



WHO guideline on school health services

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Foreword

Schools are essential for young people to acquire knowledge, socioemotional skills including self-regulation and resilience, and critical thinking skills that provide the foundation for a healthy future. Access to education and safe and supportive school environments have been linked to better health outcomes. In turn, good health is linked to reduced drop-out rates and greater educational attainment, educational performance, employment and productivity.

WHO has long recognized the link between health and education and the potential for schools to play a central role in safeguarding student health and well-being. In 1995, WHO launched the Global School Health Initiative, which aimed to strengthen approaches to health promotion in schools. Among those approaches, pairing children with health services occupies an important place.

Many health conditions can be better managed or prevented if detected early. The school environment and school health services provide an opportunity for timely interventions across a range of conditions, including anxiety and depression, behavioural disorders, diabetes, overweight, obesity and undernutrition.

There are many reasons why school health services are uniquely placed to contribute to the health and well-being of school-age children. First, they operate where most children are, and they have access to families. Secondly, they are free at the point of use and overcome barriers such as transport issues, limited community services, and inconvenient location or appointment systems, and therefore have the potential to better serve underprivileged populations.

And thirdly, they can have a positive effect on multiple determinants of health and are highly valued by students, parents and communities. But despite all these advantages, school health services have long been overlooked and have not received the deserved attention by researchers, policy-makers and development partners.

This first WHO guideline on school health services helps to fill that gap, with a strong recommendation for the implementation of comprehensive school health services. This recommendation comes at a unique time in history, when COVID-19 has put so sharply in the spotlight the vital link between health and education. While we are still learning the full extent of the health effects of mass school closures, we know that they have resulted in anxiety, depression and mental distress, inability to access the usual points of care, disruption to physical activity and routine, increased child maltreatment and exposure to the dangers of the unregulated digital environment. These problems are not unique to COVID-19 – the pandemic has only exacerbated problems that already existed. This makes it all the more important that adequately resourced and well implemented school health services are in place to provide a safety net for children.

I hope that this WHO guideline on school health services will contribute to the creation of a common language around school health services, will promote evidence-based care through its menu of interventions, will strengthen school nursing and school health professions around the world, and ultimately will improve the health of children. The evidence suggests that if school health services are implemented well, they will have lasting benefits for students.

Tedros Adhanom

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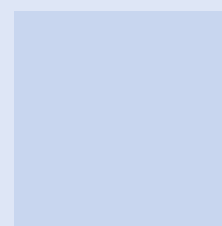
Evidence review and synthesis

Systematic overview of systematic reviews of comprehensive school health services

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Systematic reviews of the effectiveness and acceptability of comprehensive school health services

Paul Montgomery, University of Birmingham, United Kingdom; Jacoby Patterson, Independent Senior Research Consultant, United Kingdom; and Anders M. Bach-Mortensen, University of Oxford, United Kingdom.



Review of Global WHO health service interventions for 5–19-year-olds

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Survey of expert opinion on school health services

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Brief exploratory review of school health services globally

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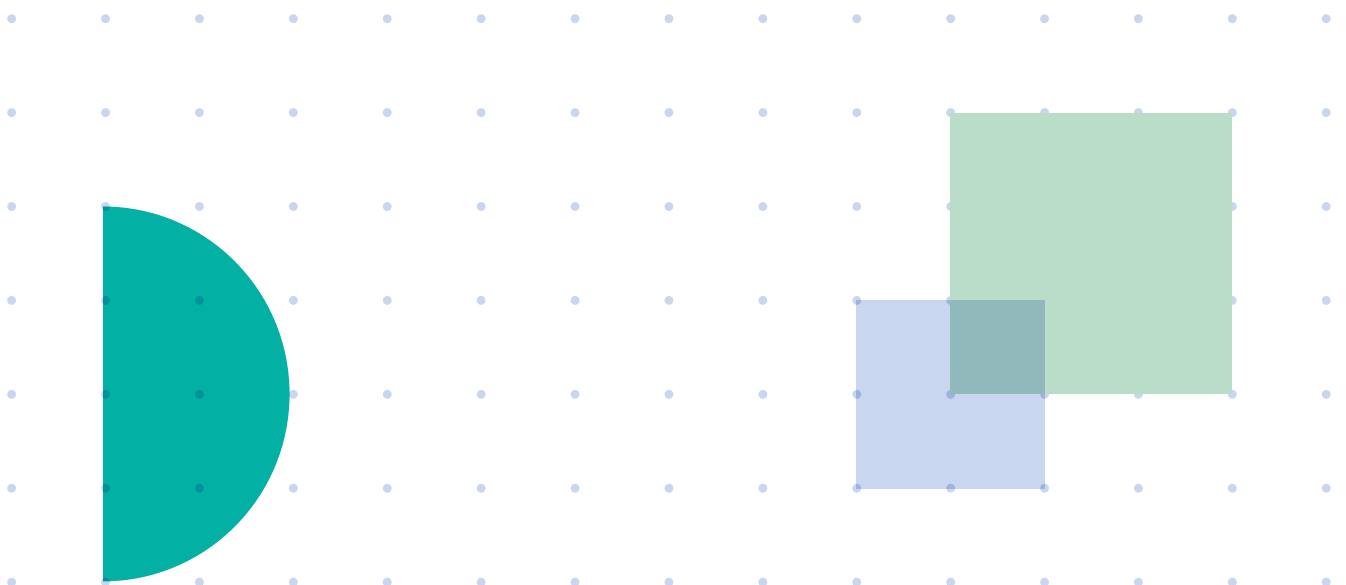
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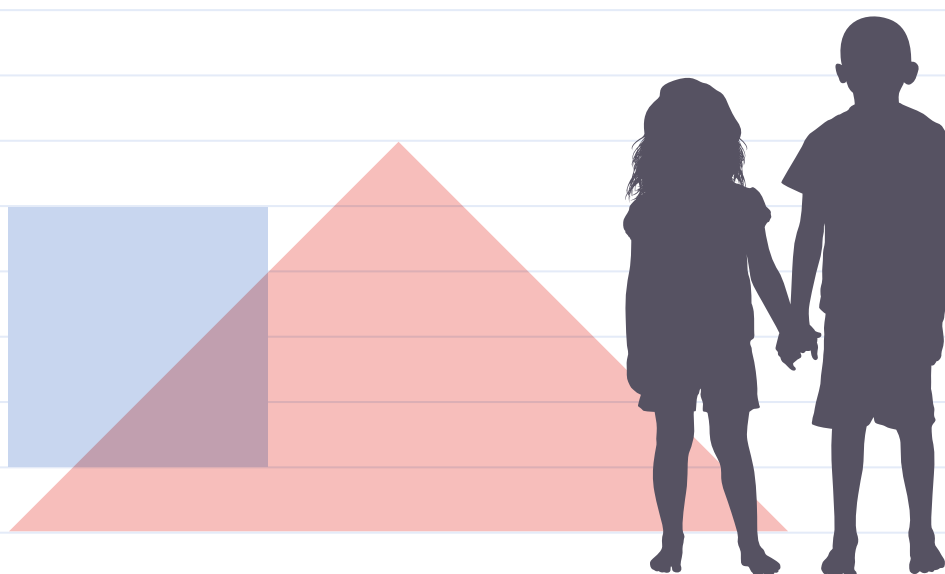
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Abbreviations and acronyms

AA-HA!	Accelerated Action for the Health of Adolescents
CI	confidence interval
DoI	declaration of interest
FGM	female genital mutilation
FRESH	Focusing Resources on Effective School Health
GDG	Guideline Development Group
GRADE	Grading of Recommendations Assessment, Development and Evaluation
GRADE-CERQual	GRADE Confidence in the Evidence from Reviews of Qualitative research
GRC	Guideline Review Committee
HEADSSS	home, education, employment, eating, activity, drugs, sexuality, safety, suicidal thinking and depression status
HIC	high-income country/countries
HPS	health-promoting school
LMIC	low- and middle-income country/countries
LRI	lower respiratory infection

mhGAP	Mental Health Gap Action Programme
NGO	nongovernmental organization
OR	odds ratio
PA	procedure or activity
PRISMA	Preferred Reporting Items for Systematic reviews and Meta-Analyses
ROBINS-I	Risk Of Bias In Non-Randomized Studies of Interventions
SDG	Sustainable Development Goal
SHS	school health services
UHC	universal health coverage
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNFPA	United Nations Population Fund
UNICEF	United Nations Children’s Fund
YLD	years lived with disability



Glossary

Comprehensive SHS: the operational definition of “comprehensive SHS” within this guideline is school health services that address at least four – but ideally all – health areas relevant to their student population, including: positive health and development; unintentional injury; violence; sexual and reproductive health, including HIV; communicable disease; noncommunicable disease, sensory functions, physical disability, oral health, nutrition and physical activity; and mental health, substance use and self-harm (these health areas are shown in section 3.2 and Chapter 5).

Critical outcomes: outcomes that are critical when formulating recommendations during the GRADE process (1,2). Also see “Important outcomes”.

GRADE (Grading of Recommendations Assessment, Development and Evaluation): a transparent framework for developing and presenting summaries of evidence; GRADE provides a systematic approach for making clinical practice recommendations (1).

Guideline Development Group (GDG): a group of experts external to WHO whose central task is to develop evidence-based recommendations for WHO guidelines (2).

Guideline Review Committee (GRC): WHO global and regional staff and external experts who review guideline proposals and draft WHO guidelines to ensure they are of high quality, are developed using a transparent and explicit process and, to the extent possible, that their recommendations are based on evidence (2).

Health counselling: face-to-face, personal communication intended to promote well-being and prevent health problems. Through an interactive process, a health worker helps a client to make decisions about their health and behaviours and then to act on them.

Health education: intentionally created opportunities for learning involving communication designed to improve health literacy. For example, health education may follow a curriculum in a formal classroom setting or may take place with a group of children in a clinic. Also see “Health literacy”.

Health literacy: represents the personal knowledge and competence that accumulate through daily activities, social interactions and across generations.

Personal knowledge and competence are mediated by the organizational structures and resources that enable people to access, understand, appraise and use information and services to promote and maintain good health and well-being for themselves and those around them.

Health promotion: the process of enabling individuals to increase control over, and to improve, their health. It moves beyond a focus on individual behaviour towards a wide range of social and environmental interventions. Health promotion can happen formally or informally, in a group or one-on-one and in a clinical setting or at a broader level (including social mobilization and advocacy).

Health worker: a person whose main function is to deliver health promotion, prevention, care and/or treatment services, such as a nurse or clinical psychologist, but not a teacher.

Health-promoting school (HPS): a school that constantly is strengthening its capacity as a healthy setting for living, learning and working. The WHO HPS framework is a holistic, whole-school and comprehensive approach to health promotion that capitalizes on the organizational potential of schools to foster the physical, social and psychological conditions for health. As part of a health-promoting education system, a HPS is described by eight global standards: government policies and resources, school policies and resources, school governance and leadership, school and community partnerships, school curriculum, school social-emotional environment, school physical environment, and school health services (3). Importantly, staff delivering on some of these standards may overlap; for instance, a health worker may support a teacher who is teaching a health education curriculum.

Important outcomes: outcomes that should be taken into consideration during the GRADE process, but are not critical for decision-making and recommendation formulation (1,2). Also see “Critical outcomes”.

Intervention: a combination of health service programme elements or strategies designed to assess, improve, maintain, promote or modify health, functioning or health conditions.

SHS interventions that the GDG categorized as:

Essential everywhere:

should be included in SHS everywhere.

Suitable everywhere:

are appropriate, but not essential, in SHS everywhere.

Essential/suitable in certain areas:

are essential and/or appropriate in SHS in certain geographic areas only.

UNSUITABLE:

are not appropriate for inclusion in SHS (inclusion in other types of health service may be appropriate).

Mental health counselling: evidence-based psychological interventions such as cognitive behavioural therapy, problem-solving approaches or motivational interviewing. Also see “Health counselling”.

Positive development: healthy transitions and growth in childhood and adolescence, including healthy physical, sexual, cognitive and psychosocial development (4).

Preventive intervention: a health intervention to prevent illness, disease or injury. Preventive interventions can include screening, check-ups and health counselling to prevent health problems.

Procedure or activity (PA): a specific course of action taken as part of a broader health service intervention. Also see “Intervention”.

School health services: services provided by a health worker to students enrolled in primary or secondary education, either within school premises or in a health service situated outside the school premises that has an official agreement with the school to provide health services to the school’s students.

School health services

Coverage:

is the proportion of a student population that needs SHS and obtains them in a timely manner and at a level of quality necessary to have the desired effect and potential health gains (5).

Equity:

is the absence of avoidable, unfair or remediable differences within a student population. It implies that all students should have a fair opportunity to use SHS and no one is disadvantaged from doing so. More broadly, SHS may promote health equity by enabling disadvantaged students to receive health care they may not otherwise receive (6).

