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Addressing Challenges to the Reliable, Large-Scale Implementation of Effective School Health Education

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The long-held priority of teaching young people the knowledge and skills needed for healthy living has recently been diminished in many preK-12 schools. Driven by federal and state priorities, laws, and policies associated with high-stakes testing, instruction in untested subjects has been reduced or eliminated in most schools in order to devote more attention to tested subjects, like reading, math, writing, and science. This article proposes a pathway to ensure that all children are able to learn what society knows about health. To that end, four challenges to the reliable, large-scale implementation of effective school health education are identified: (1) establishing school health education as an undeniable social and cultural priority through improved advocacy; (2) strengthening educational institutions' capacities to reliably deliver large-scale, high-quality, school-based health education; (3) collaboratively coordinating efforts of health-promoting governmental and nongovernmental organizations that generate thought leadership for school health education; and (4) creating multidisciplinary research capacities for solving problems associated with the implementation of reliable, large-scale, effective school health education. By implementing specific strategies associated with each challenge, health educators can promote the social and system-level conditions required to support, elevate, and ensure delivery of effective health education to every student in every school every year.

Keywords: *advocacy; environmental and systems change; school health*

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The value of teaching preK-12 students the knowledge and skills needed for healthy living has long been recognized (Birch, 2017; Pollock, 1987), and leaders in both public and school health education have long emphasized the role school health education should play in ensuring a healthy and health literate population (Birch, 2017). In 2014, the Centers for Disease Control and Prevention (CDC) and ASCD, an education professional organization, collaboratively developed the Whole School, Whole Community, Whole Child (WSCC) framework for promoting health and academic success for school-age students. The WSCC framework includes 10 essential components, one of which is school-based health education (Birch & Videto, 2015). In the years since its launch, the CDC, ASCD, and other supporting organizations have promoted the widespread adoption of the WSCC framework in schools, including strengthening health education.

Distressingly, driven by controversial federal and state priorities, laws, and policies associated with high-stakes testing during the preceding years (Morgan, 2016), instruction in untested subjects, including health

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education, has been reduced or entirely eliminated in many schools in order to devote more attention to tested subjects, primarily reading, math, writing, and science (Research Services, 2011; Smith, Steckler, McCormick, & McLeroy, 1995). As a result, teaching and learning about health has become a low priority in many schools. For example, with the exception of violence prevention, requirements for teaching about priority health topics trended down in elementary and middle schools from 2000 to 2016 (CDC, 2017). Eight in 10 U.S. school districts only required teaching about violence prevention in elementary schools and violence prevention plus tobacco use prevention in middle schools, while instruction in only seven health topics was required in most high schools (CDC, 2017). Although 8 of every 10 districts required schools to follow either national, state, or district health education standards, just over a third assessed attainment of health standards at the elementary level while only half did so at the middle and high school levels. (CDC, 2017).

This erosion of the education system's commitment to health education is particularly troubling within the broader societal context. Public interest in health has become culturally pervasive as health information is more available, more sought out, and more accessed than ever before (Anker, Reinhart, & Feely, 2011). Technology has exponentially increased access to health misinformation and the sophisticated, dynamic, and rapid evolution of the health sciences requires more qualified and competent guidance from all types of health education professionals (Carpenter et al., 2016).

However, recent efforts to reestablish the importance of school health education have been met with slow progress, if not resistance. Initiatives designed to better implement school health education are intertwined with complex and sometimes combative education and political systems that may resist reform, misdiagnose challenges to service delivery, or blame individual teachers and schools for system-level problems (Mann et al., 2018; Schmidt, 2008; Schoen & Fusarelli, 2008). Addressing these and other implementation challenges associated with our current education system demand new types of professional thinking about how to ensure the reliable, large-scale delivery of effective school health education. Although understanding how teachers can best deliver health instruction in their classrooms will always be important, to be truly effective, school health educators must also learn to (1) develop effective large-scale implementation capacities not typically emphasized in traditional health education teacher preparation programs and (2) enlist the support and assistance of all professional health educators as well as other advocates and partners.

