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School-Based Health Education Research: Charting the Course for the Future

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**ABSTRACT**

SHAPE America has identified four goals as part of the 50 Million Strong by 2029 initiative; one of these goals is healthy behavior. School-based health education is uniquely positioned to be a primary route through which this goal can be achieved. Health education is an academic subject included in a well-rounded education, based on health behavior and learning theory, research-based and taught by licensed and trained health educators with adequate instructional time. Health education helps students acquire functional knowledge about a variety of topics and develop health-related skills resulting in personal competence and self-efficacy. The purpose of this paper is to provide an overview of the existing evidence examining school-based health education and to articulate future directions for research that will solidify school-based health education as a necessary and efficacious strategy for improving the health and wellness of youth.

The value of school-based health education has been recognized for decades (Creswell, Hastings, & Huffman, 1966; Institute of Medicine, 1997; Marx, Wooley, Northrop, & Wooley, 1998; World Health Organization [WHO], 2003). Recent initiatives at the national level, including Healthy People 2020, SHAPE America 50 Million Strong by 2029 and the Whole School, Whole Community, Whole Child model (WSCC), call for a focus on health education as a strategy to enhance population health (Lewallen, Hunt, Potts-Datema, Zaza, & Giles, 2015; SHAPE America, 2015a).

An understanding of the term “school-based health education” is critical for both contextualizing and utilizing the information presented in this article. School-based health education is an academic subject and is a critical component of a well-rounded education (Every Student Succeeds Act [ESSA] 2016). The National Health Education Standards (NHES) recommend a minimum of 40 hours of instruction in health education each year in grades preK-2 and 80 hours per year in grades 3–12 (Joint Committee, 2007).

Health education is based on theory and research and should integrate behavior change principles (Centers for Disease Control and Prevention [CDC], 2015; Cottrell, Girvan, Seabert, Spear, & McKenzie, 2018; Glanz, Rimer, & Lewis, 2015). Behavior change takes time and must be sustained over many years to be the most effective (CDC, 2015). Effective health education is taught by a licensed, trained health educator who utilizes participatory teaching methods that are culturally inclusive, age, and developmentally appropriate and that engage students in the learning process (CDC, 2015; Institute of Medicine, 1997; Joint Committee, 2007; Nobiling & Lyde, 2015; SHAPE America, 2015b; WHO, 2003). Health education should be offered preK-12 with opportunities for health education every year of schooling and adequate instructional time (CDC, 2015). Additionally, the information in health education should be narrow in focus, functional, and included for the purpose of skill development and behavior maintenance or behavior change.

Health education is comprehensive in nature and covers a variety of topics, including but not limited to, the priority adolescent risk behaviors identified by the CDC (Division of Adolescent and School Health [DASH], 2018; Institute of Medicine, 1997). While health education should be comprehensive in nature, the CDC (2015) also calls for a focus on functional information (essential knowledge) that is accurate, reliable, and credible so students can assess risk, clarify attitudes and beliefs, correct misperceptions about social norms, identify ways to avoid risky situations, examine internal and external influences, make relevant decisions, and build personal and social competence. Nobiling and Lyde (2015) suggested that health educators have “a responsibility to teach students functional knowledge that facilitates skill development, thereby promoting healthy behavior change” (p. 316). Information in health education should be narrow in focus, functional, and included for the purpose of skill development and behavior maintenance or behavior change.

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An additional fundamental premise of this paper is that health education alone is not enough to address and improve the overall health and wellbeing of students. As related to the socio-ecological model, health education is focused on the individual and interpersonal levels of the model (McLeroy, Bibeau, Steckler, & Glanz, 1988). While interventions at these levels can be effective, interventions that include the broader context of community, including institutional/organizational, community/neighborhood and public policy levels are even more effective (Bassett-Gunter, Yessis, Manske, & Gleddie, 2016; Langford et al., 2014). Addressing population health through school-based health education requires a coordinated effort at all levels; from effective health education curriculum and instruction through public policies that support and elevate the health education profession (Cottrell, Girvan, McKenzie, & Seabert, 2015; DiClemente, Salazar, & Crosby, 2019; Glanz et al., 2015).

Establishing a research agenda for health education

The purpose of this paper is to articulate key findings from empirical research related to school-based health education. Using existing evidence, areas for future research are identified in order to advance policy and practice in the field, and, ultimately, increase the quantity and quality of health education in pre-K-12 schools across the United States. A broad literature search initially was conducted using the terms “health education” and “school[s]” as query. A subsequent review of abstracts then identified articles that related to the purpose of this paper. Using word repetition or word-based techniques, abstracts were reviewed individually by each author for frequency and, thus, subsequent themes. Collectively, the authors discussed and agreed that the following themes emerged and, ultimately, formed the framework of this paper: health education curriculum, instruction, school health professional preparation, and whole school initiatives. Each of these themes is aligned with, at least, one level of the framework articulated by the SHAPE America Research Council: learning, opportunity, policy, and population health. Additional literature reviews were conducted as needed to ensure adequate coverage within each theme and level of the framework. Each section addresses the current evidence base and identifies gaps in the literature, research questions, and/or future research directions.

Health education curriculum

This section includes a review of characteristics of effective health education curricula, current practices in schools and a discussion of the current research base. This section concludes with a discussion of school-based health education as an approach to address population health. Understanding “what we know” about effective health education curriculum helps to inform the research agenda related to learning, opportunity and population health.

Learning

According to the CDC (2015), effective health education curriculum is offered preK through grade 12 and is comprehensive in nature, covering a variety of topics with a focus on addressing, at a minimum, the priority risky behaviors that are the leading causes of death and disability for adolescents and monitored in the YRBS (2018): alcohol and other drug use (AOD), unintentional injury and violence, sexual behaviors that can lead to unintended pregnancy and sexually transmitted infection transmission, tobacco use, and unhealthy eating and lack of physical activity (PA) (CDC, 2015; Institute of Medicine, 1997; YRBS, 2018). Health education curricula should address these topics in particular, not only because of their potential negative impact on the health of youth, but also because they are behaviors that can be avoided or changed (Institute of Medicine, 1997). Additional topics that should be considered for inclusion in comprehensive health programs are the 10 areas addressed in the 1960’s School Health Education Study and included in the NHES (Joint Committee, 2007): community health, consumer health, environmental health, disease control and prevention, family life, mental and emotional health, family life, and personal health.