Quality:

is the degree to which SHS increase the likelihood of desired student health outcomes and are consistent with current professional knowledge (7).

School-linked SHS: SHS that are provided outside of school premises by facilities and/or providers who have a formal agreement with the school administration to provide health services to their students/learners.

Screening: medical tests to check for diseases and health conditions before there are any signs or symptoms, followed by care or referral, as appropriate. Often this refers to universal screening or routine enquiry, that is, asking all patients in all health-care encounters.

Support: provision of supportive care following the guidance of another health service, such as a student’s personal doctor or specialist. For example, in this capacity a school health worker would not take primary responsibility for case management, but might administer or supervise the taking of medications, change wound dressings or provide supportive counselling.

Universal health coverage (UHC): all individuals and communities receive the health services they need without suffering financial hardship. UHC includes the full spectrum of essential quality health services, from health promotion to prevention, treatment, rehabilitation and palliative care (6).

WHO source: within this guideline, WHO source is defined as whether and how a health service intervention, procedure or activity for 5–19-year-olds is supported by a global WHO publication. This support or approval may be general, not specifically specified for SHS.

If an intervention has a WHO source of:

Full GRC support:

all aspects of the intervention are supported by a GRC-approved guideline.

Partial GRC support:

some – but not all – aspects of the intervention are supported by a GRC-approved guideline. (In addition, some or all aspects of the intervention may be supported by “other WHO” publications.)

Other WHO support:

some or all aspects of the intervention are supported by other (not GRC-approved) global WHO publications.

No WHO source identified:

no supporting procedures or activities have been found in global WHO publications; or a GRC-approved recommendation specifically states that the intervention should not be done.

Executive summary

Recommendation

Comprehensive school health services should be implemented.

Strength of recommendation: strong.

Certainty of evidence: moderate.

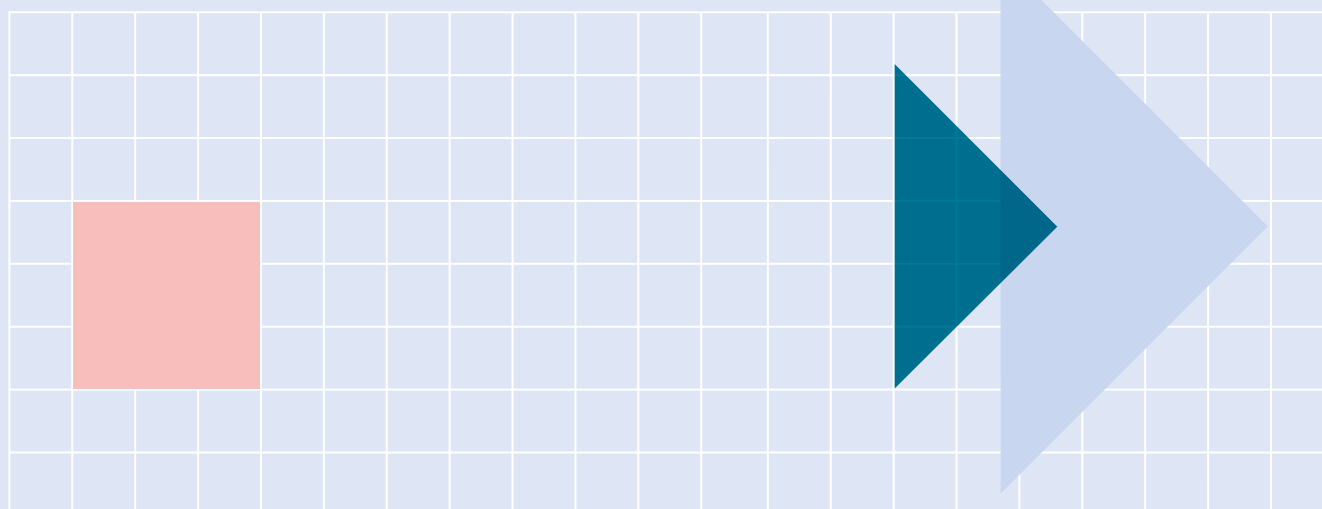
Rationale: this recommendation is strong because:

- all evidence consistently points in a beneficial direction, including evidence related to acceptability and equity;
- the evidence suggests that – if school health services are implemented well – they will have lasting benefits for students;
- the overall certainty of the evidence in the systematic reviews is moderate;
- although there were no studies in low- and middle-income countries that provided high-certainty evidence, the observational studies that took place in low- and middle-income countries also identified benefits and did not identify significant harms; and
- schools offer a compelling, broad and relatively convenient opportunity to reach children and adolescents with needed comprehensive health services.

Implementation considerations

- This recommendation is for comprehensive school health services that have adequate resources and are implemented well.
- School health services need to be implemented with quality, fidelity and over the long term. The resource implications must be carefully identified, examined and met.
- In practice, implementation will be variable. In some settings it may be difficult and/or not yet feasible to implement comprehensive school health services similar to those that the systematic reviews found were evaluated in controlled studies in high-income countries. Substantial resources, time and leadership may be needed to achieve this. In many low- and middle-income countries it may nonetheless be feasible to implement some aspects of comprehensive school health services now, even if not yet all aspects.
- Protecting student confidentiality is paramount, and school health workers are also obliged to prevent possible discrimination or stigma towards students.

This recommendation is based on evidence and a decision-making process that are outlined below and in greater detail in the main text of the guideline and its accompanying Web Annexes A–H.



Background

School health services (SHS), as defined in this guideline, are services provided by a health worker to students enrolled in primary or secondary education, either within school premises or in a health service situated outside the school. Most countries have some form of SHS, but many such programmes currently are not evidence-based, are not implemented well, are underfunded and/or are delivered with limited reach and scope (8). In all WHO regions, school-age children and adolescents (those aged 5–19 years) experience a range of largely preventable health problems, including unintentional injury, interpersonal violence, sexual and reproductive health issues, communicable diseases, noncommunicable diseases and mental health issues. In addition, school-age children and adolescents have positive physical, sexual, psychosocial and neurocognitive health and development needs as they progress from childhood to adulthood. The need for quality health care for 5–19-year-olds is great, but globally the quality of health services for them are variable and coverage is limited. Schools offer a unique opportunity to implement effective health services at scale for children and adolescents.

Health-promoting schools (HPS) promote health through six pillars: a school's policies, physical environment (including school feeding/meals programmes), social environment, health curriculum, involvement with the community and health services. In 1995, WHO launched the Global School Health Initiative, which has a goal to improve child, adolescent and community health through HPS. HPS have been found to be effective in improving several aspects of student health (9), but establishing them with high coverage, quality and sustainability has proved challenging in many countries. Importantly, while collaboration between education and health sectors (and other sectors and stakeholders) is a widely held ideal and desirable for all HPS pillars, such collaboration and interdisciplinary work is indispensable within SHS, which require medical expertise and collaboration at all levels of the system.

Recently, WHO, the United Nations Educational, Scientific and Cultural Organization (UNESCO) and other United Nations partners launched the “Making Every School a Health Promoting School” initiative, with the objective of strengthening the capacity of the education sector to integrate health and well-being considerations and promote health through a whole-school approach (10). As part of the initiative, global standards for HPS and systems have been established, including one standard that sets the requirement for access to comprehensive school-based or school-linked health services that address students' physical, emotional, psychosocial and educational health-care needs (3).

This WHO guideline on SHS aims to provide national governments and other stakeholders with detailed guidance on the effectiveness, acceptability and content of comprehensive SHS involving a health worker.

Three Key Questions underpinned the development of this guideline.

1. **Are comprehensive SHS *effective* in improving health outcomes or in increasing coverage of health services for school-age children and adolescents?** This includes effectiveness in economic studies (cost-saving, cost-benefit and/or cost-effectiveness).
2. **Are comprehensive SHS *acceptable* to stakeholders, such as school-age children and adolescents, parents and caregivers, teachers and policy-makers?**
3. **What should be the *content* of comprehensive SHS in different contexts?**

The **primary target audience** for this SHS guideline is government policy-makers and programme managers and private (for-profit and not-for-profit) stakeholders in the health and education sectors responsible for the health and well-being of 5–19-year-olds attending schools or similar educational establishments. The box provides an overview of the content of this guideline and how to use it.

BOX**How to use this guideline**

National government stakeholders and other stakeholders can use this guideline in developing and improving SHS policies and programmes.

FIRST: consider the guideline recommendation that **comprehensive SHS should be implemented**, and the evidence base supporting it.

Using this guideline, national stakeholders can consider the rigorous evidence that comprehensive SHS can be effective and acceptable (Chapter 4 and Web Annexes D–F). This evidence is the basis for the guideline recommendation above. National government stakeholders can use this evidence-based recommendation to support their efforts to develop and implement comprehensive SHS in their countries.

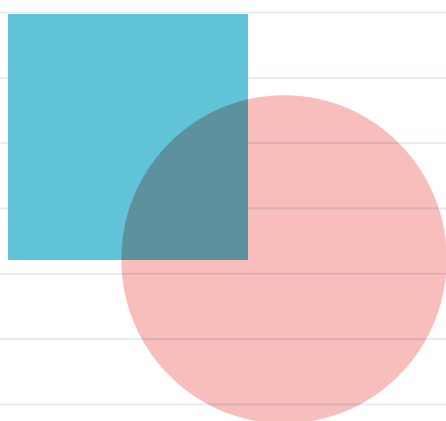
SECOND: use the menu of interventions and the evidence base in its supporting compendium to guide SHS intervention selection.

Using this guideline, national stakeholders can review the evidence base for possible interventions to be included within their national

SHS policies and programming. Specifically, national stakeholders can review the menu of interventions (see the table, Chapter 5 and Web Annex H) and the evidence base in its supporting compendium (Web Annex A) when considering which interventions should be included within their national SHS. The menu provides an at-a-glance overview of 87 interventions organized by health area, type of health activity, WHO source and categorization as essential or suitable in SHS, by location. The compendium details the published WHO evidence base related to each of the 87 interventions. Readers can review the sources cited there for further information.

THIRD: prioritize and implement interventions within national SHS policy and programming.

National stakeholders can draw on this guideline as they consider how to integrate SHS within broader national health strategies, what kind of organizational model of SHS to implement and how to prioritize and select interventions to include within SHS (Chapter 6).



Methods

This guideline was developed according to WHO standard procedures (2). An independent external Guideline Development Group (GDG), comprising geographically dispersed and gender-balanced representatives across different sectors, led the formulation of the recommendation and menu of interventions, with the support of an internal WHO and UNESCO Steering Group (see the Annex).

Given SHS consist of diverse possible combinations of services – and this guideline is one of the first global guidance documents to address SHS – only one overarching recommendation is provided; it addresses Key Questions 1 and 2. In addition, to address Key Question 3, this guideline provides practical information on many specific interventions that can be considered for implementation within comprehensive SHS. Importantly, these interventions have not been evaluated through the standard process used to identify recommendations for WHO guideline inclusion. Instead, the specific interventions were assessed through an innovative process involving a review of global WHO guidance documents, an expert survey of intervention priorities and GDG categorization of interventions. These different methodologies are summarized below. Substantial background information and evidence is provided for each intervention, but they are not formal guideline recommendations.

To assess SHS effectiveness and acceptability (Key Questions 1 and 2), a series of research exercises were conducted that built upon each other, as follows.

1. **A systematic overview of systematic reviews of the effectiveness of comprehensive SHS** (Web Annex C).
2. **Systematic reviews of the (1) effectiveness and (2) acceptability of comprehensive SHS** (Web Annex D). These systematic reviews screened the titles and abstracts of 8966 records for potential eligibility, after which 443 full-text articles were assessed for eligibility. In total, 18 high-quality controlled studies were eligible and included in the review. Because all of these were from high-income countries (HIC), the review also included 19 supplementary observational studies in low- and middle-income countries (LMIC).
3. **Evidence synthesis through a Grading of Recommendations Assessment, Development and Evaluation (GRADE) process** (Web Annex F), including generation of evidence summaries and profiles.
4. **Recommendation formulation by the GDG through a GRADE/WHO evidence-to-decision process** (Web Annex F) to assess the certainty of the evidence and strength of the recommendation (2).
To assess SHS content (Key Question 3), an innovative methodology was developed to assess the potential content and relative importance of interventions within comprehensive SHS. This process involved a series of exercises that built upon each other, as follows.
 1. **Review of global WHO guidance documents:** a review of 149 WHO publications that identified 531 health service procedures or activities (PAs) for 5–19-year-olds.
 2. **Expert survey preliminary ranking of interventions** (Web Annex G): PAs were grouped into an initial list of 86 interventions, which 442 experts in school health representing 81 nationalities ranked in a survey on their relative suitability for inclusion within SHS. The survey respondents also had the option to make additional intervention suggestions.
 3. **GDG final ranking of interventions:** based on the expert survey findings (including their additional suggestions) and further GDG review and prioritization exercises, the GDG identified and ranked a final list of 87 interventions as essential or suitable for inclusion within SHS, either everywhere or in certain geographic areas only.
 4. **Creation of a menu and a compendium of interventions:** the 87 interventions were compiled within an at-a-glance menu categorized by health area, type of health activity and final GDG ranking (see the table). Web Annex H provides an expanded version of this menu with the WHO source of each intervention. “WHO source” is based on the review of WHO guidance documents and refers to whether an intervention is: fully supported by one or more publications that have been approved by the WHO’s Guideline Review Committee (GRC); partially supported by one or more GRC-approved publications; or supported in one or more other global WHO publications. Relevant excerpts from WHO publications related to each of the 87 interventions are detailed with citation information in a compendium in Web Annex A.