Therefore, the goal of this article is to propose a reinvigorated national pathway to ensure that every child in every school learns the functional health knowledge and achieves the level of health literacy necessary to live healthy, happy, and successful lives. To this end, four challenges to the reliable, large-scale implementation of effective school health education have been identified, along with corresponding proposals regarding the professional activities and growth necessary to overcome each challenge.

These challenges were identified by the Society for Public Health Education (SOPHE) National Committee on the Future of School Health Education in the 21st Century. This committee includes a select group of 10 recognized leaders in school health education who have extensive experience as policy makers, practitioners, administrators, and scholars in school health, some of whom have maintained careers in the field that include 40 or more years of experience. This list of challenges was developed through a series of structured group discussions held by telephone conference over a 7-month period (February 2017–September 2017) through which common themes were identified, refined, and confirmed by group consensus. These four challenges are also part of a larger list of challenges identified by the committee, the rest of which are presented in two companion articles and a commentary that are included in this focus issue dedicated to the Future of School Health Education in the 21st Century.

► THEORETICAL AND HISTORICAL BACKGROUND

The challenges identified by the committee may best be considered through a historical lens informed by diffusion of innovations theory constructs (Rogers, 2003). Diffusion of innovations theory describes a series of stages through which an innovation may be developed, disseminated, adopted, implemented, and maintained in a sustained, routine manner over time. Clearly, not all innovations are adopted, implemented, or made a routine part of any given profession. Diffusion of innovations theory provides critical insights designed to identify challenges to the full diffusion of innovations as well as strategies meant to help various types of adopters successfully incorporate a given innovation into their work or lives (e.g., early adopters vs. late adopters).

Comprehensive school health education became a recognized innovation designed to ensure the effectiveness of school health education following the completion of the School Health Education Study in 1972 (Institute of Medicine, 1997). It consisted of an approach to school health education that was planned

across all grade levels, purposefully sequenced, emphasized skill building, and addressed multiple dimensions of health through 10 core content areas. In 1985, the School Health Education Evaluation funded by the U.S. Department of Health & Human Services, Office of Disease Prevention and Health Promotion, established that health instruction of 50 or more hours per year was effective for influencing knowledge, attitudes, and practices. In the early days of this innovation, increased opportunities for teacher professional development and access to resources played a critical role in the rapid expansion of comprehensive school health education curriculum and implementation (Connell, Turner, & Mason, 1985).

Quickly, barriers to the successful adoption of comprehensive school health education began to emerge. For instance, single-issue topical health units for elementary, middle, and high schools began to be developed, evaluated, and disseminated (Herbert & Lohrmann, 2011; Institute of Medicine, 1997; Promising Practices Network, 2014). Competition from these single-issue curricular units, often promoted by influential national organizations, began to emerge as competing innovations and barriers to the successful diffusion of comprehensive school health education (Smith et al., 1995). These single issue units appear to have unintentionally distracted adopters and created confusion about the true nature and requirements of effective comprehensive school health education, as well as adding perceived pressures on school administrators to respond to multiple and competing demands (e.g., responding to multiple stake holders, competition for time in the overall health curriculum, redundancy in the health curriculum, unnecessary complexity). In essence, while most school health professionals advocated for comprehensive school health education, competition arising from the uncoordinated activities of other innovators in the public, nonprofit, and for-profit domains to disseminate single-issue units may have inadvertently derailed or slowed the adoption of comprehensive school health education.

Early advocates for comprehensive school health education also faced two systemic barriers to adoption. These included (1) confusion about the change agent and (2) inability to achieve the final state in the innovation adoption process—routinizing (Rogers, 2003). Change agents influence innovation adoption decisions. In this case, the change agents were primarily federal governmental entities that also experienced varying degrees of change over time. Diffusion of innovations theory suggests that disruptions in the consistency or strength of opinion and implementation leadership may slow the adoption of innovations and impede efforts to routinize the innovation.

Historical federal responses to the drug, HIV/AIDS, and obesity epidemics may serve as examples of the disruptive influence of shifting change agents. First, in response to the adolescent drug abuse epidemic in the 1980s, the U.S. Department of Education, Office of Safe and Drug-Free Schools (OSDFS) was identified as the primary change agent and provided pass through funds to school systems via state agencies to support personnel, policy development, teacher training, curriculum implementation, and surveillance surveys (Institute of Medicine, 1997). Having lost status over a number of years, OSDFS was eliminated by Congress in 2011 with some initiatives assumed by a new Office of Safe and Healthy Students (U.S. Department of Education, 2012).