Data from the 2016 School Health Profiles (Profiles) (School Health Profiles, 2016) (Table 1) related to the written curriculum and skills taught reveals additional gaps. Data specific to examining health topics covered in the curriculum suggest that, while there is variation in the amount of coverage of key topic areas, core content areas (AOD, chronic disease and injury prevention, mental and emotional health, nutrition and diet and PA) and NHES skills, are reportedly addressed in secondary schools in the United States (School Health Profiles, 2016). Importantly, data only represent secondary schools, and, while the data do suggest that a range of topics are being addressed in schools, the variability of coverage across schools, along with gaps related to components, the existence of written curricula, and variable coverage in skills development suggest that there is work to be done.

Additionally, as noted above, the CDC (2015) suggested that curricula that include information only for
the purpose of increasing knowledge are not effective and will not change behavior. Therefore, while the current data do suggest that health education in schools is generally comprehensive in nature, there is no evidence relating to the extent to which these curricula are including a focus on “functional information” as defined by the CDC. An important future area for health education research includes an examination of current curricula with a focus on determining the extent to which information included is functional, supports behavior change, is trauma sensitive, and culturally relevant. Finally, future research should examine emerging topics that should be covered in health education; it is imperative that schools are including topics that address the needs of today’s students.

The variability of content and skill coverage in the written curriculum is not the only concern. There are a lack of data related to instruction to support skill development and the practices being implemented to support skill development. The 2016 Profiles (School Health Profiles, 2016) teacher questionnaire inquired about whether or not these skills were assessed within the context of sexual health but does not gather any further information about skill assessment in general or related to other topics, does not include questions about the extent to which skills are developed or how much practice student received. The 2018 School Health Profiles (DASH, 2019) teacher questionnaire includes one question: “during this school year, did teachers in your school provide students with the opportunity to practice communication, decision-making, goal-setting, or refusal skills related to sexual health, for example through role-playing” but again, this is specific to sexual health. One of the major gaps in the literature is related to data on how skills are being taught, developed and assessed in health education. Even within the curriculum that exist and are being used in schools (such as the ones described below), there is a lack of empirical evidence related to the development of skills and authentic skill performance. This leads to a lack of evidence for best practice related to skill development in health education despite it being a core component of effective health education curriculum (CDC, 2015).

### Opportunity

There is an overall lack of opportunity for health education in K-12 in this country. For example, there are no data available on the amount of required health education at the elementary level, so the extent to which recommendations are being met at the elementary level cannot be evaluated. At the secondary level, the amount of schools across the country that have required health education courses at each grade (6–12) varies significantly. The median percentages of schools that taught one required health education course at each grade are as follows: 6th grade, 55.5%, 7th grade, 68.1%, 8th grade, 66.0%, 9th grade, 75.0%, 10th grade, 53.8%, 11th grade, 26.7% and 12th grade, 23.7% (School Health Profiles, 2016). Clearly, the recommendations for health education at all grades from preK-12 are not being met, which impacts opportunity for students to experience and benefit from receiving health education. As Allensworth (2011) noted in her 2010 SOPHE Presidential Address, this “paucity of health education … deprives all children of needed knowledge and contributes to health illiteracy in adults” (p. 335). Future research should include, at all levels (i.e. from preK-12th grade), examination of effective health education policies, barriers and facilitators to health education and effective strategies for health education policy adoption and implementation (at the school district and state level) so that the opportunity for health education for all students is increased.

A majority of the current evidence-base for health education is related to topic-based curricula and has been designed to examine the effects of the particular curriculum on a specific behavior or set of behaviors at the secondary level. For example, recent studies (Calise et al., 2016; Hughes & Maiden, 2018; McLean, Wertheim, Masters, & Paxton, 2017; Melendez-Torres et al., 2018; Milroy et al., 2015; Rajan, Roberts, Guerra, Pirsch, & Morrell, 2017; Sparks, Lee, & Spjeldnes, 2012; Wiecha

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### Table 1. Data from 2016 school health profiles data (School Health Profiles, 2016).

<table>
<thead>
<tr>
<th>Policies/Practices</th>
<th>Median Percentage Across States</th>
</tr>
</thead>
<tbody>
<tr>
<td>Secondary schools that report having goals, objectives and expected outcomes for health education</td>
<td>82.9%</td>
</tr>
<tr>
<td>Secondary schools that report having a chart that outlines the annual scope and sequence for instruction</td>
<td>61%</td>
</tr>
<tr>
<td>Secondary schools report having a written curriculum for health education</td>
<td>71.1%</td>
</tr>
<tr>
<td>Addresses the skill of analyzing influences</td>
<td>91.5% (range 52%–98%)</td>
</tr>
<tr>
<td>Addresses the skill of accessing valid information, products and services</td>
<td>87% (range 44%–98%)</td>
</tr>
<tr>
<td>Addresses the skill of interpersonal communication</td>
<td>91% (range 52%-98%)</td>
</tr>
<tr>
<td>Addresses the skill of decision-making skills</td>
<td>93% (range 56%-99%)</td>
</tr>
<tr>
<td>Addresses the skill of goal setting</td>
<td>91% (range 53%-99%)</td>
</tr>
<tr>
<td>Addresses the skill of self-management</td>
<td>93% (range 56%-99%)</td>
</tr>
<tr>
<td>Addresses the skill of advocacy</td>
<td>89% (range 49%-97%)</td>
</tr>
</tbody>
</table>
et al., 2004) have focused on topics such as social media literacy; alcohol and other drugs; sexual behaviors; relationships; healthcare advocacy; healthy eating and physical activity. Overall, the studies reviewed had positive outcomes with small to medium effect sizes on specific outcomes and improvements on intended behavioral and knowledge outcomes particularly at the individual level. However, results are short-term, specific to the topic of the curriculum and focus on a limited number of health behaviors. Few studies (Hale, Fitzgerald-Yau, & Vine, 2014; Hyshka, 2013) have examined outcomes of health education that focuses on addressing multiple outcomes and behaviors across a range of aspects of health despite the fact that this is what health education “looks like” in schools and the evidence to suggest that addressing multiple behaviors can be more efficient. Research must be conducted on comprehensive health education that addresses multiple behavioral outcomes and that looks like school-based health education as it is actually implemented in schools. In addition, more research examining which program variables/foci and implementation strategies are most effective in supporting outcomes needs to be performed to better understand what aspects of the program are contributing to outcomes.