Results: recommendation

Eighteen controlled studies in HIC were the main evidence source for the systematic reviews. Such sources will have only limited applicability to LMIC, so an additional 19 observational studies from LMIC (11 quantitative and eight qualitative) were included. These 37 studies provided the evidence for the following recommendation.

Comprehensive school health services should be implemented in schools.

This is a ***strong recommendation***, based on ***moderate certainty*** of evidence.

The operational definition of “comprehensive SHS” in this guideline is SHS that address at least four – but ideally all – health areas relevant to their student population: positive health and development; unintentional injury; violence; sexual and reproductive health, including HIV; communicable disease; noncommunicable disease, sensory functions, physical disability, oral health, nutrition and physical activity; and mental health, substance use and self-harm.

When developing this recommendation, the GDG highlighted that higher-quality studies, such as randomized controlled trials or non-randomized controlled studies of SHS effectiveness and acceptability, should be a future research priority in LMIC.

Results: menu of interventions

Table ES.1 shows the menu of interventions the GDG identified as being essential or suitable for inclusion within SHS organized by health area, type of health activity and specific GDG categorization. Web Annex H provides an expanded version of this menu with the WHO source of each intervention. The table and Web Annex H provide a simplified overview. Importantly, many interventions could have been placed in multiple cells of the menu, but for the sake of simplicity and clarity, only one cell has been selected for each intervention. Also, summary names of interventions have been used in this menu; the full, precise wording of each intervention is given in Chapter 5. This at-a-glance menu is linked to a compendium in Web Annex A that details the published global WHO evidence base and specific procedures or activities for each of the 87 interventions.

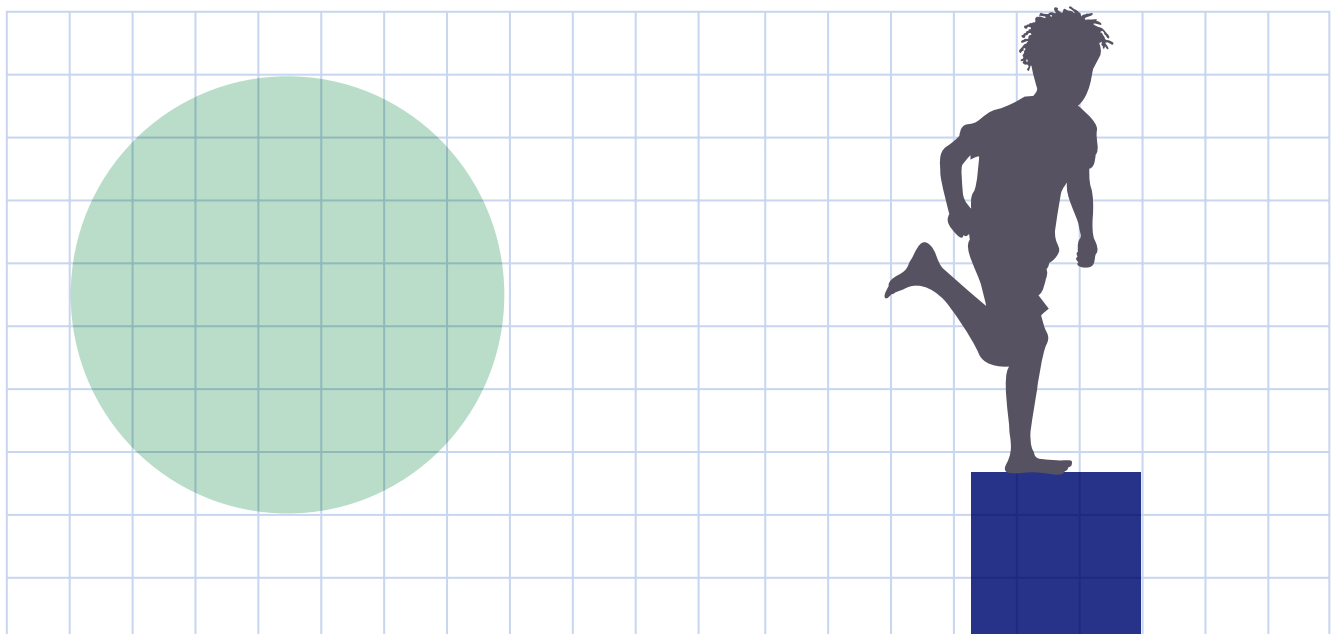


Table. SHS guideline menu of interventions by health area, type of health service activity and GDG categorization

GDG categorization of interventions as <i>essential</i> or <i>suitable</i> within SHS, by location							
Category formatting	Definition						
Essential everywhere	Should be included in SHS everywhere						
Suitable everywhere	Appropriate, but not essential, in SHS everywhere						
<i>Essential/suitable in certain areas</i>	Essential and/or appropriate in SHS in certain geographic areas only						
Type of school health service activity							
Health area	1. Health promotion	2. Health education	3. Screening leading to care and/or referral and support as appropriate	4. Preventive interventions (such as immunizations and mass drug administration)	5. Clinical assessment leading to care and/or referral and support as appropriate	6. Health services management	7. Support for other pillars of a health-promoting school
a. General/cross-cutting	<p>I-01. Promotion of care-seeking</p> <p>I-02. Promotion of health literacy</p>	<p>I-16. Support for health-promoting curriculum</p>	<p>I-27. Ensure assessment of compliance with school entry requirements</p> <p>I-28. Routine preventive health check-ups</p>	-	<p>I-56. Provision of first aid medications</p> <p>I-57. Administration of</p> <p>I-58. Referral and support for pain management</p> <p>I-59. Referral and support for non-specific symptoms</p>	<p>I-25. Use of population-level data to plan school health services</p> <p>I-26. Use data on school health services for monitoring and improvement</p> <p>I-60. Implementation of risk-management plan</p>	<p>I-17. Support for policies on health promotion</p> <p>I-18. Support for other aspects of health-promoting schools</p> <p>I-19. Support for policies on disease/injury prevention</p> <p>I-23. Training of school staff</p> <p>I-24. Inspection of school environment</p> <p>I-77. Referral and support for child carers</p>
b. Positive health and development	<p>I-07. Promotion of appropriate use of electronic devices</p> <p>I-08. Promotion of adequate sleep</p> <p>I-10. Promotion of parenting skills</p>	-	-	-	<p>I-30. Identification of developmental disabilities</p> <p>I-44. Counselling related to development</p> <p>I-43. Psychosocial intervention for well-being</p> <p>I-45. Support for caregiver related to a child's development</p>	-	-
c. Unintentional injury	-	I-48. Provision of education to prevent unintentional injury	-	-	<p>I-70. Referral and support for injury</p> <p>I-71. Referral and support for burns</p> <p>I-72. Referral and support for drowning</p>	-	-
d. Violence	-	I-49. Provision of education to prevent violence	-	-	<p>I-50. Counselling to prevent violence</p> <p>I-73. Referral and support for victims of violence</p>	-	-

		Type of school health service activity					
Health area	1. Health promotion	2. Health education	3. Screening leading to care and/or referral and support as appropriate	4. Preventive interventions (such as immunizations and mass drug administration)	5. Clinical assessment leading to care and/or referral and support as appropriate	6. Health services management	7. Support for other pillars of a health-promoting school
e. Sexual and reproductive health, including HIV	I-09. Promotion of menstrual hygiene management	I-15. Provision of sexual and reproductive health education	-	-	I-51. Contraceptive counselling I-52. Counselling on sexually transmitted infection prevention I-54. Referral and support for HIV prophylaxis I-55. Referral and support for HIV testing services I-74. Referral and support for pregnancy I-75. Referral and support for sexually transmitted infection I-53. Referral and support for voluntary medical male circumcision	-	-
f. Communicable disease	I-03. Promotion of personal hygiene I-12. Promotion of insecticide-treated bed nets	-	I-36. Screening – infectious diseases	I-38. Immunizations for all children I-40. Immunizations for children in high-risk populations I-39. Immunizations for children in certain regions I-41. Mass drug administration	I-61. Referral and support for common infections I-62. Referral and support for less common infections I-64. Referral and support for HIV-infected children	I-63. Management of infectious disease outbreaks	-
g. Noncommunicable disease, sensory functions, physical disability, oral health, nutrition and physical activity	I-04. Promotion of oral health care I-05. Promotion of reduced sugar I-06. Promotion of increased physical activity I-11. Promotion of appropriate sun exposure	I-13. Provision of nutrition education I-14. Provision of physical activity education	I-31. Screening – vision problems I-32. Screening – hearing problems I-33. Screening – oral health problems I-34. Screening – nutrition problems I-35. Screening – diabetes	I-42. Micronutrient supplementation	I-65. Referral and support for anaemia I-66. Referral and support for overweight I-67. Referral and support for asthma I-68. Referral and support for chronic conditions other than HIV, anaemia and asthma I-69. Referral and support for disability I-46. Counselling on nutrition and physical activity	-	I-21. Support for policies on anaphylaxis

Table contd

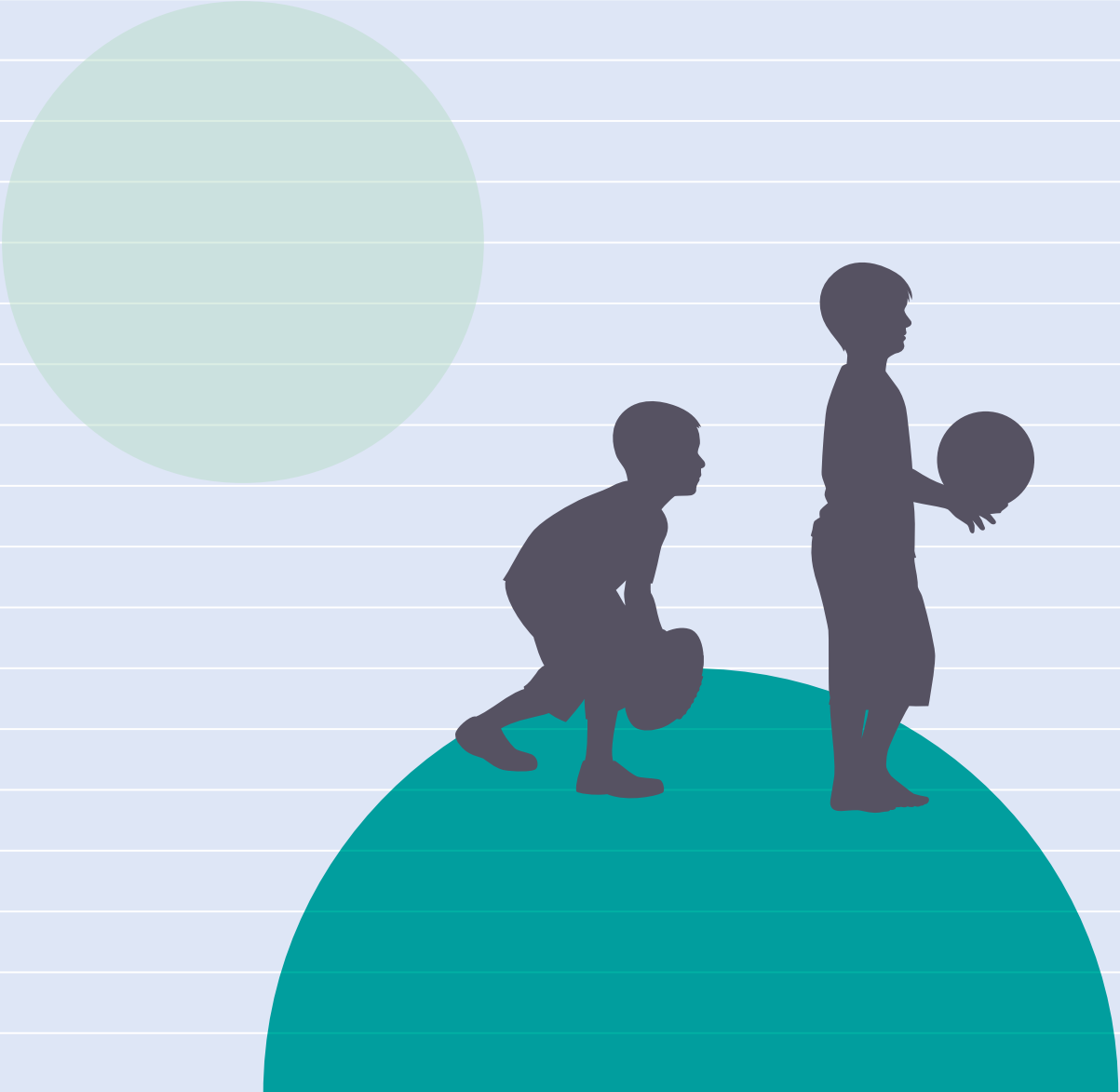
Type of school health service activity							
Health area	1. Health promotion	2. Health education	3. Screening leading to care and/or referral and support as appropriate	4. Preventive interventions (such as immunizations and mass drug administration)	5. Clinical assessment leading to care and/or referral and support as appropriate	6. Health services management	7. Support for other pillars of a health-promoting school
h. Mental health, substance use and self harm	-	-	I-37. Screening – mental health concerns	-	I-29. Conduct HEADSSS assessments I-47. Counselling on substance use I-76. Provide short-term or crisis counselling I-78. Referral and support for behavioural disorders I-79. Referral and support for emotional, anxiety, depressive disorders I-80. Referral and support for eating disorders I-81. Referral and support for stress I-82. Referral and support for suicide risk/self-harm I-83. Referral and support for somatoform disorders I-84. Referral and support for psychotic disorders I-85. Referral and support for harmful substance use I-86. Referral and support for substance dependence I-87. Referral and support for substance withdrawal	-	I-18. Support for policies on mental health promotion I-22. Support for policies on bullying

