# Health Education Curriculum Analysis Tool (HECAT) Overview

HECAT
Health Education Curriculum Analysis Tool

## Introduction to the HECAT

Health education is integral to the primary mission of schools. It provides young people with the knowledge and skills they need to become successful learners and healthy and productive adults. Health education is a fundamental part of an overall school health program. Increasing the number of schools that provide health education on key health problems facing young people is a critical health objective for improving our nation's health.[1]

Health instruction in schools is shaped, in large part, by the health education curriculum. Choosing or developing the best possible health education curriculum is a critical step in ensuring that health education is effectively promoting healthy behaviors. The curriculum selection or development process, however, can lack structure and focus, which can result in choosing or developing curricula that are inadequate or ineffective.

The **Health Education Curriculum Analysis Tool (HECAT)** provides guidance and tools to improve curriculum selection and development. CDC's HECAT was first published in 2006 and was revised in 2012 and 2021. More recently, CDC has created a digitized version, HECAT Online, that allows users to interact with a web application to complete health education curriculum analyses. HECAT Online also allows users to develop a scope and sequence for health education. For more information about HECAT Online, launch the online application from the HECAT homepage. HECAT Online also allows users to develop a scope and sequence for health education.

The HECAT contains process guidance, appraisal tools, and resources for carrying out a clear, complete, and consistent examination of commercially packaged or locally developed school-based health education curricula. Analysis results can help schools select or develop appropriate and effective health education curricula, revise and improve locally developed curricula, strengthen the delivery of health education, and improve the ability of school health educators to influence healthy behaviors and healthy outcomes among school age youth.

The HECAT builds on the *Characteristics of Effective Health Education Curricula*[2] and the *National Health Education Standards*[3] for schools. It addresses a comprehensive array of health topics, including modules addressing alcohol and other drugs, food and nutrition, mental and emotional health, personal health and wellness, physical activity, safety, sexual health, tobacco, violence prevention, and comprehensive health education curricula.

### The HECAT reflects the importance of:

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| 1 | Using science to improve practice. |
| 2 | Engaging school personnel, parents and community members in the review and selection of curriculum. |
| 3 | Acknowledging local authority in setting health education priorities, determining health education content, and making curriculum selection decisions. |
| 4 | Flexibility in accommodating different values, priorities, and curriculum needs of communities and schools. |

Centers for Disease Control and Prevention
National Center for HIV, Viral Hepatitis, STD, and TB Prevention

## Intended Users of the HECAT

The HECAT is designed to be used by those who select, develop or use school health education curricula and those who are interested in improving school health education curricula. For example,

1. State or regional education agency staff can use this tool to inform the development or review of
   - state health education standards or frameworks.
   - recommendations for conducting state or local curriculum review.
   - a list of state-recommended health education curricula.
2. Curriculum committees or educators at school districts, schools, or community-based organizations who work with schools can use this resource. They can use the HECAT, in conjunction with state standards and health education frameworks or other locally determined requirements, to
   - develop new or improved courses of study, frameworks, learning objectives, or curricula.
   - guide the selection of curricula available for purchase.
   - examine curricula currently in use.
3. Developers of nationally disseminated and packaged curricula, such as non-governmental organizations and for-profit curriculum development companies, can use the HECAT to design health education curricula that best meet the needs of schools and the young people they serve.
4. Institutions of higher education teacher preparation programs can use the HECAT to improve their students' understanding of health education, curriculum analysis, and development of instructional skills.

## Organization of the HECAT

The HECAT includes guidance and tools for carrying out a thorough assessment of a health education curriculum.

- ***Overview*** provides step-by-step guidance for conducting a health education curriculum review. It includes essential background information and instructions for using the HECAT to review and improve locally developed curriculum.
- ***General Curriculum Information*** provides guidance and a template for collecting descriptive information about the curriculum, including the developer and the year of development, topic areas, and grade spans.
- ***Overall Summary Forms*** provides directions and templates for summarizing ratings scores for the appraisal of a single curriculum or comparing scores across curricula, using the analysis items from multiple chapters and modules.
- ***Preliminary Curriculum Considerations*** provides guidance and tools to appraise the accuracy and acceptability of curriculum content, feasibility of curriculum implementation, and affordability of the curriculum materials including cost of implementation.
- ***Curriculum Fundamentals*** provides guidance and tools to appraise fundamentals of a health education curriculum including learning objectives, culturally responsive and inclusive characteristics, teacher materials, curriculum design, instructional strategies and materials, and promotion of norms that value positive health behaviors. Appraisal criteria for assessing the continuity and uniformity of a comprehensive health education curriculum are also included.
- ***Health Topic Modules*** provide guidance and tools for appraising specific health-topic curricula based on *Characteristics of Effective Health Education Curricula*[2] and the *National Health Education Standards*.[3] Health topics include:

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| **1** | **AOD:** Alcohol and Other Drugs |
| **2** | **FN:** Food and Nutrition |
| **3** | **MEH:** Mental and Emotional Health |
| **4** | **PHW:** Personal Health and Wellness |
| **5** | **PA:** Physical Activity |
| **6** | **S:** Safety |
| **7** | **SH:** Sexual Health |
| **8** | **T:** Tobacco |
| **9** | **V:** Violence Prevention |
| **10** | **CHE:** Comprehensive Health Education |

- ***Appendices*** provide additional in-depth guidance for using the HECAT.
- ***Glossary*** defines many common terms used throughout the HECAT.

## Rationale for the HECAT Development

Improving students' health and safety can yield educational benefits by increasing students' readiness to learn and reducing absenteeism.[4,5] In turn, academic success is an excellent indicator for the overall well-being of youth and a primary predictor of adult health outcomes.[6-9] Well-designed, well-delivered school-based health interventions can address student health risk behaviors, including preventing or reducing disease and injury.[10-19] Health education is a critical component of a school's coordinated approach to improving the health of students.[20,21] A health education curriculum is the primary means through which schools deliver health education.

A number of federal agencies have identified specific interventions and curricula they have determined to be exemplary, promising, or effective in improving students' health-related behaviors (see *Registries of Programs Effective in Reducing Youth Risk Behavior*). However, these curricula do not always meet school district or school needs because

- The number of currently identified health curricula with evidence of effectiveness is limited.
- Few of the identified curricula address multiple health risk behaviors.
- Schools often cannot implement these curricula exactly as they were originally implemented in evaluation studies.
- Many other health education curricula, including those developed locally, have not undergone evaluation using rigorous research methods and therefore are not included on a federal list.
- Some health education curricula with evidence of effectiveness among particular populations of students or in particular settings might not be
  - » Readily available in a usable form.
  - » Effective with other populations or with a general student population.
  - » Effective in other settings.
  - » Appropriate or acceptable based on community values.
  - » Feasible due to instructional time limitations, excessive costs, or burdensome professional development requirements.

In addition, not all the programs on these federal lists have research evidence of changing behavior and some have very limited evidence of effectiveness. Some lists that do include programs with sufficient evidence are not updated regularly and might include outdated programs or lack recently evaluated programs.

When schools cannot use rigorously evaluated curricula, they can choose curricula that feature characteristics common to effective curricula as determined by research and experience (see *Characteristics of Effective Health Education Curricula*).[2] The HECAT enables decision makers to assess the likelihood that a curriculum might be effective in promoting healthy behaviors by analyzing the extent to which it features key characteristics of curricula with proven effectiveness.

The HECAT draws upon a synthesis of research and bases its criteria on

- Findings of CDC's guidelines for school health programs, which identify common characteristics of effective programs in priority health topic areas, including tobacco use,[22] nutrition and physical activity,[23] and unintentional injury and violence.[24] (Updated CDC guidelines for school health programs may be available at www.cdc.gov/HealthyYouth)
- *The National Health Education Standards*.[3]
- Guidance from the U.S. Department of Education's Office of Safe and Healthy Schools (OSHS) (formerly Office of Safe and Drug-Free Schools)[25] and the National Institute on Drug Abuse (NIDA).[26]
- Expertise of CDC Health and Behavioral Scientists and Health Education Specialists.
- Expertise of health education researchers and practitioners from the field.

# Describing a Health Education Curriculum

The term "curriculum" has many possible meanings. It can refer to a written course of study that broadly outlines what students will know and be able to do (behavioral expectations and learning objectives) by the end of a single grade or multiple grades in a particular subject area, such as health education or tobacco prevention education. Curriculum also can refer to an educational plan incorporating a structured, developmentally appropriate series of intended learning outcomes and associated learning experiences for students, generally organized as a detailed set of directions, strategies, lessons, and a related combination of school-based materials, content, and events. Although the HECAT can inform the development or revision of a general course of study, it is intended to guide the analysis and appraisal of a detailed set of curricular materials.

