

*Secondary Analysis of Sexual Health  
of Young Adults in Kalamazoo and  
Jackson: Gonorrhea*

By Kayla Bolter

# Healthy People 2020

- Nationwide government organization (2013)
- Improve quality of life
- Goals:
  - Reduce the proportion of gonorrhea infections among males 15-44 years old
  - Reduce the proportion of gonorrhea infections among females 15-44 years old
  - Reduce the proportion of females aged 15-44 who have ever required treatment for pelvic inflammatory disease (PID)

# Gonorrhea Prevalence

- 321,849 cases of gonorrhea were reported in the *United States* in 2011
  - 104.2 cases per 100,000 population
- The *mid-west region* has the second highest rates of gonorrhea reported
- *Michigan* was ranked 11<sup>th</sup> for the highest rates of gonorrhea reported
- Gonorrhea is a current problem

# What Does the Literature Say?

- 64% of high school seniors report being “sexually experienced” (Lechner et al. 2013)
  - 29% report lack of condom use
- College-aged students (20-24) are not getting tested (Moore, 2013)
  - Rates are predicted to be higher than reported

# Literature continued

- Main reasons for not getting tested (regardless of condom-use):
  - **Perceived lack of risk (#1)\***
  - **Fearful of “procedures”\***
  - **Unfamiliar with the testing process\***
  - Perceived negative consequences
  - Worried/embarrassed about what others would think
  - Afraid that someone might see them get tested
- Condom-user were less likely to get tested (Moore, 2013)
- **Colleges and universities prioritize other topics over sexual health: influenza, responsible alcohol consumption (Lechner et al., 2013)**
  - A little over half (52%) of college students reported getting any information from their college about STIs

# Gonorrhea

- Gonorrhea is a treatable *sexually transmitted infection* (STI) (CDC, 2013)
- Caused by the bacterium: *Neisseria Gonorrhoeae*
- Transmission: sexual activity (genital, anal or oral)
- Lives easily in reproductive tract
- Contact area (mouth, throat, eyes, and anus)
- Second most common reported STI in the U.S.
- Common: teenagers, young adults, and African Americans

# Symptoms

- Mostly asymptomatic
- **Females**
  - Painful or burning while urinating,
  - Vaginal discharge
  - Vaginal bleeding between periods
- **Males**
  - Burning while urinating
  - White, yellow, or green discharge
  - Painful or swollen testicles

# Symptoms

- Rectal symptoms (both)
  - Soreness
  - Bleeding
  - Painful bowel movements
- Throat symptoms (both)
  - Soreness
- If symptomatic present themselves 1 day-2 weeks after being infected

# Complications: Females

- Pelvic inflammatory disease (PID)
  - Internal abscesses
- Infertile from damaged fallopian tubes (scar tissue)
- Chronic pelvic pain (PID and EP)
- Risk for Human Immunodeficiency Virus (HIV)/other STIs
- Pregnancy
  - Ectopic pregnancies
  - Miscarriages
  - Premature birth
  - Low birth weight
  - Premature rupture of the membranes
  - Infection in the amniotic fluid

# Complications: Males

- Epididymitis
- Inflammation of the testicles
- Infertility
- Increase in risk for Human Immunodeficiency Virus (HIV)/other STIs

# Screening

- **Recommendation:** tested 7-10 days after a sexual encounter
- Discuss risk factors
- **Process:**
  - Most common: urine sample
  - Symptomatic: discharge sample
  - Asymptomatic: a swab of the penis, vagina, rectum or vagina
- Tested for additional STIs/HIV

# Treatment

- Proper treatment, minimal complications (Bull, 2013)
- Antimicrobial drug is effective in 95% of cases detected early (Torpy et al, 2013)
- Ceftriaxone/Cefixime taken one time orally
- Cephalosporin IM + option of two additional oral medications
  - Azithromycin in a single dose
  - Doxycycline for one week (less adherence)
- All sexual contacts must be tested
- Avoid sexual encounters for one week
- Complicated cases additional treatment

# Resistant Forms

- Treatment is becoming complicated (CDC, 2013)
- Bacterium: *Neisseria gonorrhoeae* is developing resistance
- Broad spectrum antibiotic-resistant strains are circulating U.S./world wide
- Cephalosporin's only treatment option (current)
- Decreased receptiveness to Cephalosporin's and other treatments is predicted
- Observation of antimicrobial resistance is critical
- Resistant forms must be reported the health department

# Purpose

- To conduct a secondary analysis that will provide the *necessary evidence* that an **education intervention** needs to be implemented into the campus of Western Michigan University in hopes **to reduce gonorrhea rates** among college students, specifically aged 20-24.

