

EVALUATION OF THE IMPACT OF FOUR NEWLY STATE-FUNDED CHILD AND ADOLESCENT HEALTH CENTERS IN MICHIGAN: EXTENDED ANALYSES

Prepared for the Michigan Department of Health and Human Services December 2018





Photo Credit: Oakridge Teen Health Center

EXECUTIVE SUMMARY

INTRODUCTION AND BACKGROUND

In the spring of 2015, the Michigan Department of Health and Human Services (MDHHS) commissioned JFM Consulting Group (“JFM”) to conduct an evaluation of the impact of four newly opened and state-funded school-based CAHCs on students’ health, well-being and educational success. The evaluation investigated the CAHCs’ impact over a two-year school period in areas of priority to the CAHC Program at MDHHS, including indicators of physical and mental health, experience of stress and coping strategies, health literacy, access to and use of health care, and selected measures of educational behaviors and success.

The evaluation was guided by three main purposes: (1) to expand the growing body of work on the role CAHCs play in promoting child and adolescent health, well-being, and academic success; (2) to inform and promote positive policies that support optimal growth and development among adolescents, particularly adolescents living in conditions of poverty; and (3) to support ongoing learning about opportunities for continuous improvements in the quality and impact of CAHCs moving forward.



Photo Credit: Shelby Adolescent Health Center

EVALUATION QUESTIONS

The extended evaluation was designed to answer a number of compelling research questions that were beyond the scope of the initial overarching evaluation. These analyses included:

1. Students' risk status. For what reasons and types of need are students using the health center? What is the distribution of students' exposure to persistent environmental stressors, engagement in behavioral risks factors, and the presence of other health conditions and academic needs, as identified in the column to the right? How do these distributions vary according to characteristics of the students? (e.g., demographics, whether insured, site, whether in middle school or high school)? How frequently are students diagnosed with multiple issues or conditions and with what effects on their use of the health center?
2. Patterns of use. What patterns of use of the health center exist among students in terms of frequency (how many visits students make), density (how closely spaced in time the visits occur), the reasons for the visit (from the encounter log), the kinds of risk factors they face (those in the column to the right), and student demographic characteristics? To what extent are the number and type of risk factors experienced associated with the different profiles of use? Students' patterns of use may be associated with student outcomes, which is vital information for clinic planning.
3. Characteristics of utilization and satisfaction with care. How does students' satisfaction with the services they receive vary according to characteristics of their visit (e.g., the reasons they sought care, the types of care they received, the length of their visit, numbers and types of visits, the types of practitioner(s) who provided the care)? Where are there variations in these areas based on student demographics, the site, and whether students

4. Association between the factors studied above and likelihood of improvement in our outcome factors (social isolation, negative coping with stress) over the two-year period. For which characteristics of students are we seeing the greatest improvements over the two-year study period on our outcome variables (e.g., sense of isolation, coping with stress in negative ways, etc.) based on their risk profiles and levels and patterns of utilization (while controlling for the effects of other variables)?

STUDY SAMPLE

MDHHS invited four CAHCs to participate in the evaluation from a pool of 17 newly-funded CAHCs by the MDHHS/Michigan Department of Education (MDE), all of whom agreed to participate. They include two rural middle schools in the mid-western side of the state (the Muskegon area), one high school and feeder middle school in northern Michigan (both served by the same CAHC), and one high school in a largely urban/suburban setting in southeastern Michigan, representing 1708 students overall.



Photo Credit: Shelby Adolescent Health Center

METHODS AND ANALYSES

To answer these evaluation questions, we developed a robust integrated dataset comprised of three primary data sources: (1) students' self-reports on the outcome variables obtained via an electronic survey administered in four Waves (at the beginning and at the end of the 2015-16 and 2016-17 school years); (2) results from self-administered RAAPS-PH risk assessments of students who use the clinic, coordinated by the CAHC; and (3) de-identified individual encounter data maintained by the CAHC.

The evaluation utilized a prospective cohort design that followed individual students in grades 6th through 11th grade over a 2- year period. Key methods included exploratory factor analysis (to identify the statistical relationships among student's survey responses); latent growth modeling (to estimate comparative rates of improvement or "growth") among CAHCs users and non-users on our outcome variables; Repeated Measures Anova (to compare rates of improvement among CAHC users and non-users); Cluster and Discriminant Function Analysis (to assess characteristics of clinic users and non-users) and thematic analyses of the qualitative data.

