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Does Immediate Access to Birth Control Help Prevent Pregnancy? A Comparison of Onsite Provision Versus Off Campus Referral for Contraception at Two School-Based Clinics

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Introduction

Unplanned teen pregnancy and parenting continue to be issues throughout the United States. In 2010, the national birth rate was 39.1 per 1,000 women aged 15-19.[1] The teen birth rate in Texas is particularly high at 63.4 per 1,000, the third highest rate in the country. In Houston and Harris County, Texas, teen birth rates of of 85 to 116 per thousand in some zip codes are higher than the Texas rate in most areas, and in many places in Houston and Harris County, teen birth rates are greater than 100 per 1,000 females.[2] High birth rates are indicative of even higher pregnancy rates, as not all pregnancies are carried to term. In fact, Texas has the fourth highest teen pregnancy rate in the nation at 101 per 1,000 teens ages 15-19, versus the national rate of 84 per 1,000.[3] This rate is projected to increase by 13% by the year 2015, resulting in a projected rate of 127 per 1,000.[4] Furthermore, the city of Houston has a high rate of repeat pregnancies. In 2008, Houston had a repeat pregnancy rate of 23%, compared with other major cities in the U.S., which ranged from 12% to 28%.[5]

Minority groups, in particular blacks and Hispanics, are disproportionately at-risk for teen pregnancy. Hispanics have the highest teen birth rates in the country, followed by black teens. It is estimated that 52% of Hispanic girls and 50% of black girls under 20 years of age will become pregnant, as opposed to 19% of non-Hispanic white girls.[6,7] For teenage girls aged 15-19 in 2006, the birth rate among Hispanics was 83 per 1,000 and 64 per 1,000 among blacks, compared with 27 per 1,000 among non-Hispanic whites.[8] In Houston, this disparity is particularly pronounced. Texas Department of State Health Services reported that in 2003, 66% of all teen births were to Hispanic mothers and 23% were to black mothers, while 11% were to white mothers.[9]

The costs associated with teen childbearing are significant and could potentially impact a school's approach to teen pregnancy. Not only does teen childbearing negatively affect mother and child, there are significant consequences for the nation, states and districts. A 2008 analysis by The National Campaign to Prevent Teen and Unplanned Pregnancy indicated teen childbearing cost U.S. taxpayers at least $10.9 billion each year, with the majority of costs incurred because of births to teens 17 years and younger.[10] The public sector costs of teen childbearing include lost tax revenues because of lower earnings from teen parents, higher costs of public assistance to families with teen parents, and higher costs of child welfare and health care for children born to teen mothers. Furthermore, with approximately only 40% of teen mothers graduating from high school, school districts with high teen pregnancy rates have a

significantly increased risk of losing average daily attendance funding, as well as enrollment funding.[11]

A number of strategies have been employed with the goal of reducing teenage pregnancy, with many taking place within schools. Approximately 95% of all youth aged 5-17 was enrolled in school in 2008, making the school system an ideal avenue through which to provide pregnancy risk-reduction strategies.[12] The developmental period during which students are in school is also conducive to introduction of pregnancy prevention interventions, with the majority of students in school at pre-sexual initiation or just post-sexual initiation phase. Educational interventions, including abstinence-only, abstinence-plus and comprehensive sex education curricula, have had some success in helping to prevent teen pregnancy.[13] For students at high risk for teen pregnancy, however, education curricula are not always enough. High-risk youth tend to fall in lower socioeconomic groups and often do not have regular access to primary and reproductive healthcare facilities. Government funded and non-profit school-based health centers have been established to provide these students with increased access to reproductive health services in order to help them avoid unintended pregnancy, sexually transmitted infections (STIs) and HIV. However, there is often variation among these clinics in the services provided. For example, many school-based clinics prohibit the dispensing of hormonal birth control on-site.

