



Sexually Transmitted Disease Management Assessment for the Central Flint Hills Region

MPH Field Experience Report
Kansas State University

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Fort Riley Department of Public Health



- Health of soldiers, family/beneficiaries, retired military, civilian employees, and surrounding community
- Industrial Hygiene
- Occupational Health
- Army Hearing Program
- Environmental Health
- Veterinary Services
- Public Health Nursing

Field Experience



- Rotations through each branch of the FRDPH
 - Industrial Hygiene
 - Noise measurements, air sampling, ventilation tests, ergonomics evaluations, mold inspections
 - Occupational Health
 - Overview of responsibilities, eye exam, vision screening, spirometry
 - Army Hearing Program
 - Hearing tests, hearing conservation, observed training lecture for hearing conservation officers

Field Experience, continued



- Environmental Health
 - Water sampling, learn about water system, membrane filtration tests, waste management inspection, child development center inspection, food service inspections
 - Vector surveillance, mosquitos and ticks
- Veterinary Services
 - Routine exams, tour of the facility, overview of services, commissary inspection, overview of MRE inspection
- Public Health Nursing
 - Overview of duties, TB screening clinic

Tuberculosis Screening Clinic



- Identification of positive TB case in JC school
 - FRDPH confirmed with KDHE and obtained list of contacts
 - Phone calls to beneficiaries on the list
- Screening questionnaire and intradermal TST
 - 159 students contacted. 130 beneficiaries.
 - 124 successfully contacted. 58 required testing. 7 referred out.
- In the end, 29 patients were screened and tested, three of whom were treated for TB.

Lessons Learned

- Importance of rapid response to a positive test
- Importance of having good working relationships and open communication with local health departments.
- Reinforced the importance of expressing sympathy and understanding for the patient.

Tuberculosis



- *Mycobacterium tuberculosis*
- WHO: TB is the number one cause of death or disability in people between the ages of 15 and 59 in the world
- Symptoms: significant rapid weight loss, persistent severe cough, fever
- Most individuals who become infected will have no symptoms, and the disease will be contained by the immune system
- In immunocompromised or very young patients, active primary disease may occur
- Latent TB can develop into active TB years after infection due to advanced age, or a weakened immune system

Tuberculin Testing



- Patients are considered for TB testing if they:
 - Are suspected to be a positive TB patient,
 - Have an elevated risk of having been exposed,
 - Have an elevated risk of developing active TB, or
 - Are regularly exposed to vulnerable, or high-risk populations.
- There are two main types of TB tests
 - Tuberculin skin test (TST)
 - Interferon-gamma (IFN-gamma) blood test

Tuberculin Skin Test



- Predominate TB testing method in the United States
 - Purified protein derivative (PPD): *Mycobacterium tuberculosis*
 - Intradermal administration
- Interpretation of a positive result is still debated
- Can produce a false positive if:
 - Exposed to another *Mycobacterium* species
 - Previously administered BCG vaccination
- Can produce false negative if:
 - Patient's immune system is unable to respond to the challenge
 - Patient has been infected within 6 weeks prior to testing
- Relies on delayed hypersensitivity reaction
- Positive: raised induration 24 to 72 hours after administration

Interferon-gamma



- PPD is added to whole blood and incubated overnight
- Benefits over TST
 - Only requires one doctors visit to perform
 - Results not as vulnerable to interpretation bias
- Negatives of IFN-gamma
 - Requires a blood draw
 - Must arrive at laboratory within 12 hours of collection
 - Both require specially trained personnel and equipment
- Both are subject to interpretation complications, such as level of risk of the patient having been exposed to TB.