We controlled for self-selection bias using Propensity Score Matching. The de-identified datasets were linked using unique randomized codes assigned to each student generated by each CAHC's Data Coordinator.



Photo Credit: Thunder Bay Teen Health Center/Cheboygan

RESULTS

Evaluation Question 1: Student Risk Factors Associated with Clinic Use.

For what reasons and types of need are students using the health center?

It was clear that the most common reason students were visiting the clinic was for mental health reasons. 51% of all clinic visits were for mental health, with depression (26%), adjustment disorder (17%), and joint depression/anxiety (12.5%) comprising the most common mental health concerns.

Following mental health, acute illness (11.7%), immunizations (6.8%), and reproductive health issues (4.3%) were the most common reasons for visiting the clinic. It is important to note that among reproductive health issues 73% of these visits were for STI testing/care. This is important because even though self-reported rates of risky sexual activity through RAAPS is at 44% overall, the clinic data suggest that the concern is higher.

Evaluation Question 2: Patterns of Clinic Use

What patterns of use of the health center exist among students in terms of frequency (how many visits students make), density (how closely spaced in time the visits occur), the reasons for the visit (from the encounter log), the kinds of risk factors they face and student demographic characteristics?

The pattern of clinic use is bimodal 46% of clinic users use the clinic for 1 visit, however, 33% of clinic users visit the clinic 6 or more times. Girls are significantly more likely to use the clinic more frequently than boys ($F(3,358)=4.59, p=.004$). Those with mental health issues are also more likely to use the clinic more frequently ($F(25,431)=2.46, p<.001$). Among students with mental health concerns students with PTSD, mood disorders, depression, and substance users are the most common high clinic users. Among non-mental health reasons, non-asthma related chronic illnesses and pain related to orthodontic devices are the most common reasons reported by high frequency clinic users.

Interestingly there was not a significant difference between students with public or private sources of insurance in the frequency of clinic use, but those with insurance were significantly more likely to use the clinic frequently compared to uninsured students ($F(3,453)=4.33, p=.005$

The only factor related to the pattern of use was type of diagnosis. Student with STI concerns, Anxiety, ODD, and orthodontic pain tended to cluster their visits in shorter bursts than students with other health concerns.

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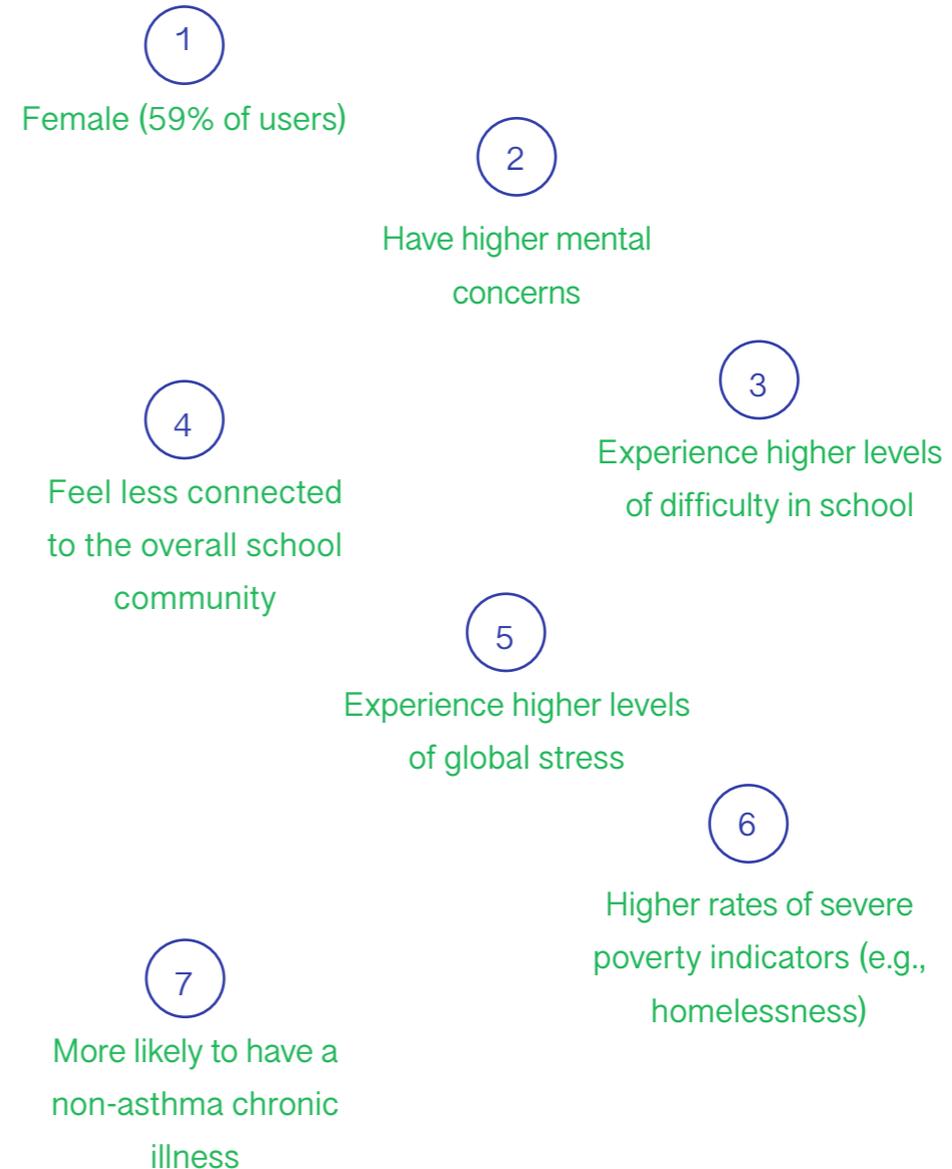