Evidence shows that when hormonal birth control is not dispensed on-site, teenage family planning clients take longer to come in to the clinic for follow-up visits, are less likely to choose a birth control method during their first or second visit and to select a consistent birth control method over time.[14-16] Ultimately, the delay or complete lack of access to hormonal birth control on site at school-based clinics may have deleterious effects on reproductive health outcomes among teens. Zimmer-Gembeck, Doyle and Daniels[14] found that female teens who visited school-based family planning clinics that initiated an on-site dispensing policy were significantly more likely to select a contraceptive method when compared to teens who visited the clinic before the on-site dispensing policy was instituted. In addition, clients were more likely to return for additional family planning visits after the on-site policy was established. Sidebottom, Birnbaum and Stoddard[15] found that under a voucher system for hormonal contraceptives in Minneapolis school-based clinics, only 41% of students received all requested contraceptives. In comparison, after a policy change to dispense hormonal contraceptives on-site, 99% of students received all requested contraceptives. Ethier et

al.[16] found that female students who had access to a school-based health center were more likely to have received pregnancy and disease-prevention care, used hormonal contraception and emergency contraception at last sexual encounter than female students who were unable to access a school-based health center.

A limitation of existing studies is a lack of information on the overall effects of these different dispensing policies on reproductive health outcomes. Thus, the purpose of this paper is to compare the impact of different policies for access to hormonal contraceptives among low-income teens at two comparable school-based clinics. Specifically, the objective of this exploratory comparison was to determine whether or not receipt of hormonal contraception on site at a school-based clinic affected subsequent pregnancy rates among student patients.

Methods

Program Description

The school-based adolescent clinics are under the aegis of an academic medical institution and operate in collaboration with a metropolitan independent school district. The primary health care model used at two school clinics is comprehensive, focuses on both teenage girls and boys and incorporates elements of prevention, intervention and education through meaningful collaboration with school and other community partners. The clinics' primary goal is to provide access to preventive health care services to uninsured students through delivery of on-site medical, gynecological, nutritional, and mental health services. Written parental consent is obtained at initial entry into the clinic and preferably at the beginning of the academic year. As part of this goal, the clinics attempt to reduce pregnancy rates through standardized screening for sexual activity and risk of pregnancy at every clinic visit. Brief contraceptive counseling for teens who engage in sexual activity is also provided. The clinic in one school (School A) has been in existence since 2005. The contraceptive dispensing policy at School A's clinic is on site, where those seeking birth control can receive free and confidential contraceptive services (including hormonal contraception using the same-day or *Quick Start* method, emergency contraception and condoms) at the clinic (supported by Title X funding). The other school clinic (School B) has been in existence since 2007 and uses a referral policy, by which students cannot receive hormonal contraception, emergency contraception or condoms on the school campus and must travel to another affiliated teen clinic to receive free hormonal contraception. However, Well Woman examinations are conducted, and STI testing and treatment is provided.

The contraceptive service policy was determined by the principal of each school based on political and personal factors.

Participants

The schools are located in comparable inner city urban neighborhoods. The majority of students was of Hispanic ethnicity and had no private health insurance coverage. The number of students enrolled in School A in 2008-2009 was 1928 and in 2009-2010 1891; School B in 2008-2009 was 2606 and in 2009-2010 was 2763. The number of unduplicated visits made by students to the School A clinic in 2008-2009 was 988 and in 2009-2010 was 980. Visits to the School B clinic in 2008-2009 were 988 and in 2009-2010, 1253. Over 80% of students who attend both school clinics participate in the federal free and reduced lunch program, an indicator of low-income status.

