrhea simultaneously. In men with symptoms, a simple gram stain of a urethral swab is sufficient for a diagnosis, however, for gonorrhea testing in all other patients, a vaginal or endocervical swab in women, urethral samples in men, or urine samples in men and women should be taken, cultured, and used in a nucleic acid hybridization test. The most highly recommended treatment is a single 250 mg intramuscular injection of ceftriaxone. An increasingly common complication with gonorrhea infections across the United States and around the world is the development of antimicrobial resistant strains (STD guidelines 2010).

Syphilis

Syphilis is caused by *Treponema pallidum*, and has many manifestations (CDC STD guidelines 2010). Typically a patient seeking testing for syphilis has either primary

infection, characterized by ulcers or chancres, or secondary infection, characterized by a skin rash, lymphadenopathy, or mucocutaneous lesions. Another form of the disease, neurosyphilis, can present as cranial nerve dysfunction, meningitis, or auditory or ophthalmic abnormalities, among others. Cardiac or gummatous lesions characterize tertiary syphilis. Latent syphilis occurs when a patient tests positive on a serologic test, but shows no other signs or symptoms of the disease.

A presumptive diagnosis can be achieved via nontreponemal tests, such as RPR or VDRL, or a treponemal test (CDC STD guidelines 2010). In order to confirm a diagnosis, more than one type of serologic test is required. Early syphilis can be diagnosed using lesion exudate or tissue, or a darkfield test. It is believed that sexual transmission only occurs when lesions are present, that is, during primary or secondary syphilis. Penicillin G, given parenterally, is the recommended treatment, however, dosing and administration frequency depends on the form of syphilis. For treatment of primary and secondary syphilis, a single intramuscular dose of Benzathine penicillin G 2.4 million units is the recommended treatment. If the patient has persistent symptoms or reinfection, they are recommended to undergo HIV testing. If retreatment is necessary, three weekly administrations should be given, providing there are no signs of neurosyphilis. If the patient has a penicillin allergy, alternative treatments include twice daily oral doxycycline for 14 days, or tetracycline every six hours for 14 days. Due to the small amount of patients treated with these alternative regimens, there is not a large body of supporting data available.

Latent syphilis is not sexually transmitted and has limited supporting evidence; however, the usual penicillin treatment is recommended (CDC STD guidelines 2010). Late latent, or latent syphilis of unknown duration should be treated with the three-dose regimen. If neurosyphilis or tertiary syphilis is suspected, a cerebrospinal fluid (CSF) test should be performed. This form of the disease can occur with any manifestation. The standard treatment is recommended only if CSF test results are abnormal, but the patient does not have any neurological symptoms. Neurological symptoms prompt a regimen of aqueous crystalline penicillin G 18 to 24 million units each day, given in bouts of 3 to 4 million units every four hours or as a constant infusion for 10 to 14 days. Six, 12, and 24 months after completion of treatment, patients are recommended for retesting to ensure resolution (CDC STD guidelines 2010).

HIV/AIDS

HIV (human immunodeficiency virus) is one of the life-long STDs, as well as one of the most costly (Incidence, Prevalence 2013). Over time, it develops into AIDS (Acquired immunodeficiency syndrome) and destroys T-cells and CD-4 cells in your body, effectively killing your immune system. HIV is the most contagious during its early phase, also known as acute retroviral syndrome, therefore early testing and diagnosis is critical in preventing its spread to others. However, during this phase, a patient may produce a negative HIV test because it can take three months or longer for antibodies to build up, so it is especially important for providers to be able to

recognize the condition and not rely solely on the test results. The CDC recommends that all patients seeking STD testing be screened for HIV. In 2006, only 40 percent of adults had ever been subjected to an HIV test, and fewer than 25 percent of high-risk adults had undergone testing the previous year. Education and counseling for HIV should be included in any STD education. Following a positive HIV or AIDS diagnosis, the CDC recommends testing for all curable STDs, TB, chest x-ray, and HIV genotyping (CDC STD Guidelines 2010).