Note: each of the 87 interventions is categorized in the menu by health area, type of health activity, and final GDG ranking as essential or suitable within school health services, by location. Importantly, many interventions could be placed in multiple menu cells, but for clarity, one cell is selected for each intervention. Also, for the sake of brevity, summary names of interventions have been used in this matrix; full, precise names are given in Chapter 5. Web Annex H (Menu of interventions with WHO sources) and Web Annex A (Compendium of interventions with WHO evidence) provide more detailed information about each intervention.

HEADSSS: home, education, employment, eating, activity, drugs, sexuality, safety, suicidal thinking and depression status (assessment).

Chapter 1

Introduction



1.1 Child and adolescent health burden and needs

Great advances have been made in improving the health of children and adolescents in recent decades. Around the world, reduced mortality rates and improved nutrition among children and adolescents, as well as lowered fertility rates among adolescent girls, are examples of tremendous progress (11–15).

Despite these successes, substantial child and adolescent disease and injury burdens persist. In each WHO region, children and adolescents continue to experience a range of major health problems, including unintentional injury, interpersonal violence, sexual and reproductive health issues, communicable diseases, noncommunicable diseases and mental health issues, as well as risk behaviours related

to them (such as the use of tobacco and alcohol, unhealthy diet and physical inactivity). Road injury is a top-five cause of death in both sexes and across all age subgroups of school-age children, and lower respiratory infections (LRIs) and diarrhoeal diseases are top-five causes of death among most subgroups (Fig. 1). Other conditions are top-five causes of death among certain subpopulations only, such as drowning among boys and young men aged 5–19 years, malaria among 5–9-year-old girls and boys and 10–14-year-old girls, HIV/AIDS among 10–14-year-old girls and 10–19-year-old males, self-harm among 15–19-year-old females and males, interpersonal violence among 15–19-year-old males and maternal conditions among 15–19-year-old females.

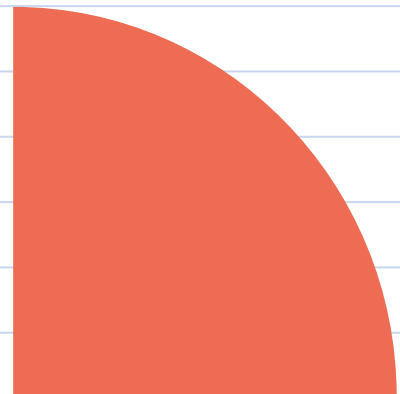
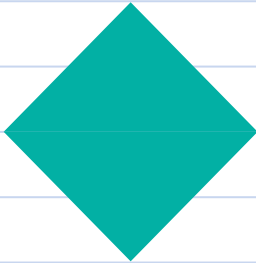
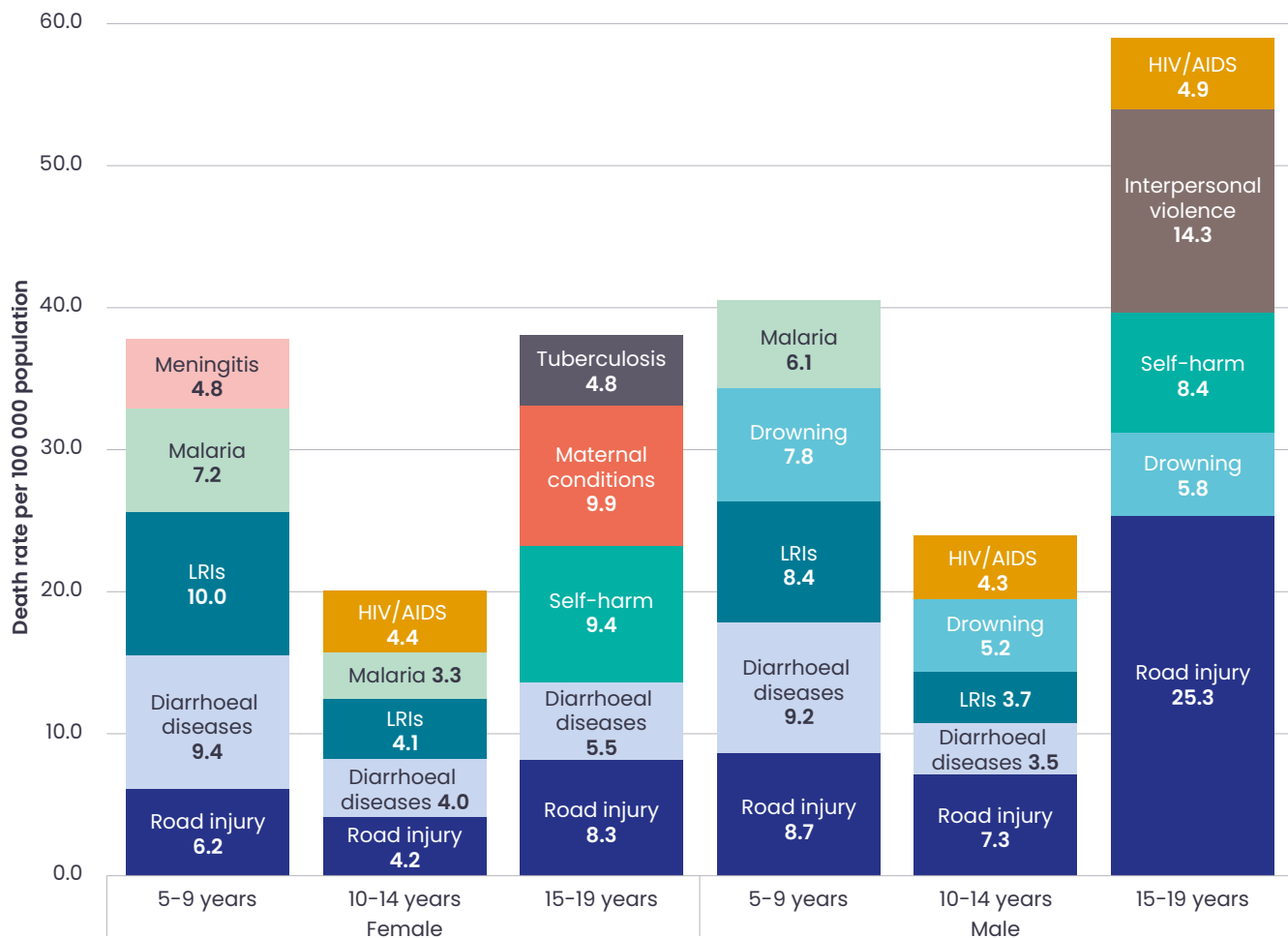


Fig. 1. Global estimates of top-five causes of death for school-age children and adolescents, by sex and age group, 2016



Note: data are organized from the overall highest to lowest causes of death rates (total for all sexes/age groups), for the top-five causes within each sex/age group. For example, at a rate of 60.0 deaths per 100 000 population, road injury is the highest cause of death rates for all school-aged children (5–19 years); in contrast, meningitis and tuberculosis both have rates of 4.8 deaths per 100 000 population and as such are the lowest among the 11 causes shown.

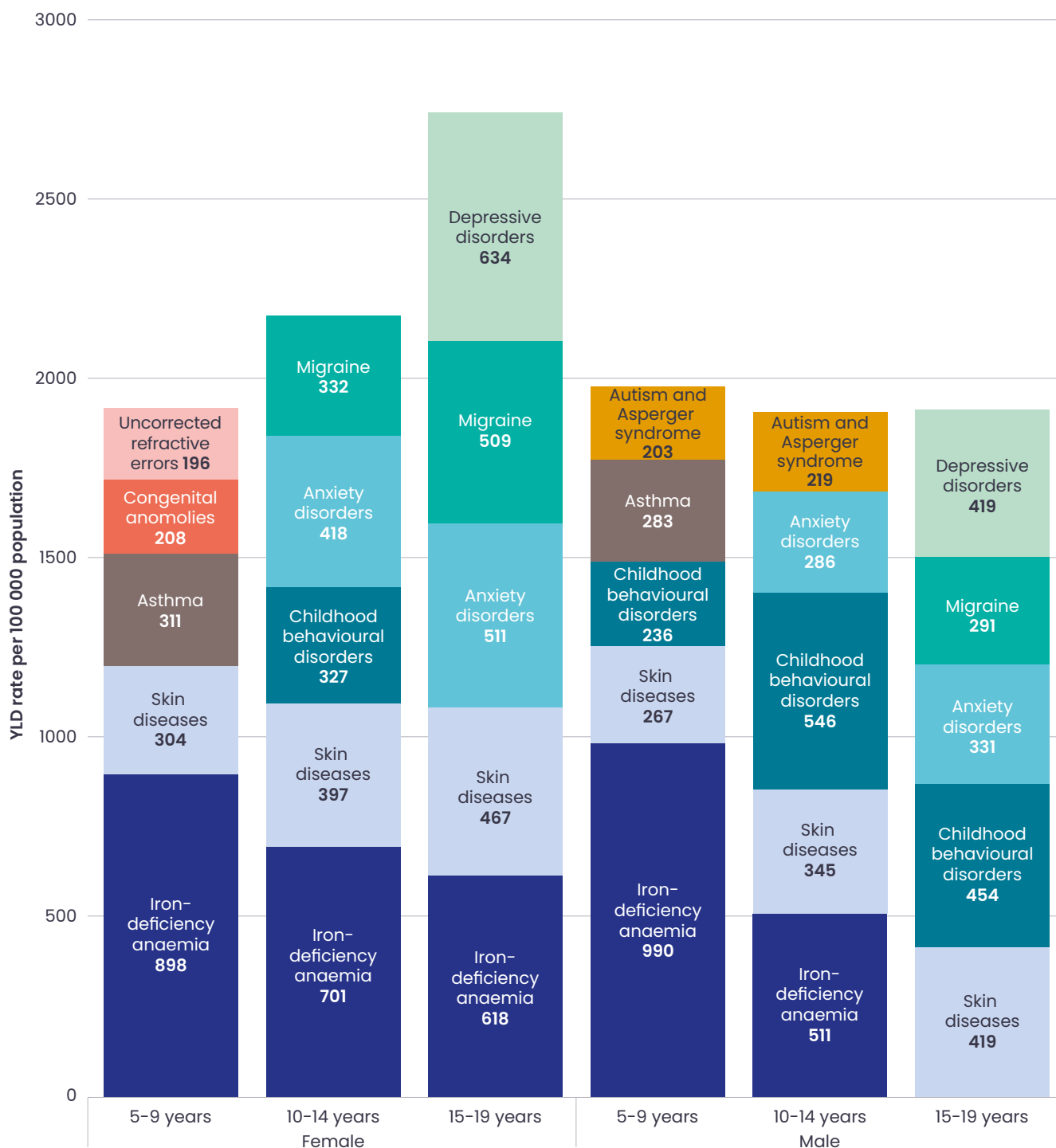
Source: WHO (14).