Additionally, during the HIV/AIDS epidemic, the CDC Division of Adolescent and School Health (DASH) within the National Center for Chronic Disease Prevention and Health Promotion (NCCDPHP) emerged as another change agent in 1988 (Institute of Medicine, 1997). Uniquely, DASH funded HIV coordinators in all state and territorial education agencies (not state health agencies) and 15 to 20 large urban school districts to disseminate HIV/AIDS policies, teacher training, and curriculum development. DASH also developed and fielded the Youth Risk Behavior Survey and the School Health Profiles Survey at the national, state, and local levels (CDC, 2018). Furthermore, DASH funded personnel in highly influential national education organizations such as the National School Boards Association, the National Association of State Boards of Education, and many others to support HIV/AIDS prevention in schools (Institute of Medicine, 1997).

Beginning in the mid-1990s, DASH supported over 15 state education agencies annually to develop comprehensive school health infrastructure with funding for two school health directors (one in the public health agency), a health education coordinator, and a HIV coordinator. By the late 1990s, these efforts expanded to include a focus on physical activity, nutrition, and tobacco use prevention with added Congressional funding (Rasberry, Slade, Lohrmann, & Valois, 2015). In 2011, however, DASH was relocated to the National Center for HIV/AIDS, Viral Hepatitis, STD, and TB Prevention. Today DASH has reduced its reach to state-level agencies and shifted its remaining resources to focus on HIV/AIDS prevention in 28 large urban school districts and six national organizations, none of which focuses primarily on education (CDC, 2019). These funds are now used to support work in HIV/AIDS prevention, sexually transmitted disease, and pregnancy among teens. DASH also continues to support the implementation of the Youth Risk Behavior Survey and, until recently, the School Health Policies and Practices

Study. CDC's NCCDPHP School Health Branch funds state education agencies, local education agencies, and national organizations to increase the quantity and quality of physical education, health education, and physical activity; improve the nutritional quality of foods provided in schools; and improve the capacity of schools to manage chronic conditions.

Finally, the obesity epidemic is currently a high-profile child and adolescent health issue being addressed in schools. Due to the Local Wellness Policy mandate (unfunded) in the Healthy Hunger-Free Kids Act, the school health education leadership void was somewhat filled by state education agency National School Lunch Program personnel funded by the U.S. Department of Agriculture (USDA, 2012). Local school districts who participate in the National School Lunch Program are required to adopt a local wellness policy that includes goals for nutrition education and physical activity. USDA funding is provided to local school food service personnel who are also responsible for compliance but typically have no role in curriculum and instruction. With regard to obesity prevention, new, independent national organizations such as Action for Healthy Kids (2015) and the Alliance for a Healthier Generation (2019) also emerged to engage schools; however, the impact on nutrition education seems minimal (CDC, 2017).

Together, the closure and federal reorganization of OSDFS and changes in funding to CDC may have contributed to a reduction in the overall number of school health education change agents and advocates. Likewise, as state education agencies were increasingly pressed for funding and focused on academic metrics related to reading, writing, math, and science, many school positions not explicitly focused those metrics were eliminated at both the state and local levels, including school health education (Schoen & Fusarelli, 2008; Stanik, 2007).

Diffusion of innovations theory suggests the importance of supporting and maintaining the strength and consistency of relevant change agents, as well as a degree of coordination and clarity of roles across agencies and systems, until full adoption and routinization of the innovation has occurred (Rogers, 2003). Although national organizations have emerged to provide leadership on specific issues (e.g., childhood obesity), the most recent results from the School Health Policies and Practices Study (CDC, 2013, 2015, 2017) suggest a continued need (1) to marshal increased support for comprehensive school health education, (2) to strengthen change agents devoted to leading efforts to increase the adoption of comprehensive school health education, and (3) to better coordinate the activities of relevant

change agents, especially efforts to align agencies and organizations devoted to single health issues with the comprehensive school health education approach.