Tuberculosis Vaccine



- Bacilli Calmette-Guerin vaccine
- Not commonly used in the United States
 - Up to 80 percent vaccination in endemic countries
- Does not prevent latent TB patients from developing to active TB
- Made from attenuated *Mycobacterium bovis* that contains both living and dead bacteria
 - Can produce a false-positive
 - Vaccination history should not be considered when interpreting a TST result

Field Experience Project



- 19 million new STD infections arise each year in the US
 - \$17 billion in medical care costs
 - Estimated that half of these cases are in individuals between 15 and 25 years of age
- If treated early on, many STDs can be cured without long term consequences
 - Some STDs do not always present with symptoms
 - Long term infection can lead to serious consequences
- Chlamydia is the most common STD diagnosed in the US

Chlamydia



- The most commonly diagnosed bacterial STD and the most costly STD in terms of medical costs
- Caused by *Chlamydia trachomatis*
- Symptoms: cervicitis, proctitis, urethritis in men and women
- Spread during oral, anal, or vaginal sex
- Untreated: pelvic inflammatory disease, ectopic pregnancy, infertility in women
- Testing: urine sample, vaginal swab, urethral swab in men, or sample collection from exposure site
- Treatment: one time oral dosing of 1g azithromycin, or twice per day 100mg doses of doxycycline for 7 days
- Since asymptomatic infection is common, screening is especially important

Gonorrhea



- The second most commonly diagnosed STD
- Caused by *Neisseria gonorrhoeae*
- Symptoms:
 - Men: symptoms typically send patients to seek testing before complications can develop
 - Women: symptoms not usually noticed until complications develop
- Co-infection with chlamydia is common
- Testing:
 - Men with symptoms: a gram stain of a urethral swab is sufficient for diagnosis
 - All other infections: urine sample (men and women), vaginal or endocervical swab, or urethral swab (men)
 - Samples should be cultured and used in a nucleic acid hybridization test
- Treatment: single 250mg IM injection of ceftriaxone
- Antimicrobial resistant strains are increasingly common in the US and around the world

Syphilis

- Caused by *Treponema pallidum*
- Has many manifestations:
 - Primary infection: ulcers or chancres
 - Secondary infection: skin rash, lymphadenopathy, mucocutaneous lesions
 - Neurosyphilis: cranial nerve dysfunction, meningitis, auditory or ophthalmic abnormalities, etc.
 - Tertiary infection: cardiac or gummatous lesions
 - Latent syphilis: patient tests positive on serologic test, but presents with no other signs or symptoms
- Presumptive diagnosis: non treponemal test (RPR, VDRL), or treponemal test
 - Confirmation requires more than one type of serologic test
 - Early syphilis can be diagnosed using lesion exudate, or darkfield test
- Treatment: single IM dose of Benzathine penicillin G, 2.4 million units
 - Retreatment: three weekly administrations

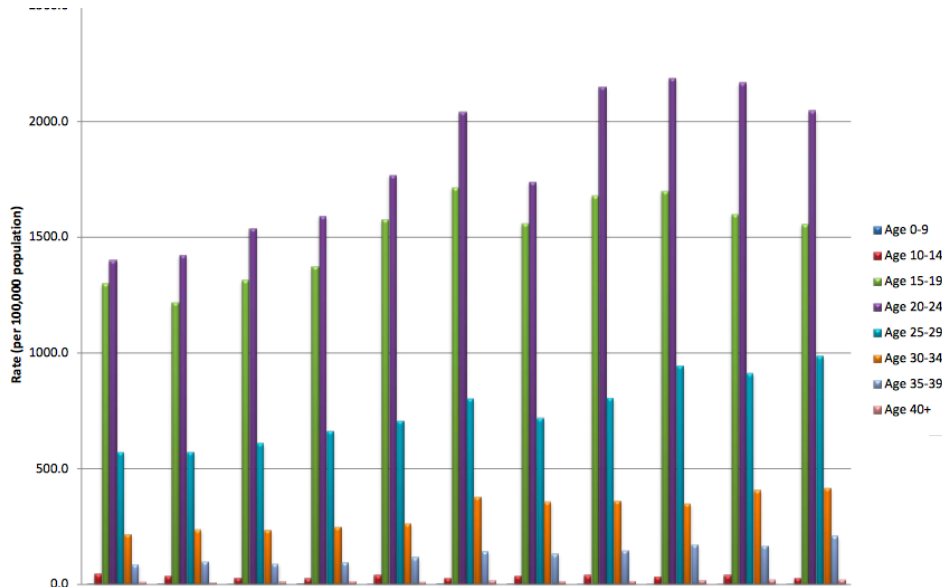


HIV/AIDS



- HIV is one of the life long STD infections, and therefore one of the most costly
- Over time it develops into AIDS
- Destroys T-cells and CD-4 cells, effectively killing the immune system
- HIV is most contagious during the early phase
- The CDC recommends that all patients seeking STD testing be tested for HIV
 - 2006: only 40 percent of adults had ever been tested for HIV
 - Only 25 percent of at risk adults had been tested for HIV in the past year
- Following a positive HIV test, patients should be tested for all curable STDs, TB, including a chest x-ray, and HIV genotyping