STDs and Kansas

In Kansas, the age group 20-24 years old has the highest reported rates of chlamydia and gonorrhea infections. For syphilis, age ranges are more varied, however, in recent years, the 20-24 year old age range has the highest rate of infection, followed by the 25-29 year old age range. For these three STDs, African American patients make up the highest number of positive cases. Females are more commonly diagnosed with chlamydia and gonorrhea, while men are more commonly diagnosed with syphilis (STI/HIV program 2004-2014). A 2012 HIV/AIDS report by KDHE separated the stat into nine regions (HIV/AIDS in Kansas Annual Report 2012). Riley and Geary counties fell into Region 6, which consisted of 4.3 percent of cumulative HIV cases in Kansas, and 2.5 percent of cumulative AIDS cases in Kansas. Region 6 was reported to have more male cases than female for both HIV and AIDS, a trend that holds true across the state. Additionally, black and white patients represented the highest proportion of new cases. For HIV, the age range 15 to 34 had the highest cumulative HIV cases, while age range 25 to 44 had the highest cumulative AIDS cases (HIV/AIDS in Kansas Annual Report 2012). This is also a common trend across Kansas. Men who have sex with men accounted for almost half of cumulative AIDS and HIV cases, which is typical (HIV/AIDS in Kansas Annual Report 2012).

The CDC reported in 2010 that chlamydia had been steadily increasing over the past two decades, with the caveat that screening has also been increasing during that time. Gonorrhea rates are some of the lowest ever recorded, although have seen a slight increase in recent years. The report also noted that only approximately 50 percent of at risk individuals receive screening for STDs. Studies have shown that individuals with chlamydia, gonorrhea or syphilis are at more at risk for contracting HIV. The report stated that barriers to testing and treatment, as well as access to accurate information on sexual health increase infection rates in the surrounding area (STD Trends in the United States, 2010).

Methods

With the collaboration of Dr. Benne and Major Lindsay from Public Health Nursing, a 34-question survey was developed and sent out to prominent health clinics in Riley and Geary counties. The survey was designed to assess a clinics process for screening, testing, and treating a patient who might come to the clinic for sexual health reasons and to identify barriers to treatment or areas that might be adapted to increase testing and treatment. The survey covered basics such as clinic hours, scheduling, and insurance, as well as questions on policies for screening, testing,

treatment, education, and community partnerships. The survey can be found in Appendix 1. The survey was completed by seven local clinics serving Manhattan, Junction City, and the surrounding populations. Most of the surveys were dropped off at the facilities to be completed and returned. Clinics 1 and 3 are local health departments. Clinic 2 is a student health center. Clinic 4 is an urgent care clinic. Clinic 5 is a community clinic. Clinic 6 is a youth clinic for patients 21 years or younger. Clinic 7 is an emergency facility on post.

Results

The first six questions were regarding basic clinic information; hours of operation, scheduling, the requirements to obtain testing, services provided, etc. Of the seven clinics surveyed, only Clinics 2 and 4 offer weekend hours, and Clinic 3 is closed by 4:00pm on weekdays. Clinics 1 and 2 do not accept walk-ins for STD testing, however all seven clinics provided same-day appointments for testing. Six of the clinics responded that they are not booked out any farther than same-day or next day for appointments. All clinics reported providing individual sexual health education or information pamphlets during appointments. Clinics 1, 2, 3, and 6 reported providing group education upon request. Clinics 1 and 3 provide group education sessions outside their clinics by request. Clinic 2 provides presentations to organizations and groups by request. Table 1 (below) outlines the types of safe sex promotional programs offered by each clinic.

Table 1. Identification of Participation in Safe Sex Promotional Programs Offered by Each Clinic.

Clinic	Safe Sex Promotional Programs			
	Monogamy or Abstinence	Safe Sex Methods	Provide condoms	Interventions (Group or individual)
Clinic 1	Upon invitation	Upon invitation	Yes, male, female, dental dams	Yes, part of patient history
Clinic 2	Yes	Yes	Yes, free of charge	No response
Clinic 3	Yes	Yes	Yes, male condoms	Yes, individual
Clinic 4	No	No	No	No
Clinic 5	No response	No response	Yes	No response
Clinic 6	Yes	Yes	Yes, male, female, flavored, dental dams	Yes, individual or group, by request
Clinic 7	Yes	Yes	No	Yes

Question 6 asks what services are provided by the clinic and provided a list of services of particular interest to the assessment; Well Woman exams, pap smears, breast exam, family planning, emergency contraception, pregnancy and abortion. No clinic surveyed provided abortion services. Clinic 4 provided STD testing only. All clinics except for Clinic 4, 6, and 7 provided all services except for abortion. Question 7 inquired into testing methodology. Clinics 1, 2, 4, and 6 order chlamydia, gonorrhea, HIV, and syphilis testing when a patient comes in for testing, however, which tests are actually run depends on the patient's desires. Certain tests, such as Hepatitis B and C, are more heavily encouraged depending on patient risk factors, and herpes testing is done if sores are present. Clinic 3 typically only orders gonorrhea, chlamydia, and syphilis testing. Clinic 5 tests based on patient symptoms. Clinic 2 reported utilizing urine tests, endocervical and vaginal swabs, and blood tests. Clinics 3 and 6 reported utilizing urine and blood samples.