Photo Credit: Oakridge Teen Health Center

Among clinic users there were three general profiles based on a two-step cluster analyses procedure.

- **Cluster 1. Primary Care Utilization (43% of clinic users):** These were students that used the clinic 2 or fewer times and their use was limited to physicals, acute illness symptoms, or injury.
- **Cluster 2. Low Intensity Utilization (29% of clinic users):** These were students that had between 3-6 visits to the clinic with an average of 6wks between visits. They tended to have a non-asthma chronic illness, have relatively high school performance, and feel a stronger sense of connection to the school community.
- **Cluster 3. High Intensity Utilization (28% of clinic users):** These students used the clinic on a regular basis with a median number of 9 visits but ranged as high as 23 visits. The visits tended to cluster into two-week intervals. These students were predominantly female (82%), had significantly higher mental health needs, higher levels of stress across home, school, and personal domains, utilized poorer coping strategies, and were much more likely to be seen for substance use, trauma experiences, and STI testing.

It is important to note that this third cluster of High Intensity Users comprises roughly a quarter of the unduplicated visits, they are responsible for 50-60% of clinic output. This is consistent with feedback from clinic staff focus groups.

Evaluation Question 3: Characteristics of utilization and satisfaction with care

What are the interconnections between the reasons students visit the health center, the care they receive, their diagnosis/diagnoses, where they go after their visit, the type(s) of providers seen, and if and where they were referred?

Overall students who used the clinic were quite satisfied with the services they received. In fact, 91% of students reported being somewhat to very satisfied with the clinic, and 56.7% of clinic users reported being very satisfied. As a result of the limited variability there were very few factors associated with clinic satisfaction. Neither the number of visits

($r = -0.149$, $p = 0.146$), nor the number of days between visits ($r = -0.013$, $p = 0.902$) were significantly related to satisfaction. Further, neither gender ($r = -0.021$, $p = 0.670$) nor reason for visit ($r = 0.072$, $p = 0.204$) were related to satisfaction.

Students did not rate their satisfaction after each visit, so it was difficult to link satisfaction directly to type of care, provider seen, and post visit referral/discharge directly to satisfaction. However, we were able to categorize the student's most frequent reason for visit, type of care provided, provider seen, discharge and referral for students that had more than one visit to the clinic and found no significant differences in satisfaction. This is not surprising given the limited variability of satisfaction reported.

¹ Correlations were calculated using Spearman's rho rather than Pearson's r to account for the ordinal nature of the variables.