In summary, over the past 40 years, schools have been tasked with providing health education related to discrete health issues rather than comprehensive school health education. When new child and adolescent health problems emerged, state, and local school systems adopted policies, training, and instruction specific to each. Attention and resourcing were initially robust but, diminished over time as health priorities shifted and national-level change agents, advocates, and support systems experienced their own fluctuations in resources and responsibilities. Hence, the place of health education in the overall school curriculum remains tenuous. Furthermore, when reviewing recent historical factors influencing the adoption of comprehensive school health education through the lens of diffusion of innovations theory, it is clear that efforts to increase collaboration and coordination, decrease competition, and strengthen key change agents may enhance the adoption and routinization of comprehensive school health education. Therefore, by addressing the four challenges presented below, health educators working in schools, with the support and assistance of community health educators and other advocates, can promote the social and system-level conditions required to support, elevate, and ensure the reliable delivery of effective health education to every student in every school every year.

► **CHALLENGE 1: ESTABLISH SCHOOL HEALTH EDUCATION AS AN UNDENIABLE SOCIAL AND CULTURAL PRIORITY THROUGH IMPROVED ADVOCACY**

Explicit social values and priorities drive institutional commitments to building organizational capacity and distributing resources (Porter, Sullivan, Blythe, Grabill, & Miles, 2000). In this way, public institutions, including school systems, respond to perceived public imperatives with time, attention, and funding (Berg, 2007). For example, the recent prominence and funding of Science, Technology, Engineering, and Math (STEM) subjects exemplifies the education system's response to strongly stated priorities with clear and compelling rationales and public support.

The importance of containing health care costs (Leimbiger & Lammert, 2016), the public's increasing interest in health information (Anker et al., 2011), and historically high levels of parental support for school-based health education (Birch, 2017) provide compelling confirmation of the importance of resourcing school

health education. As evidenced by health education being legitimized for the first time in federal law through the Every Student Succeeds Act (2015), this narrative is gaining traction. Nevertheless, school health education must become an even higher priority within society-at-large and the education system. To this end, the health education profession may benefit from stronger advocacy at federal, state, and local levels.

Recommended action: Assign key national organizations the primary responsibility of advocating for delivery of effective school health education, along with coordinating and supporting national, state, and local advocacy work across multiple organizations.

In many professional disciplines, there is one clear leading professional organization that serves as the “home base” for coordinating efforts to advocate for their given field. Currently, the field of school health education does not have a clear “home base” professional organization responsible for advocating for school health education as a whole. Recent history has led to multiple organizations competing for recognition as the leading professional advocacy and professional development organization within the field. Although having one clear “home base” organization may not be required to successfully advocate for school health education, the field would certainly benefit from—at a minimum—strong partnerships, open communications, and clear coordination of roles among all relevant organizations. To this end, either (1) identifying and supporting one lead “home base” organization for school health education advocacy or (2) developing and coordinating a coalition of relevant organizations able to work in a strong partnership, seems essential to maximizing our efforts to establish school health education as an undeniable social and cultural priority.

As important as professional organizations can be when advocating for their profession, professional organizations devoted to school health education tend to have limited reach and may benefit from collaborating with better resourced and more powerful organizations. For example, SOPHE and other national professional organizations related to school health education were finally successful at advocating for the inclusion of health education in federal education law (Senate Committee on Health, Education, Labor and Pensions, n.d.) but this occurred 30 years after other subjects had been supported via Education Goals 2000 and so far no health education-specific funding has been allocated. Additionally, professionals working within public sector systems commonly face constraints and both can be viewed by policy makers as pursuing self-interests. Thus, an important task for a

professional organization is to engage one or more highly influential, health-related organizations with clear vested interests in children’s health, such as the American Academy of Pediatrics, the American Medical Association, or America’s Health Insurance Plans, in funding and spearheading an advocacy and communications campaign promoting school health education (i.e., “health for every kid, every school, every day”). Involving such organizations can help exert political influences and generate other resources required to make school health education a clear public imperative dictated by explicit social values.

Furthermore, non-health-related organizations might also play critical roles as partners committed to better establishing the importance of promoting children’s health in schools as an undeniable cultural and social priority. Adding the supportive voices of educators more broadly—perhaps by more explicitly or more effectively partnering with education-focused professional development organizations serving teachers, school administrators, school board members, and other relevant school personnel—may add weight to arguments to expand health education in schools. Likewise, enhancing partnerships with parent-focused educational organizations may also provide similar opportunities and benefits.