For the purposes of the HECAT, "health education curriculum" refers to those teaching strategies and learning experiences that provide students with opportunities to acquire the attitudes, knowledge, and skills necessary for making health-promoting decisions, achieving health literacy, adopting health-enhancing behaviors, and promoting the health of others.

A common set of elements characterize a complete health education curriculum, including:

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| **1** | A set of intended learning outcomes or learning objectives that are directly related to students' acquisition of health-related knowledge, attitude, and skills. |
| **2** | A planned progression of developmentally appropriate lessons or learning experiences that lead to achieving these objectives. |
| **3** | Continuity between lessons or learning experiences that clearly reinforce the adoption and maintenance of specific health-enhancing behaviors. |
| **4** | Accompanying content or materials that correspond with the sequence of learning events and help teachers and students meet the learning objectives. |
| **5** | Assessment strategies to determine if students achieved the desired learning. |

If materials do not meet all of these elements, they could be considered resources for a curriculum—part of a curriculum, but not a complete curriculum. The HECAT guidance and tools are not intended to be used to appraise an individual curriculum resource such as a textbook, or a collection of resources, unless these will be appraised as part of an overall curriculum. (See *Appendix 2: Using the HECAT for the Review of Health Education Resource Materials*.) In HECAT Online, this appendix can be found under the **Help** menu.

# Characteristics of an Effective Health Education Curriculum

Today's state-of-the-art health education curricula reflect the growing body of research that emphasizes teaching functional health information (essential knowledge); shaping personal values and beliefs that support healthy behaviors; shaping group norms that value a healthy lifestyle; and developing the essential health skills necessary to adopt, practice, and maintain health-enhancing behaviors.

Reviews of effective programs and curricula and input from experts in the field of health education have identified characteristics of effective health education curricula.[27–40] The health behaviors, analysis items, and scoring criteria used in HECAT have been developed to complement this research.

These characteristics are summarized below. An effective health education curriculum

**A. Focuses on clear health goals and related behavioral outcomes.** An effective curriculum has clear health-related goals and behavioral outcomes that are directly related to these goals. Instructional strategies and learning experiences are directly related to the behavioral outcomes.

**B. Is research based and theory driven.** An effective curriculum has instructional strategies and learning experiences built on theoretical approaches (for example, social cognitive theory, social inoculation theory) that have effectively influenced health-related behaviors among youth. The most promising curriculum goes beyond the cognitive level and addresses the health determinants, social factors,

attitudes, values, norms, and skills that influence specific health-related behaviors.

**C. Addresses individual values, attitudes, and beliefs.** An effective curriculum fosters attitudes, values, and beliefs that support positive health behaviors. It provides instructional strategies and learning experiences that motivate students to critically examine personal perspectives, thoughtfully consider new arguments that support health-promoting personal attitudes and values and generate positive perceptions about protective behaviors and negative perceptions about risk behaviors.

**D. Addresses individual and group norms that support health-enhancing behaviors.** An effective curriculum provides instructional strategies and learning experiences to help students accurately assess the level of risk-taking behavior among their peers (for example, how many of their peers use illegal drugs), corrects misperceptions of peer and social norms, emphasizes the value of good health, and reinforces health-enhancing attitudes and beliefs.

**E. Focuses on reinforcing protective factors and increasing perceptions of personal risk and harmfulness of engaging in specific unhealthy practices and behaviors.** An effective curriculum provides opportunities for students to validate positive health-promoting beliefs, intentions, and behaviors. It provides opportunities for students to assess their vulnerability to health problems, actual risk of engaging in harmful health behaviors, and exposure to unhealthy situations.

**F. Addresses social pressures and influences.** An effective curriculum provides opportunities for students to analyze personal and social pressures to engage in risky behaviors, such as media influence, peer pressure, and social barriers.

**G. Builds personal competence, social competence and self-efficacy by addressing skills.** An effective curriculum builds essential skills—including communication, refusal, assessing accuracy of information, decision-making, planning and goal-setting, self-control, and self-management—that enable students to build their personal confidence, deal with social pressures, and avoid or reduce risk behaviors. For each skill, students are guided through a series of developmental steps:

1. Discussing the importance of the skill, its relevance, and relationship to other learned skills.
2. Presenting steps for developing the skill.
3. Modeling the skill.
4. Practicing and rehearsing the skill using real-life scenarios.
5. Providing feedback and reinforcement.

