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## **School Health Clinics Final Paper**

Despite the support expressed by politicians, parents, and school personnel for Durham Wellness Centers, there is no data demonstrating positive effects. While back to class and attendance data was collected for the 2003-2004 academic year, health and academic outcomes have not been tracked due to privacy protection laws. Additionally, the clinics primarily serve low-income, mobile populations, making data collection even more challenging. There is evidence in the literature and studies outside Durham that School Based Health Clinics (SBHCs) are effective in improving student health and limited academic outcomes, but no such information is available for Durham. Although there are ideological arguments for SBHCs, that schools should provide services for student needs outside the narrow scope of the classroom, providing a service without determining effectiveness is insufficient. We assert that, while the clinics may provide valuable services, a longitudinal study with a treatment and a control group should be conducted in order to ascertain the effect of Wellness Centers on student health and academic performance and determine whether the clinics are providing care efficiently and effectively. Once a study is completed with improved data collection and analysis, a disaggregated cost benefit analysis would determine whether Wellness Centers are worth the investment, whether anything should be modified, and finally if the money would be better spent elsewhere.

### **Background**

#### *History of Durham School Health Clinics*

In 1995, Durham Public Schools received a grant to improve student wellness and achievement, including a specific appropriation about school wellness centers. As a result,

Southern High School opened the first Durham Wellness Center in 1996. The clinic is funded by a partnership between the Duke Division of Community Health, Durham Public Schools, the Durham County Health Department, and a variety of foundation grants. The Duke School of Nursing provides a nurse practitioner, while Durham Public Schools employ an office manager to coordinate teachers, parents, and students. The school took on the responsibility of finding space and remodeling rooms to house the clinic, but the grant partnership funds utilities and medical supplies. The clinic functions as a normal doctor's office, with private exam rooms, a variety of services, and patient records protected by HIPAA.

After the Southern High School clinic opened successfully, Watts Elementary petitioned for their own clinic in 1997. Since Watts demonstrated such great need, a Duke-employed nurse practitioner went room-to-room with a cart of supplies until the school could construct a physical clinic. In 2001, student enrollment at Watts was significantly reduced through redistricting. As a result, clinic hours were cut to half-days, and a new half-day clinic was opened by the grant partnership with the remaining resources at another school with a high percentage of economically disadvantaged students, Glenn Elementary. The newest Wellness Center, funded through a grant from the Duke Endowment, opened at E.K. Powe Elementary School in 2004 and is currently operated by a nurse practitioner for half of the school day (Interview with Susan Yaggy).

#### *Current Clinic Operations*

Services at each clinic vary depending on needs, provider availability, and student population. The clinics provides diagnosis and treatment of acute illnesses and injuries, physical examinations, chronic disease care, hearing and vision screenings, limited laboratory services and medications, and referrals. All the schools provide free mental health services and share a bilingual mental health counselor. In addition, Southern provides counseling and clinical prenatal services for pregnant teens in the clinic so the teenage mothers can stay in school instead of leaving for appointments. Recently, Southern also began providing group psychotherapy for "at risk" students referred by the nurse practitioner (students who are sexually active, have been

seen for an STD, have been demonstrating unhealthy behavior, or are pregnant). Despite any negative connotations associated with therapy, 28 girls remain on the waiting list at Southern. The model for the elementary school clinics is different because students are not old enough to be responsible for their own prescriptions or treatment plans.

The clinic at Southern bills students for 15-18% of services, with the remainder of services funded via grants; the budget for Southern's clinic last year was approximately \$192,000. Initially, E.K. Powe tried to bill for selective services, but contacting parents proved to be more time consuming than cost-effective; the clinic billed \$5800 but only had \$1776 paid in the first billing cycle. Now, none of the elementary school clinics bill their students and all services are paid for by the grant partnership. Also, most insurance companies will not accept the clinic as a primary care provider unless the clinic can provide services 24 hours a day, seven days a week, so the clinic must outsource provision of care to the Duke Medical Center when school is not in session (Interview with Susan Yaggy).

### Research Questions

After studying the background and evolution of SBHCs, several questions emerged as to the impact of Durham's clinics on student achievement. We focused our research on studying the impact of Durham SBHCs on educational outcomes, attendance, and student wellness. Finally, using the same report, we considered the success of the clinics in achieving their self-defined goals.

### Methodology

To examine our research questions we first examined educational outcomes by comparing end-of-grade (EOG) test scores and attendance rates from the NC School Report Cards before and after the implementation of a clinic. For information on back to class rates, we looked to the School Wellness Centers Evaluation Report (Duke University Medical Center's self-evaluation of the 2003-2004 academic year, produced in 2004). To study overall student

wellness and health in the context of indirect effects on achievement, we analyzed survey data from students, parents, and teachers on clinic effectiveness and their level of satisfaction from the School Wellness Centers Evaluation Report, as well as previous research and literature on SBHCs.