Question 9 asks about the clinic's role in reporting to the state. All clinics except for Clinic 1 responded that they report positive results to the state. Clinics 1 and 3 send all labs to KDHE who handles reporting on positive results. Clinic 2 handles reporting for labs run in-house; chlamydia, gonorrhea, rapid HIV, and rapid plasma regain, a syphilis test. Clinic 4 does not perform any labs in-house, and reports positive results to the state as required. Clinic 5 runs Hepatitis C, HIV, trichomoniasis, and bacterial vaginosis in-house and reports all positive results regarding reportable diseases to the state. Average turn around time for sent out labs is 4-7 days, depending on the day of the week. The only reporting barriers that were listed were that reporting takes time, and that HIPAA and any secondary server for encryption complicated reporting. An additional barrier to reporting was that some patients do not provide sufficient information to report a positive result. Clinic 1 has individuals on site from KDHE, and another local health clinic (Clinic 5) to help facilitate interaction between health departments and contact tracing. Clinics 3, 4, and 7 report no interaction with neighboring health departments for contact tracing. Clinic 5 reported that they maintain open communication. Clinic 6 reported that they attempt to perform contact tracing on their own, but if the case is complicated, it is referred to the state. Clinics responded that they are contacted regarding positive results by the lab either electronically, or by mail. The most common method of alerting a patient to their results is via phone call. Another method is to have the patient make an appointment to come in for test results. Most clinics also contact the patient for negative test results. All of the clinics provide partner treatment based on the test results of the positive partner, and all clinics except for Clinic 7 require that a partner see a provider before receiving treatment. Clinics requiring a visit with a provider prior to partner treatment provided treatment the day of the appointment, but also required testing of the partner. No clinics reported requiring directly observed treatment except for Clinic 6. Clinic 4 reported performing follow-up labs for positive cases. Follow-up labs are done 3 months after the initial treatment for chlamydia and gonorrhea. Clinic 7 performs retesting upon doctor request, and Clinic 1 reported following CDC guidelines for retesting. The only negative response to question 19 on rapid HIV capabilities was clinic 4, and Clinic 7 reported sending out that test.

Clinic 1 offers sliding scale fees depending on income and the number of individuals dependent on that income, and they do not require payment if the patient cannot pay at the time of service. Their policy is to not deny any individual STD testing or treatment. Clinic 2 and 4 charge different costs for each test run. Clinics 3 and 5 have a flat fee for testing, \$25.00 and \$30.00, respectively. Clinic 3 does offer sliding scale fees for family planning services. The other clinics did not respond to the question. All clinics have a mixed waiting room, confidential areas, and reported no signage in the waiting area to designate the reason behind the patient visit. Patients with an appointment are not asked for the reason behind the visit at check-in, however, Clinics 1, 3, 4, and 7 ask for the reason behind the visit for walk-ins. Clinic 1 asks for immunization profiles during the appointment for Hepatitis B and HPV. Clinic 4 asks about previous Hepatitis B immunization, and Clinic 7 has the ability to look up patient immunization records, which is not typically done for emergency visits. All clinics reported prescribing drug treatment based on CDC guidelines, unless a patient has a known allergy to the drug of choice. All clinics also had standing orders for treatment, or the provider had the freedom to decide whether or not to treat at the time of the appointment if a patient has symptoms, or for asymptomatic patients with sufficient risk factors.

Table 2. Reported Results on Insurances Accepted by Each Clinic.

Clinic	Blue Cross/Blue Shield	Medicare/Medicaid	Tricare	Other
Clinic 1	-----	Member provider	Member provider	Aetna, accept all other insurances*
Clinic 2	Yes	Not accepted	No	Submit claims for all commercial health insurance
Clinic 3	Yes	Yes	No	-----
Clinic 4	-----	Medicaid – No, Medicare – Yes	Yes	-----
Clinic 5	Yes	Yes	Yes	Accept all insurances
Clinic 6	Yes	Yes	No	-----
Clinic 7	-----	No	Yes	-----

*Accept all insurances plans, but are not member providers for all.