Global progress in reducing the non-fatal disease burden has also been limited. Estimated years lived with disability (YLD) – a measure that aims to capture the amount of time lived in states of less than good health – show that skin diseases, iron-deficiency anaemia, anxiety disorders and childhood behavioural disorders are top-five causes of YLD among most subgroups (Fig. 2). Some conditions, however, are top-five causes of YLD among certain subpopulations only, such as congenital anomalies and uncorrected refractive errors among 5–9-year-old girls, asthma among 5–9-year-old girls and boys, migraines among 10–19-year-old girls and 15–19-year-old boys, autism and Asperger syndrome

among 5–14-year-old boys and depressive disorders among 15–19-year-olds of both sexes. Unlike mortality, where 15–19-year-old boys and young men experience the highest death rates, YLD rates are particularly high for 15–19-year-old girls and young women.

Importantly, where conditions are not seen in Fig. 1 and 2 for a specific subpopulation of children and adolescents, it does not mean that that condition does not cause YLD or death in large numbers or at high rates among that subpopulation, but simply that it is not among the subpopulation's top-five causes of YLD or of death.

Fig. 2. Global estimates of top-five causes of YLD for school-age children and adolescents, by sex and age group, 2016



Note: (a) YLD are an estimate of the burden of disease due to disability; they are calculated by multiplying the incidence of a disorder by its duration and a weight factor that reflects the severity of the disability it causes on a scale from 0 (perfect health) to 1 (dead) to estimate the short- or long-term loss of health associated with that disability. (b) Data are organized from the highest to lowest causes of rates of YLD overall (total for all sexes/age groups), for the top-five causes within each sex/age group. For example, at a rate of 3718 YLD per 100 000 population, iron-deficiency anaemia is the highest cause of YLD for all school-aged children (5-19 years). In contrast, at a rate of 196 YLD per 100 000 population, uncorrected refractive errors (top of one column) are the lowest among the 10 causes shown.

Source: WHO (14).

Across the world, some subpopulations of children and adolescents are particularly vulnerable. They experience higher exposure to health risks, lower access to health services, worse health outcomes and greater social consequences as a result of ill health (16). Underlying these inequalities are factors such as sex, income, education and rural or urban residence. Effectively addressing the health needs of children and adolescents therefore requires interventions that target the structural and intermediary social determinants of health and well-being, among others. Improving the quality, coverage and equity of SHS can be an important step towards achieving the Sustainable Development Goals (SDGs) that were set by the United Nations General Assembly in 2015, such as ensuring healthy lives and promoting well-being for all at all ages (SDG 3), achieving gender equality and empowering all women and girls (SDG 5), and reducing inequalities within and among countries (SDG 10).

All school-age children also have positive physical, sexual, psychosocial and neurocognitive health and development needs as they progress from childhood to adulthood (4). The period of growth from 5–19 years is critical for the development of skills and behaviours

that enable children and adolescents to navigate their environment effectively, relate well with others, perform well and achieve their goals. In addition to addressing health problems, it therefore is important for health care to focus on factors that support child and adolescent positive health and well-being; this is in keeping with a salutogenic and positive-development approach that focuses on supporting healthy transitions, growth and behaviours (17). For example, school-age children can benefit from different forms of health education, such as curricula focused on nutrition, physical activity, hygiene or reproductive and sexual health. They also can benefit from different forms of health promotion, such as participatory activities focused on well-being (18), health-seeking behaviours (seeking appropriate treatment for a health problem) or the so-called 5 Cs (competence, confidence, connection, character and caring) (4). Similarly, as children experience changes during puberty, they may have questions or health-care needs related to maturation, female hygiene (including menstrual hygiene) and male hygiene (19). Adolescent-friendly health services, including adolescent-friendly SHS, are designed to address such issues in accessible, acceptable and appropriate ways (20).



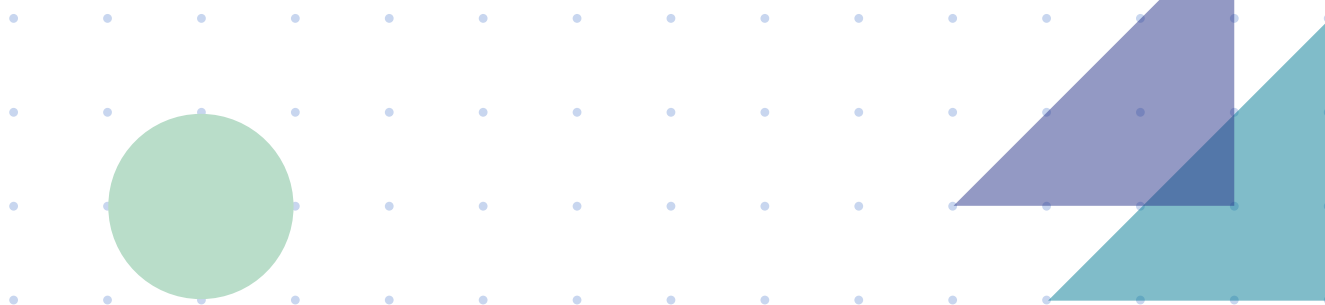
1.2 SHS in the context of school health and HPS

Schools have an extraordinary potential to provide intensive, long-term and large-scale health programmes to children and adolescents (8). Globally, most children and adolescents are enrolled in school, and an increasing proportion of students continue enrolment from primary to secondary school. The global adjusted net primary and secondary school enrolment rates¹ are 89% and 66%, respectively (21–23). A system of SHS therefore may be the only institutional way to meet the health needs of the majority of school-age children and adolescents on an almost daily basis (24). Operating in an educational setting, SHS are well placed to exploit the inextricable link between health and education.

SHS operate in a broader context of school health that was articulated by WHO in 1995 with the launch of the Global School Health Initiative. The Initiative had the goal to improve child, adolescent and community health through multifaceted health programming in schools (25). Further expanded in 2000 through the partnership for Focusing Resources on Effective School Health – a FRESH Start approach (26,27), it supported countries to develop school health programmes and increase the number of HPS, defined as “schools that constantly strengthen their capacities as healthy settings for living, learning and working” (28). Importantly, effectively addressing child and adolescent health needs in a HPS requires evidence-based interventions that directly target health and well-being, as well as interventions that focus on the structural and intermediary social determinants of health and well-being (29). HPS initiatives have been shown to be capable of improving health-related behaviours, such as physical activity, physical fitness, fruit and

vegetable intake, preventing tobacco use and preventing bullying (9). Interventions delivered through schools, including deworming, insecticide-treated bed net promotion, tetanus toxoid and human papillomavirus vaccination, oral health promotion, vision screening and provision of spectacles, micronutrient supplementation, multifortified foods and school feeding interventions, offer excellent cost-effectiveness and very high benefit-cost ratios (30). Investments in the health and education of adolescents generate economic and social benefits ranging from 6- to 12-fold returns on investment (31).

Increasing access to comprehensive SHS is one of the new eight global standards for HPS. While HPS have been found to be effective, establishing them with high coverage, quality, equity and sustainability has proved challenging in many countries (9,32), mainly due to poor integration of health and health promotion into education systems (10). In 2017, the *Global Accelerated Action for the Health of Adolescents (AA-HA!) Guidance* recognized this gap and called for school health programmes to be prioritized as an important step towards universal health coverage (UHC), urging that, “Every school should be a health promoting school” (4). To support this goal, in 2018 WHO and UNESCO launched the “Making Every School a Health Promoting School” initiative (10), in collaboration with other United Nations entities, such as the United Nations Children’s Fund (UNICEF) and the United Nations Population Fund (UNFPA). As part of the initiative, global standards and implementation guidance for HPS have been developed (3,33). The eight global standards relate to one another to comprise a HPS system that recognizes the important role of SHS (Fig. 3).



¹ The net school enrolment rate is the number of students of official school age who are enrolled in education as a percentage of the total children of the official school-age population.

The eight global standards for HPS, are intended to function as a system (Fig. 3 and Table 1). The standards are intentionally aspirational, looking towards progressive realization of a vision for healthy schools.

Fig. 3. Overview of global standards for HPS

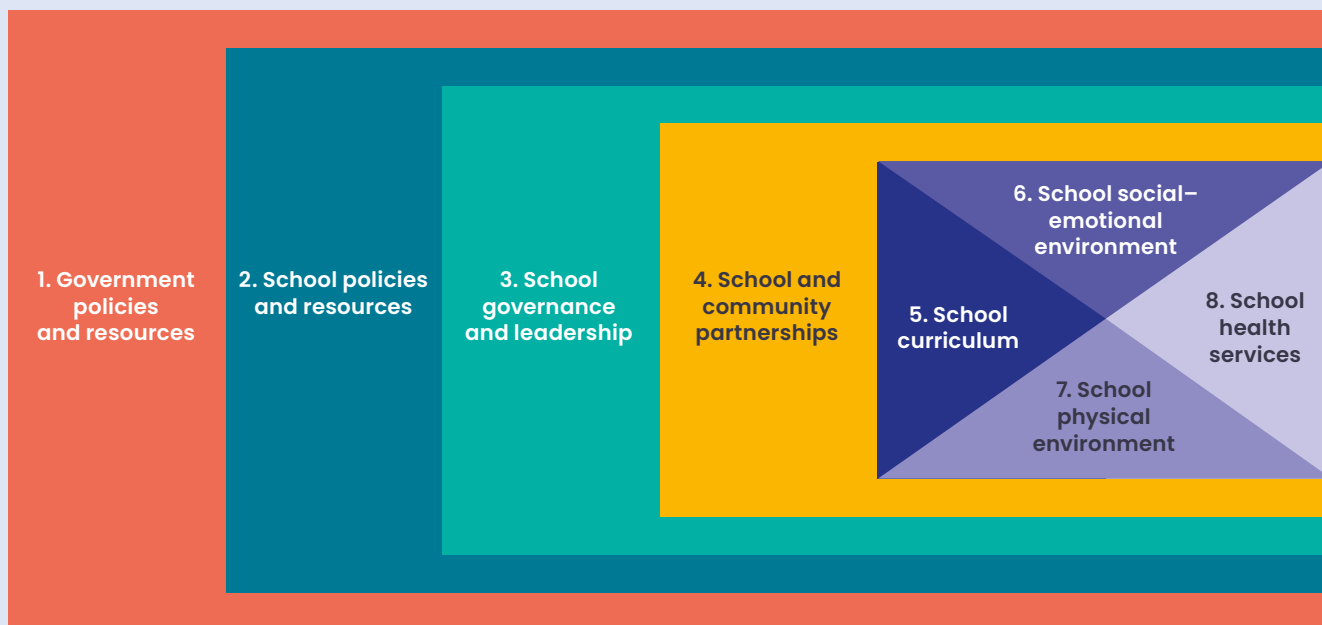








Table 1. Overview of global standards for HPS

<p>1 </p> <p>Government policies and resources</p> <p>The whole of government is committed to and invests in making every school a HPS</p>	<p>2 </p> <p>School policies and resources</p> <p>The school is committed to, and invests in, a whole-school approach to being a HPS</p>	<p>3 </p> <p>School governance and leadership</p> <p>A whole-school model of school governance and leadership supports a HPS</p>	<p>4 </p> <p>School and community partnerships</p> <p>The school is engaged and collaborates with the local community for HPS</p>
<p>5 </p> <p>School curriculum</p> <p>The school curriculum supports physical, social-emotional and psychological aspects of student health and well-being</p>	<p>6 </p> <p>School social-emotional environment</p> <p>The school has a safe, supportive social-emotional environment</p>	<p>7 </p> <p>School physical environment</p> <p>The school has a healthy, safe, secure, inclusive physical environment</p>	<p>8 </p> <p>School health services</p> <p>All students have access to comprehensive school-based or school-linked health services that meet their physical, emotional, psychosocial and educational health-care needs</p>

1.3 The need for guidance on SHS

While the FRESH partnership and other partners produced clear, evidence-based guidance for some components of HPS (34–37), guidance on SHS is scarce (38–43). It is important therefore that the global standard on SHS is reinforced by a guideline supported by a rigorous review of the literature and implementation experience.

Global and regional overviews of SHS have shown that while most countries have some form of SHS, many such programmes are not evidence-based, are not implemented well, are underfunded and/or are delivered with limited reach and scope (8,44). SHS are often omitted in national whole-school programmes (Box 1, Web Annex B).

BOX 1.

Key highlights from global reviews of national SHS programmes

- School-based or school-linked health services exist in at least 102 countries (8). Most commonly, they provide vaccinations, sexual and reproductive health education, vision screening, nutrition screening and nutrition education. Important interventions, including the provision of mental health services and injury and violence prevention interventions, are not given sufficient consideration in routine SHS provision.
- Typically, SHS are provided within school premises by dedicated school health personnel (8).
- Most commonly reported challenges that SHS face include staff shortages, high workloads, lack of training and continuing professional education opportunities, and low motivation of school health personnel. In addition, inadequate coordination among multiple service providers or sectors (in particular, health and education) is reported frequently, as well as inadequate financing and quality of care issues (8).
- Even when national SHS frameworks reiterate a whole-school approach to health, they sometimes marginalize or omit the SHS component (Web Annex B).
- The extent of SHS programmes in countries may vary from minimal, teacher-delivered interventions, to occasional visits by a health worker (usually a nurse, sometimes a medical officer), to a fairly comprehensive SHS programme provided with high coverage by nurses based either full- or part-time in schools or by a team of health workers in school-based health centres (Web Annex B).
- Despite recognition of the importance of collaboration between the education and health sectors, the fundamentally intersectoral nature of SHS poses challenges. An analysis of case studies from eight countries – Australia, Bangladesh, Egypt, the Lao People’s Democratic Republic, Rwanda, South Africa, Turkey and the United States of America – found that in practice the implementation of SHS fell to one lead sector (education or health). In settings where SHS essentially were only led and implemented by the education sector, SHS interventions were extremely limited and typically were carried out by lay people without clinical training (Web Annex B).