**H. Provides functional health knowledge that is basic, accurate, and directly contributes to health-promoting decisions and behaviors.** An effective curriculum provides accurate, reliable, and credible information for usable purposes so students can assess risk, clarify attitudes and beliefs, correct misperceptions about social norms, identify ways to avoid or minimize risky situations, examine internal and external influences, make behaviorally relevant decisions, and build personal and social competence. A curriculum that provides information for the sole purpose of improving knowledge of factual information will not change behavior.

**I. Uses strategies designed to personalize information and engage students.** An effective curriculum includes instructional strategies and learning experiences that are student-centered, interactive, and experiential (for example, group discussions, cooperative learning, problem solving, role playing, and peer-led activities). Learning experiences correspond with students' cognitive and emotional development, help them personalize information, and maintain their interest and motivation while accommodating diverse capabilities and learning styles.

Instructional strategies and learning experiences include methods for

1. Addressing key health-related concepts.
2. Encouraging creative expression.
3. Sharing personal thoughts, feelings, and opinions.
4. Thoughtfully considering new arguments.
5. Developing critical thinking skills.

J. **Provides age-appropriate and developmentally appropriate information, learning strategies, teaching methods, and materials.** An effective curriculum addresses students' needs, interests, concerns, developmental and emotional maturity levels, experiences, and current knowledge and skill levels. Learning is relevant and applicable to students' daily lives. Concepts and skills are covered in a logical sequence.

K. **Incorporates learning strategies, teaching methods, and materials that are culturally inclusive.** An effective curriculum has materials free of culturally biased information but includes information, activities, and examples that are inclusive of diverse cultures and lifestyles (such as gender, race, ethnicity, religion, age, physical/mental ability, appearance, and sexual orientation). Strategies promote values, attitudes, and behaviors that acknowledge the cultural diversity of students; optimize relevance to students from multiple cultures in the school community; strengthen students' skills necessary to engage in intercultural interactions; and build on the cultural resources of families and communities.

L. **Provides adequate time for instruction and learning.** An effective curriculum provides enough time to promote understanding of key health concepts and practice skills. Behavior change requires an intensive and sustained effort. A short-term or "one shot" curriculum, delivered for a few hours at one grade level, is generally insufficient to support the adoption and maintenance of healthy behaviors.

M. **Provides opportunities to reinforce skills and positive health behaviors.** An effective curriculum builds on previously learned concepts and skills and provides opportunities to reinforce health-promoting skills across health topics and grade levels. This can include incorporating more than one practice application of a skill, adding "skill booster" sessions at subsequent grade levels, or integrating skill application opportunities in other academic areas. A curriculum that addresses age-appropriate determinants of behavior across grade levels and reinforces and builds on learning is more likely to achieve longer-lasting results.

N. **Provides opportunities to make positive connections with influential others.** An effective curriculum links students to other influential persons who affirm and reinforce health-promoting norms, attitudes, values, beliefs, and behaviors. Instructional strategies build on protective factors that promote healthy behaviors and enable students to avoid or reduce health risk behaviors by engaging peers, parents, families, and other positive adult role models in student learning.

O. **Includes teacher information and plans for professional development and training that enhance effectiveness of instruction and student learning.** An effective curriculum is implemented by teachers who have a personal interest in promoting positive health behaviors, believe in what they are teaching, are knowledgeable about the curriculum content, and are comfortable and skilled in implementing expected instructional strategies. Ongoing professional development and training is critical for helping teachers implement a new curriculum or implement strategies that require new skills in teaching and assessment.

## Setting Direction for Health Education: Standards and Performance Indicators

*National Health Education Standards* broadly articulate the essential knowledge and skills that every student should know and be able to do following the completion of a quality instructional program in health education.[3]

The written standards include performance indicators to help convey the specificity related to each standard. The standards and performance indicators provide a foundation for curriculum development, instructional delivery, and assessment of student knowledge and skills in health education, for students in grades Pre-K–12.

Many state boards of education, state departments of education, and local school boards have adopted their own state- or local-level health education standards

and performance indicators using the *National Health Education Standards* as a guide (See Figure 1). Based on a review of the national and state standards and performance indicators, analysis of the characteristics of effective curricula, and input from experts in health education, CDC developed knowledge and skill expectations that reflect developmentally appropriate concepts (knowledge) and health skills consistent with the *National Health Education Standards*.[3] The analysis items in the HECAT health topic modules include these knowledge and skill expectations for each topic. A general list of essential skill expectations that further clarify the focus of skill standards 2–8, can be found in *Appendix 4: HECAT Skill Expectations for Skill Standards 2-8*. Additionally, *Appendix 3* includes *HECAT Healthy Behavior Outcomes for Grades Pre-K–12*. In HECAT Online, this appendix can be found under the **Help** menu.