Finally, many academic subject areas also benefit from the coordinated efforts of national professional, philanthropic, and business advocacy groups that assume primary responsibility for generating, sustaining, and leveraging public support for specific school subjects; for example, the Arts or STEM education. Successful national advocacy organizations can channel the voices, energy, support of professionals, parents, community members, and highly credible and influential nongovernmental organizations (Birch, 2017; Birch, Priest, & Mitchell, 2015; SOPHE, 2019). Importantly, these types of supporters can join and reinforce our core national advocacy organization(s)’ pursuit of clear, unified message delivery and system-level accountability.

► **CHALLENGE 2: REFORM EDUCATIONAL INSTITUTIONS TO STRENGTHEN THEIR CAPACITY FOR RELIABLY DELIVERING LARGE-SCALE, HIGH-QUALITY, SCHOOL-BASED HEALTH EDUCATION**

Most schools and school districts have met few of the Healthy People 2020 targets for health education (CDC, 2013, 2015, 2017). Although the format of the 2016 School Health Policies and Practice Study (SHPPS) changed from previous years and did not directly report on schools’ overall progress toward achieving the

Healthy People 2020 targets, a range of trends suggested continued insufficient progress toward ensuring delivery of high-quality health education in every school (CDC, 2017). Nevertheless, although the three most recent SHPPS reports indicate some progress in a few areas, such as improvement in rates of teaching violence and suicide prevention, overall findings from all three SHPPS reports suggest that the institutional capacity for ensuring the reliable and effective delivery of comprehensive school health education is less than desirable.

Several historic policy events may have contributed to a lack of institutional capacity. The National Academy of Sciences 1997 report, *Schools and Health: Our Nation's Investment* (Institute of Medicine, 1997) recommended wide-ranging education system infrastructure reforms required to better support comprehensive school health education, highlighted needs at the federal, state, and local levels, and suggested a number of coordinating councils and partnerships at each level. However, the No Child Left Behind Act (PL107-110, 2001) may have diverted attention from these types of partnerships to more institutionally affirmed priorities related to reading, writing, and mathematics test scores (Stanick, 2007). Subsequently, these still relevant recommendations appear to have been only partially implemented and/or inadequately resourced. Meanwhile, the capacities or foci of traditional governmental champions, including the Federal Interagency Committee on School Health, the National Coordinating Committee on School Health and Safety, and the CDC DASH, shifted.

The 2015 Every Student Succeeds Act (Senate Committee on Health, Education, Labor and Pensions, n.d.) offers new possibilities for schools (Healthy Schools Campaign, 2017) by recognizing a fuller range of previously ignored academic subjects, including delivery of health education. Nevertheless, students and schools will fully benefit only when such opportunities are driven by comprehensive systemic changes that reinforce the importance of school health education, along with the adoption of structural reforms within educational institutions.

One obstacle to systems change may be educational leaders' limited understanding of the value of health education. School health education is typically portrayed as critical for addressing public health problems. Educational leaders are more likely to support comprehensive health education if aware of immediate benefits related to student learning and maintaining safe social-emotional school climates. Specific academic benefits of school health education include less disruptive student behavior, improved attention, and decreased absenteeism (Herbert & Lohrmann, 2011; O'Neill, Clark, & Jones, 2011).

Students who learn skills such as identifying and expressing emotions effectively, preventing and resolving conflict, communicating assertively, managing stress, and refusing to engage in inappropriate behavior are better prepared to function in today's collaborative classrooms (Cummings, 2000). Thus, school health educators' goal should be to forward arguments and support actions that correctly position school health education as central and essential to the educational enterprise, and to do so in a manner that engages all educators and administrators that care about the health, well-being, and growth of their students.

Recommended action: Align academic missions, structures, and systems to support the reliable delivery of effective school health education in a manner that positively affects student health and well-being.