We used enrollment in the free and reduced lunch program as a proxy for economically disadvantaged (ED) students, and our unit of analysis was at the school level. Additionally, we conducted a literature review to study outcomes in other locations since we had limited data from Durham clinics.

### Limitations

Significant methodological challenges exist in trying to document a link between SBHCs and academic performance. Analyzing results at the level of individual students would be preferable to school level data, but HIPAA regulations prevent linking schools records with medical records. Also, since clinics are selectively opened in schools serving a high proportion of ED students, who are therefore highly mobile, missing data due to student relocation is a challenge (National Assembly on School-Based Health Care 6). The Durham SBHC program conducted a self-assessment only in 2003-2004, so there is no data demonstrating any longitudinal change. The qualitative survey data on effectiveness of clinics and student, parent, and teacher satisfaction were helpful, but the surveys had a low response rate and were not focused on educational outcomes.

Student academic performance is the result of many interrelated factors, including socioeconomic status, prior educational experiences, and presumably characteristics of parents, teachers, and the school principal. Since most of these factors were not quantified in our data, it was impossible to isolate the effects of SBHCs on student performance.

### Results and Conclusions

#### *Educational Outcomes*

E.K. Powe's aggregate reading score for grades 3-5 was apparently unaffected by the implementation of the health clinic. While E.K. Powe students scored 70.9 percent passing in 2001, scores from 2002-2006 remained relatively stable with slight fluctuations, ranging from 60.4 to 64.2 percent passing. However, state pass rates have slightly improved every year, ranging from 79.5 in 2001 to 85.5 in 2006 (**SEE APPENDIX A**). Math pass rates also remained approximately five percent below district levels and ten percent below state levels between 2001 and 2006; additionally, a new Mathematics EOG Test was instituted in the 2005-06 school year which renders data before the new test incomparable to data after the new test ("Student Achievement Trends") (**SEE APPENDIX B**). The same results were found when we disaggregated black and white test scores (NC School Report Card). It appears the health clinics had no positive effect on quantitative test score data, however, it is exceedingly difficult to isolate the effects of health clinics since we cannot control for several other confounding factors (for example, the uniqueness of each program or incorporating that schools which received health clinics were performing poorly to begin with). It may be that test scores would have dropped had it not been for the SBHCs, but more information would be needed to make any claims that Durham SBHCs had a positive effect on academic outcomes.

While there is indirect evidence that healthier students are better students, there is no direct evidence that SBHCs contribute to academic performance. In recent years, SBHCs have faced increasing demands to support their direct contributions to educational outcomes with data. The previous research and literature did not make strong arguments for the effectiveness of clinics in raising student academic performance, nor would any specific case study be generalizable to Durham since there are no established best practices.

### *Attendance*

Without longitudinal data comparing test scores of students who receive care at the clinics to a control group of students who do not, the results for our primary question of whether SBHCs directly improve educational outcomes remain inconclusive. Since a direct connection proved impossible due to missing data, we analyzed attendance and return to class rates for

schools with clinics. Pointing to the positive impacts of the clinics, schools with school-based health centers report increased attendance, decreased drop-outs and suspensions, and higher graduation rates (McCord et al, 1993). NC School Report Card data is only available since 2001; thus, E.K.Powe is the only school with data both before and after the clinic was implemented. E.K. Powe does not have any significant change in attendance rates after the clinic was implemented in 2004; however, this data may be confounded because attendance is taken in the morning and does not reflect students leaving at midday. From 2001 until 2006, E.K. Powe's average attendance was steadily reported between 94% and 95% each year, comparable with the state average of 95% each year (**SEE APPENDIX C**).

Return to class rates in Durham schools with health clinics demonstrate a much more positive impact: Hagen, McKinnon, and Silberberg write, "67 percent of staff reported that they had seen a student who would otherwise have had to go home in the middle of the day because of an illness or injury, go to the Wellness Center and return to class," (Hagen 17). Keeping kids in school should theoretically benefit students, the educational system as a whole, and parent who would otherwise have been forced to leave work to attend to their child's needs (Hagen 11). Ms. Jeanne Bishop, principal of E.K. Powe since 2006, said, "I'm not concerned about data because I know it helps with day-to-day attendance. The timeliness of having a nurse practitioner here is very valuable because taking a child to the emergency room would take hours, and this population routinely take their children to the emergency room to see a doctor," (Interview with Jeanne Bishop).