Many school districts use standards and input from school staff, parents, and others, to develop and adopt a pre-K–12 curriculum framework that outlines the scope of key health learning concepts and the sequence of essential knowledge and skills to be addressed at each grade level (also referred to as a "scope-and-sequence"). The scope-and-sequence aligns with the course of study and conveys the progression of health concepts and skills across different grade levels within a topic area. The learning experiences of students should progress from basic to more complex health knowledge and skills as they advance from pre-kindergarten through grade 12.

When assessing a curriculum, reviewers should consider the curriculum's compatibility with their course of study and scope-and-sequence. The appraisal instruments in HECAT are designed to be adapted and accommodate variations that are necessary based on state standards, local health education courses of study, and local community needs.

School districts can also use the HECAT to help identify essential health education knowledge and skill expectations in the development or revision of their own scope and sequence. More information can be found in the document ***Using HECAT Online to Develop a Scope and Sequence*** from the link on the home page. Additionally, *Appendix 5: Using the HECAT to Develop a Scope and Sequence for Health Education* and CDC's Developing a Scope and Sequence for Sexual Health Education resource provide additional guidance.

Some states do not include pre-kindergarten in their state K–12 education standards or health education course of study. However, many state education agencies have worked with state partners to promote state-level, early learning standards and guidance for pre-school programs that include health education. More information about applying standards for pre-school programs can be found in *Appendix 6: Using the HECAT to Analyze Curricula for Early Childhood Programs*. In HECAT Online, this appendix can be found under the **Help** menu.

**Figure 1: National Health Education Standards (NHES)**

## NATIONAL HEALTH EDUCATION STANDARDS

**STANDARD #1: Students will comprehend concepts related to health promotion and disease prevention to enhance health.** The acquisition of basic health concepts and functional health knowledge provides a foundation for promoting health-enhancing behaviors among youth. This standard includes essential concepts that are based on established health behavior theories and models.

**STANDARD #2: Students will analyze the influence of family, peers, culture, media, technology and other factors on health behaviors.** Health is impacted by a variety of positive and negative influences within society. This standard focuses on identifying and understanding the diverse internal and external factors that influence health practices and behaviors among youth including personal values, beliefs and perceived norms.

**STANDARD #3: Students will demonstrate the ability to access valid information and products and services to enhance health.** Accessing valid health information and health-promoting products and services is critical in the prevention, early detection, and treatment of health problems. This standard focuses on how to identify and access valid health resources and to reject unproven sources. Applying the skills of analysis, comparison and evaluation of health resources empowers students to achieve health literacy.

**STANDARD #4: Students will demonstrate the ability to use interpersonal communication skills to enhance health and avoid or reduce health risks.** Responsible individuals use verbal and non-verbal skills to develop and maintain healthy personal relationships. The ability to organize and to convey information and feelings is the basis for strengthening interpersonal interactions and reducing or avoiding conflict.

**STANDARD #5: Students will demonstrate the ability to use decision-making skills to enhance health.** This standard includes the essential steps needed to make healthy decisions, which are essential for establishing and maintaining a healthy lifestyle. When applied to health issues, the decision-making process enables individuals to collaborate with others to improve quality of life.

**STANDARD #6: Students will demonstrate the ability to use goal-setting skills to enhance health.** This standard includes the critical steps needed to achieve both short-term and long-term health goals. These skills make it possible for individuals to have aspirations and plans for the future.

**STANDARD #7: Students will demonstrate the ability to practice health-enhancing behaviors and avoid or reduce health risks.** Many diseases and injuries can be prevented by avoiding or reducing harmful and risk-taking behaviors. This standard promotes accepting personal responsibility for health and encourages the practice of healthy behaviors.

**STANDARD #8: Students will demonstrate the ability to advocate for personal, family and community health.** Advocacy skills help students adopt and promote healthy norms and healthy behaviors. This standard helps students develop important skills to target their health enhancing messages and to encourage others to adopt healthy behaviors.

Source: The Joint Committee on National Health Education Standards. *National Health Education Standards: Achieving Excellence (2nd Edition)*. Atlanta: American Cancer Society; 2007.

## Health Education Curricula and Assessment of Student Performance

State-of-the-art health education curricula are based on succinct learning objectives, or standards, and include a variety of curriculum-embedded performance assessment strategies that are linked to those objectives or standards. Health education standards describe what a student should know (knowledge) and be able to do (skills) as a result of the instruction provided and learning experienced. Measuring student proficiency in meeting the health standards is best accomplished by assessing student performance.