Systems theory suggests that institutional and organizational design matters (Senge, 1990). Ambiguous priorities, noninstitutionalized goals, or underresourced initiatives are unlikely to be achieved (Berg, 2007). Only by clearly aligning institutional and organizational missions, structure, and systems can the highest goals of schools and school health education be realized (Mann et al., 2018). In *From Tactics to Strategy: Creating and Sustaining Social Conditions That Demand and Deliver Effective School Health Programs*, Mann et al. (2018) proposed 26 Indicators of Institutionally and Organizationally Resilient School Health Environments. These indicators were meant to provide examples of how to operationalize a strategic approach to creating a professional environment in which successful implementation of quality school health programs would be likely, if not inevitable. Although the full list of indicators is too long to include here, some examples of efforts aimed at reforming institutional capacity to reliably deliver effective school health education include:

- Aligning the federal Department of Education, state departments of education, school districts, and school missions to explicitly include promoting the health and well-being of students, including the effective delivery of health education.
- Strengthening department of education, CDC, and other public/community health partnerships at federal, state, and local levels.
- Delivering health education in the context of an array of initiatives designed to promote student health, such as the CDC/ASCD's WSCC framework (Birch & Videto, 2015; DASH, 2016).
- Aligning all health education curricula with the National Health Education Standards (CDC, 2006).

- Developing or strengthening federal, state, district, and school professional development, educational program implementation, and evaluation capacities by (1) providing sustained direction and technical assistance and (2) requiring all academic leaders to develop a minimum level of expertise in student health promotion, evaluating student health and maintaining effective cross-organization partnerships with governmental and nongovernmental public health agencies and organizations (Kolbe, Allensworth, Potts-Dema, & White, 2015).
- Establishing Director of School Health Education positions in all state and territory education agencies who are tasked with championing health education best practices and holding schools accountable for improving student health and well-being.
- Adequately resourcing each of the efforts listed above, including using innovative models of cross-agency collaborative funding and resource sharing where possible.

Although the selection of strategies briefly outlined above do not represent a comprehensive list of ways to strengthen the broader education system's capacity to reliably deliver large-scale, high-quality school-based health education, they might represent a feasible start. Regardless, they represent an important path forward—moving the role of school health and school health education from the periphery of the educational enterprise to its center. Developing and acting collectively on a unified set of targets for action represents a critical step in the reform process.

► **CHALLENGE 3: CREATE FORMAL COLLABORATION MECHANISMS FOR COORDINATING EFFORTS OF GOVERNMENTAL AND NONGOVERNMENTAL ORGANIZATIONS TASKED WITH PROMOTING HEALTH AND PROVIDING THOUGHT LEADERSHIP TO THE SCHOOL HEALTH EDUCATION PROFESSION**

During this century, various governmental and non-governmental organizations have built national mechanisms that could assist with the implementation of several components of the WSCC framework. For example, the American Academy of Pediatrics Council on School Health collaborates with other organizations to continuously implement a wide range of priority actions for improving school-based clinical health services. With initial support from the CDC, an alliance of national organizations was established for building and

ensuring long-term success of a National Physical Activity Plan. The Healthy, Hunger-Free Kids Act of 2010 enabled the USDA to drive school food service reforms for improving student health and educational achievement (USDA, 2013).

Unfortunately, the last national effort to improve comprehensive school health education occurred long ago. In 1992, the American Cancer Society enabled 125 experts from 40 national education, health, and social service organizations to produce a National Action Plan for Comprehensive School Health Education (American Cancer Society, 1993). As a result, National Health Education Standards were developed, with performance indicators (CDC, 2006). However, these standards have not been updated in more than a decade.

Currently, no mechanism exists for enabling interested national or state-level organizations to collaboratively help implement effective school health education programs, although several organizations may have interest in so doing. For example, the SOPHE, whose members include school health education experts from universities and educational organizations nationwide, established a National Committee on the Future of School Health Education in the 21st Century; which spearheaded development of this multiarticle series. The American School Health Association, Society of State Leaders of Health and Physical Education, ASCD, and the Student Health Advocacy Coalition provide continued leadership, especially in terms of professional development and support for state and local education agencies. The CDC DASH and CDC School Health Branch provide critical federal leadership for school health education, as to a lesser extent do the Health Resources and Services Administration, the U.S. Department of Education, and the USDA. Furthermore, the Robert Wood Johnson Foundation has provided important leadership for school health education, especially in the context of the WSCC model. Despite this widespread interest, a critical need remains for establishing mechanisms to coordinate the efforts of groups interested in supporting the large-scale delivery of high-quality school health education.