Data Collection

Using a retrospective chart review and an electronic database review (AHLERS Integrated System), patients seen in both clinics from 9/2008-12/2009 for primary care and reproductive health symptoms were reviewed. Charts of all female patients seen during this time period were reviewed by a research assistant. Charts of sexually active females were identified and the following data was extracted: demographic data, history of prior pregnancy, record of providing birth control counseling, the outcome of the counseling; documentation of interest in seeking hormonal contraception; evidence of a return visit and dispensing of hormonal contraception in school clinic A; and a referral appointment to an affiliated teen clinic off campus and evidence of appointment kept and hormonal contraception dispensed in school clinic B. Whenever possible, the nurse practitioner at clinic B and who worked at more than one clinic site referred students to herself at the referral clinic site. Outcome measures included positive pregnancy test results at any point during or after birth control use. The authors made the assumption that since these students had sought services at the school clinic, they would likely utilize their school clinic or the referral clinic to seek pregnancy testing. The clinics were known for their ability to provide confidential pregnancy testing and facilitate prenatal care for pregnant girls. Patients were tracked via the electronic database system through 3/31/2010.The data collected was second checked by the authors. Human Subjects approval was obtained from the institution to review medical records and electronic data (Protocol #H26846).

Data Analysis

Data were entered in IBM SPSS Statistics 19.0. Data analysis included calculation of mean age, frequency of students with a prior history of pregnancy, appointments kept, hormonal contraception started , mean duration of follow up period, positive pregnancy tests. The duration of the observation period for a participant in each setting was determined as the time between the first visit, when contraceptive counseling was conducted, through 3/31/2010. An independent t-test was used to compare the mean duration of the observation period between School clinics A and B. Fisher's Exact Test was used to compare the appointment-keeping rate and the type of hormonal contraceptive method dispensed between school clinics A and B, In addition Fisher's Exact Test was used to compare the overall pregnancy rates and the association between a prior history of pregnancy and pregnancy rates.

Results

School A clinic: As seen in Table 1 (see Appendix), of 79 students who requested hormonal contraception the mean age was 17.5 years (range 15 to 22 years); 68% $\geq$ 18 years, 77% were Hispanic, and 21% (16/79) reported prior pregnancy. As seen in Table 2, all 79 students (100%) returned for onsite hormonal contraception (65% pill and 35% long acting progestin injection by appointment within one week. The mean duration of the observation period for participants in this setting was 13 months (range 4-19 months).

School B clinic: As seen in Table 1, of the 40 students who requested and were referred for hormonal contraception, the mean age was 17.5 years (range 14 to 20 years); 52% were $\geq$ 18 years, 88% were Hispanic, and 7.5% reported prior pregnancy. As seen in Table 2, only 50% (20/40) kept their appointment for hormonal contraception. The time taken to follow up for these appointments ranged from the same day to 126 days (mean 7.25 days); 75% (15/20) were seen within 7 days and 85% (17/20) were seen within 14 days. The remaining three students took 39 to 126 days to keep their appointment. Pills were dispensed to 85% (17/20) and 15% (3/20) received long acting progestin injection. The mean duration of the observation period for participants in this setting was 11.9 months (range 4-19 months).

A significantly higher frequency of students kept their appointments for hormonal contraception at School A clinic as compared to School B clinic ($p < 0.05$). The difference between the mean duration of the observation period and type of birth control used (pills versus long acting progestin injection) between School clinics A and B was not statistically

significant. Combining the data of both schools, the overall pregnancy rate for students in both clinics was 10.9% (13/119). There was no statistically significant difference between the mean age of students who did and did not have a documented positive pregnancy test (18. 0 vs. 17.5 years). As seen in Table 2, the pregnancy rate was significantly higher at the school that referred its students for contraception compared to the school with onsite services ($p < 0.05$). The pregnancy rate was also significantly higher for students without a prior history of pregnancy in the school with a referral policy for contraception (21.6%) versus the school with onsite contraceptive services (4.7%) ($p < 0.05$).