STDs in Kansas: Chlamydia

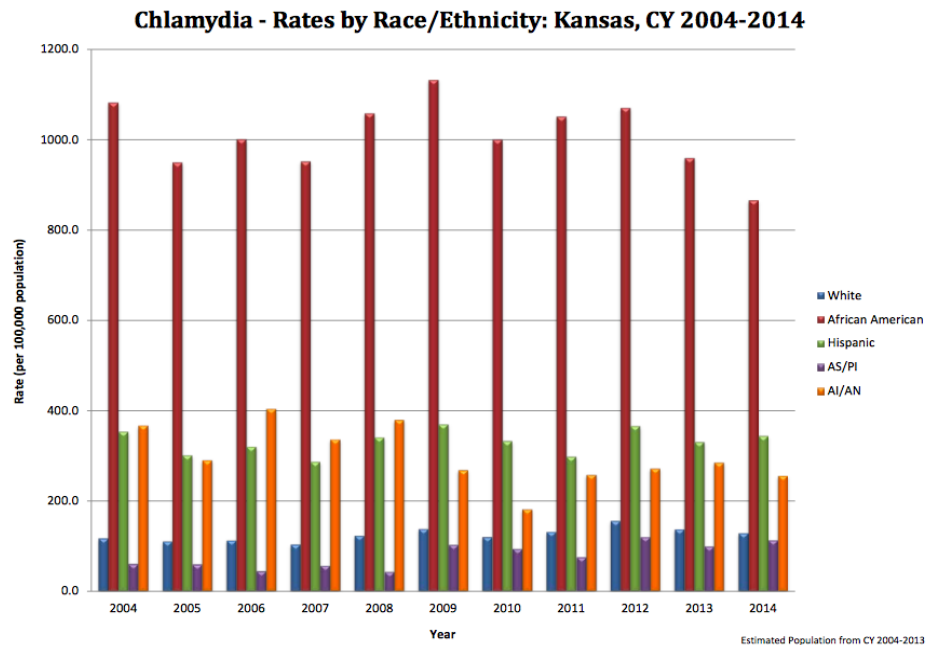


Females had much higher reported rates of chlamydia than men

Over the 2004 to 2014 time period, Chlamydia rates in Kansas have been steadily increasing from 274 infections per 100,000 population in 2004, to 380.5 per 100,000 in 2014.

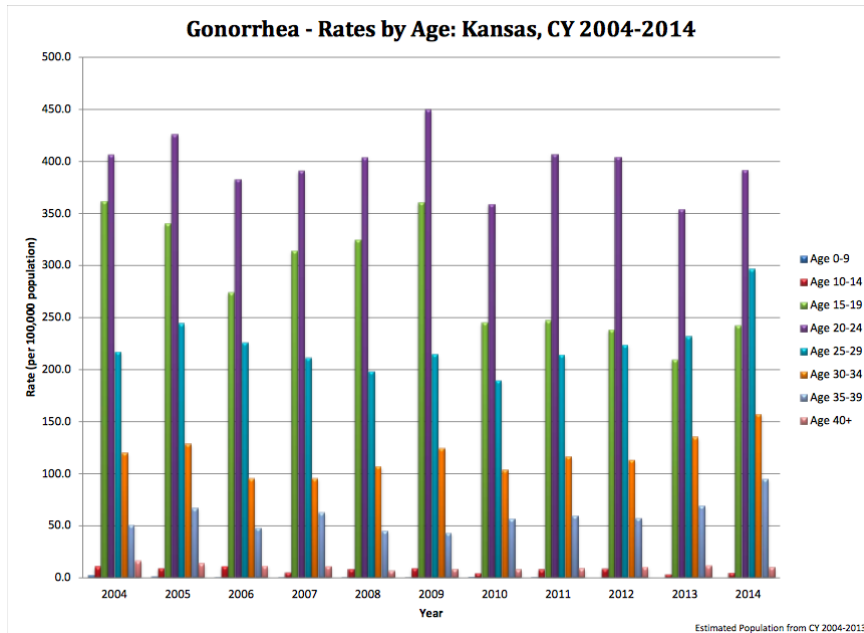
Age range 20-24 is the most frequent, followed by age range 15-19