Multi-topic curricula

There are three commercially available, comprehensive health education curricula that have been implemented and studied in schools with papers published within the past 20 years; the Michigan Model®, Botvin’s LifeSkills Training and the Great Body Shop®. All of these programs include multiple topics, a focus on skills and are both accessible to and used in schools. Studies of these curricula provide data that is more contextualized to what health education looks like in schools. Duncan, White, and Nicholson (2007) evaluated data from the Great Body Shop (an elementary school curriculum), suggested that students exposed to the curriculum did show positive effects related to the reduction of risky behaviors, an increase of protective factors and more desirable health behaviors. However, this was a reevaluation of data from a previous study, not a new empirical research study. While the Great Body Shop materials do include additional evaluation information, there are no additional studies published in professional journals. The lack of recent data using an experimental approach limits the generalizability of these findings.

There are three studies examining the effectiveness of the Michigan Model for Health (Fahlman, Dake, McCaughtry, & Martin, 2008; O’Neill, Clark, & Jones, 2011, 2016) two at the elementary level and one at the secondary level. O’Neill et al. (2011) found positive results at the elementary level related to interpersonal communication skills, social and emotional skills, as well as drug refusal skills. Findings also included lower intention to use alcohol and tobacco, less use of alcohol and tobacco initiated and a reduction in aggression. O’Neill et al. (2016) found that students involved in lessons using the Michigan Model, had better nutrition, physical activity, and skills and increase fruit consumption compared to a control group. However, it should be noted that, in both studies, skills were assessed through seven multiple choice items which does not necessarily translate into real-life application. Fahlman et al. (2008) found that students were more likely to eat fruits and vegetables, less likely to eat junk food and felt more confident that they could make healthy food choices (Fahlman et al., 2008). The strength of the two elementary Michigan Model studies are that they are random control trials providing strong evidence for the effectiveness of the program at the elementary level. Even as a pilot study, the middle school study provides additional support that the Michigan Model is also effective at the secondary level. Overall, these studies provide valuable information related to the efficacy of comprehensive curricula that include multiple outcomes and that more closely reflect current school-based health education practice.

Botvin and Griffin (2004) provide an overview of the evidence of the effectiveness of LifeSkills Training program. Unlike the other two curricula, which include a broad scope of content areas, the LifeSkills Training focuses specifically on substance use and violence. The LifeSkills Training program have occurred primarily at the secondary level and have consistently shown positive findings in a range of populations and for a range of behaviors relating to tobacco use, alcohol use, illicit drug use and violence (Botvin & Griffin, 2004). The fact that there are decades worth of research at both small- and large-scale levels, with a range of student populations and strong experimental designs, provides compelling evidence for the effectiveness of this program and for the effectiveness of school-based health education in reducing risky behaviors in adolescents. Despite the evidence supporting this and other comprehensive programs, research is needed to understand the mediating factors that influence program effectiveness. Future research should also examine outcomes of curricula implemented with varying fidelity and in multiple populations and settings. Finally, additional research is needed that explores outcomes of curricula (both commercial and developed locally by districts) that are currently being implemented in schools.

Advancing the field requires more evidence supporting best practices in instruction and implementation.
The research base does not include information about the mechanisms through which program variables impact outcomes nor does it include adequate information related to effective use of behavior change theory in school-based settings. Future research should examine best practices in developing curricula that not only meet student needs but that also effective utilize behavior change strategies to support the maintenance and/or adoption of healthy behaviors (Cushing, Jensen, Miller, & Leffingwell, 2014; Hynynen et al., 2016).

**Instructional effectiveness in school health education**

Research on instructional effectiveness in a variety of classrooms has been occurring for decades (Stronge, Ward, & Grant, 2011). However, there is a paucity of empirical research identifying instructional practices and effective teaching within a school health education program. Identifying what constitutes effective teaching and instructional practice in school health has implications not only for student outcomes but also for decision-making regarding the preparation of school health educators, recruitment of high-quality school health educators into teacher preparation programs, professional development to improve instructional practices within the school health classroom and teacher evaluation (Darling-Hammond & Bransford, 2005; Hanushek, 2008; National Academy of Education, 2008). Understanding what we know about instructional effectiveness in school health education helps to inform the research agenda related to learning and opportunity. In this section, as related to the aforementioned topics, research, and proposed directions are addressed.

**Learning**

A variety of sources (CDC, 2015; Kirby, 2001; Nation et al., 2003; Sussman, 2005) have identified the characteristics of effective school health education and desired student outcomes. The characteristics identified as effective health education programming included increased instructional time, available resources for students and teachers, teacher content knowledge, and the ability of the teacher to assess learning. The CDC (2015) articulated the characteristics of effective school health teachers as (1) an interest in promoting healthy behaviors, (2) have strong content knowledge and (3) are skillful in a variety of instructional strategies. Much of the research on teacher effectiveness has been completed in other content areas including mathematics, reading, and science (Benham Deal, Jenkins, Deal, & Byra, 2010; Slabine, 2011). The research in teacher effectiveness in school health education is limited to commercially prepared curricula and does not reflect the reality of teaching skills-based health education as part of the school curriculum. Based on the limited research in the field of school health education, this section includes a general review of the educational literature in instructional and teacher effectiveness and how this research could guide future research in school health education.