Table 2 sums up the insurances each clinic accepts or works with. All clinics surveyed will see patients with no health insurance, and charge their standard fees. Clinic 3 does accept payment plans. Clinic 7 follows the policies outlined in the Emergency Medical Treatment and Active Labor Act for how to handle non-insured, and non-emergency patients. Clinic 6 does not have any paperwork for ensuring

standardization of care, but each provider is trained to ask the same questions. Clinic 3 follows CDC and KDHE guidelines to standardize their care. Clinic 5 also implements tools for standardization of care. Clinic 1 receives county and state funds, as well as federal funding through KDHE as a Title X funded clinic. Clinic 3 receives county tax funding. Clinic 6 receives grant funding that was not specified on the survey. Clinic 7 receives funding from the Preventative Medicine department of IACH. Clinic 1 participates in group-level community partnerships aimed at lowering STD rates. Clinic 3 works with local high schools, and Clinic 7 does not itself participate in community partnerships, but the Preventative Medicine department does. Table 3 (below) shows the ages, gender, and estimated population served for each clinic.

Table 3. Reported Ages, Gender, and Estimated Population Served for Each Clinic.

Clinic	Age	Gender	Population Served
Clinic 1	All ages (20- mid30s yo most commonly seen)	Male and female	No response
Clinic 2	Mostly 18-30 yo	Male, female, transgender	No response, KSU students and spouses
Clinic 3	14-65 yo	Male and female	No response
Clinic 4	All ages	Male and female	~15,000/year, general public
Clinic 5	14-100	Male and female	No response
Clinic 6	<_ 21 yo	Male and female	No response
Clinic 7	All ages	Male and female	33,000/year, ~100/day

Discussion

The results from the assessment show that there are many strong points in the health clinics surveyed, but also several factors that could be improved upon with the goal of reducing STD rates in the population, and remove or diminish barriers to STD testing and treatment. The health clinics generally provide a strong healthful presence in the population being considered.

According to the CDC, a solid STD prevention and control system is built around five tenets:

1. Education and counseling for at-risk individuals,
2. Recognition of asymptomatic patients and symptomatic patients who may not seek care,
3. Diagnosis, treatment, and counseling for patients,
4. Partner services and care, and
5. Preventative vaccination for at-risk individuals.

These concepts should provide the backbone to any STD program. While the CDC Sexually Transmitted Diseases Treatment Guidelines are simply guidelines, they are designed using the most recent and relevant research to date, and are best used in the context of the relevant community.

The results of the questionnaire data show that there are some alterations that would be relatively simple to implement, such as extending hours of operation later into the evening, and providing weekend hours. Other suggestions would be more difficult to apply.

Subpopulations

Manhattan is the largest city in Riley County. 2010 census data reports that the population is 52,281, with 24,766 students enrolled at Kansas State University in 2014. Approximately 30 percent of the total population falls into the 20 to 24 year old age range, and 10 percent in the 25 to 29 year old age range (Population/Demographics). Additionally, the population of Fort Riley is 20,498. Over 35 percent of the population falls into the 20-29 year old age range. In contrast, less than 15 percent of the population of Kansas falls into the same age range (Fort Riley Health Assessment 2014). KDHE reports that for chlamydia and gonorrhea in Kansas, the most frequently reported age range is 20 to 24, and the 20 to 24 and 25 to 29 year old age range for syphilis (KDHE STI/HIV Program 2004-2014). This could contribute to elevated STD rates in the Flint Hills area, and also provides a target population for interventions. By targeting this subpopulation, education and outreach can be tailored to appeal to their specific needs and health concerns.

Cost

With a high portion of the Riley County population consisting of college-aged individuals, ensuring that clinics offer hours of operation that are convenient the varied schedules of college students, and working individuals would increase the convenience and availability of care. Also, especially for younger populations and the student population, costs of testing and treatment can be a significant barrier to care. When costs of STD tests are lowered, rates of testing increase. Clinics should make every effort to ensure a patient can be tested and treated regardless of their circumstances, including inability to pay (STD Guidelines 2010).