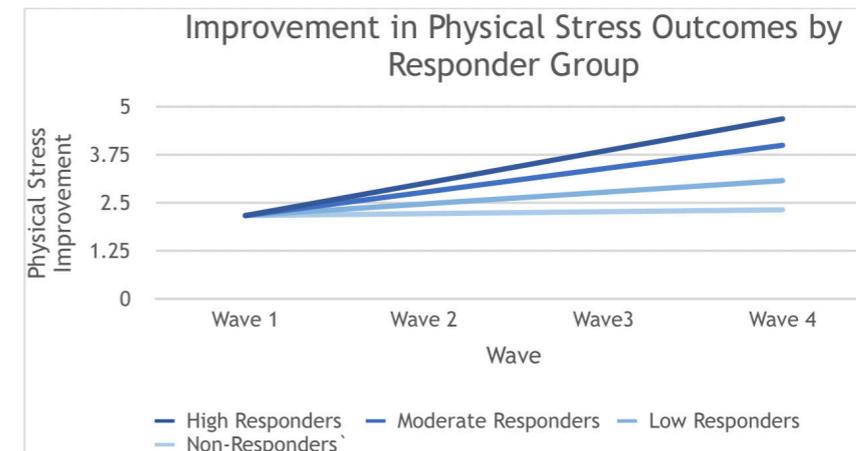
Evaluation Question 4: Association between the factors studied above and likelihood of improvement in our outcome factors (social isolation, negative coping with stress) over the two-year period.

For which characteristics of students are we seeing the greatest improvements over the two-year study period on our outcome variables (e.g., sense of isolation, coping with stress in negative ways, etc.) based on their risk profiles and levels and patterns of utilization (while controlling for the effects of other variables)?

Which students are most likely to benefit from clinic use? Not all students benefit from the clinic equally and the next set of analyses examined individual differences in rates of improvement across the outcomes assessed. Some students improved substantially while others did not seem to have as much benefit. Latent class analyses were conducted to identify the clinic using students who benefited the most from the clinic. Based on the results of this analysis students were categorized into classes of improvement from 1=no improvement to 4=high improvement based on their trajectories across the key outcome variables across the four waves (see figure 1 for physical stress symptoms as an example).

We next utilized a logistic regression analysis to identify variables that predicted whether a student was likely to show high levels in outcome improvement compared to those that did not show as much improvement. Consistently we found that the students most likely to be in the high improvement category were female (84%) belong to the high intensity user cluster (63%) but have lower levels of intensity in use than the typical high intensity user (4-8 visits). Additionally, students in this high improvement category were the most likely to increase their levels of adult support and positive strategies for coping.

Figure 1. Latent Class Analysis of “Clinic Responders” Improvement in Physical Stress Outcomes.



We also examined the relative improvement in key outcomes as a function of how frequently a student used the clinic (not at all, low frequency use <4 times, high frequency use >4 times). Overall students that used the clinic more frequently had higher initial need for clinic services and were more likely to improve over time.

Of particular interest is the degree to which the relationship between frequency of clinic use and outcome improvement existed for different risk groups. We identified two primary risk groups; students reporting a high level of mental health risk factors at baseline (e.g., feelings of depression, anxiety, low self-worth, etc) and students that reported a high level of global social health risks (e.g., high stress levels, poor coping skills, low social support, etc.). We examined the relationship between frequency of clinic use (non-use, low-frequency use, and high frequency use) and psychological well-being, school challenges, risk taking behavior, and physical stress responses. As can be seen in figures 2-4, students with elevated mental health risks at baseline proportionally improved their outcomes over time with respect to internalizing (e.g., depression / anxiety), externalizing (e.g, anger management), and risk-taking behaviors (e.g., substance use, skipping school)

Figure 2. Model Estimated Mean Trajectories of Internalizing/Depression Outcomes by Level of Clinic Use for Students with Baseline Mental Health Risk.

