Community Preventive Services Task Force

Promoting Health Equity Through Education Programs and Policies: School-Based Health Centers

Task Force Finding and Rationale Statement

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Task Force Finding and Rationale Statement

Context

Children and adolescents from low-income and racial and ethnic minority populations in the United States commonly experience worse health, are less likely to have a usual place of health care, and miss more days of school because of illness than do children and adolescents from the less economically and socially disadvantaged populations. They also are more likely to be hungry and have problems with vision, oral health, or hearing. Addressing these obstacles can be critical to their education and long term health.

Intervention Definition

School-based health centers (SBHCs) provide health services to students preK-12 and may be offered on-site (i.e., school-based centers) or off-site (i.e., school-linked centers). SBHCs are often established in schools that serve predominantly low-income communities and have the following characteristics:

- SBHCs **must** provide primary health care and **may** also include mental health care, social services, dentistry, and health education.
- Primary care services may be provided by a single clinician, or comprehensive services may be provided by multi-disciplinary teams.
- Services may be available only during some school days or hours, and may also be available in non-school hours.
- Student participation requires parental consent, and services provided for individual students may be limited for specific types of care, such as reproductive or mental health.
- Services may be provided to school staff, student family members, and others within the surrounding community.
- Services are often provided by a medical center or provider independent of the school system.

Task Force Finding (March 2015)

The Community Preventive Services Task Force recommends the implementation and maintenance of school-based health centers (SBHCs) in low-income communities, based on sufficient evidence of effectiveness in improving educational and health outcomes. Improved educational outcomes include school performance, grade promotion, and high school completion. Improved health outcomes include the delivery of vaccinations and other recommended preventive services, asthma morbidity, emergency department and hospital admissions, contraceptive use among females, prenatal care and birth weight, and other health risk behaviors.

Most evidence derives from studies of SBHCs in low-income populations. If targeted to low-income communities, SBHCs are likely to reduce educational gaps and advance health equity.

Rationale

Basis of Finding

The Task Force finding is based on evidence from a systematic review of 46 studies (searched until July 2014) which used diverse designs to assess multiple academic and health-related outcomes. Twenty-three studies assessed the effects of SBHCs in overall school populations by comparing all students who had SBHCs in or linked to their schools with all students who did not (14 studies), or by assessing students before and after implementation of an SBHC (8 studies); one study included both comparisons. In these "whole school" studies the evaluation examined SBHC effects in the student

population, including both users and nonusers of the SBHC. Seventeen "SBHC user" studies compared students who received services with students who did not receive services (8 studies) or received care from other sources (9 studies). Four studies included both whole-school and SBHC user study arms. Another two studies compared SBHCs; one compared a SBHC that offered onsite contraceptive services with a SBHC that did not, and the other study reported outcomes from a SBHC before and after implementation of onsite contraceptive services. Table 1 summarizes review results by outcome.

Table 1: Intervention Effects by Outcome

Outcome	Measure (Number of Studies)	Relative Percent Change (Unless Otherwise Noted)*
Educational Outcomes	Rates of high school non-completion (5 studies)	Median decrease of 29.1% (IQI: -53.9% to -14.8%
	Grade promotion (3 studies)	Average increase of 11.5% (8.4% and 14.6%); 2 studies SBHCs associated with increases in students on pace to graduate; 1 study
	GPA (3 studies)	Median increase of 4.7% (Range: 3.5% to 7.2%)
Healthcare-Related Outcomes	Immunization (4 studies)	Median increase of 15.5 percentage points* (Range: -22.0 to 26.1 percentage points)
	Other recommended preventive services (6 studies)	Median increase of 12.0 percentage points* (IQI: 5.7 to 45.1 percentage points)
	Regular source of health care (7 studies)	Median increase of 2.2% (IQI: -1.8% to 12.4%)
Asthma-Specific Outcomes	Morbidity (2 studies)	Median decrease of 19.3% (36.4% and 2.1%; 2 studies)
	Emergency department visits (4 studies)	Median decrease of 15.8% (Range: -50.0% to -5.9%)
	Hospitalizations (3 studies)	Median decrease of 70.6% (Range: -79.9% to -37.5%)
Other Morbidity-Related Outcomes	Self-reported physical health (7 studies)	Median decrease of 1.2% (Range: -17.4% to 5.6%); 4 studies Mixed results in self-report of physical discomfort and health-related quality of life; 3 studies