Counseling

Intervention at the individual level can be incorporated into all medical appointments. While obtaining a patient history, medical personnel should ask for a comprehensive sexual history including number of partners, gender of partners, and inquiry into any high-risk sexual or drug related activities. Education on the potential dangers of high-risk activities, and counseling that should be tailored to be relevant to the individual patient. According to the CDC, ensuring that the interviewer does not sound judgmental, or use unnecessary medical jargon is an important aspect of a thorough interview, and beginning an effective education

opportunity. The CDC refers to this type of patient history interview as “high-intensity behavioral counseling” and recommends it be used for all patients who are considered to be high-risk for acquiring STDs. The CDC reports that interactive interview strategies have shown to decrease the amount of risky behaviors as well as the rates of new STDs. One benefit of this type of patient counseling is that it does not require extensive training for providers to effectively learn the strategies (CDC STD Guidelines 2010).

Counseling groups of at-risk individuals is also beneficial and has been shown to effectively decrease high-risk behavior in high-risk individuals. This type of counseling can be targeted to specific high-risk subpopulations, such as HIV-positive patients. Because HIV-positive patients have higher rates of co-infection with other STDs, it is recommended that HIV patients routinely undergo client-centered counseling on high-risk behavior reduction (STD Guidelines 2010). Group counseling sessions could also be targeted to groups who are reported to have high incidences of STD infection, such as men who have sex with men, young adults in the 20-24 year age range, or racial minorities.

Screening and Testing

Early diagnosis is important in stemming the spread of STDs. Clinics should follow CDC guidelines for screening and testing of sexually active individuals. It is recommended that sexually active women aged 25 years or younger be tested annually for chlamydia and gonorrhea, as well as HIV screening for those who are sexually active or engage in injection drug use. Men who have sex with men are recommended to undergo annual testing for HIV, syphilis, rectal and urethral testing for chlamydia and gonorrhea, and pharyngeal testing for gonorrhea. Regular, annual STD testing is strongly encouraged regardless of sexual orientation, or the types of sexual acts undertaken. However, for men who have sex with men, more frequent testing is recommended, as in every three to six months, for those who engage in anonymous sex with multiple different partners, engage in nonprescription drug use, or have had a partner who engages in nonprescription drug use (CDC Guidelines 2010).

Most clinics that perform STD testing are not equipped to treat HIV positive patients, however, once a patient is informed of a positive diagnosis, it is important that any clinic be able to provide immediate counseling and information on how and where to seek further treatment. Again, supportive counseling, either individually or in groups, can help to continually reinforce the importance of avoiding high-risk activities once treatment has commenced (CDC STD guidelines 2010).

Retesting

For chlamydia and gonorrhea, test-of-cure tests are not recommended unless symptoms of infection have not subsided after treatment. Test-of-cure tests are run three to four weeks post treatment. It is recommended that patients who undergo treatment for chlamydia, gonorrhea, or syphilis are retested three months post treatment to ensure that reinfection has not occurred. Second infections within this

time are typically due to reinfection from an untreated, infected partner, and not due to a treatment failure. For syphilis patients, HIV testing at the time of initial treatment is recommended, since HIV and syphilis co-infection is not uncommon. If a patient is still positive at the three-month retest, an HIV test should be redone (STD Guidelines 2010).

Partner Management

Partner management can be a difficult aspect to STD treatment. Health clinics often have limited resources to pursue contact tracing and partner treatment. If a patient is treated for an STD and cured, but their partner is not, the index patient's risk for reinfection is significant. One method of achieving partner treatment is to recommend that the index patient bring their partner with them for their next appointment. Counseling index patients on the importance of partner notification and treatment has been shown to increase the likelihood of the partner being notified. Another option for partner treatment is patient delivered partner therapy (PDPT), and expedited partner therapy (EPT). Depending on the clinic location, because not all states allow for medications to be relinquished without an examination, PDPT and EPT may not be options. PDPT is when STD treatments are given to the index patient to give to their partners. EPT is when a clinic gives a partner STD treatment without testing the partner. These forms of treatment have shown to reduce positive follow-up testing by 20 percent for chlamydia, and 50 percent for gonorrhea. Employing a combination of partner management techniques produces the most significant results (STD Guidelines 2010).