1.4 Target audience of the WHO guideline on SHS

The primary target audience for the WHO guideline on SHS is government policy-makers and programme managers and private (for-profit and not-for-profit) stakeholders in the health and education sectors responsible for the health and well-being of 5–19-year-old students attending schools or similar educational establishments.

Secondary audiences will include academics, implementers (such as school health workers), other school staff (like managers, administrators and teachers) and students.

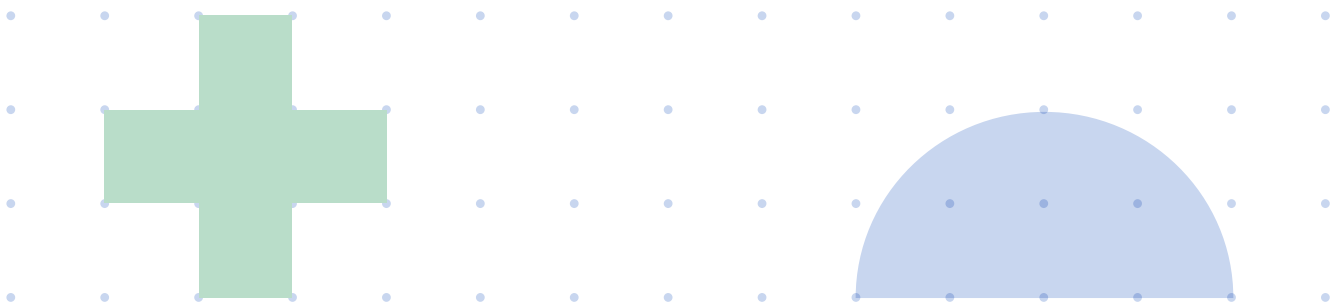
1.5 Objective and scope of the WHO guideline on SHS

The objective of this guideline is to provide national governments and other stakeholders with detailed guidance on the effectiveness, acceptability and content of SHS involving a health worker. The guideline is intended to support national governments and national and international partners in their efforts to develop effective, evidence-informed SHS programmes to better meet the health and development needs of school-age children and adolescents.

The scope of this guideline is services provided by a health worker to students enrolled in primary or secondary education, either within school premises or in a health service situated outside the school. Specifically, this guideline provides:

1. a recommendation based on rigorous evidence that comprehensive SHS can be effective and acceptable;

2. a menu of interventions that could potentially be included within SHS with supporting WHO sources; notably:
 - a. these interventions have been categorized by SHS experts as **essential in SHS everywhere**, *suitable in SHS everywhere* or *essential or suitable in SHS in certain geographic areas*; and
 - b. this categorization was developed based on findings from a global survey of SHS experts and further refinement and prioritization by the GDG; and
3. guidance on prioritization for national governments as they consider which interventions are most important to meet their particular SHS programming needs.



The guideline does not address other aspects of HPS that do not involve a health worker, such as health education provided by a teacher in class. Importantly, it also does not suggest a one-size-fits-all approach to SHS. It broadly is applicable to different delivery systems, such as school-based versus school-linked, or using a team of differently trained health workers versus a single cadre of health worker. It does not, however, provide specific recommendations about the content or delivery of SHS, as this will depend on the context and resources available, including the broader health system and existing services.

The guideline is expected to be part of a series of detailed global guidance documents on school health, including SHS programming and implementation. More broadly, it is hoped that it will help achieve specific SDG targets, including, but not limited to:

- ending the epidemics of AIDS, tuberculosis, malaria and neglected tropical diseases; combatting hepatitis, waterborne diseases and other communicable diseases; reducing premature mortality from noncommunicable diseases through prevention, treatment and promotion of mental health and well-being; strengthening the prevention and treatment of substance abuse; and achieving UHC (SDG 3); and
- eliminating all forms of violence against women and girls (such as sexual exploitation); eliminating all harmful practices (including child, early and forced marriage and female genital mutilation); and ensuring universal access to sexual and reproductive health and reproductive rights (SDG 5).

Box 2 shows key terms as defined in this guideline; further explanation and definitions are provided in the glossary.

BOX 2. **Key terms in this guideline**

A **health worker** is a person whose main function is to deliver health promotion, prevention, care and/or treatment services, such as a nurse or clinical psychologist, but not a teacher.

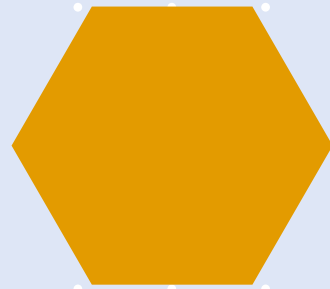
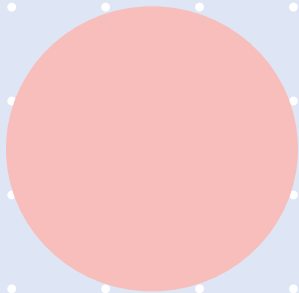
SHS are provided by a health worker to students enrolled in primary or secondary education, either within school premises or in a health service situated outside the school premises that has an official agreement with the school to provide health services to the school's students.

Comprehensive SHS: the operational definition of comprehensive SHS within this guideline is that

SHS include interventions in four or more of the seven health areas specified in section 3.2 and Chapter 5. Comprehensive SHS should address at least four – but ideally all – health areas relevant to their student population, including: positive health and development; unintentional injury; violence; sexual and reproductive health, including HIV; communicable disease; noncommunicable disease, sensory functions, physical disability, oral health, nutrition and physical activity; and mental health, substance use and self-harm.

Chapter 2

Guideline development process



2.1 Governance and management structures

A **Steering Group** was established to provide overall technical support to the guideline development process. The group was led by the WHO Department of Maternal, Newborn, Child and Adolescent Health and Ageing, with representatives from other relevant WHO departments and programmes, the six WHO regional offices and UNESCO. The Steering Group proposed experts with technical knowledge related to school health and expertise in evidence review and synthesis to be invited to be part of the GDG.

The GDG was made up of academics, public health professionals and clinicians not working for any United Nations organization who, between them, had multidisciplinary expertise in school health, adolescent health and child health. Consideration

was given to geographic diversity and gender balance. A Chair of the GDG was appointed from within the membership of the GDG to facilitate and guide the discussions of members, clarify their viewpoints and summarize issues that emerged from discussion.

Two external experts independently reviewed the guideline proposal before it was submitted to the WHO GRC. An **External Review Group** of five members was appointed to provide peer review of the content of the draft guideline.

The Annex lists all members of the GDG and the External Review Group, with gender, nationality and/or country of residence and institutional affiliation.

2.2 Declarations of interest and management of conflicts of interest

To comply with WHO's Conflict of Interest Policy, the Steering Group followed the revised *Guidelines for declaration of interests (WHO experts)* (45). Declarations of interest (DoI) were requested from:

- all GDG members;
- all experts and external partners involved in the evidence review process;
- all experts and external partners involved in guideline development and drafting; and
- all experts and external partners invited to review evidence profiles and the draft guideline.

A letter requesting completion of a DoI form and submission of a curriculum vitae was sent to all potential GDG members before they were appointed.

They were asked to agree to the publication of a summary of declarations in the guideline. Once received, the Steering Group reviewed the DoI forms and additional information (such as Internet and bibliographic database searches) and evaluated if there were any conflicts of interest. No significant conflicts were identified, so no further action was required. At each meeting, members of the GDG were given the opportunity to update or amend their declaration. Any member of the GDG was free to comment or express concern about declared interests of another group member. No significant conflicts were identified throughout the process (see the Annex).

2.3 Collaboration with external partners

The Stigma and Resilience Among Vulnerable Youth Centre at the University of British Columbia, Canada, supported the development of the guideline by

administering the survey of expert opinion and conducting preliminary analysis of the survey data.

2.4 Managing group processes and decision-making

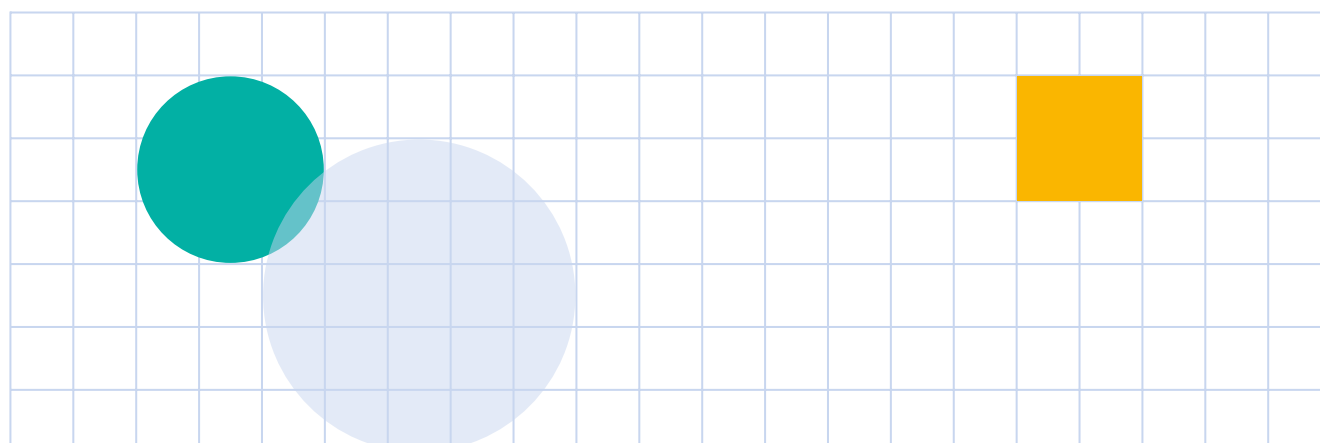
Three GDG meetings were held during the guideline development and decision-making processes. There were two in-person meetings in Geneva, Switzerland, in May and October 2019, and one global virtual meeting in April 2020. Originally, the third meeting was also planned to be in-person, but after the onset of the COVID-19 pandemic it was instead held as a series of three two-hour virtual sessions for both western and eastern hemisphere subgroups. It was necessary to hold subgroup sessions separately to accommodate different time zones around the world. GDG members and Steering Committee members selected which subgroup they wished to join and then participated only in the meetings of that subgroup. Only the GDG Chair, the GRADE Methodologist and two WHO Secretariat members attended all subgroup sessions.

Prior to each of the three GDG meetings, members received detailed background documents for review. This information was also summarized in presentations during each meeting prior to the GDG Chair and/or the GRADE Methodologist facilitating the GDG’s discussion and decision-making. During the third meeting, the GDG Chair only substantively contributed to discussions, and voted, within the sessions of Subgroup 1. Consensus was considered to be agreement among the members of the GDG when all members indicated their support for a decision and/or recommendation, including its phrasing. There was a protocol for voting in the event of disagreement, with a 60% majority considered sufficient, but in practice this was not required to decide any of the guideline’s Key Questions.