Based on the suggestions by the CDC (2015) and the previous identified researchers, further research is needed to examine the constructs of effective school health education including, the content knowledge of licensed health education teachers and the effect of instructional practices on student outcomes in health education. Also, long-term retention of health-related skills should be investigated. Various researchers have examined the health behaviors of college students. Researchers need to examine if a relationship exists between positive health behaviors and completion of an effective school health program.

**Measuring instructional effectiveness**

For at least the past 80 years, researchers and others have sought to identify measures of instructional effectiveness (Imig & Imig, 2006). Most recently, the characteristics of instructional effectiveness have been aligned with student achievement on standardized tests. Additionally, the researchers purported that characteristics of effective teaching and instruction are complex and that experts in the field of teacher education have struggled to make necessary changes to improve student achievement. The difficulties for teacher preparation programs (TPPs) in making programmatic modifications are often related to the quality of the final internship, a lack of resources and local/state/national policies related to teacher preparation.

The largest deterrent to TPPs is often the local, state, and/or national policies related to teacher preparation. Policies that prevent TPPs from making changes include limiting the number of required school health credit hours, not requiring certified teachers to teach school health education, limiting professional development money and opportunities, and evaluating the effectiveness of teaching without a clear understanding of skills-based health education. Due to the complexities of measuring instructional effectiveness, further research is needed to identify the constructs of effective teaching in school health and how these constructs can impact on student learning. Administrators also need to provide professional development opportunities that will enhance the content knowledge of school health educators.

Stronge et al. (2011) stated that educators have begun to emphasize the importance of linking teacher
effectiveness to various aspects of teacher education. The debate on how to measure teacher effectiveness includes reviewing teacher qualifications, instructional practices, impact on student learning, or a composite of these elements (Imig & Imig, 2006). If teacher effectiveness is related to success on a standardized test, evaluating the effectiveness of teachers in content areas that do not include such tests would be difficult. The need for clear measures of teacher effectiveness in school health needs to be examined. Additionally, research on student outcomes in health education and the lasting benefits of being involved in an effective school health program should be examined.

Implementation of effective school health education programs include classroom instruction that promotes the adoption of health-enhancing behaviors through knowledge and skills. Fahlman, Hall, and Gutuskey (2013) explained that school health programs can increase health knowledge and create a safe and supportive environment to practice healthy behaviors, which may eventually result in adopting a healthy lifestyle in the future. Various researchers (Byers, Sears, & Foster, 2013; Lauria-Horner, Kutcher, & Brooks, 2004; Lloyd, Joyce, Hurry, & Ashton, 2000; Schwartz et al., 2017) have reported the positive effects of effective school health education, specifically in nutrition, eating behaviors, and tobacco prevention. Based on the research reviewed, the school health education programs examined were implemented by experts in the field (i.e. nutritionist, drug/alcohol counselor). The research also reveals that when the health education program was implemented by the school health educator, extensive professional development training, and mentoring was provided for that teacher. This suggests that training is an important variable related to program effectiveness and further suggests the benefits of professional development for school health educators (Schwartz et al., 2017).

Research on school health education tends to examine the effects of a specific program/curriculum on student learning in the short-term. These specific programs often emphasize content knowledge with little emphasis on skills needed to make healthy choices across the lifespan. There is a need to research the overall impact of participating in an effective school health education program implemented by licensed school health education teachers. Also, further research is needed to examine the long-term effects of health education on health behaviors. Additionally, action research would help school health education teachers gain confidence in implementing different instructional strategies (including trauma sensitive and culturally relevant instruction) and planning and implementing skills-based lessons that engage learners.

Health education teachers are challenged by time constraints, mandated testing, special enrichment programs and other events that can interrupt instructional time (Telljohann, Symons, & Pateman, 2007). There is a lack of research documenting the effectiveness of school health education instructional quality due to the lack of required programming across the United States. Based on the challenges faced by health education teachers, researchers need to examine ways to overcome issues that school health educators face. Also, the amount of instructional time needed in order to see an impact on student learning should be examined.

The lack of specific research in the field of instructional effectiveness, specifically the area of school health education, needs to be expanded to include empirical evidence that support quality health education instruction. The knowledge and skills that are provided by a qualified school health educator could enhance the quality of life for people. Based on the current review of the literature, there appears to be little to no evidence to support these claims. Research in this area would benefit the profession and provide an impetus to hire more school health educators in preK-12 schools.

Research examining the effectiveness of health education on improving health behaviors is sporadic based in part on the lack of state requirements and testing in school health. King and Snyder (2003) examined the perceived effectiveness of high school health education in increasing health knowledge and adoption of healthy behaviors. Researchers reported that students who had taken three or more health education courses felt that their health education courses increased health knowledge. Also, students who were taught by a licensed school health education teacher reported that their health education courses were more effective on teaching content. Students reported that their high school health education was slightly ineffective in increasing their knowledge about how to safely express anger and how to effectively cope with stress. King and Snyder (2003) recommended that schools hire licensed school health education teachers who emphasize skills-based health education and participate in professional development in the area of mental health and stress.

Opportunity

In the past, only 10% of required school health education classes in the United States had a teacher who majored in health education (Bennett, Perko, & Herstine, 2000; Kann, Brener, & Allensworth, 2001). Profiles (School Health Profiles, 2016) included data on the training of school health education teachers and 82.5% of health
classes have a teacher who is a licensed school health education teacher. States are beginning to issue separate health education and physical education licenses, however hiring a licensed school health education teacher varies based on the school district and state policies (School Health Profiles, 2016).