African Americans have the highest reported rates of Chlamydia



Estimated Population from CY 2004-2013

STDs in Kansas: Gonorrhea

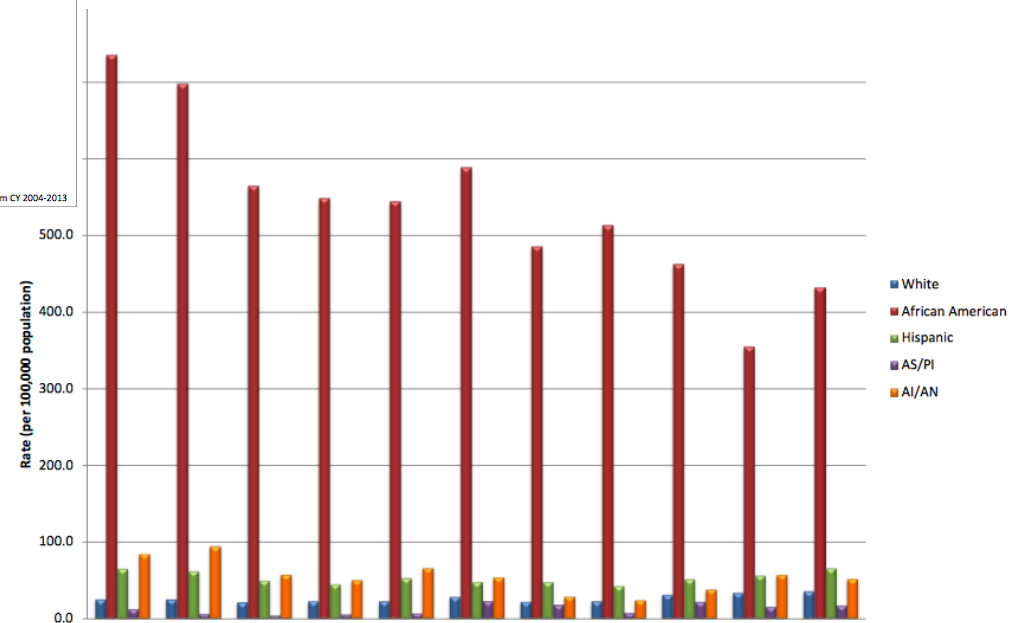


Females had higher reported rates than males.

Gonorrhea rates are at their all time lows, but have been increasing slightly over the past few years.

Age range 20-24 is the most frequent, followed by age range 15-19 by an increasingly small margin from 2004 to 2012. The 25-29 age range was the second most commonly reported age range from 2013 and 2014.

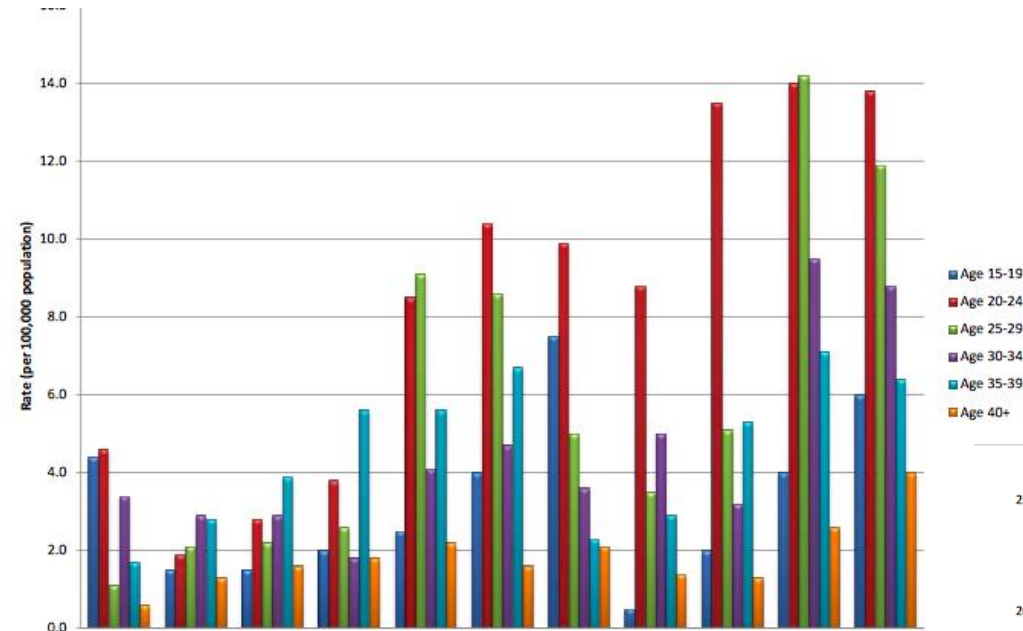
African Americans have the highest reported rates of Chlamydia