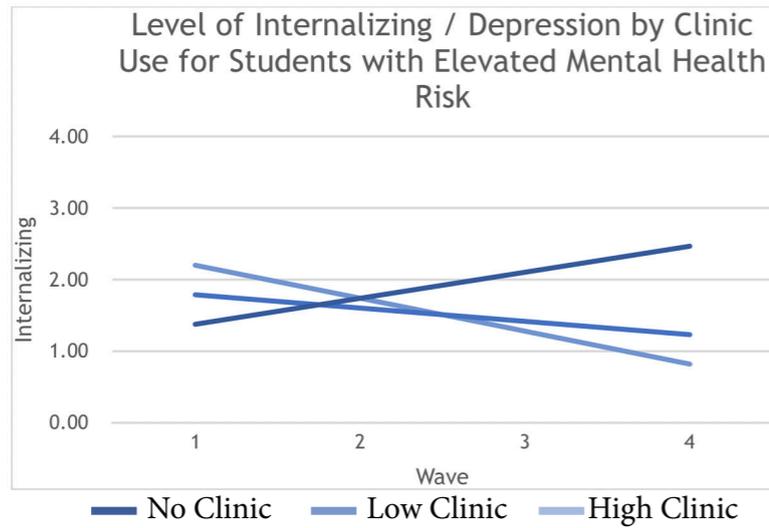


Figure 3. Model Estimated Mean Trajectories of Externalizing Outcomes by Level of Clinic Use for Students with Baseline Mental Health Risk.

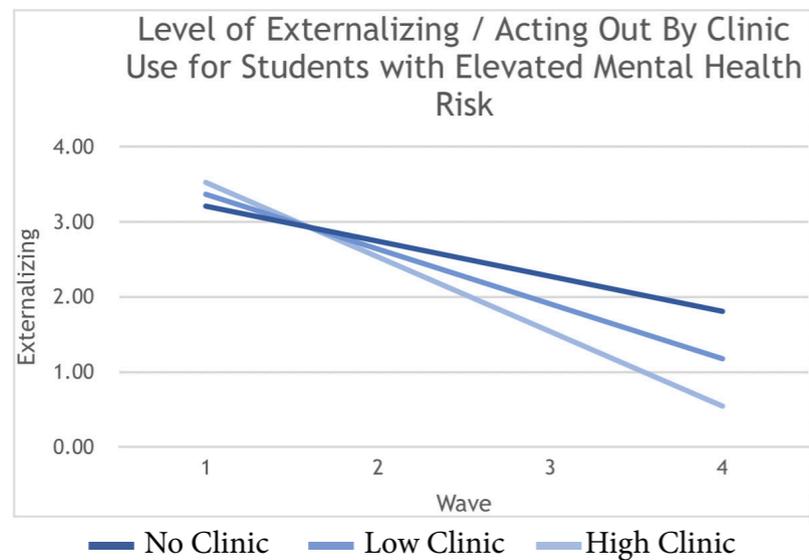
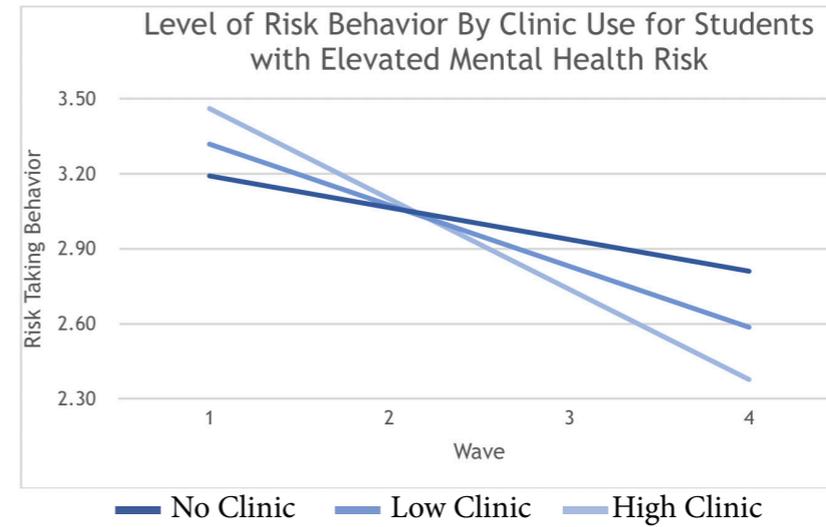


Figure 4. Model Estimated Mean Trajectories of Risk Behavior Outcomes by Level of Clinic Use for Students with Baseline Mental Health Risk.