2.5 Confidentiality

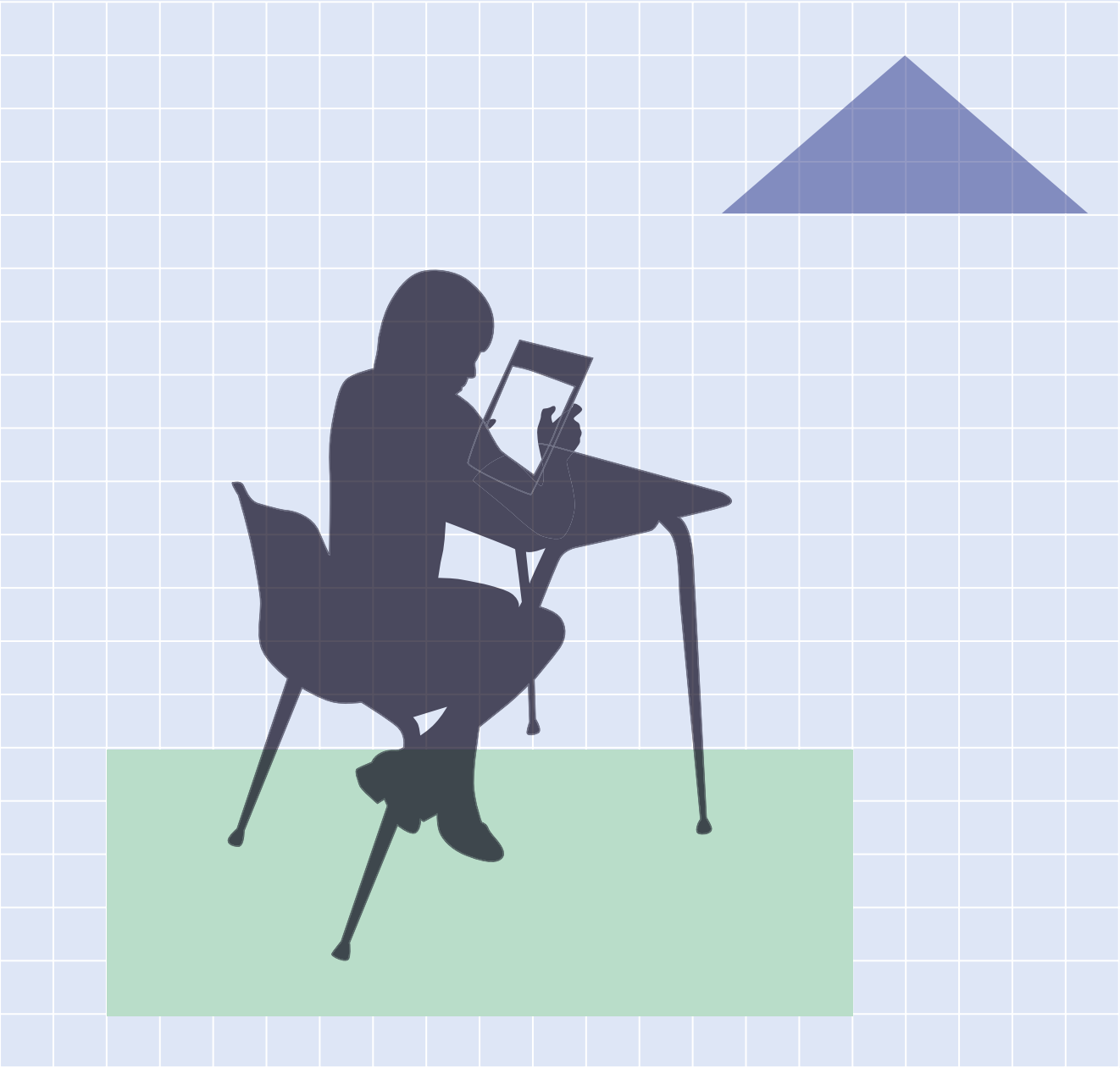
All members of the GDG, the External Review Group and the evidence-review and synthesis teams were asked to complete and sign the standard

WHO agreement for confidentiality. In addition, GDG members were reminded of the confidentiality requirement at each meeting.



Chapter 3

Methods



3.1 Key Questions

Three Key Questions informed the development of this guideline.

- **Key Question 1.** Are comprehensive SHS *effective* in improving health outcomes or in increasing coverage of health services for school-age children and adolescents? This included effectiveness in economic studies (cost-saving, cost-benefit or cost-effectiveness).
- **Key Question 2.** Are comprehensive SHS *acceptable* to stakeholders, such as school-age children and adolescents, parents, teachers and policy-makers?
- **Key Question 3.** What should be the *content* of comprehensive SHS in different contexts?

3.2 Health areas and types of SHS activity

Seven broad **health areas** are defined and used in this guideline (see Chapter 5). These were adapted from the health areas used in the *Global Accelerated Action for the Health of Adolescents (AA-HA!) Guidance (4)*. The seven health areas are:

- a. positive health and development;
- b. unintentional injury;
- c. violence;
- d. sexual and reproductive health, including HIV;
- e. communicable disease;
- f. noncommunicable disease, sensory functions, physical disability, oral health, nutrition and physical activity; and
- g. mental health, substance use and self-harm.

Comprehensive SHS, as operationally defined in this guideline, are SHS that include interventions from at least four of the seven health areas above.

This definition was developed to distinguish comprehensive SHS from narrowly focused health service interventions that happen to be delivered within a school (such as vaccination or deworming campaigns).

This guideline also defines and uses seven **types of SHS activity** (Chapter 5), as follows:

1. health promotion;
2. health education;
3. screening (leading to care and/or referral and support, as appropriate);
4. preventive interventions (such as immunizations and mass drug administration);
5. clinical assessment (leading to care and/or referral and support, as appropriate);
6. health services management; and
7. support for other pillars of a HPS.

3.3 Overview of guideline development methodology

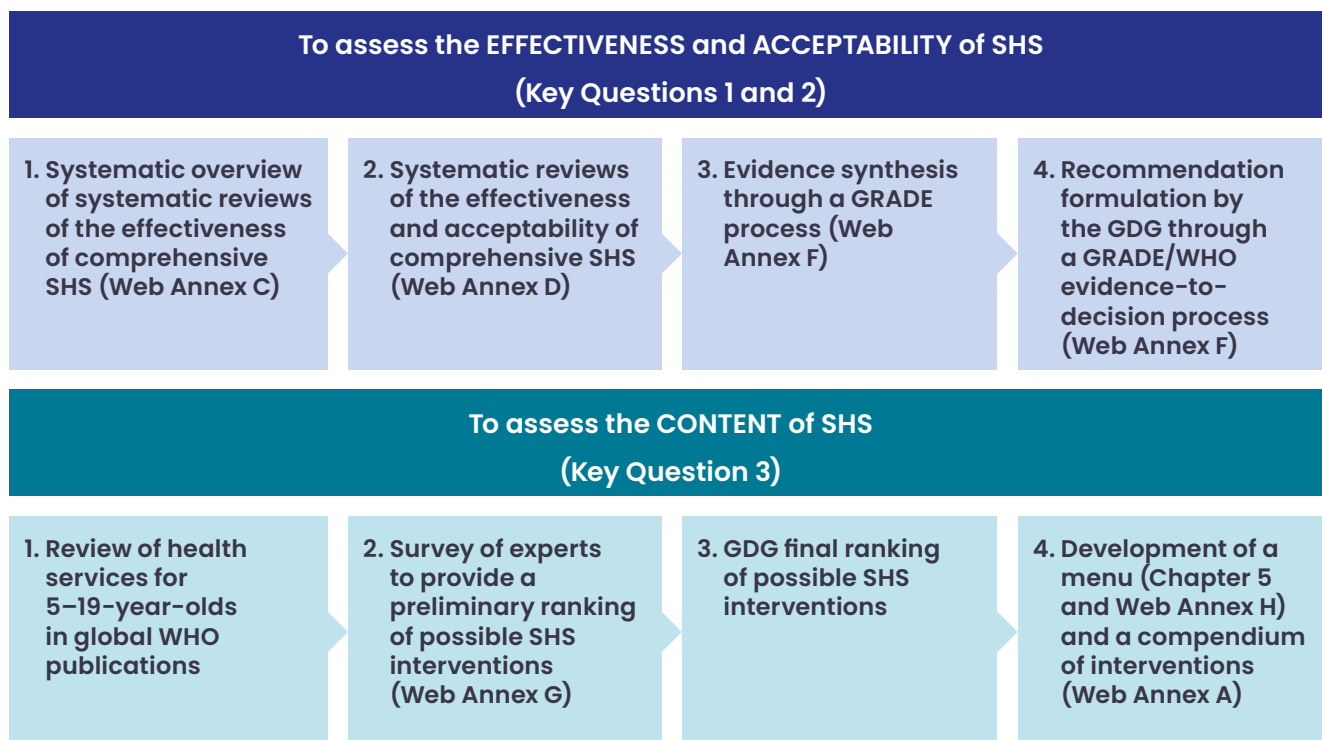
This guideline was developed according to WHO standard procedures for developing guidelines (2). A WHO guideline recommendation is developed through a complex process of systematic review and evidence assessment. Given SHS consist of diverse possible combinations of services – and this guideline is one of the first global guidance documents addressing SHS – only **one overarching recommendation** is provided; it addresses Key Questions 1 and 2.

In addition, to address Key Question 3, this guideline provides practical information on many specific interventions that can be considered for implementation within comprehensive SHS. Importantly, these interventions have not been

evaluated through the standard process used to identify recommendations for WHO guideline inclusion. Instead, the specific interventions were assessed and categorized through an **innovative process** involving a review of evidence and recommendations in global WHO guidance documents, an expert survey for preliminary categorizations of interventions, and a final SHS GDG categorization of interventions. Substantial background information and evidence is provided for each intervention and its categorization, but they are not formal guideline recommendations.

Fig. 4 provides an overview of the steps taken to answer the three key research questions during guideline development.

Fig. 4. Methodology used to develop the SHS guideline recommendation and menu of interventions



3.4 Systematic overview and systematic reviews of the effectiveness and acceptability of comprehensive SHS

The overview and systematic reviews in this section were conducted using the Preferred Reporting Items for Systematic reviews and Meta-analyses (PRISMA) approach (Web Annex D) (46).

Systematic overview of systematic reviews of the effectiveness of comprehensive SHS: the starting point for the WHO guideline on SHS was a systematic overview of systematic reviews. The systematic overview identified 20 systematic reviews and found SHS to be effective across a number of health domains, including depression and anxiety, obesity, oral health and sleep (47). These systematic reviews of SHS focused on the effectiveness of school-based interventions within a single health domain, although some systematic review authors suggested that SHS should be comprehensive (indeed, SHS often cover multiple health areas (48)). Web Annex C outlines the methods and select findings from the systematic overview. This systematic overview of systematic reviews presents multiple effective interventions that may be offered as a part of SHS delivered by a health provider. However, to formulate an overarching answer about the effectiveness of comprehensive SHS for improving the health of school-age children and adolescents, two new systematic reviews were conducted.

Systematic reviews of the effectiveness and acceptability of comprehensive SHS: two systematic reviews were conducted to assess Key Questions 1 and 2 on the effectiveness and acceptability of comprehensive SHS (49). Both systematic reviews began by defining the four elements of the question – population, intervention, comparator and outcome (2).

At its first meeting in May 2019, the GDG considered different methods for synthesizing and evaluating the systematic review evidence. The GDG discussed and agreed to use GRADE, which assesses the certainty or the quality of the body of evidence across studies for each outcome (1,50). The GDG also considered using WHO-INTEGRATE evidence, which is a tool for transparently reporting evidence-to-decision frameworks (51). It was decided, however, not to use INTEGRATE at the time when these systematic reviews were being designed, because there was no prior experience of using WHO-INTEGRATE for guideline development.

The initial systematic review search identified 8523 records, after removal of duplicates. The screening and review procedures are summarized in Web Annex D, which also provides a detailed description of the methodology of these systematic reviews of the effectiveness and acceptability of comprehensive SHS.



3.4.1 Population, intervention and comparator

Table 2 details the population, intervention and comparator for the systematic reviews of the effectiveness and acceptability of comprehensive SHS. Papers were included only if the SHS had been

delivered or supervised by a health worker, and excluded if the service was delivered by trained teachers without the involvement of a health worker. For the purpose of the systematic reviews, as in the guideline, “comprehensive SHS” were defined as those having interventions within at least four health areas (section 3.2 and Chapter 5).

Table 2. Population, intervention and comparator for the systematic reviews of effectiveness and acceptability of SHS

Measure	Characteristics
Population	Children (5–9 years) and/or adolescents (10–19 years) enrolled in schools
Intervention	<p>The intervention must have had the following characteristics:</p> <ul style="list-style-type: none"> • school-based or school-linked health services; • included studies must have investigated the effectiveness of a SHS that includes interventions for at least four health areas (see section 3.2); • based on the numbering of the seven types of SHS activities used in section 3.2: <ul style="list-style-type: none"> – the intervention must have used at least one “clinical” strategy from: (3) screening; (4) preventive interventions (such as immunization and mass drug administration); and/or (5) clinical assessment (leading to care and/or referral and support, as appropriate, including support for chronic health conditions, such as provision or supervision of medications); – this may have been with or without interventions related to: (1) health promotion; (2) health education; (6) health services management; and/or (7) support for other pillars of a HPS (such as health-related school policies, school ethos/safe learning environment and skills-based health education); • delivered by or supervised by a full- or part-time health worker;^a within the context of SHS, a health worker was defined as a health or allied professional who provides dedicated services to school-going learners (services that are not available to other population groups), irrespective of the site where services are provided
Comparator	Any comparator (such as SHS versus no SHS, different type of SHS, and similar programme delivered through a community-based general or child/adolescent clinic) or no comparator

^a The service must have been delivered or supervised within the SHS by a health worker. If it was delivered only by trained teachers and was not supervised by a health worker, it was excluded.