STDs in Kansas: Syphilis

Males had higher reported rates than females

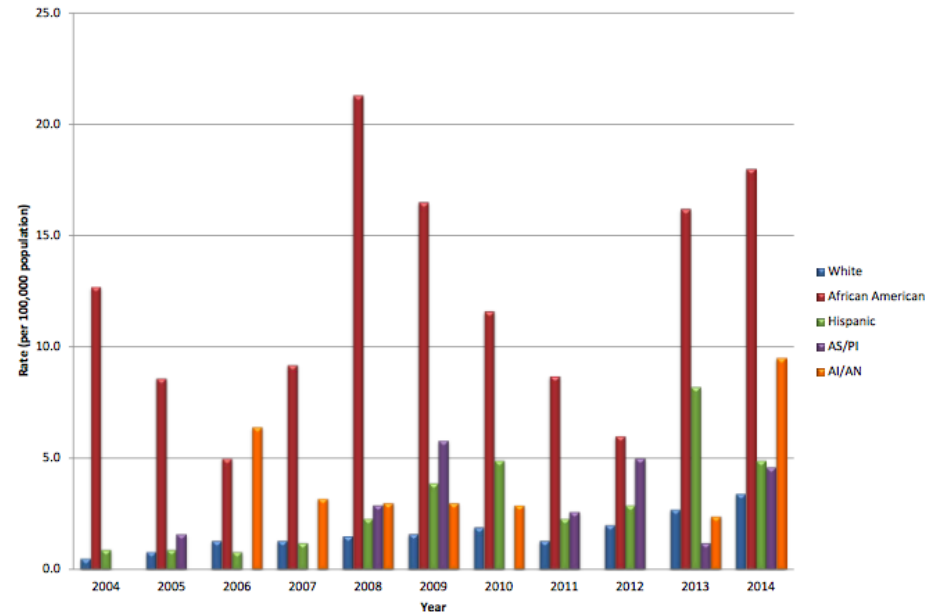
Infection rates have been increasing over the 2004 to 2014 time period, with a decrease in 2010 to 2012.



The 20-24 age range has had the highest reported rates in recent years, with the 25-29 age range close behind.

African Americans have the highest reported rates, with a spike in numbers in the past few years.

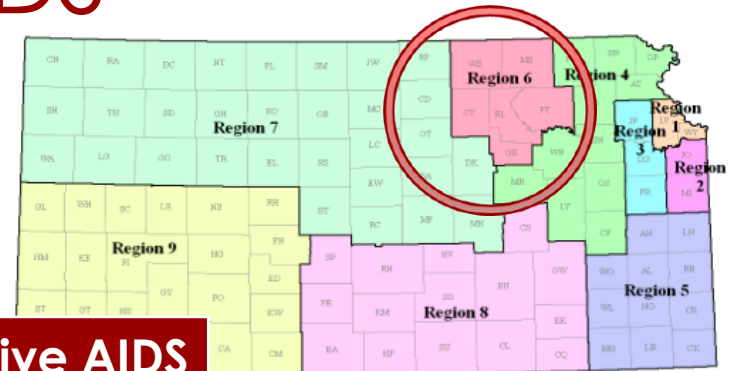
Early Syphilis - Rates by Race/Ethnicity: Kansas, CY 2004-2014