The lack of training has been identified as one of the barriers to implementing effective health instruction (Fahlman et al., 2013). Based on the most up to date Profiles data (School Health Profiles, 2016), the certification of school health teachers varies across content areas. The largest number of school health teachers are certified as health education/physical education (median = 50.4%) (School Health Profiles, 2016). Fahlman et al. (2013) reported that a properly trained teacher “… can be an effective weapon in the ongoing battle to secure a healthier population” (p. 322). More research needs to be conducted that examines the quality of training for school health educators, as well as the role of professional development.

To most effectively teach students health behaviors and healthy decision-making skills, schools should ensure that health courses are delivered by licensed school health educators who have been trained on the NHES (Joint Committee, 2007). To ensure that such standards are consistently employed in regular classroom instruction, schools should place an emphasis on hiring licensed school health educators. Health teachers who are licensed and graduated from a nationally recognized health education program are trained in necessary content knowledge as well as pedagogical content knowledge to implement an effective school health education curriculum. Boyd and Cucina (2018) reported that teacher candidates who graduate from nationally recognized TPPs, tend to participate in professional development, are able to assess student outcomes and feel more confident teaching the knowledge and skills necessary to become health literate.

Many teachers delivering preK-12 health courses do not have a degree in health education and are often licensed in other content areas (i.e.: consumer health, biology, school counselor, etc.). In 2016, the School Health Profiles reported that background preparation for professionals teaching health education include physical education, nursing, exercise science, public health, and nutrition (School Health Profiles, 2016). These teachers reported the need to receive additional training and staff development on a variety of health issues including CPR, first aid, emotional and mental health, nutrition, physical activity, tobacco, suicide, and violence prevention. These content areas are consistent with content areas required by many states as documented in the Profiles (School Health Profiles, 2016) report.

Based on the literature reviewed, it appears that continuing education and in-service training opportunities for teachers may lead to increased student satisfaction of health courses and more favorable student attitudes toward a healthy lifestyle following recommendations are offered. Too few graduating high school students participate in school health education classes that emphasize functional health knowledge and the acquisition of health-related skills. The literature supports the importance of ongoing professional development for teachers in order to enhance student learning (Slabine, 2011). Quality professional development utilizes data to examine effective classroom strategies, examine student work, participate in action research, and develop quality formative and summative assessments. Further research needs to be completed to examine the role of on-going training in order to improve instructional effectiveness of school health education teachers.

**Impact of school health teacher preparation programs (TPPs)**

SHAPE America’s 50 Million Strong by 2029 initiative is intended to serve as both catalyst and conduit “… to prepare all children to lead active and healthy lives” (SHAPE America, 2015a). With a focus on improving health literacy and physical literacy in school-age children and adolescent youth, SHAPE America designated four areas for improvement, one of which is titled Healthy Behaviors. In this section, the impact of school health TPPs and the direct or incidental potential for positive influence on health and healthy behaviors of school-aged children and adolescent youth was explored. The review of literature in this area exposed commentary, task force reports, and position papers. Due to the lack of empirical evidence, identifying themes in the literature for this section is too ambitious a descriptor; instead, for the following section, consistent and emergent ideas are recognized. As related to school health TPPs, research and proposed directions, as demonstrated by gaps in the literature, are suggested. Moreover, in this section, understanding “what we know” about the impact of school health TPPs helps to inform the research agenda related to opportunity, population health, and policy.

**Opportunity**

**School health TPPs as change agents**

Positioned to absorb and maintain pace with challenges associated with school-aged development and learning, TPPs undoubtedly are in a unique position to influence school-aged children. Furthermore, TPPs are able to sustain the academic rigor and research necessary to
integrate the latest research into teacher preparation classes and meet demands for increased dependence on data collection, all of which are associated with the recurrent process of accrediting bodies.

SHAPE America offers the following statement regarding their expectation of school health TPPs for demonstrating a commitment to 50 Million Strong by 2029 (SHAPE America, 2015a): “We’ll [SHAPE] be relying on you [school health TPPs] to educate the next generation of health and PE teachers about the importance of health and physical literacy—and continue conducting research that elevates our profession” (SHAPE America, 2015a). Yet, as of the time period in which literature was reviewed for this paper, quite simply, as connected to school health TPPs, the commentary and research was too widely dispersed in focus and insufficient in depth to establish enough forward momentum to elevate school health education TPPs.

In every practical sense, school health TPPs should be recognized in research as a possible change agent for improving health behaviors in school-aged youth. Yet, school health TPPs are often overlooked as a requisite influence as evidenced by the lack of current research.** Future possibilities for research in this area should include evaluating differences between the impact on student outcomes of practicing school health teachers who have graduated from nationally recognized (as determined by SHAPE America) school health TPPs compared to those teachers whose preparation program were not nationally recognized or have obtained alternative teaching licensure or endorsements. As directed by the Council for the Accreditation of Educator Preparation (CAEP, 2016) and the 2018 National Standards and Guidelines for Initial Health Education Teacher Education (Boyd et al., 2018), all school health TPPs that are seeking program recognition or are nationally recognized are positioned to engage in meaningful research given the charge to “… deemphasize what teacher candidates do in preparation and delivery, and, instead, emphasize what teacher candidates have their learners do” (Boyd & Cucina, 2018, p. 5). Subsequently, via key assessments implemented in their school health TPPs and the required and resultant data collection, those programs are situated to initiate research plans that demonstrate student output, as well as what teacher candidates are having their learners do, as related to health literacy, building functional health knowledge, or health behavior.

**Policy**

**Maintaining a commitment to generic responsibilities of all health education**

While health education is practiced in multiple settings, there still exists a common overlap of responsibilities, practices, and logical relationships between those settings. Identified as the Seven Areas of Responsibility (National Commission for Health Education Credentialing, Inc. [NCHEC], 2015), those generic competencies and sub-competencies are foundational to the profession, and thus, foundational to school health TPPs. According to Taub, Birch, Auld, and Cottrell (2011), “… it is the application of the generic competencies in the work of health educators in various settings that strengthens and unites the profession” (p. 125).