The purpose of performance assessment is to improve student learning and instructional practice. It is important to consider the degree to which student assessment is included when appraising a health education curriculum. Health education curricula include a variety of student assessment strategies—linked to the relevant objectives/standards—that provide students with opportunities to demonstrate their understanding of key health concepts and apply learned skills to real-life situations. A quality student assessment process also includes criteria for examining student work (such as a rubric) and incorporates multiple measures over time.

The HECAT integrates student assessment into the curriculum analysis process and scoring criteria. Additional information about health education standards and student assessment can be found in *Appendix 7: Understanding Health Education Assessment*. In HECAT Online, this appendix can be found under the **Help** menu.

## Community Review of Health Education Curricula

To increase relevance and acceptability within a community, health education curricula should reflect local school and community health interests, priorities, and values. School districts and, when appropriate, schools can establish a process for ensuring that key stakeholders from the school and community review curricular materials, typically through a health education curriculum review committee. This committee might be the entity that completes the HECAT analyses and appraisal of curricula or it might be a decision-making body that reviews and acts on reports from another committee that has completed an analysis using the HECAT appraisal instruments.

The organization of a health education curriculum review committee differs among communities. In some locations, it is a specific committee charged only with reviewing health education curricula. In other locations, it is a subcommittee of the district's school health council, school wellness council, school-based management council, or the district's broader curriculum selection committee.

Health education curriculum review committee membership usually includes

- Key school policy makers and staff, including school board members, principals, curriculum directors, administrators, and teachers who are responsible for implementing health education curricula, as well as representatives from other school health program components such as physical education, food and nutrition, health services, counseling services, and social or emotional climate.
- Parents and caregivers of students who will receive the curriculum.
- Students.
- Representatives from relevant community agencies and organizations, such as the health department, health care providers, and youth serving organizations.
- Representatives from other groups within the community with interests in the positive health and development of students, such as the faith community.

## Health Education as Part of a Whole School, Whole Community, Whole Child (WSCC) Approach

Health education is not the only school-based strategy to improve health outcomes. It is part of a coordinated school health framework, which provides an integrated set of planned, sequential, and school-affiliated strategies, activities, and services designed to promote the optimal physical, emotional, social, and educational development of students. Ideally, a coordinated school health framework integrates the efforts of the WSCC ten components to influence student health and learning (including health education; physical education and activity; health services; counseling, psychological, and social services; nutrition environment and services; physical environment; social and emotional climate; employee wellness; family engagement; and community involvement).[20,41,42] The effectiveness of school health education is enhanced when it is implemented as part of this broader coordinated approach to school health and when health education outcomes are reinforced by other health-related components in the school.[21,43]

The HECAT addresses only health education. CDC's *School Health Index (SHI)* was developed to help schools identify the strengths and weaknesses of their health and safety policies and programs across many components of a school's health program. Information about the SHI is available at http://www.cdc.gov/HealthyYouth/SHI.

## School Health Education as Part of Community Health Promotion

Schools have an important influence on the education, social development, and health of youth. Nevertheless, they are not the only societal institution responsible for achieving these outcomes. Families, faith-based organizations, voluntary organizations, health care providers, community youth-serving agencies, employers, media providers, public health agencies, social service agencies, and other government agencies play critical roles in promoting the health of youth. School health goals should complement community health goals.[44]

School-based programs produce larger effects when they are implemented in combination with complementary community-based programs.[7, 20,21,23-25] School health education should reflect and reinforce community health promotion priorities. The HECAT acknowledges the need to consider community health needs, priority health outcomes, and resources in the analysis of a health education curriculum. However, the HECAT is not designed to analyze a community health promotion program.

# References


1. U.S. Department of Health and Human Services. *Healthy People 2030: Child and Adolescent Development*. Washington, DC: 2020. Available at https://health.gov/healthypeople/objectives-and-data/browse-objectives/child-and-adolescent-development.

2. Centers for Disease Control and Prevention. (2016). *Characteristics of an Effective Health Education Curriculum*. Available at https://www.cdc.gov/healthyschools/sher/characteristics/index.htm

3. The Joint Committee on National Health Education Standards. *National Health Education Standards: Achieving Excellence (2nd Edition)*. Atlanta, GA: American Cancer Society; 2007. Available at https://www.cancer.org/aboutus/booksandjournals/app/bookstore.aspx?productCode=F2027.27.