Outcome	Measure (Number of Studies)	Relative Percent Change (Unless Otherwise Noted)*
	Self-reported mental health problems (8 studies)	Median decrease of 5.7%; (IQI: -31.6% to 8.9%); 4 studies Favorable, non-significant, effects on psychosocial health; 3 studies Reduction in suicide attempts; 1 study
	Non-asthma-related emergency department visits (15 studies)	Median decrease of 14.5% (IQI: -33.8% to 4.6%)
	Non-asthma-related hospital admissions (2 studies)	Mean decrease of 51.6% (-86.9% and -16.3%; 2 studies)
Risk Behaviors	Smoking (7 studies)	Median increase of 21.0% (IQI: -24.1% to 32.4%)
	Alcohol consumption (6 studies)	Median decrease of 14.8% (IQI: -19.8% to -9.5%)
	Other illicit substance use (5 studies)	Median decrease 27.2% (IQI: -48.2% to 13.6%)
	Any substance use (tobacco, alcohol, or substance use) (1 study)	15.7% decrease in any substance use
	Nutrition, physical activity, and weight-related outcomes (3 studies)	Metrics too diverse to be summarized
Sexual Risk Behavior and Reproductive Outcomes	Contraception Use (7 studies)	Females and Males Combined (4 studies): Median increase of 7.8% (Range: -21.2% to 46.7%) Females only (3 studies): Median increase of 17.8% (Range: -8.5% to 54.9%)

Outcome	Measure (Number of Studies)	Relative Percent Change (Unless Otherwise Noted)*
		Males only (3 studies): Median decrease of 3.1% (Range: -6.2% to 14.5%)
	Sexual Activity (5 studies)	Females and Males Combined (3 studies): Median increase of 19.6% (Range: -0.9% to 83.2%) Females only (2 studies): Median decrease of 3.6% (-16.0% and 8.9%; 2 studies) Males only Median decrease of 8.5% (-12.0% and -4.9%; 2 studies)
	Becoming pregnant or causing pregnancy (5 studies)	Females only (5 studies): Median decrease of 40.0% (IQI: -47.5% to 17.6%) Males only (1 study): Increase 21.5%
	Month of initiation of prenatal care (3 studies)	Pregnant students received prenatal care 0.45 months earlier; 2 studies 15.1 percentage point increase in percent of pregnant students registered for prenatal care during 1st trimester; 1 study
	Received Prenatal Care (4 studies)	Median 27.8% increase in number of prenatal visits (9.4% and 46.2%); 2 studies 25 percentage points increase in percent of pregnant students receiving 12 or more visits; 1 study 87 percentage point increase in percent of pregnant students who received prenatal care; 1 study

Outcome	Measure (Number of Studies)	Relative Percent Change (Unless Otherwise Noted)*
	Low Birth Weight (3 studies)	Median decrease of 58.3% (Range: -60.4% to -14.4%)
	Pregnancy Complications (3 studies)	Median increase of 25% (Range: -16.1% to 76.3%)

IQI, Interquartile interval

*In several studies it is more useful to report results as percentage point gains in intervention versus control populations (e.g., when baseline rates are very low). In these instances, results are reported explicitly in percentage points.

Differential Effects by Program Characteristics

Studies that assessed the effect of SBHCs on emergency department use and hospital admissions (for asthma and other conditions) found rates were lower when SBHCs remained open outside of school hours. Evidence also indicated that greater ranges of services provided by SBHCs were associated with greater reductions in emergency department visits or hospital admissions.