We found similar significant levels of improvement for students with elevated social health risks as a function of clinic use and clinic use frequency for School Challenges, physical stress symptoms and risk-taking behaviors.



Photo Credit: Beaumont Teen Health Center/Romulus

Figure 5. Model Estimated Mean Trajectories of School Challenge Outcomes by Level of Clinic Use for Students with Baseline Social Health Risk.

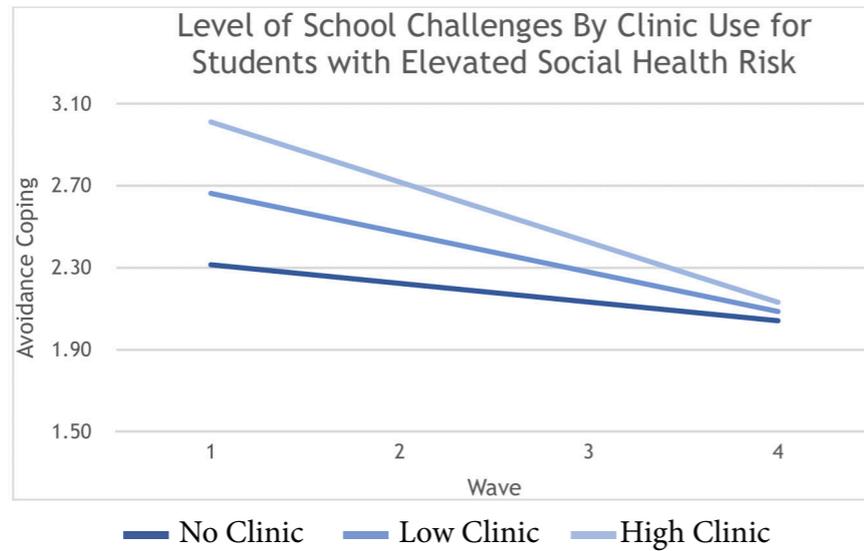


Figure 6. Model Estimated Mean Trajectories of Physical Stress Outcomes by Level of Clinic Use for Students with Baseline Social Health Risk.

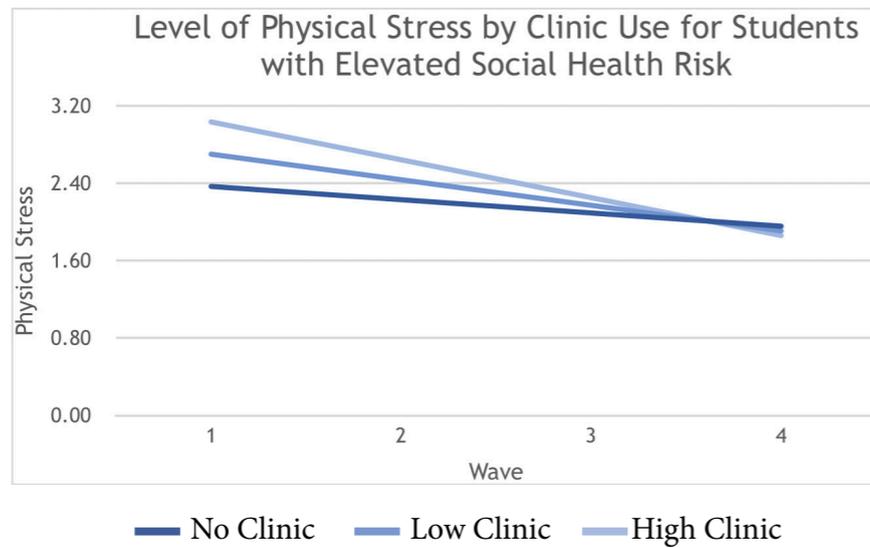


Figure 7. Model Estimated Mean Trajectories of Risk Taking Outcomes by Level of Clinic Use for Students with Baseline Social Health Risk.