4. Evans D, Clark NM, Feldman CH, Rips J, Kaplan D, Levison MJ, et al. A school health education program for children with asthma aged 8-11 years. *Health Educ Q* 1987; 14(3):267–289.

5. Basch CE. Healthier students are better learners: A missing link in school reforms to close the achievement gap. *J Sch Health* 2011;81(10): 593-598.

6. Rasberry CN, Tiu GF, Kann L, et al. Health-related behaviors and academic achievement among high school students—United States, 2015. *MMWR Morb Mortal Wkly Rep* 2017;66:922-927.

7. Bradley BJ, Greene AC. Do health and education agencies in the United States share responsibility for academic achievement and health? A review of 25 years of evidence about the relationship of adolescents' academic achievement and health behaviors. *J Adoles Health* 2013;52:523-532.

8. Harper S, Lynch J. Trends in socioeconomic inequalities in adult health behaviors among U.S. states, 1990–2004. *Public Health Reports* 2007;122(2):177–189.

9. Vernez G, Krop RA, Rydell CP. The public benefits of education. In: Closing the Education Gap: Benefits and Costs. Santa Monica, CA: RAND Corporation; 1999:13–32.

10. Botvin GJ, Baker E, Dusenbury L, Botvin EM, Diaz T. Long-term follow-up results of a randomized drug abuse prevention trial in a white middle-class population. *JAMA* 1995;273(14):1106-12.

11. Gortmaker SL, Peterson RD, Wiecha J, Sobol AM, Dixit S, Fox MK, Laird N. Reducing obesity via a school-based interdisciplinary intervention among youth. *Arch Pediatr Adolesc Med*1999;153:409-418.

12. Centers for Disease Control and Prevention. Increasing physical activity. A report on recommendations of the Task Force on Community Preventive Services. *MMWR Morb Mortal Wkly Rep* 2001;50(18):1–14.

13. Wolfenden L, Nathan, NK, Sutherland, R, Yoong, et al. Strategies for enhancing the implementation of school-based policies or practices targeting risk factors for chronic disease. *Cochrane Database Sys Rev* 2017;11.

14. Chin HB, Sipe, TA, Elder, R, et al. The effectiveness of group-based comprehensive risk-reduction and abstinence education interventions to prevent or reduce the risk of adolescent pregnancy, human immunodeficiency virus, and sexually transmitted infections: Two systematic reviews for the Guide to Community Preventive Services. *Am J Prev Med* 2012;42(3): 272-294.

15. Denford S, Abraham C, Campbell R, Busse H. A comprehensive review of reviews of school-based interventions to improve sexual-health. *Health Psychol Rev* 2017;11(1): 33-52.

16. Goldfarb ES, Lieberman LD. Three decades of research: The case for comprehensive sex education. *Journal of Adolescent Health*. 2021 Jan 1;68(1):13-27.

17. Pampati S, Johns, MM, Szucs, LE, et al. Sexual and Gender Minority Youth and Sexual Health Education: A Systematic Mapping Review of the Literature. *J Adolesc Health* 2020. 5;S1054-139X(20)30585-1.

18. Faggiano F, Minozzi S, Versino E, Buscemi D. Universal school-based prevention for illicit drug use. *Cochrane Database Syst Rev* 2014(12):CD003020.

19. Onrust SA, Otten R, Lammers J, Smit F. School-based programmes to reduce and prevent substance use in different age groups: What works for whom? Systematic review and meta-regression analysis. *Clin Psychol Rev* 2016;44:45-59

20. Lewallen TC, Hunt H, Potts-Datema W, Zaza S, Giles W. The Whole School, Whole Community, Whole Child model: a new approach for improving educational attainment and healthy development for students. *J Sch Health*. 2015;85(11):729-739.

21. Kolbe LJ. (2019). School health as a strategy to improve both public health and education. *Annu Rev Public Health* 2019;40:443-463.

22. Centers for Disease Control and Prevention. Guidelines for school health programs to prevent tobacco use and addiction. MMWR Morb Mortal Wkly Rep 1994;43(RR-2):1–18.

23. Centers for Disease Control and Prevention. School Health Guidelines to Promote Healthy Eating and Physical Activity. MMWR Morb Mortal Wkly Rep 2011;60(RR-5):1-75.

24. Centers for Disease Control and Prevention. School health guidelines to prevent unintentional injuries and violence. MMWR Morb Mortal Wkly Rep 2001;50(RR-22):1–73.