In the school health setting, the overlap of responsibilities and practices has been consistently recognized. Past revisions of Health Education Teacher Education (HETE) program standards preserved a commitment to the generic competencies or common roles and responsibilities of professionals practicing in health education. Likewise, the most current version of HETE Standards, 2018 National Standards for Initial Health Education Teacher Education (Boyd et al., 2018), also has maintained fidelity to the common roles and responsibilities of professionals practicing in health education.

**Future HETE Standards task forces also should have an understanding of and respect for preserving the continued alignment of HETE standards with the generic responsibilities and competencies of all health educators.** That having been said, future standards task forces must be willing to find a reasonable and fair balance between aligning the generic roles and responsibilities of all health educators, while also integrating the knowledge and skills most unique to newly prepared health education teacher preparation candidates. Without question, HETE standards should be perceived as congruent with the knowledge base prevalent in education standards and use a language that is similar in form and substance to other SPA program standards (Boyd & Cucina, 2018).

Accreditation and the program review process provides “… quality assurance through external peer review” (CAEP, n.d.a, CAEP Scope of Accreditation, para 1). Additionally, “accreditation makes sure that educator programs prepare new teachers to know their subjects, their students … and allows them to enter the classroom ready to teach effectively” (CAEP, n.d.b, Why It Matters, para 1). Given program differences (e.g. state licensure requirements, administrative support for the accreditation process, etc.) among school health TPPs, clearly, not all programs adhere to SHAPE America’s HETE program review process. Thus, there is a serious concern for the quality and preparedness of the product (i.e. teacher candidates and practicing school health teachers) of those programs. Sagacity suggests that if the end goal is to positively impact learner output or health and healthy behavior of school-aged children, then the best approach is to recognize school health TPPs as change agents and to create
initiatives that educate and inspire school health TPPs to align their programs with the 2018 National Standards for Initial Health Education Teacher Education (Boyd et al., 2018). Cyclical in quality, national and state-level organizations and associations should create purposeful awareness campaigns to disseminate information to school districts that highlight the value of hiring school health teachers who have graduated from school health TPPs that are nationally recognized through the SHAPE America HETE program review process.

Lastly, as related to proposed directions and considerations for maintaining fidelity to the generic responsibilities and competencies of all health educators, exclusivity of HETE program standards and the program review process are important and valuable continued practices. Pedagogy, the acquisition of content knowledge, and the process for teaching health-related skill development are all significantly different in school health as compared to physical education and/or other disciplines. As discussed and supported in the review of research in previous sections, if there is an honest concern for influencing health and healthy behaviors of school-aged children and adolescent youth, health education should be recognized as a distinctly different discipline.

Measures to assess improvement and accountability Charged with maintaining pace in educational reform, TPPs will continue to be challenged to demonstrate continuous improvement and quality assurance using research-based decisions (CAEP, 2016). Via Standard 4.2, CAEP further substantiates the need for measuring the quality of TPPs by focusing on the impact program completers (i.e. graduates) have had on preK-12 learners, as well as their [program completer] overall satisfaction with the relevance and effectiveness of their preparation (CAEP, 2013).

In response to using research-based measures in teacher education programs for improvement and accountability, Plecki, Ellers, and Nakamura (2012) recognized that there was still an established and obvious need to shift focus from responding to external requirements [state-level authorization/accountability and national accreditation/program recognition] to developing internal practices that generate knowledge for program improvement. At this juncture, however, research-based measures, which should be established to ascertain if what has been proposed or implemented has been impactful, are nonexistent.

Worrell et al. (2014) reported the importance of using a variety of measures to assess program completer (graduates from the program) satisfaction and his/her ability to impact preK-12 student learning. Additionally, Worrell and colleagues stated that “… surveys can be very useful as a program evaluation tool with former teacher candidates within a year of graduation and several years after graduation” (p. 25). To bridge a needed gap, for future research directions, school health TPPs could begin by designing and/or identifying assessment tools that could be used to internally measure the impact of a school health TPP and teacher candidate competence. For example, Efficacy Expectations to Address the 2018 National Standards for Initial Health Education Teacher Education (Boyd, 2005) is a discipline-, setting-, and task-specific measurement tool. Use of the survey in a school health TPP “… could be used to assess teacher candidates, at multiple benchmarks, and program completers, at various years of employment …” (Boyd & Cucina, 2018, p. 42).

Despite a predictable and recurrent process of modifying program standards, an expanded focus on research-based evidence, and an increased emphasis on quality assurance in TPPs, research at the school health TPP level is virtually nonexistent. If school health TPPs are not carefully positioned to internally measure the impact of their program, teacher candidate competence, and the impact of teacher candidates on preK-12 learning and output, those programs could eventually be at a distinct disadvantage.

Health beyond the classroom: whole school initiatives The relationship between health and educational outcomes are interconnected and well noted (Michael, Merlo, Basch, Wentzel, & Wechsler, 2015; Thomas & Aggleton, 2016). Basch (2011) stated that students must be ready and able to learn, and thus, their motivation is strongly connected to health-related issues occurring in their daily life. The majority of this paper has explored health education within a school and classroom setting. However, learning to be healthy is only one part of the equation. Health education is one component of larger efforts to engage the whole child (Bassett-Gunter et al., 2016; Langford et al., 2014). In fact, according to Chiang, Meagher, and Slade (2015), “the benefits of collaboration, alignment, and integration between health and education can best be viewed in 3 key areas: leveraging resources, utilizing resources efficiently, and improving both health and education outcomes” (p. 776). Schools should foster a culture of health and wellness that values health outcomes and supports the development of health knowledge and skills in a variety of ways. In effect, the knowledge and skills students learn in their health education class must be transferred outside of the classroom and integrated into the culture of the school. When this occurs, students see their learning applied in a “real world” setting, and also begin to further internalize their learning. This also recognizes that classroom learning alone will not change
behavior as the process of behavior change is multi-faceted. This section explores whole school initiatives and their role in achieving health outcomes. In addition, understanding “what we know” about whole school initiatives helps to inform the research agenda related to opportunity and policy.