Estimated Population from CY 2004-2013

STDs in Kansas: HIV/AIDS

HIV/AIDS Community Planning Regions



Risk Factors	Cumulative HIV Cases	Cumulative AIDS Cases
Men	78.7%	74.2%
Black Non-Hispanic	49.2%	30.6%
White Non-Hispanic	44.3%	58.1%
Age Range(s)	25-34 (36.1%), 15-24 (31.1%)	35-44 (43.5%), 25-34 (29.0%)
Men who have sex with men	49.2%	48.4%

Methods

- In collaboration with Dr. Benne and Major Lindsey at the Fort Riley Department of Public Health, a 34 question survey was developed and sent out to prominent health clinics in Riley and Geary counties
- Purpose:
 - Assess the clinic's process for screening, testing, and treatment for a patient wanting to be tested for STDs
 - Identify barriers to treatment, or areas that may be adapted to increase testing and treatment, and STD rates
- Covered basics such as clinic hours, scheduling, and insurance
- Also, screening policies, testing methodology, treatments used, education, and community partnerships/outreach
- Clinics Surveyed:
 - 1: Riley County Health Department
 - 2: Lafene Student Health Center
 - 3: Geary County Health Department
 - 4: K-Stat Urgent Care
 - 5: Konza Prairie Community Health Clinic
 - 6: Junction City Youth Clinic
 - 7: Irwin Army Community Hospital Emergency Room

Results

Clinic	Hours of Operation	Weekend Hours	Walk-Ins	Same-day Appointments for STD Testing	Sexual Health Education/Information
Riley County Health Department	MTW 8-4:30	No	No	Yes	Yes
Lafene Student Health Center	M0Th 8-6, F 8-5 Sat 10-1	Yes, limited services	No	Yes	Yes
Geary County Health Department	M-Th 8-4, F 8-2	No	Yes	Yes	Yes
K-Stat Urgent Care	M-Sat 9-8 Sun 10-6	Yes	Yes	Yes	Yes
Konza Prairie Community Clinic	M 8-6, T 9-5:30, WTH 8-5:30 F 8-12	No	Yes	Yes	Yes
Junction City Youth Clinic	M-Th 8-5 F 8-3	No	Yes	Yes	Yes
IACH ER	----	Yes	Yes	Yes	Yes

	Safe Sex Promotional Programs			
Clinic	Monogamy or Abstinence	Safe Sex Methods	Provide Condoms	Interventions (Group or Individual)
Riley County Health Department	Upon invitation	Upon invitation	Yes, male, female, dental dams	Yes, part of patient history
Lafene Student Health Center	Yes	Yes	Yes, free of charge	No response
Geary County Health Department	Yes	Yes	Yes, male condoms	Yes, individual
K-Stat Urgent Care	No	No	No	No
Konza Prairie Community Clinic	No response	No response	Yes	No response
Junction City Youth Clinic	Yes	Yes	Yes, male, female, flavored, dental dams	Yes, individual or group, by request
IACH ER	Yes	Yes	No	Yes

Clinic	Services Provided*	Testing Methodology†	Labs Run In-House
Riley County Health Department	All services	Chlamydia, gonorrhea, HIV, syphilis	All labs sent to KDHE
Lafene Student Health Center	All services	Chlamydia, gonorrhea, HIV, syphilis	Chlamydia, gonorrhea, rapid HIV, RPR (syphilis)
Geary County Health Department	All services	Chlamydia, gonorrhea, syphilis	All labs sent to KDHE
K-Stat Urgent Care	STD testing only	Chlamydia, gonorrhea, HIV, syphilis	No labs run in-house
Konza Prairie Community Clinic	All services	Based on patient symptoms	Hepatitis C, HIV, trichomoniasis, bacterial vaginosis
Junction City Youth Clinic	STD testing, family planning	Chlamydia, gonorrhea, HIV, syphilis	
IACH ER	Emergency only		

*Services listed on survey: Well Woman exams, pap smears, breast exam, family planning, emergency contraception, pregnancy. No clinic surveyed provided abortion services.

† Testing methodology describes the tests the clinic encourages for all patients seeking STD testing. Actual tests performed are dependent on the patient.