Reporting

The questionnaire data reported that one barrier to reporting positive cases was the time it takes to submit report to the state. The Kansas Reportable Disease Form and Reportable Diseases in Kansas forms can be seen in Appendix 2. Reporting can be done either from the clinic itself, or from the laboratory (STD Guidelines 2010). For tests that are sent out, reporting can be done from the laboratory, which frees the clinic from that responsibility. The form can be submitted to the state via mail or fax, which increases convenience, although online submission would be most convenient. The Kansas Reportable Disease Form is not able to be filled out ahead of time, even partially, in order to reduce the time it takes to complete it. Due to the nature of the information required, however, adapting the form is not realistic. Clinic 7 reported that secondary server for encryption complicated reporting, and unfortunately, this is likely an obstacle that cannot be circumvented.

Testing Methodology

Methods of STD testing can have an effect on who follows through with being tested. Certain tests seem intimidating or can be uncomfortable, or even painful for patients, which can deter a patient from being tested. Discomfort can be either psychological or physical. Chlamydia and gonorrhea testing can be performed using a urine sample, or a vaginal or endocervical swab. Urine samples are easy to collect

and allow a patient to avoid a physical exam. Vaginal swabs can be performed by a provider, or by the patient, themselves. Self-vaginal swabs have shown to be just as effective as other methods of sampling, and female patients are satisfied with the method. Urethral swabs in men can be uncomfortable and intimidating, which can discourage testing. As in women, chlamydia and gonorrhea tests can be performed using a urine sample in men, which is a much less inconvenient testing method.

In the same vein as testing methodology, treatment methods can also contribute to patient compliance. Treatments that can be administered in one dose at the providers clinic should be used over a long term, at home treatment of the same efficacy. Especially drugs that can have adverse effects, such as gastrointestinal discomfort, tend to reduce a patient's compliance. Minimizing the steps a patient has to obtaining their treatment also improves compliance. The CDC reports that providing a patient with their treatment in the clinic improves patient compliance. For chlamydial infections, compliance is best if medication is relinquished in the clinic, and the initial dose is directly observed. Single dose treatment regimens, and directly observed treatment is especially beneficial with patients who are likely to have poor compliance, and whose likelihood of returning for a follow-up appointment is low (CDC Guidelines 2010).

Project Critique

Although questionnaire data from only seven clinics was gathered for this report, the all of the clinics used are prominent in their communities, and represent a variety of available health care options. Interviews could have been more thorough if they had been performed in person or over the phone.

Conclusion

The core courses and area of emphasis courses in the Master of Public Health curriculum provided a foundation of information that assisted me through my field experience and project. Likewise, the field experience and project supplied real world experiences and knowledge to give context to the coursework.

Social and Behavioral Sciences gave me an understanding of the many factors that contribute to health care on a community scale. From this class I learned to look at a health issue and consider the goals of the clinic and provider, the mentality of the patient, the effects of societal norms and stigmas, and more.

Health Services Administration directly applied to my field experience project and gave me a basic understanding of the many departments and individuals who make up a health clinic. During my field experience project, as well as my rotations though the FRDPH, I was able to approach the issues I was studying and observing in the context of the department and personnel.

Biostatistics had shown me how to interpret data I used and was given during my rotations and research. I was able to have a more critical eye when judging reports and data.

Environmental Health Sciences and Toxins in Biological Systems were useful during my Environmental Health and Industrial Hygiene rotations at FRDPH. When discussing the effects of toxicity on the surrounding habitats as well as on the individuals working in and around the area, the knowledge gained from this class helped me to understand why certain toxins and chemicals were of concern, as well as understand the methods behind the tests used to evaluate damage and hazards.

Epidemiology was useful throughout my rotations and during my research for my field experience project. This class taught me how to compare disease rates in populations, how to look for causes or results from diseases on a population level, and how to interpret disease spread.

Multidisciplinary Thought and Presentation gave me more experience with writing and presenting in a professional setting. Pathogenic Mechanisms provided me with a more in depth understanding of how diseases may be spread, controlled, and treated depending on their abilities.

My time spent at the FRDPH was a positive and valuable experience. I was able to gain knowledge and real world experience in a variety of public health circles while observing how so many pieces work together to maintain a healthy population.