The Socio-Ecological Model is noted as a key underpinning to whole school initiatives in such that schools, in and of themselves, are seen as a complex system and that individual behaviors are influenced at multiple levels and by multiple factors such as the environment, policies, teaching, and community connections (Bassett-Gunter et al., 2016; Bronfenbrenner, 1977; Langford et al., 2014; Townsend & Foster, 2013; Veugelers & Schwartz, 2010). Health education occurs at many levels within the school (e.g. in the classroom, through visits to health services, informally and through the inclusion of posters and media throughout the building) and because of this, the need to coordinate efforts becomes ever more important. Similarly, this becomes an opportunity for health and education agencies to partner to employ joint (or multicomponent) initiatives that work across disciplines and with a variety of stakeholders and to reach a higher level of success (Langford et al., 2014).

Opportunity

Classroom teachers alone cannot be expected to change student health outcomes. Recent research has explored efforts to develop healthier students and has noted that initiatives to improve health outcomes must occur through a multi-dimensional approach (Bassett-Gunter et al., 2016; Busch, de Leeuw, de Harder, & Schrijvers, 2013; International Union for Health Promotion and Education, 2010; Langford et al., 2014; Thomas & Aggleton, 2016). In fact, it is through collaborative efforts across the school and community that students are better able to apply their learning. If students are not able to apply what they learned in health education within a school setting and during the school day, it is a large leap to assume they can then apply learning outside of the school. Application of learning includes efforts to explore connections and strategies inside the school, and with those happening at the community and policy level to support health education. Connections to the greater community support students in their ability to see how their individual health behaviors fit into a larger context of a healthy society.

Frameworks for whole school initiatives

The student lives at the center or heart of whole school initiatives. There are two primary frameworks discussed in the literature: the Whole School, Whole Community, Whole Child model (WSCC; Association for Supervision and Curriculum Development [ASCD] & Centers for Disease Control and Prevention [CDC], 2014) and the Health Promoting Schools framework (HPS; WHO, 1997). The WSCC model is used in many U.S. and North American schools, and, though widely recognized, implementation at the local level has been sporadic and limited (Lewallen et al., 2015). This model builds off of the former Coordinated School Health Model and “is an ecological approach that is directed at the whole school, with the school in turn drawing its resources and influences from the whole community and serving to address the needs of the whole child” (ASCD & CDC, 2014). The second framework, Health Promoting Schools (HPS) (WHO, 1997), is more prominent internationally. The HPS Framework focuses on three key areas: school health curriculum, ethos/environment, and families, and/or communities (Langford et al., 2014). Both models operate under the tenets that, in order for adolescents to be healthy, there must be school-wide systems of supports and opportunities available.

Researchers have recently begun looking into the efficacy of these approaches and how schools are utilizing the models and the resulting outcomes. Three meta-analysis studies (Goldberg et al., 2018; Langford et al., 2014; Shackleton et al., 2016) used a systematic review of multi-component whole-school interventions. For this paper, we expand upon the meta-analyses as each looked through the lens of either the WSCC and/or HPS framework, and although each meta-analysis prioritized specific whole-school programs taking place, collectively, the studies noted that while some evidence of positive interventions exist, it cannot be expected that large-scale outcomes will occur in isolation. Goldberg et al. (2018) focused on 45 whole-school interventions specific to enhancing social and emotional development among students and included considerations for curriculum/teaching, school ethos/environment and the role of families and the community. Though results were small, whole school interventions were shown to have a significant positive impact on social and emotional behavior. Shackleton et al. (2016) studied 22 interventions across a variety of topics. Those authors reported promising evidence that whole-school efforts related to sexual health, smoking, and bullying can result in improved health outcomes; however, they also noted that additional research is necessary to determine whether initiatives related to “school sexual-health clinics, condom availability program, and peer mediation in reducing violence” are effective (p. 395). The third meta-analysis, conducted by Langford et al. (2017), examined areas with a less robust research base; in effect, the authors reported “what was missing” from previous interventions.
This report found that while nutrition and obesity efforts have shown to be effective, there is a paucity of other outcomes such as substance abuse, violence, mental health, and sexual health (p. 469). Each meta-analysis looked at health behaviors commonly addressed within health education courses though little connections were made to how student learning then translated outside the classroom and whether or not connections were made across the school community. Collectively, these analyses guide this work and provide strong support for both the importance of and potential for whole school initiatives to support healthy student outcomes and perhaps even curriculum within the health education classroom.

**Considerations of implementation of a whole school initiative**

In both the WSCC and HPS frameworks, health education is one form of intervention that, as shown above, is effective in addressing the health of youth. However, whole school efforts that only include individual interventions have been shown to be less successful (Arthur et al., 2011; Langford et al., 2014; Spencer, Hood, Shade Agboola, & Pritchard, 2018; Warwick, Mooney, & Oliver, 2009). As noted by Spencer et al. (2018), “emphasis on a settings-based approach has been broadly welcomed and has triggered expansion of school-based health promotion” (p. 514). In order for multicomponent interventions to be successful, there must be clear leadership and direction to drive the efforts and identify where crossover occurs at the classroom and school levels. In effect, leadership matters, and having a leader (e.g. health coordinator, administrator, or program director) who is able to provide a clear direction, along with professional development prior to implementation, leads to increased sustainability of efforts (Goldberg et al., 2018). The identification of a leader charged with organizing and spearheading the whole school initiative(s), whether as an administrator or project program coordinator, can offer clear direction and give a strategic focus to efforts. Examples of leader roles include facilitating work group efforts, establishing a timeline and work plan, and identifying measurable outcomes to avoid confusion in order to prevent a lack of clarity or strategic vision from becoming barriers to implementation that can hinder efforts over the long-term. (Bassett-Gunter et al., 2016; Spencer et al., 2018). This is a role that is most appropriate for a health educator to assume, and at the very least, should be a role that the school health educator views as an opportunity in which to be engaged. Additional research is necessary to better understand the amount and role of leadership. While some evidence suggests that stakeholders need training and support in order for initiatives to be successful, less is known about the specific level of leadership intervention necessary to support successful implementation of efforts.