Recommended action: National organizations listed above, and possibly others, collaboratively develop a sustainable national mechanism to progressively: (1) identify challenges that most impede the implementation of large-scale effective school health education nationwide, (2) take action to address a manageable number of high-leverage challenges, and (3) periodically report the results of each action over time.

The organizations and agencies listed above, along with other interested organizations, can convene meetings and begin a dialogue focused on how to create a mechanism for providing thought leadership to the field, especially as related to overcoming implementation challenges. The national challenges and respective recommendations for action listed within this and the other companion articles in this series can provide a focus, rationale, and initial action plan for this group. Additionally, similar to the recommendations found in Challenge 1 and the model provided by the American Cancer Association's 1992 sponsorship of the National Action Plan for Comprehensive School Health Education, it may be helpful to pursue support and assistance from partner organizations able to invest the resources needed to initiate and maintain this mechanism. This newly established mechanism could also be used to review the National Health Education Standards and update them if deemed necessary.

► **CHALLENGE 4: BUILD MULTIDISCIPLINARY RESEARCH CAPACITIES NECESSARY TO SOLVE PROBLEMS ASSOCIATED WITH ENSURING THE RELIABLE, LARGE-SCALE IMPLEMENTATION OF EFFECTIVE SCHOOL HEALTH EDUCATION**

From the 1960s to today, studies have repeatedly found similar supports and barriers to effective health education implementation (Mayer, Smigh, & McDermott, 2011). Three recurring barriers include lack of administrative support, inadequate teacher preparation, and chronically low teacher pay. Yet, these barriers persist (Boguslawski, 2018), suggesting the need to identify and adopt effective strategies for successfully addressing these and other system-level barriers. Nevertheless, recent database searches indicate that only a small number of research studies focused on addressing school health education implementation (Boguslawski, 2018). It is also particularly important to recognize that although numerous researchers and practitioners have identified a range of approaches, strategies, and programs that the scientific evidence suggests would benefit students in schools, much of this work goes unimplemented. Therefore, building the multidisciplinary research capacities and conducting the types of research necessary to illuminate the pathways between what is known to be effective and what becomes standard practice seems critically important.

Recommended action: Conduct new research that identifies and addresses persistent barriers to large-scale school health education implementation and sustainability (Birch, 2017; Mayer et al., 2011).

A research agenda for school health education, and perhaps school health more broadly, could be developed with the goal of directing future research toward agreed on professional priorities meant to move the field forward (Birch, 2012). Similar research agendas have been developed by other groups of professional educators and researchers (e.g., the Association of Middle Level Educators), and these efforts have successfully guided research into much needed, but previously neglected areas. Established research agendas also provide guidance to senior researchers and university faculty members about the types of research they need to prepare emerging and developing researchers to conduct.

An essential area of inquiry within this broader research agenda could be devoted to school health education-focused implementation science, systems analysis, and the promotion of widespread changes in social values and support for children's health and health education. Some specific examples of the types of research likely to promote more effective implementation may include (1) identifying messages, messengers, and incentives most likely to influence policy makers and educational administrators at all levels; (2) examining the effects of infusing education leadership/administration graduate programs with content related to the benefits of and skills required to implement the WSCC framework and coordinated school health approach, with emphasis on health education (Boguslawski, 2018); (3) evaluating the impact of programs that prepare principals to identify and hire teachers who are well prepared to deliver health education; or (4) comparing the relative performance of school districts that provide varying levels of priority, support, and resources to school health education.

In each of these examples, and perhaps in implementation science more broadly, the need for school health education researchers to be prepared to work in multidisciplinary teams seems obvious. Therefore, enhancing capacity and eagerness to engage other researchers from teacher preparation, school administration, sociology, economics, political science, and public administration—as well as our counterparts in public and community health education—represents an essential step in completing the type of research needed to more consistently implement comprehensive school health education.