Studies that examined reproductive health outcomes (i.e., pregnancy or birth rates and contraception use) found inconsistent results when comparing the provision of contraception at on-site vs. off-site SBHCs.

Included studies did not provide enough descriptions of service costs to determine whether free services for students were associated with increased utilization.

Applicability and Generalizability Issues

Because most SBHCs are implemented in low-income or racial and ethnic minority communities, SBHCs are likely to advance health equity.

Applicability to younger grade levels is limited, as the majority evaluated high school SBHCs, whereas one study assessed middle school SBHCs, seven studies evaluated pre-K or elementary school SBHCs, and the remaining 12 studies assessed some combination of grade levels.

Most studies of SBHCs were conducted in urban communities. The adaptation of SBHC models in rural areas may be challenging because of low population density that may not be able to sustain SBHC models that are effective in higher density regions.

SBHCs have not been evaluated in higher income communities. Since health care needs in these communities may be fewer and otherwise addressed, it is unclear whether SBHCs would be useful or effective. On the other hand, schools may be an effective way of delivering health care to students.

Most of the included studies assessed on-site SBHCs and several evaluated a combination of on-site and off-site SBHCs. None of the included studies evaluated off-site centers alone, thus the effectiveness of this option is not known.

Data Quality Issues

Limited descriptions of SBHC characteristics (e.g., hours of operation, costs to patients), hindered the ability to assess their contributions to the observed effects.

Many of the included studies did not control for confounding variables (e.g., demographics, health characteristics). Because people who use SBHCs are likely different from people who do not, and because SBHCs are more likely to be implemented in places of greater need, effect estimates may underestimate actual effects.

Other Benefits and Harms

- Reduced parental time in child healthcare is reported in the literature, thus avoiding time-off from work (Lofink et al. 2013).
- Health care provided to community members by some SBHCs (Lofink et al. 2013).

Economic Evidence

An economic review is pending.

Considerations for Implementation

In the implementation of SBHCs, the following issues should be considered:

- Billing and financing is a major challenge to SBHC implementation and sustainability.
- Lack of full uptake of available SHBC services by students for whom the services are available is another challenge of SBHC implementation.
- SBHC benefits likely depend on population density. It may be necessary to develop modified models for low population density and rural settings.
- Included studies indicated that the greater the range of services offered, the greater the benefits. Offering services outside of in addition to within school hours also increases effectiveness.

Evidence Gaps

More research is needed to answer the following questions:

- Many students who have access do not enroll in SHBCs, and substantial proportions of enrollees do not use them. Why do some students choose not to enroll in, or use SBHCs? What proportion of non-users have health issues that could be addressed by SBHCs? How can effective use be increased?
- How does SBHC effectiveness vary with levels of community income?
- How will the need for SBHCs change with implementation of the Affordable Care Act? Will fewer students need SBHCs when there is greater insurance coverage among low-income households? Or are schools an effective locus for student health care regardless of levels of insurance coverage?
- Is it useful for SBHCs to focus on specific conditions, e.g., asthma programs, based on their incremental benefit to related health outcomes?
- How does cost to patients affect overall SBHC use and outcomes of interest? Does use increase if services are free to users?
- What alternative models might facilitate the dissemination of SBHCs in rural areas and areas with low population density?

The data presented here are preliminary and are subject to change as the systematic review goes through the scientific peer review process.

References

Lofink H, Kuebler J, Juszczak L, Schlitt J, Even M, Rosenberg J, White I. 2010-2011 School-Based Health Alliance Census Report. Washington (DC): School-Based Health Alliance; 2013. Available at URL: http://www.sbh4all.org/atf/cf/%7BB241D183-DA6F-443F-9588-3230D027D8DB%7D/2010-11%20Census%20Report%20Final.pdf.

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