A second consideration is the timing of interventions. At younger grades, initiatives related to nutrition outcomes are prevalent, while those for substance abuse and mental health appear at later grades (Langford et al., 2014; Shackleton et al., 2016). Further research is necessary to determine whether staggering the types of intervention or the specific content appropriate at each developmental level and/or grade span is needed. Less is known about the specific types of interventions most likely to yield results at each developmental level and/or grade span. Research is needed to explore how health education curriculum at various levels also shapes or is shaped by school level initiatives. This is an opportunity for health educators to work collaboratively with others across their building or district to help create a culture of health and wellness.

**Policy**

A third consideration is that whole school initiatives and interventions are complex and require both planning and a commitment to infrastructure development (Goldberg et al., 2018; Spoth et al., 2013). Implementation of effective approaches are a combination of capacity and motivation of an individual, organizational capacity, appropriate policies, and practices (Goldberg et al., 2018; Oberle, Domitrovich, Meyers, & Weissberg, 2016). Without advanced planning, it is difficult to ensure that classroom learning will transfer to other contexts or that whole school interventions will yield the desired results. Future research should further explore school-level interventions and the role that a health education course can play. There is a lack of understanding of, specifically, how students transfer their learning to contexts outside of the classroom and conversely how whole school, multicomponent initiatives are embraced within the health education classroom.

Given the multiple frames and often multiple partners in this work, it is important that those implementing whole school initiatives ensure all stakeholders and partners are clear on the purpose and focus of efforts across disciplines and components. Health educators, as a member of the school team, offer a unique perspective in that they see students in a classroom setting, while also encouraging them to participate in health enhancing behaviors that extend beyond the classroom. To determine effectiveness, additional research is needed on which messaging strategies are most desirable to stakeholders and more likely to lead to gains in identified outcomes and with specific populations (Seitsinger, Felner, Brand, & Burns,
Whole school initiatives happen as a result of numerous stakeholders from a variety of disciplines working together toward identified outcomes. To be effective, whole school initiatives must embrace the wider school community, including parents/primary caregivers and community members. This provides an opportunity for health educators to work across sectors to help implement strategies that benefit students both in and out of the health education classroom. In order for health educators to serve in this role, it becomes the responsibility of school administration to ensure qualified and certified health educators are members of their school faculty. Hiring these trained individuals and engaging them as active members of whole school initiatives are one way to build the capacity of school personnel to lead school initiatives. Future research could explore the role and function of various stakeholders, particularly the school health educator, in the coordination and implementation of whole school initiatives. Research should explore the training and supports necessary to ensure stakeholders are both confident and competent in their roles. Future research is also needed to determine the impact of whole school initiatives, including health education, have on overall academic achievement and across varying populations as not all initiatives are appropriate for all student populations, socio-economic levels and topic areas.

**Population health**

School-based health education is uniquely positioned to positively impact population health. Unfortunately, due to a historical lack of commitment to and support for health education, this potential has been thwarted. In fact, Belcastro and Ramsaroop-Hansen (2017) suggested that “the conspicuous lack of school health-educated youth and adult populations in the United States remains a raging health disparity as well as the principal obstruction to improving the wholesale health outcomes of the nation” (p. 973). Approximately 56 million students attend school for at least 6 hours a day during the critical years of development (CDC, 2016). Current evidence suggests that health education can lead to positive outcomes for students and can be an effective strategy for improving population health. The reciprocal relationship between classroom-based health education and school and community engagement leads to a greater impact on student health and wellness. However, more research needs to be done in order to understand the mechanisms through which health education is most effective and which strategies and practices will lead to long-term health benefits.

Sound judgment would suggest that an obvious and effective mechanism for impacting student health and wellness, and thus, population health, would be through school health teacher preparation. According to Davidson, Telljohann, Dake, and Price (2010), the quality of a school health education teacher is, in part, reliant on the education and preparation received in their school health TPP. Including the breadth of educational classes that prepare undergraduates for teaching licensure, quality school health teacher candidates need the depth of discipline-specific, health-related courses that would then inform their planning, implementation, and assessment of skill development and functional health knowledge for all preK-12 learners.

The breadth and depth of school health teacher preparation programs are dependent on a number of factors including, but not limited to, the following: federal initiatives, state-level requirements for teaching health education in the preK-12 environment (e.g., minor programs, certificates, endorsements, proficiency tests, etc.), educator preparation providers (EPPs) and school health TPPs adherence to the program review process, changes in school health education and services, and administrative recognition of the value of delivering and offering a high-quality school health TPP. Simply stated, it is not within the scope of this paper to detail the aforementioned factors and the primary or incidental role that each might play in the quality of a school health teacher. Nevertheless, if positively influencing the health and healthy behaviors of school-aged children, adolescent youth, and population health is, in fact, a goal and worthy target, the profession must take aim at and advocate for the resources required for school health TPPs being positive change agents in that equation.

**Conclusion**

SHAPE America’s 50 Million Strong by 2029 initiative is intended to serve as both catalyst and conduit “... to prepare all children to lead active and healthy lives” (SHAPE America, 2015a). While school health is positioned to play a critical role in achieving that initiative, a significant and sustainable impact would best be realized through a stronger research foundation. If school health education is going to affirm its position as an integral player in preparing children to lead healthier lives, school health education needs to realize a collective, meaningful, and sustainable research agenda that includes curriculum, instruction, professional preparation, and whole school initiatives.
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References


Melendez-Torres, G. J., Tancred, T., Fletcher, A., Thomas, J., Campbell, R., & Bonell, C. (2018). Does integrated...