Reporting



- Chlamydia, gonorrhea, syphilis, HIV, and AIDS are all reportable diseases in Kansas
- For labs run in-house, positive results are reported to the state by the clinic
- For labs sent out, the laboratory reports to the state
- Barriers to Reporting:
 - Reporting takes time
 - HIPAA and secondary server for encryption complicates reporting
 - Some patients do not provide sufficient information to report a positive result

Notification and Contact Tracing



- Clinics are notified of lab results electronically or via mail
- Riley County Health Department has representatives from KDHE and Konza Prairie Community Clinic on site for collaboration on contact tracing
 - Geary County Health Department, K-Stat Urgent Care, and IACH: do not participate in contact tracing
 - Konza Prairie Community Clinic: maintain open communication with other clinics
 - Junction City Youth Clinic: try to perform contact tracing on their own, but if the case is complicated, it is referred to KDHE
- The most common method to alert a patient to their results is via phone call. Some clinics have the patient schedule an appointment to receive test results.
 - Most clinics also inform patients of negative test results

Partner Testing and Follow-Up Labs



- All of the clinics provide partner treatment based on positive results of the index patient
 - All clinics except for IACH require that the partner be seen by a provider prior to receiving treatment. These clinics provide same-day treatment, but also require partner testing.
 - Junction City Youth Clinic: requires directly observed treatment
- Follow-Up Labs
 - K-Stat: for positive results
 - IACH: upon doctor request only
 - Riley County Health Department: follows CDC guidelines



Clinic	Costs	Immunization Inquiry
Riley County Health Department	Sliding scale fees, do not require payment at time of service	Hepatitis B, HPV
Lafene Student Health Center	Cost per test run	No response
Geary County Health Department	STD testing \$25.00 flat fee	No
K-Stat Urgent Care	Cost per test run	Hepatitis B
Konza Prairie Community Clinic	STD testing \$30.00 flat fee	
Junction City Youth Clinic	Cost per test run	
IACH ER	----	Can look up records

- All clinics surveyed have a mixed waiting room
- At clinics where appointments are available, the reason behind the visit is not asked upon check in
 - Riley and Geary County Health Departments, K-Stat Urgent Care, and IACH, reason for the visit is asked upon check in
- All clinics surveyed reported using CDC guidelines when prescribing drug treatments
- All clinics had standing orders for treatment, or the provider had the leeway to decide how to treatment administration based only on symptoms, or risk factors
- Standardization of Care:
 - Junction City Youth Clinic: providers are trained to ask the same questions of each patient
 - Geary County Health Department follows CDC and KDHE guidelines

Insurance

Clinic	Blue Cross/Blue Shield	Medicare/Medicaid	Tricare	Other
Riley County Health Department	-----	Member provider	Member Provider	Aetna, accept all other insurances*
Lafene Student Health Center	Yes	Not accepted	No	Submit claims for all other insurances
Geary County Health Department	Yes	Yes	No	-----
K-Stat Urgent Care	-----	Medicaid – Yes Medicare – No	Yes	-----
Konza Prairie Community Clinic	Yes	Yes	Yes	Accept all insurances
Junction City Youth Clinic	Yes	Yes	No	-----
IACH ER	-----	No	Yes	-----

*Accepts all insurances, but are not member providers for all insurances.

Populations Served



Clinic	Age	Gender	Population Served
Riley County Health Department	All ages (20-mid30 yo mostly)	Male and Female	No response
Lafene Student Health Center	Mostly 18-30 yo	Male, Female, Transgender	No response, KSU students and spouses
Geary County Health Department	14-65 yo	Male and Female	
K-Stat Urgent Care	All ages	Male and Female	~15,000/year, general public
Konza Prairie Community Clinic	14-100 yo	Male and Female	No response
Junction City Youth Clinic	< 21 yo	Male and Female	No response
IACH ER	All ages	Male and Female	33,000/year, ~100/day

Discussion

- Results show that there are many strong points in the health clinics surveyed, but also areas for that can be improved upon with the goal of reducing STD rates in the population, including diminishing barriers to testing and treatment
- According to the CDC, a solid STD prevention and control system is built around 5 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.