Discussion

This study was a preliminary attempt to evaluate outcomes of differing policies regarding the provision of hormonal birth control at school-based health clinics. The main findings were: (1) the follow up appointment rate for hormonal contraception among students who sought birth control at a school clinic was significantly higher at the school clinic with onsite contraceptive services compared to the school clinic with a referral policy for contraception. In addition, at the school clinic with a referral policy of those who kept their appointments, the majority (85%) were able to keep their appointment within 14 days; (2) the school clinic with a referral policy for contraception had a significantly higher pregnancy rate than the school clinic with on-site contraceptive services and; (3) the pregnancy rate was also significantly higher for students without a prior history of pregnancy in the school with a referral policy for contraception compared to the school with onsite contraceptive services.

The first finding in this study helps to strengthen other published studies that found the provision of on-site access to birth control was more likely to promote birth control use.[14-16] It also appears that at least half the students are able to follow through with appointments when a successful referral mechanism is in place. However, it is concerning that almost half of the students were unable to follow through, despite indicating their interest in seeking hormonal contraception. In this context, it is likely that these students had difficulty accessing the offsite services that were offered for multiple reasons. We can speculate that the challenges included difficulty with arranging appointments to initiate and obtain refills for hormonal contraception, lack of transportation and inability to seek confidential services on one's own after school.

The difference in pregnancy rates between the two schools was significant and highlights the potential for easy access to affordable reproductive services and a wide range of contraceptive services in a

school clinic to positively affect health outcomes among high-risk populations. Reduced compliance with oral contraceptive pills (as compared to injectable long acting progestin) may have negatively affected the pregnancy rates at both school clinics. This is supported by data that demonstrate higher compliance rates and lower pregnancies rates with injectable long acting progestin involving same day or *Quick Start* method as compared to oral contraceptive pill use.[17] In addition, the availability of condoms and emergency contraception or method switching may have lowered the pregnancy rate at the school with onsite hormonal contraceptive services. Finally, pregnant girls may have dropped out of both schools and use of other medications interfering with oral contraceptive pills may have affected rates in both locations. Unfortunately, these data are not retrievable.

A prior history of pregnancy appeared to encourage seeking of hormonal contraception and thus affected the outcome measure at both school clinics. This finding suggests that these teen and young adult mothers were motivated to prevent further pregnancies and wanted to graduate from high school.[18] In contrast, the pregnancy rate was significantly higher for students without a prior history of pregnancy in the school with a referral policy for contraception compared to the school with onsite contraceptive services. Improving access to hormonal contraception for sexually active high school females without a prior history of pregnancy who are motivated to prevent unintended pregnancy is important. Our research supports the need for a greater focus by communities on prevention of unintended pregnancy among high school students with no prior history of pregnancy. Evidence exists that school enrollment functions as a protective factor in the reduction of risk behaviors. This is especially true for high school settings in which sexual risk-taking related to unintended pregnancy has significant consequences for the completion of secondary education and the matriculation to colleges and universities.[19] However, college aspirations may not be protective against initiation of sexual activity in neighborhoods with a high concentration of poverty.[20] It would be logical that school-based clinics collaborate with high schools that predominantly enroll students from low income neighborhoods to address this adolescent health issue.

The provision of comprehensive adolescent-focused health care, components of on-site medical services should include medical services, case management and social support, and accessibility and convenience to enhance the possibility that adolescents will obtain and use prescriptive and long acting methods of hormonal contraception (LARC) to prevent unintended pregnancy. The convenience of on-site service is especially

important for time-sensitive emergency contraception. This preventive method, by being available to students, maximizes pregnancy prevention services for teens who otherwise would not have access to a private physician or are under 18 years of age and could not receive the method without a prescription.

In fact, individual school policy as well as school district policy appears to be a major factor determining the prohibition of on-site contraceptive dispensing among school-based health centers across the country, as 30% and 74% of prohibitions were determined by these factors, respectively.[21,22] One may wonder if those in the educational field and parents are either unwilling or unable to see the consequences of unintended pregnancy on the educational attainment of their students.