Other factors, such as who conducts research (Green, 2006), how findings are disseminated, and who funds

such research, may also need to be considered. Since most preservice programs for elementary and secondary teachers and the graduate preparation of principals are not conducted by health education faculty, partnerships between health education researchers and researchers with expertise in other education disciplines may prove fruitful. Research findings may accrue greater acceptance if presented at conferences tailored to education professionals, more generally, and teacher education/preparation faculty members. Likewise, research findings may be more appealing if published in both practitioner and research journals devoted to the broader field of education or tailored to teacher education/preparation professionals. Additionally, having research support from a private-sector funder(s), such as a not-for-profit entity or philanthropic foundation that is capable of supporting multiyear studies, would provide the sustainability required for producing actionable research findings.

► CONCLUSION

Recent explosions of scientific knowledge and technological advancement have dynamically transformed health knowledge. These transformations regarding what we know and how we learn about health, likewise demand transformations in how we teach future generations about health. More than ever, students' health knowledge, skills, and intentions to behave in healthy ways must be enabled and supported by their schools as well as their families, communities, and the greater culture (Lohrmann, 2010).

Clearly, one transformation must include ensuring a basic level of health and health literacy by reliably providing high-quality, comprehensive health education through our national public school system. This outcome has long been a goal and finally achieving it will require addressing the social and system-level conditions and challenges that have stood in the way of doing so. In this regard, an underlying theme of this article has been to emphasize the need for health educators to command the broad implementation skills required to bolster social and cultural values related to ensuring children's health, strengthen and connect institutions, and lead systems change.

In order to best support this transformation, school health educators will benefit from sharply focusing on and further developing a specified set of "next generation" implementation skills. To this end, a brief list of *Next Generation Implementation Skills for School-Based Health Promotion* is proposed. This list is meant to encapsulate the core skills necessary to build the capacity needed to respond to the four challenges described above and other implementation challenges yet to be

identified. Each skill is essential for creating an environment more conducive to the large-scale implementation of effective school health as embodied by the WSCC framework, including comprehensive school health education. Furthermore, the collective development and deployment of these skills is likely to exert an increasingly powerful influence as they are collaboratively employed among health education professionals in all settings. These *Next Generation Implementation Skills* include

1. Accurately diagnosing root causes of challenges to implementation as they occur within the broader social context and the unique education system ecology (Lohrmann, 2010; Mann et al., 2018).
2. Proposing social and system-level solutions, policies, and practices that support and elevate the accomplishments of individual schools and teachers and eliminate barriers to professional success (Birch, 2017; Lohrmann, 2010; Mann et al., 2018).
3. Ensuring proper accountability at all levels by evaluating and acting on data related to the effectiveness of policy makers, public institutions, and system-level leaders, in addition to individual teachers and local school administrators (Mann et al., 2018; Schoen & Fusarelli, 2008).
4. Acting collectively to recognize, collaborate, and coordinate work on issues too large and complex for change through isolated, individual efforts (Birch, 2017; Kolbe et al., 2015; Mann et al., 2018).

Garnering the capacity to address the four challenges presented above using these four *Next Generation Implementation Skills* as a foundation for action represents a new way forward for school health educators. Taken together, they detail clear and concrete professional actions and skills that, when activated, will enhance the implementation of reliable, large-scale, and effective school health education.

Since these skills have not typically been included in professional preparation programs for entry-level school health educators, they may need to be obtained via professional development programming provided by professional organizations. These skills are certainly in alignment with and well-supported by the Certified Health Education Specialist or Master Certified Health Education Specialist Health Education Specialist Practice Analysis competencies related to communications and advocacy. Therefore, in order to ensure opportunities to develop and deepen these skills, it may be important to work closely with the National Commission for Health Education Credentialing and the designated providers they partner with to provide new professional development for school health educators focused on these skills.

Ensuring high-quality, school-based health education for every child is unlikely to be fully achieved within our education system as it is today. Rather, for this goal to be achieved, school health educators and counterpart health educators working in public health, community health, higher education, and other health promotion-related settings must lead and champion newly proposed, constructive social and system-level solutions to large-scale implementation problems. Rising to meet these challenges will be professionally demanding, but doing so is possible and represents the most promising means of extending the full benefits of high-quality health education to all children in every school during our lifetimes.

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