# Method

- Secondary analysis
- Gonorrhea in Kalamazoo/Jackson County
- Similarities in demographics
- Main difference: Kalamazoo, Western Michigan University
- Hypothesis:
  - Higher cases of gonorrhea in Kalamazoo County; university being present
  - Steady increase of gonorrhea
- Targeted age group: 20-24 years old
  - Accounts for most of the University students
  - High rates
- Institutional Review Board (IRB)/public data

# Hypothesis

- It was predicted:
  - Higher rates in Kalamazoo compared to Jackson County
  - Steady increase over the span of ten years

# County Comparisons

- Demographics
  - Kalamazoo higher population
  - Break down similar
- Characteristics
  - Kalamazoo: Western Michigan University & two other colleges
  - Jackson: Community College

# County Comparisons

- Education
  - Little information provided
- Poverty
  - Kalamazoo County average of 19.2% live below poverty line
  - Kalamazoo County average of 47.7% (ages 18-24) live below the poverty line
  - Jackson County average of 15.7% live below the poverty line

# Findings

- Highest cases of gonorrhea in the age groups of 15-19 and 20-24
- Females higher reports of gonorrhea cases than males
- Kalamazoo County ages 15-19
  - **Females: 91**
  - Males: 37
- Jackson County ages 15-19
  - **Females: 15**
  - Males: 8

# Findings

- Females had the highest rates ages 20-24
- Kalamazoo Females 20-24
  - 2011: 69
  - **2001: 106**
- Jackson Females 20-24
  - 2011: 18
  - **2001: 60**

# Findings

- Kalamazoo Males 20-24
  - 2011: 42
  - **2001: 87**
- Jackson Males 20-24
  - 2011: 15
  - **2001: 32**

# Findings

- Kalamazoo total, 20-24
  - 2011: 111
  - **2001: 193**
- Jackson total, 20-24
  - 2011: 33
  - **2001: 92**