The low number of students seeking hormonal contraceptive services over a 12-month period is striking, especially at the school clinic with onsite contraceptive services. Several factors may be at play here. Per school district policy. all adolescents who received services at both school clinics must have a signed parental consent. Because students know this, it may be a barrier to seeking confidential contraceptive services (even prior to an initial clinic visit) by all students, including those who have parental permission and those unwilling or unable to obtain parental permission. In addition, the school clinic with a referral policy for contraception had been in existence for two years at the time of this study and may not have been familiar to many students and parents. Some students could have also had private providers or gone to other health facilities such as a federally qualified health center.

Limitations

The major limitations of this study are the retrospective chart review method for data collection, the small sample size in the school with a referral policy for contraception and the limited number of variables extracted for data analysis. The small sample size also precluded multivariable analysis to control for confounding variables. In addition, important variables such as condom use and emergency contraception were not tracked during the study period. Finally, cultural values surrounding pregnancy at younger ages among certain minority immigrant populations are shown to affect pregnancy rates and were not controlled for in the statistical analysis.[6,7] However, the schools were comparable in terms of ethnicity.

Recommendations

Health professionals and community leaders may need to accept the additional responsibility of informing the public school community of the value of providing reproductive health care services on campus to at-risk adolescents at the high school level. While historically schools have been seen as the source of added value services to students who receive education under their purview, broad endorsement of providing medical care as well is not universal. One strategy to advance this concept is to redefine health care from the point of view of access. Therefore, a potential strategy for advocating for comprehensive school-based clinics can be embedded in the concept of the medical home. The medical home model implemented in a teen clinic or family planning clinic setting can be an efficient way to deliver both well and sick child care for communities with large numbers of uninsured youth.[23] Creating a medical home within a school venue can be an efficient way not only to initiate and complete series of vaccinations, for instance, but also to involve parents through the consenting process required for the care of minors. Using the medical home model can also provide a forum for the detection and treatment of sexually transmitted infections, the prevention and screening of HIV, and the prevention of unintended pregnancy through contraceptive dispensing and counseling in this at-risk group. Therefore, the authors recommend the collaboration between schools and teen-focused clinics to create a medical home for high-risk teens. Recently enacted national legislation has yet to be interpreted as to whether or not such recommendations can be practically actualized on a broad scale.

Conclusions

This was a preliminary attempt to evaluate outcomes of differing policies regarding the provision of hormonal birth control at school-based health clinics to students seeking hormonal contraception. Results indicate that the school clinic with a referral policy for contraception had a significantly higher pregnancy rate than the school clinic with on-site contraceptive services. Further study with a larger sample size is necessary. This study has implications for reproductive health policy, especially as directed toward high-risk teenage populations.

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Appendix

Table 1. Characteristics of Students Seeking Hormonal Contraception September 2008 – December 2009 at two school clinics		
Characteristics	**School A clinic (N=79)**	**School B clinic (N=40)**
Age: (years) Mean(range) ≥ 18 years (%)	 17.5 (15-22) 53 (68)	 17.5 (14- 20) 21 (52)
Race/Ethnicity: Hispanic (%)	60 (77)	35 (88)
Prior Pregnancy (%)	16 (21.9) [95% C.I. 12% - 30%]	3 (7.5) [95% C.I. 1% -20%]

Table 2. Comparison between two school clinics for Appointments Rates, Method Type and Pregnancy Rates		
	School A clinic (N=79) (%)	**School B clinic (N=40) (%)**
Contraception Appointment	79 (100)	20 (50)*
Observation period Mean/(range) months	13.3(4-19)	11.9(4-19)
Method received		
Contraceptive Pill	51 (65)	17 (85)
Long acting progestin	28 (35)	3 (15)
Pregnancy rate	5 (6) [95% C.I. 2% -14%]	8 (20)* [95% C.I. 9% -35%]
No prior history of Pregnancy	4 (4.7) [95% C.I. 0.9% -13%]	8 (21.6)* [95% C.I. 9% -38%]
Received contraception	5 (6) [95% C.I. 2% -14%]	3 (15) [95% C.I. 3% -37%]

p<0.05