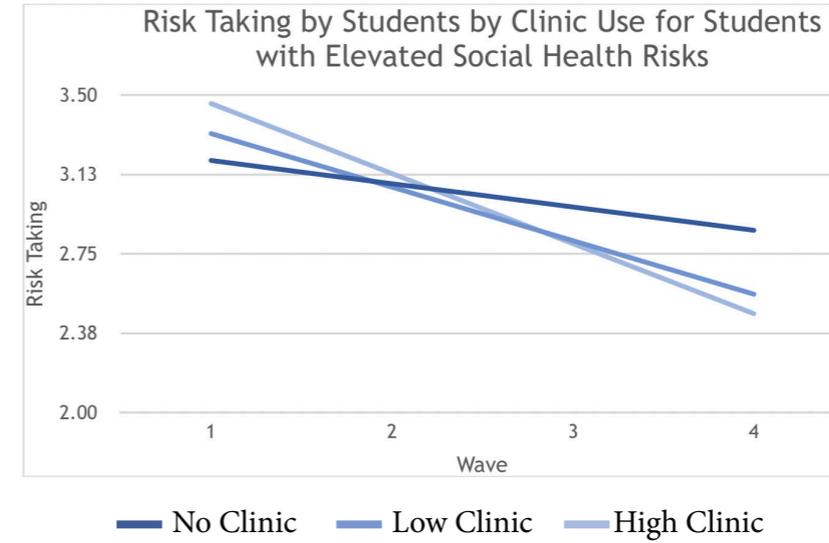


Photo Credit: Beaumont Teen Health Center/Romulus

LESSONS LEARNED AND RECOMMENDATIONS

The full report presents a range of lessons learned from the evaluation. An overview of key opportunities for continuing improvement, suggested by the findings and the stakeholders themselves, include the following.

- **Continue to intensify and deepen the provision of mental health services given the significant and serious need many students have for care and support.** This was a recurrent theme throughout the evaluation and our interviews and discussions with stakeholders.
- **Provide stress management techniques and cognitive behavior therapy (or other forms of building coping skills) school-wide.** SBHCs can play an important role in helping students manage stress in constructive ways, both at the individual level and through supporting school-wide/primary prevention and stress reduction training and education.
- **Continue to build on and increase opportunities for engaging youth, parents, and community members in playing leadership roles through youth advisory groups, community advisory groups.** The discussion groups with students, CAHC and school staff, and community leaders and members made clear students' eagerness and readiness to play a leadership role in promoting the CAHC among their peers and in the community. Student members devised a range of creative strategies for increasing the reach and breadth of impact of CAHCs. Students in general were grateful for the CAHC and, even when they didn't use it, appreciated the fact that "it was there" for them if they needed it.
- **Increase CAHCs impact school-wide through continuing to increase enrollment levels and through addressing environmental and social determinants of health.** This evaluation examines CAHCs' impact largely within the clinic and on individual students. Other work nationwide suggests that the power and impact of CAHCs can be deepened through integrating public health practices and strategies with primary care school-wide (e.g., through utilizing RAAPS-PH school-wide, engaging in primary prevention, and a focus on population health and equity through recognizing and managing social determinants of health, instituting systems-level changes in policies and practices, interventions and initiatives school-wide, for example).
- **Broaden impact through engaging vulnerable and hard-to-reach students in the CAHC.** RAAPS- PH risk assessments and the SBHC Student Survey results suggest that most students are benefiting significantly from having a new health center in their school. A continuing need and opportunity exist for enhance outreach and recruitment to engage students in the clinic and to increase the value and impact of the CAHC among vulnerable students who have historically unmet needs but who have not utilized the clinic.
- **Continue to build the buy-in and partnerships with school and district leaders for CAHCs.** Several stakeholders underscored the importance of building and sustaining strong relationships with the educational community given the inter-dependencies connections between health and educational success

CONCLUSIONS

This evaluation points to the range of ways CAHCs can make a positive difference in the lives of students who face the sustained challenges and disadvantages of economic hardship and poverty. CAHCs are proving themselves to provide a critically important mechanism for building strong and resilient youth who are equipped to positively manage the challenges they may face at school, home, and in their personal lives. That CAHCs can make a difference in addressing unmet needs and promoting resiliency among children and adolescents comes as no surprise. That they do so without incurring a major expense to students, families, and communities is a strength that warrants more widespread recognition in public policy. This study adds to the growing collection of research that points to the brighter and healthier futures for children and adolescents as a result of broadening access to and engagement in quality health care provided when needed, in their schools.



Photo Credit: Thunder Bay Teen Health Center/Cheboygan