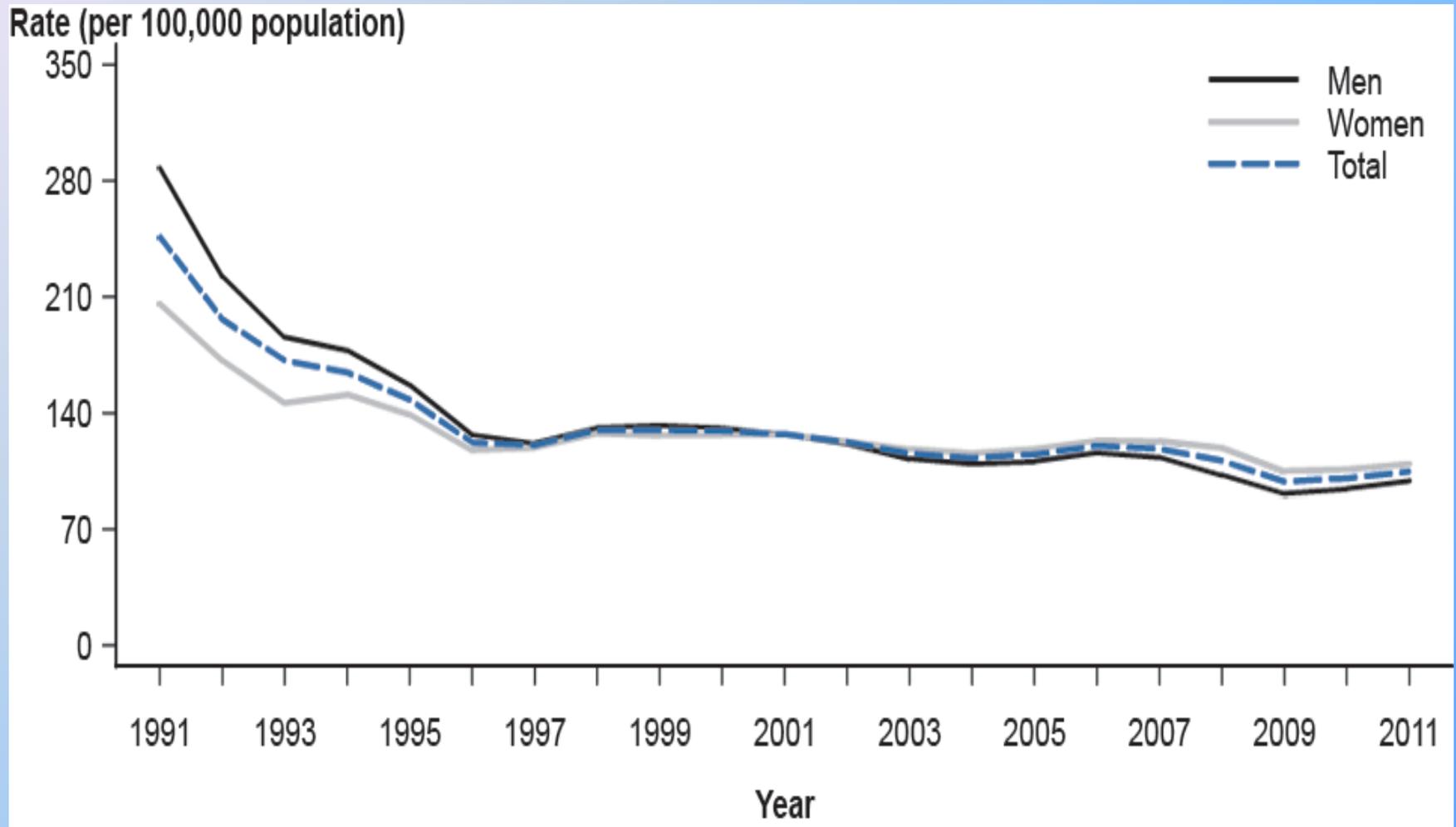
# Findings

- Kalamazoo females highest in:
  - 2001 (106)
  - 2005 (107)
  - 2006 (113)
  - **2008 (118)**
  - **2009 (118)**
- Jackson females highest in:
  - **2004 (84)**
  - 2005 (70)
  - 2007 (75)
  - 2008 (70)

# Findings

- Kalamazoo Males highest in
  - **2008 (111)**
- Jackson Males highest in
  - **2003 (49)**
  - 2004 (43)

# Gonorrhea rates—by Gender in the United States (CDC, 2013)



# Discussion

- Hypothesis: Higher in Kalamazoo, true
- Hypothesis: Steady increase, false
- Presence of gonorrhea infections in both counties
- Higher rates in Kalamazoo
  - Cannot be certain it is because of the University
  - STIs are reported back to U.S. census location
- Overall, higher in females
- Overall, highest in 15-19 & 20-24
- Inconsistent from year to year, staggered statistics reported

# Discussion

- **Education:** lack of education, increase in gonorrhea rates
  - No information education levels for the 20-24 year old age group
  - Potential association between the reported rates/low education levels
- **Poverty:** poor health outcomes
  - Problem in Kalamazoo County
  - Higher percentage of people living in poverty may contribute to the higher number of cases
  - 18-24 highest percentage of people living below the poverty line and had highest reports of STIs
  - Lack of information about poverty in Jackson County

# Alternative Reasoning

- More efficient screening methods
- Females have higher rates:
  - Hormonal birth control
  - Females are also getting their first pap smear around 18-21 (high rates)
  - Anatomy

# Limitations

- Information is from 2010-2011
- Limited information available on education in both counties
- Both counties were Caucasian predominate
- Jackson/Kalamazoo County two different averages living below the poverty line
- College student counts in the U.S. census
  - Students should be counted in the population of the county they reside in for the majority of the year
  - May not be counted, if their driver license indicates they are from a different county
  - Population may not be reliable

# Recommendations

- Education segment during freshmen orientation
- Required
- Before classes start
- One hour “info session”
- Conducted by a nurse (Sindecuse or the Kalamazoo Health Department)
- Talk fluently about sexual health
- Provide reliable information
- Answer any questions presented by students

# Info Session

- How to contract an STI
- Protection—using condoms
- Symptoms/lack of symptoms (especially in males)
- Complications
- Treatment
- Resources on/off campus provide handouts with information/hours of testing
- Eliminate myths

# Info Session

- Educate on the process of STD testing (can be non-invasive urine sample)
- Cost and insurance information
- Provide a non-judgmental environment
- Allow for private questions at the end with confidentiality
- Provide on-site testing after info session