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Appendix 1

Central Flint Hills Region STD Management Assessment Tool

1. What are the clinic hours?
Do you take appointments?
Walk-ins?
2. How far out are you booked for appointments?
3. Does your clinic do any screening?
If so, how? (ex urine test w/o needing to see a provider)
4. Does your clinic offer any education or counseling?
 - a. Individual? Group? School?
 - b. How many?
 - c. How often?
 - d. Is it by request?
5. Does your clinic participate in any programs?
 - a. On promotion of monogamy or abstinence,
 - b. Safe sex methods,
 - c. Provide condoms, female condoms, flavored condoms, dental dams, etc,
 - d. Interventions, group or individual
6. What services do you provide?
 - a. Well women, pap smear, breast exam, family planning, emergency contraception, pregnancy planning and/or abortion, etc
7. What is your testing methodology?
8. What labs do you order when a patient requests STD testing?
Is there any variation based on patient risk factors?
9. Describe your role in reporting to the state.
10. Are there any barriers to reporting?
11. How do you interact with neighboring health departments (counties, etc), especially with contact tracing?
12. Describe your process for being made aware of a positive result.
13. How is the patient made aware of a positive result?
Negative result?
14. Following a positive result, what is the course of action?
15. Do you offer partner treatment?
How? Directly observed? Expedited?
Does it include any Plan B, birth control, condoms?
16. Does your clinic perform contact tracing or investigations?
Do you include chlamydia, gonorrhea, or other reportable diseases?
17. Is there retesting of labs? If so, which labs and at what intervals?
How do patients get follow up labs?

18. What labs are run in-house?
 What labs are sent out?
 What is the turn around time?
19. Do you have rapid test capabilities for HIV?
20. What are the costs of testing or care?
21. Do you have a mixed waiting room?
22. Is there signage for different reasons behind visits?
23. Are there confidential areas?
24. Are patients asked for the reason for the appointment at check in?
25. Describe your treatment and referral process.
 - a. Index patient (lab testing, presumptive therapy)
 - b. Contacts (expedited partner treatment)
 - c. Contact interview? For which STDs?
 - i. Do you ask patients for an immunization profile?
 - HPV
 - HepB
 - d. Do you offer any education to the patients being seen?
 - e. Do you offer any additional test done later on (CDC guidelines)
 - i. Short term
 - ii. Long term
 - f. Drug choice
 - g. Directly observed treatment
 - h. Standing orders for testing and treatment (SOP)
26. Are symptomatic patients treated the day they are seen, before lab results come back?
27. Are asymptomatic patients treated the same day based on risk factors?
28. What types of insurance do you take? Medicaid? Medicare? Tricare Standard?
29. How do you handle the medically uninsured?
30. Does your clinic have any tools used to standardize care?
31. Do you offer sliding scale fees?
32. What types of external funding do you have for STD prevention? CDC?
 Grants? Tied to what programs?
33. Do you participate in community partnerships to lower STD rates?
 - a. Group
 - b. Individual
 - c. Systems level (state law)
34. Population served
 - a. Over the last year:
 - i. Age
 - ii. Gender

Appendix 2

KANSAS REPORTABLE DISEASE FORM Today's Date: ____ / ____ / ____

Patient's Name: _____ <div style="display: flex; justify-content: space-around; font-size: small;"> Last First Middle </div>		
Home/Cell Phone: _____		Work Phone: _____
Residential Address: _____		
City: _____	Zip: _____	County: _____
Ethnicity: <input type="checkbox"/> Hispanic or Latino <input type="checkbox"/> Not Hispanic or Latino <input type="checkbox"/> Unknown		
Race: <i>(Check all that apply)</i>		
<input type="checkbox"/> American Indian/Alaska Native <input type="checkbox"/> Asian <input type="checkbox"/> Black or African American		
<input type="checkbox"/> Native Hawaiian or Other Pacific Islander <input type="checkbox"/> White <input type="checkbox"/> Unknown		
Sex: <input type="checkbox"/> M <input type="checkbox"/> F Date of Birth: ____ / ____ / ____ Age if DOB unknown: _____		
Disease Name: _____		
Has the patient/guardian been notified of the disease? <input type="checkbox"/> Yes <input type="checkbox"/> No		
Symptoms: Onset: ____ / ____ / ____ List the 3 most prominent symptoms:		
Symptom 1: _____ Symptom 2: _____ Symptom 3: _____		
Outbreak associated? <input type="checkbox"/> Yes <input type="checkbox"/> No Died? <input type="checkbox"/> Yes <input type="checkbox"/> No Hospitalized? <input type="checkbox"/> Yes <input type="checkbox"/> No		
Institutional Residence? <input type="checkbox"/> None <input type="checkbox"/> Nursing Home <input type="checkbox"/> Correctional <input type="checkbox"/> Residential <input type="checkbox"/> Hospital <input type="checkbox"/> Psych		
Physician Name: _____		Physician Phone: _____
Laboratory Information:		
Specimen Collection Date: ____ / ____ / ____		Date Reported To You: ____ / ____ / ____
Name of Test Performed: _____		Results of Test: _____
Name of Laboratory: _____		Laboratory Results Attached? <input type="checkbox"/> Yes <input type="checkbox"/> No
Treatment Information:		
Date of Treatment: ____ / ____ / ____		Treatment Type and Dosage: _____
Treatment Status: <input type="checkbox"/> Complete <input type="checkbox"/> On-going <input type="checkbox"/> Discontinued		
Name of person reporting: _____		Phone: _____
Comments: _____		