### *Student Wellness*

Though there is inconclusive evidence indicating a direct impact on educational achievement or attendance rates, we find evidence that SBHCs improve students' overall health. Crowley writes that schools serving poor areas have students who are at higher risk of physical and mental illness, yet have lower rates of access to health care and health insurance (Crowley 11). Specifically in Durham, the schools selected for health clinics have an average of 64.7% of students receiving free or reduced lunch, indicating a high level of poverty, compared to the

district average at 45.87% ("Free" 1). Also, the School Wellness Centers Evaluation Report notes that the clinics have been placed where the students are "...predominantly low-income, health needs are great, rates of un-insurance and publicly-financed health insurance are high, and many parents face a number of obstacles to getting students care," (Hagewen 1). Lisa Micol explains that she sees students frequently to treat asthma flares, strep throat, ringworm, rashes, ear infection, colds, and allergies (Interview with Lisa Micol). Without the nurse practitioner, 49 percent of students surveyed said they would have had to stay in school without receiving medical attention, which supports the assertion that students are receiving treatment when they would not have otherwise (Hagewen 8).

Durham's Wellness Centers provide both preventative education about pregnancy, as well as on-site services for pregnant teens. Duke Psychiatry and Pediatrics and Duke Ob/Gyn employ a clinical social worker for 6 hours a week at Southern High School, where a grant from the Reynolds foundation also provides prenatal services for pregnant teens. Allowing students to receive services on-site at Southern High School allows pregnant teens to stay in school instead of leaving for appointments (Interview with Susan Yaggy). Fifteen percent of staff at Southern reported that they had known a student to receive prenatal care who would have had to leave school in the absence of the Wellness Center. Overall, the staff reported positive appreciation of the Wellness Centers in the survey data, "believing that [the clinics] not only help students who may not get healthcare otherwise, but allow students who visit the clinic to stay in school," (Hagewen 17). The Raleigh News and Observer reports that North Carolina has the ninth-highest teen pregnancy rate in the country, with almost 20,000 girls and young women 10 to 19 becoming pregnant each year, including about 1,900 in Wake, Durham and Orange counties (Bonnett 1). Only one third of pregnant teens receive high school diplomas, and fewer than 2 percent get college degrees before they turn 30, according to the National Campaign to Prevent Teen and Unplanned Pregnancy (Bonnett 1). Based upon the popularity of the pregnancy prevention program at Southern High School, there is reason to believe that Durham SBHCs will help reduce teen pregnancy.

One emerging focus of the Durham SBHCs is their attention to the portion of their student population with asthma. The Durham School Health Advisory Council (SHAC) is in the process of implementing a pilot asthma program aimed at providing awareness, education, and prevention techniques to students with asthma. The program plans to "assist students with and without providers by flagging them for follow up." Another goal of the program is to have "respiratory therapists" in schools with health clinics to assist the asthma population, most of whom are poor and minority students. (DPS SHAC meeting March, 2008) Lower income urban students have higher rates of asthma than others, and teachers often do not feel prepared to deal with problems relating to asthma in the classroom (Taras 298). A recent report that evaluated various studies and the validity of their results found that there is evidence that providing health and mental health services holds promise for improving students' "chances for academic success," but that the literature only shows positive academic outcomes for asthmatic children as a result of involvement in health programs that incorporate health education and parent involvement (Murray 589). The authors determined, based on reviews of research from across the country, that more empirical evidence is needed in order to assert that SBHCs have direct effects on educational outcomes (Murray 589).

### *Self-Defined Goals*

To evaluate the achievement of Durham's school clinics' self-defined goals, we turned to the School Wellness Centers Evaluation Report and our qualitative research. The goals of the Wellness Center program are, "to increase student access to primary care; respond to the immediate health needs; and preempt adverse health and educational outcomes, including student absences from school, unnecessary use of the emergency department, missed parental work hours, and inadequate care." Survey data and interviews indicate that many of these goals were met, but there is very little quantitative data to support the results.

Steadily increasing enrollment rates at Glenn, Watts, and Southern in the 2003-2004 school year demonstrate that the Wellness Centers are increasing student access to primary care (Hagewen Figure I-2). Of staff surveyed at Powe, Glenn, Watts, and Southern, 46 percent said

they saw a student receive assistance managing an ongoing health condition, a responsibility that usually falls to a primary care physician (Hagewen 17). Also, the nurse practitioners administer kindergarten physicals for students unable to get appointments with a physician before enrolling in school (Interview with Lisa Micol). While the Wellness Centers do not attempt to take the place of a primary care physician, Lisa Micol, nurse practitioner at E.K. Powe and Watts, explains that for students who do not have access to a doctor, "Sometimes you have to help manage and control medications."