# References

- Augustine, J. (n.d.). Retrieved from <http://www.advocatesforyouth.org/component/content/article/456-adolescents-and-sexually-transmitted-infections>
- Black, J.M., & Hawks, J.H. (2009). *Medical-surgical nursing: Clinical management for positive outcomes* (8th ed.). Philadelphia: Saunders Elsevier
- Bull, Sheana S; Jones, Catherine A; Granberry-Owens, Diane; Stoner, Bradley P; Rietmeijer, Cornelis A. **American Journal of Public Health** 90.2 (Feb 2000): 285-6.
- Campbell, D. (2011) National Business Group on Health. Retrieved from <http://www.businessgrouphealth.org/preventive/topics/chlamydia.cfm>
- Center for Disease Control. (2013). *Chlamydia*. Retrieved from <http://www.cdc.gov/std/chlamydia/STDFact-chlamydia-detailed.htm>
- Center for Disease Control. (2013). *Gonorrhea*. Retrieved from <http://www.cdc.gov/std/gonorrhea/stdfact-gonorrhea.htm>
- Centers for Disease Control and Prevention. (2011). *2010 Sexually transmitted diseases surveillance*. Retrieved from <http://www.cdc.gov/std/stats10/chlamydia.htm>
- Centers for Disease Control and Prevention. (2010). Sexually transmitted diseases treatment guidelines. Retrieved from <http://www.cdc.gov/media/pressrel/chlamy1.htm>
- Downing-Matibag, T.M., & Geisinger, B. (2009). Hooking up and sexual risk taking among college students: A health belief model perspective. *Qualitative Health Research*, 19(9), 1196-1209. doi: 10.1177/1049932309344206
- Healthy People 2020. (2013). Retrieved from <http://www.healthypeople.gov/2020/topicsobjectives2020/objectiveslist.aspx?topicId=37>
- Kalamazoo County Health and Community Services. (2013). Retrieved from <http://www.kalcounty.com/hcs/>
- Kalamazoo Valley Community College. (2012). Retrieved from <https://www.kvcc.edu/>
- Jackson Community College. (2012). Retrieved from <http://www.jccmi.edu/>

# References

- Lechner, K.E., Garcia, C.M., Frerich, E.A., Lust, K., Eisenberg, M.E. (2013). College students' sexual health: Personal responsibility or the responsibility of the college? *Journal of American College Health*, 61(1), 28-35. doi: 10/1080/07448481.2012.750608
- Malbon, K., & Romo, D. (2013). Reaching out to adolescents about sexual and reproductive health. *Postgraduate Medical Journal*, 89, 534-539. Retrieved from <http://www.medscape.com/viewarticle/809635>
- Michigan Department of Community Health. (2013). *Number of Chlamydia and Rates*. Retrieved from [http://www.mdch.state.mi.us/pha/osr/CHI/STD\\_H/ZAT2AC00.ASP](http://www.mdch.state.mi.us/pha/osr/CHI/STD_H/ZAT2AC00.ASP)
- Michigan Disease Surveillance System. (2013). Retrieved from [https://www.michigan.gov/mdch/0,4612,7-132-2945\\_5104\\_31274---,00.html](https://www.michigan.gov/mdch/0,4612,7-132-2945_5104_31274---,00.html)
- Moore, E. (2013). Human immunodeficiency virus and Chlamydia gonorrhea testing among heterosexual college students: who is getting tested and why do some not? *Find an STD testing facility near Back to Journal of American College Health*
- Salamon, M. (2013, May 27). *Chlamydia: Symptoms, treatments, and prevention*. Retrieved from <http://www.livescience.com/34711-chlamydia-std-prevention-symptoms-treatment.html>
- Steiner, Katherine C; Davila, Veronica; Kent, Charlotte K; Chaw, Janice K; et al. **American Journal of Public Health**93.6 (Jun 2003): 882-4.
- Sexually Transmitted Diseases. (n.d.) Healthy People. Retrieved October 22, 2013 from <http://www.healthypeople.gov/2020/topicsobjectives2020/overview.aspx?topicid=37>
- Torpy, J., Lynn, C. & Golub, R. (2013). Sexually Transmitted Diseases (Not HIV/AIDS). *Journal of American Medical Association*. <http://jama.jamanetwork.com.libproxy.library.wmich.edu/article.aspx?articleid=1556150>
- Trieu, S.E., Bratton, B., Marshak, H.H. (2011). Sexual and reproductive health behavior of california college students. *Journal of American College Health*, 59(8), 744-750. doi: 10.1080/077448481.2010.540764
- U.S. Department of Health and Human Services, Women's Health. (2011). *Chlamydia fact sheet*. Retrieved from: <http://womenshealth.gov/publications/our-publications/fact-sheet/chlamydia.html>
- Western Michigan University. (2012). Retrieved from <http://www.wmich.edu/about/facts>