Mail or fax reports to your local health department and/or to:
 KDHE Bureau of Epidemiology and Public Health Informatics, 1000 SW Jackson, Suite 075, Topeka, KS 66612-1274
Fax: 877-427-7318 (toll-free) **Epidemiology Hotline: 877-427-7317** (Revised 09/2014)

REPORTABLE DISEASES IN KANSAS for health care providers, hospitals, and laboratories
(K.S.A. 65-118, 65-128, 65-6001 - 65-6007, K.A.R. 28-1-2, 28-1-4, and 28-1-18. Changes effective as of 9/29/2014)

 - Indicates that a telephone report is required by law within four hours of *suspect or confirmed* cases to KDHE toll-free at [877-427-7317](tel:877-427-7317)

 - Indicates that an isolates must be sent to: Division of Health and Environmental Laboratories
6810 SE Dwight Street, Topeka, KS 66620
For Isolate Questions call: (785) 296-1633

Acquired Immune Deficiency Syndrome (AIDS)

Amebiasis

Anthrax 

Arboviral disease (including West Nile virus, Western Equine encephalitis (WEE) and St. Louis encephalitis (SLE)) - indicate virus whenever possible

Botulism 

Brucellosis

Campylobacter infections

Chancroid

Chlamydia trachomatis genital infection

Cholera 

Cryptosporidiosis

Cyclospora infection

Diphtheria

Ehrlichiosis

Escherichia coli O157:H7 (and other shiga-toxin producing *E. coli*, also known as STEC) 

Giardiasis

Gonorrhea

Haemophilus influenzae, invasive disease

Hantavirus Pulmonary Syndrome

Hemolytic uremic syndrome, postdiarrheal

Hepatitis, viral (acute and chronic)

Hepatitis B during pregnancy

Human Immunodeficiency Virus (HIV) (includes Viral Load Tests)

Influenza deaths in children <18 years of age

Legionellosis

Leprosy (Hansen disease)

Listeriosis

Lyme disease

Malaria

Measles (rubeola) 

Meningitis, bacterial 

Meningococemia  

Mumps 

Pertussis (whooping cough) 

Plague (*Yersinia pestis*) 

Poliomyelitis 

Psittacosis

Q Fever (*Coxiella burnetii*) 

Rabies, human and animal 

Rocky Mountain Spotted Fever

Rubella, including congenital rubella syndrome 

Salmonellosis, including typhoid fever 

Severe Acute Respiratory Syndrome (SARS)  

Shigellosis 

Smallpox 

Streptococcal invasive, drug-resistant disease from Group A *Streptococcus* or *Streptococcus pneumoniae* 

Syphilis, including congenital syphilis

Tetanus

Toxic shock syndrome, streptococcal and staphylococcal

Transmissible Spongiform Encephalopathy (TSE) or prion disease (includes CJD)

Trichinosis

Tuberculosis, active disease  

Tuberculosis, latent infection

Tularemia

Varicella (chickenpox)

Viral hemorrhagic fever 

Yellow fever

In addition, laboratories must report:

- Viral load results of reportable diseases
- ALL blood lead levels, as of 12/2002 (KCLPPP/ABLES)
- CD4+ T-lymphocyte count < 500/ μ l or CD4+ T-lymphocytes <29% of total lymphocytes

Outbreaks, unusual occurrence of any disease, exotic or newly recognized diseases, and suspect acts of terrorism should be reported within 4 hours by telephone to the Epidemiology Hotline: [877-427-7317](tel:877-427-7317)

Mail or fax reports to your local health department and/or to:

KDHE Bureau of Epidemiology and Public Health Informatics, 1000 SW Jackson, Suite 075, Topeka, KS 66612-1274
Fax: 877-427-7318 (toll-free)