Recommendations

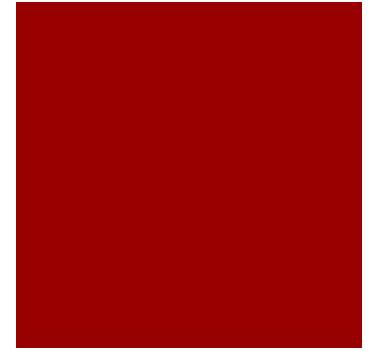


■ Subpopulations

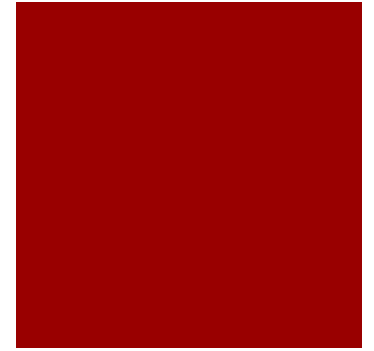
- Manhattan population: 52,281, 30% 20-24 year olds, 10% 25-29 year olds
- KSU: 24,766 students enrolled in 2014
- Fort Riley population: 20,498, 35+% 20-29 year olds
- In contrast, less than 15% of the population of Kansas falls into the 20-29 year old age range

■ Cost and Availability

- Ensure clinics offer hours of operation that are convenient for the varied schedules of college students in Riley County
- Offer low costs for STD testing and treatment



- Counseling
 - Incorporate individual level intervention and education at every medical appointment
 - Offer group counseling opportunities to high-risk patients
- Screening and Testing
 - Follow CDC guidelines on screening and testing sexually active individuals
 - Sexually active women 25 years or younger
- Retesting
 - Retest positive chlamydia, gonorrhea, and syphilis patients 3 months after treatment to check for reinfection
 - HIV testing at time of initial treatment for syphilis



■ Partner Management

- Have the index patient bring their partner with them for their next appointment
- Utilize patient delivered partner therapy and expedited partner therapy

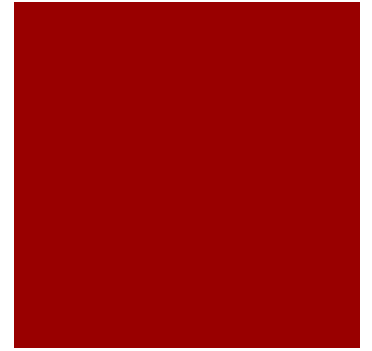
■ Reporting

- Send labs to KDHE, and allow them to handle reporting
- Make electronic reporting available to clinics

■ Testing Methodology

- Whenever possible, use the least invasive or uncomfortable testing method
- Use the treatment method that will guarantee the best patient compliance

Project Critique



- Although this data for this report was obtained from only 7 clinics, each clinic is prominent in their community, and they represent a variety of available health care options
- Interviews could have been more detailed and thorough if they had been performed in person, or over the phone, rather than dropping them off at the clinics

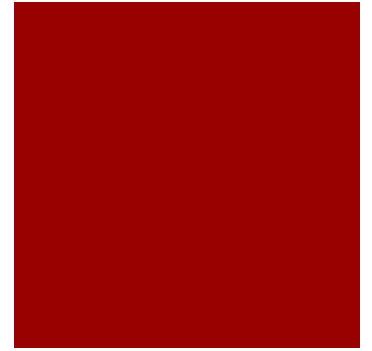
Core Courses and Area of Emphasis Courses



- Social and Behavioral Sciences: look at a health issue from its many facets – provider, patient mentality, societal stigmas, etc
- Health Services Administration: directly applied to my field experience project, many departments and individuals who contribute to a well functioning clinic
- Biostatistics: interpret data during rotations and research, provided a more critical eye for judging data and reports
- Environmental Health Sciences and Toxins in Biological Systems: Environmental Health and Industrial Hygiene rotations
- Epidemiology: useful throughout my rotations and research, taught me to compare disease rates in populations, look for causes or results on a population level, interpret disease spread
- Multidisciplinary Thought and Presentation: gave me more experience with writing and presenting in a professional setting
- Pathogenic Mechanisms: more in depth understanding of how diseases may be spread, controlled, and treated depending on their abilities

Acknowledgements

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Questions?