25. Office of Safe and Healthy Schools (OESE) (formally, Office of Special Educational Research and Improvement, Office of Reform Assistance and Dissemination). *Guidelines for Submitting Safe, Disciplined, and Drug-Free Schools Programs for Designation as Promising or Exemplary*. Washington, DC: U.S. Department of Education; 1999.

26. National Institute on Drug Abuse. *Preventing Drug Abuse Among Children and Adolescents*. Bethesda, MD: U.S. Department of Health and Human Services; 2003.

27. U.S. Department of Health and Human Services. *Preventing Tobacco Use Among Young People–An Update: A Report of the Surgeon General*. Atlanta (GA): U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Office on Smoking and Health, 2011: 6-22–6-45. Available at http://www.surgeongeneral.gov/library.

28. Kirby D. *Emerging Answers: Research Findings on Programs to Reduce Teen Pregnancy*. Washington, DC: National Campaign to Prevent Teen Pregnancy; 2001. Available at https://files.eric.ed.gov/fulltext/ED456171.pdf

29. Kirby D, Coyle K, Alton F, Rolleri L, Robin L. *Reducing Adolescent Sexual Risk: A Theoretical Guide for Developing and Adapting Curriculum-Based Programs*. Scotts Valley, CA: ETR Associates; 2011. Available at http://pub.etr.org/ProductDetails.aspx?id=100000010&itemno=A063.

30. Weed SE, Ericksen I. A model for influencing adolescent sexual behavior. Salt Lake City, UT: Institute for Research and Evaluation; 2005. Unpublished manuscript.

31. Eisen M, Pallitto C, Bradner C, Bolshun N. T*een Risk-Taking: Promising Prevention Programs and Approaches*. Washington, DC: Urban Institute; 2000. Available at http://www.urban.org/publications/310293.html.

32. Botvin GJ, Botvin EM, Ruchlin H. School-Based Approaches to Drug Abuse Prevention: Evidence for Effectiveness and Suggestions for Determining Cost-Effectiveness. In: Bukoski WJ, editor. *Cost-Benefit/Cost-Effectiveness Research of Drug Abuse Prevention: Implications for Programming and Policy*. NIDA Research Monograph, Washington, DC: U.S. Department of Health and Human Services; 1998:59–82. Available at http://www.drugabuse.gov/pdf/monographs/monograph176/059-082_Botvin.pdf.

33. Contento I, Balch GI, Bronner YL. Nutrition education for school-aged children. *J Nutr Educ* 1995;27(6):298–311.

34. Stone EJ, McKenzie TL, Welk GJ, Booth ML. Effects of physical activity interventions in youth. Review and synthesis. *Am J Prev Med* 1998;15(4):298–315.

35. Lytle L, Achterberg C. Changing the diet of America's children: what works and why? *J Nutr Educ* 1995;27(5):250–60.

36. Gottfredson DC. School-Based Crime Prevention. In: Sherman LW, Gottfredson D, MacKenzie D, Eck J, Reuter P, Bushway S, editors. *Preventing Crime: What Works, What Doesn't, What's Promising*. National Institute of Justice; 1998. Available at https://www.ncjrs.gov/pdffiles/171676.pdf.

37. Nation M, Crusto C, Wandersman A, Kumpfer KL, Seybolt D, Morrissey-Kane, E, Davino K. What works: principles of effective prevention programs. *Am Psychol* 2003; 58(6/7):449-456.

38. Sussman S. Risk factors for and prevention of tobacco use. *Pediatr Blood Cancer* 2005;44:614-619.

39. Tobler NS, Stratton HH. Effectiveness of school-based drug prevention programs: a meta-analysis of the research. *J Prim Prev* 1997;18(1):71-128.

40. Lohrmann DK, Wooley SF. Comprehensive School Health Education. In: Marx E, Wooley S, editors. *Health Is Academic: A Guide to Coordinated School Health Programs*. New York: Teachers College Press; 1998:43–45.

41. Marx E, Wooley FS, Northrop D. *Health is Academic*. New York, NY: Teachers College Press; 1998.

42. Allensworth DD, Kolbe LJ. The comprehensive school health program: Exploring an expanded concept. *J Sch Health* 1987;57(10):409–412.

43. Kolbe LJ. Education reform and the goals of modern school health programs. *The State Education Standard* 2002; 3(4):4–11.

44. Bartlett EE. The contribution of school health education to community health promotion: what can we reasonably expect?. *Am J Public Health* 1981;71(12): 1384-1391.