According to parents, 86% of their children are utilizing the Durham Wellness Centers primarily for injury or physical symptoms, while ongoing health conditions and routine screenings took a backseat with a combined 14% of reasons for a visit (**SEE APPENDIX D**). The primary benefit of a SBHC is the ability of a nurse practitioner to prescribe medication or administer treatment to students on the premises immediately, and Durham's Wellness Centers have demonstrated success on this front (Interview with Jeanne Bishop).

Studies have shown that SBHCs "reduce inappropriate use of emergency rooms and increase appropriate use of medical and mental health services" (National Assembly 4). Moreover, SBHCs have been shown to "positively impact the mental health of students and reduce hospitalization rates for asthmatic children" (National Assembly 4). The 14% of routine services administered, annual physicals, and vision and hearing tests all contribute to preempt adverse health outcomes. The National Assembly on School-Based Health Care asserts that "Such data demonstrate that SBHCs provide comprehensive, accessible, and high-quality services that add measurable value to the health care delivery system," (National Assembly 4). There is no quantitative research that definitively demonstrates that Durham's Wellness Centers have had a tangible impact on the Durham emergency departments, but eight percent of parents surveyed believe their child would have gone to the emergency department if not for the Wellness Center (Hagewen 5). The authors of the Wellness Center evaluation extrapolated this figure to \$12,560 saved by the Durham hospitals annually (Hagewen 11).

As discussed in the Attendance section above, the Wellness Centers are demonstrating a positive impact on student attendance, even though data may be confounded by fewer students leaving at midday.

Finally, the Wellness Centers appear to achieve their goal of reducing missed parental work hours. Sixty-six percent of parent respondents claim that without the Wellness Center, student "would have had to leave school in the middle of the day and/or that somebody would have had to leave work or school to pick the child up; most made the latter assertion," (Hagewen 5). Even students who might have a primary care physician can see the nurse practitioner with free enrollment in the Wellness Center, so parents need not leave work for a minor injury (Interview with Lisa Micol).

### Implications

There are strong arguments for having health clinics in schools, but none of the available data from Durham health clinics can confirm that they increase outcomes in attendance or academic achievement due to confounding factors and the limitations discussed. "Additional research on the impact of SBHCs on academic performance, even if it could overcome methodological challenges and limitations faced by past studies, might only confirm previous findings; that it is difficult to document that SBHCs have a direct impact on academics," (National Assembly 9). It may be inappropriate to judge SBHCs by academic performance impact because the clinics were designed to impact student health; SBHCs are not an explicit educational intervention and should not be held responsible for educational performance. The School Wellness Centers Evaluation Report does demonstrate that more students are receiving access to healthcare, and if Rothstein's conclusion holds that healthier students are better students, it follows that SBHCs support academic achievement (Rothstein 138-139). Unfortunately, without specific information on the impact of Durham SBHCs or individual school SBHCs, we cannot assert that they are operating in a manner that promotes success, as other SBHCs have.

## Recommendations

Ideally, Durham Wellness Center employees could conduct a study linking medical records to academic records, but HIPPA regulations explicitly prevent releasing patient information. This study would demonstrate the direct impact of healthcare received at the Wellness Centers on individual students and their academic achievement. In order to generate information on the efficacy of SBHCs, a sound study would require a random sampling of students with a variety of socioeconomic backgrounds, baseline health levels, and baseline academic achievement levels. Parents would have to agree to waive certain HIPAA rights to make it possible for researchers to discern the effect of the clinics on student health outcomes and performance. Logging data including the frequency of visits to the health clinic, resolution of medical problems, student behavior and disciplinary issues, grade point average, and EOG test scores would be tracked and analyzed, controlling for original background variations and other variables that could impact outcomes. A more detailed, methodologically sound study would clarify what kind of implementation practices are most effective; however, for the reasons already discussed, creating this study is easier said than done (National Assembly 6-8).

If the experimental group (students receiving treatment at the SBHC) demonstrated positive outcomes, a disaggregated benefit-cost analysis of the health clinics would be worthwhile to determine specifically which programs are cost-effective and have the greatest positive impact on students. Factors to consider include: health care savings due to preventative care and timely treatment of ailments, school savings due to reduced behavioral problems and expenditures on "difficult to educate" students, societal savings associated with reduced teen pregnancy rates, and projected future earnings associated with improved academic performance, along with intangible benefits such as reduced suffering of ill students. Such a study would require additional funding, and since funding SBHCs is one of the primary obstacles, an ideal study is unlikely.

Regardless of whether such a study is feasible, data collection procedures and efforts must be improved. Outcomes of both Durham Wellness Centers and SBHCs at large could be

assessed more concretely through a longitudinal study assessing even solely student health outcomes, and tangible data would conclusively convince policymakers that their fiscal resources would or would not be well spent on SBHCs.

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