3.4.2 Effectiveness outcomes

Critical and important outcomes were agreed between the review team and the Steering Group and were endorsed by the GDG, following the definitions given by the WHO GRC, in which **critical outcomes** are those that are critical when formulating recommendations and **important outcomes** are those that should also be taken into consideration but are not critical for decision-making (2).

Critical effectiveness outcomes were defined as improvement in outcomes related to short-term mortality or morbidity that would otherwise require acute major health service expenditure or improvement in key educational metrics. **Important effectiveness outcomes** were defined as those affecting chronic morbidity, the academic climate or SHS coverage. The specific critical and important effectiveness outcomes that were considered are shown in Table 3.

Table 3. Critical and important outcomes for the systematic review of the effectiveness of SHS

Outcomes	Characteristics
Critical effectiveness outcomes	<p>Outcomes related to short-term mortality or morbidity that would otherwise require acute major health service expenditure or key educational metrics:</p> <ul style="list-style-type: none"> • suicide-related outcomes, including ideation, plans, gestures and attempts • hospitalization • emergency department visits • school absence • academic performance (such as grade-point average)
Important effectiveness outcomes	<p>Outcomes affecting chronic morbidity, the academic climate or SHS coverage:</p> <ul style="list-style-type: none"> • violence • sexual health • physical activity • health complaints • quality of life • mental health • substance use (tobacco, alcohol or drug use) • academic expectations • school engagement • coverage
Critical economic effectiveness outcomes	<ul style="list-style-type: none"> • Cost saving • Cost-benefit ratio • Cost-effectiveness ratio

3.4.3 Acceptability outcomes

The specific critical and important outcomes that would be considered in the review were agreed

between the review team and the Steering Group and were endorsed by the GDG. These are shown in Table 4.

Table 4. Critical and important outcomes for the systematic review of the acceptability of SHS

Outcomes	Characteristics
Critical acceptability outcome	User satisfaction as reported by the child/adolescent
Important acceptability outcomes	<ul style="list-style-type: none"> • Access (student had a regular health-care provider to whom they had consistent access) • Confidentiality • Communication • Safety and respect • Health-care worker spent enough time with the student • Satisfaction from the provider point of view • Feasibility of implementation from the provider point of view

3.4.4 Systematic review process

The systematic reviews of effectiveness and acceptability of comprehensive SHS screened the titles and abstracts of 8966 records for potential eligibility, after which 443 full-text articles were assessed for eligibility (Web Annex D). High-quality studies were identified; these were defined a priori as systematic reviews or randomized controlled trials or non-randomized controlled studies. In total, 18 high-quality studies, all of which used a controlled design, were found to be eligible and were included in the review. Because all of these were from HIC, the review also included observational studies conducted in LMIC. This resulted in 19 supplementary observational studies from LMIC.

Data were extracted from all eligible studies and quality assessment was conducted on each included study. For the non-randomized controlled studies and for the cross-sectional studies, quality

assessment was conducted using the Risk Of Bias In Non-randomized Studies of Interventions (ROBINS-I) assessments (52). Within the ROBINS-I tool, all controlled studies start with a high level of certainty. Quality of economic studies was assessed using the Critical Skills Appraisal Programme checklist to evaluate the quality of economic evaluations (53).

Because of substantial variation in the different types of interventions covered and in line with WHO guidance (2), the findings of the included studies primarily were synthesized narratively and organized according to the outcomes of interest (54). Where data allowed and studies were considered methodologically similar, data were pooled using fixed-effects meta-analysis to create estimates of effect, including odds ratios (ORs) and 95% confidence intervals (CIs) for dichotomous data and mean differences with standard deviations for continuous data.

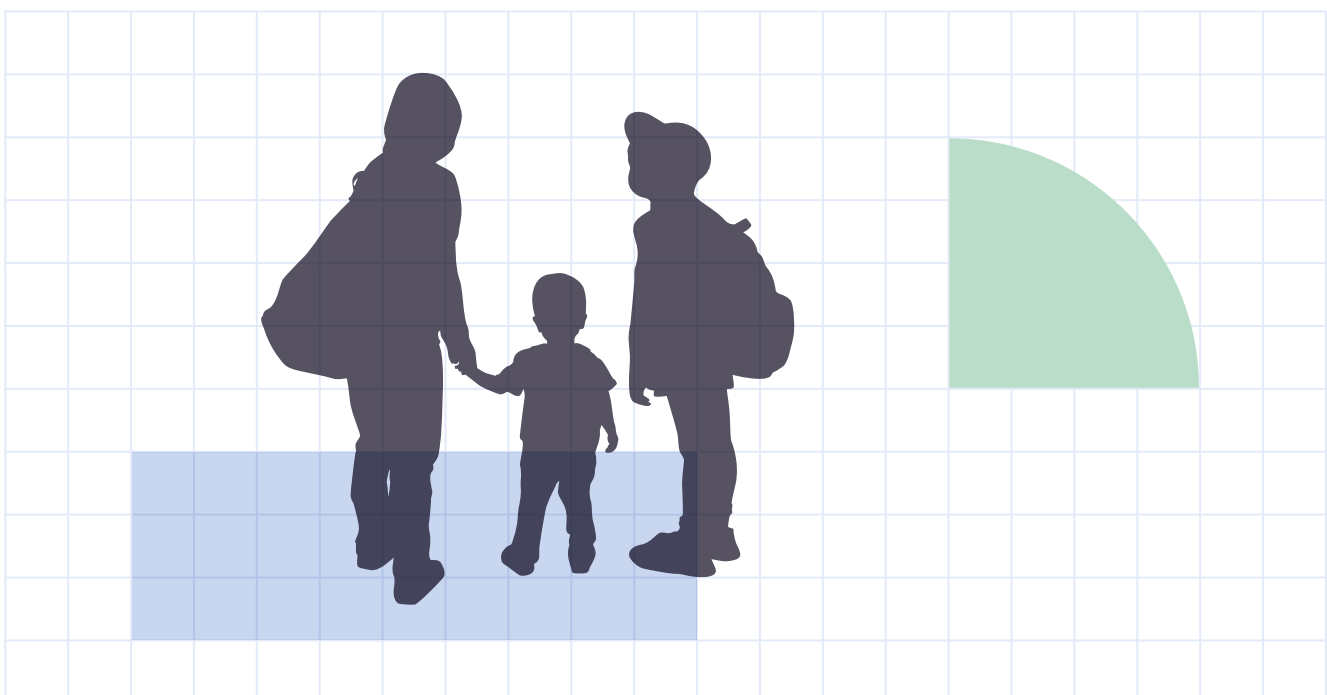
Certainty in the findings of the studies for each outcome was assessed according to GRADE guidance, which entails assessing the potential for risk of bias, imprecision, inconsistency, indirectness and publication bias for each finding (55). When using the ROBINS-I to assess risk of bias (52), GRADE ratings for the controlled evaluation studies commenced at *high* certainty and were then downgraded. For example, risk of bias was downgraded once for a response rate below 80% and twice for a response rate under 60%; imprecision was downgraded once for wide CIs or for a sample size below 300 and twice for a sample size below 100 participants; and inconsistency was downgraded once for unexplained heterogeneity between studies indicated by $I^2 > 50\%$. The rating for the observational (cross-sectional) studies started as low and was eligible to be increased for factors strengthening the evidence base, such as consistency over large numbers of studies and participants, dose-response relationship, or if the effect was present despite confounders tending in the opposite direction (56). The 2014 *WHO handbook for guideline development* (2) was used to select an overall certainty rating across outcomes. The handbook recommends that if there is higher quality of evidence for one or more critical outcomes and this is sufficient to support a recommendation, there is no reason to downgrade the overall quality of evidence because of lower-quality evidence for another critical outcome that supports the same recommendation.

For the qualitative studies, the GRADE Confidence in the Evidence from Reviews of Qualitative research (GRADE-CERQual) approach was used to determine confidence in the overall findings (57,58).

3.4.5 Developing the recommendation

Once the systematic review evidence was identified and synthesized and its quality assessed, the GDG, with the support of the Steering Group, followed the GRADE framework in considering specific factors that may affect the recommendation and its strength and direction. Criteria that were considered when moving from evidence to recommendations were: quality or certainty of the evidence, balance of benefits and harms, values and preferences, resource implications, priority of the problem, equity and human rights, and acceptability and feasibility (2,59). Evidence-to-decision tables were generated to help structure and document the GDG discussion by focusing on factors that would influence the direction and strength of the potential recommendation(s).

Generally, strong WHO recommendations are based on moderate-to-high certainty of evidence, depending on the other factors that are taken into consideration, as detailed above (2). Making a strong recommendation based on low or very low certainty of evidence would be unusual and would require special justification (2).



3.5 Development of menu and compendium of interventions

Several steps were taken to assess Key Question 3, the content of comprehensive SHS in different contexts. These included an extensive review of published global WHO health service procedures and activities for 5–19-year-olds, a global survey of experts, GDG categorization and prioritization of interventions and the development of a compendium and a menu of interventions. Each of these is described below.

3.5.1 Initial review of global WHO health service interventions for 5–19-year-olds

For the review of health service procedures and activities for 5–19-year-olds, a search was conducted through online WHO search engines, department website publication lists and other compilations of WHO recommendations. In total, 342 recent global WHO publications and WHO recommendation webpages were reviewed to assess their potential relevance for SHS, of which 149 publications had content used to produce a master list of 531 health service PAs that are relevant to 5–19-year-olds. These publications included global guidelines, strategies, standards for quality of care and guidance documents on adolescent health, school health and specific health conditions. The resulting list of PAs included formal recommendations in guidelines that had been approved by the WHO GRC as well as other published interventions, such as those identified as evidence-based interventions, best-practice statements, good-practice statements, key actions, key areas for programming, priority actions, quality areas, quality statements, recommendations and standards. Most of the compiled PAs were quoted verbatim in the compiled list, but some were consolidated from many lengthy and highly specific WHO recommendations to create one brief, composite PA. In addition, one unpublished global WHO report was included in this review, the February 2019 draft of the WHO UHC intervention menu that was then in development.

In early 2019, the working list of PAs was merged with a working menu of UHC interventions for children and adolescents. The new long list was consolidated to produce a shortlist for review by the GDG. At a May 2019 meeting, the GDG further refined the shortlist to produce a final list of 86 interventions for inclusion in a global questionnaire survey of expert opinion on SHS.

3.5.2 Global survey of expert opinion on SHS

3.5.2.1 Survey participants

SHS experts were identified through: (a) a search of PubMed and regional Index Medicus databases; and (b) lists of the Steering Group and GDG members, other people who had been nominated as potential members of the GDG and people nominated by members of the Steering Group or GDG.

3.5.2.2 Survey process

In July–August 2019, 442 experts participated in the global online survey, which focused on the relative suitability of the 86 interventions for inclusion within SHS. Specifically, respondents were asked whether each intervention was essential, highly suitable, suitable or unsuitable within SHS, either everywhere or in certain geographic areas only. Respondents also had the option to write in other essential SHS interventions. The questionnaire was available in Arabic, Chinese, English, French, Spanish and Russian.

Survey respondents represented 81 nationalities and two thirds (63%) had a doctorate or professional degree. Web Annex G details other self-reported sociodemographic characteristics of survey respondents.

3.5.2.3 Survey results

Responses to all of the interventions listed in the questionnaire were generally favourable, with the vast majority of respondents ranking almost all of the 86 interventions somewhere in the range from suitable to essential within SHS.

Several health promotion and education interventions had the highest overall ranking as **essential in SHS everywhere**, indicating that these were considered to be very important roles for health workers to perform within a school setting, although answer order bias may have contributed to this pattern. The clinical interventions that ranked most highly as **essential in SHS everywhere** were in the areas of immunization and mass drug administration, screening, assessment and general care. Similarly, among the 378 interventions that respondents wrote in as additional essential interventions for inclusion in SHS, the most common suggestions were in the areas of health education, other aspects of HPS and screening and care for noncommunicable conditions.

Web Annex G describes the methodology and findings from the global survey of expert opinion in more detail.

3.5.3 GDG prioritization and categorization of interventions

At its October 2019 meeting, the GDG developed a final list of 94 interventions that were categorized for possible inclusion within SHS. Several steps were taken in this process, including the following.

1. **A review of expert survey results:** none of the interventions listed in the SHS expert survey questionnaire was identified as unsuitable in SHS by more than 14% of respondents. Based on the most common categorization of each intervention, 62/86 (72%) interventions were identified as **essential in SHS everywhere** by survey respondents. The GDG found the survey findings promising, suggesting that all interventions could be considered for inclusion within the WHO guideline on SHS. However, the GDG acknowledged that this also posed a challenge, as the overwhelmingly positive results provided little guidance on how to prioritize interventions for possible inclusion within SHS.
2. **Consideration of findings from review of global WHO health service interventions:** the GDG also reviewed the preliminary findings from the review of global WHO health service interventions for 5–19-year-olds. Both the detailed evidence and the broad categorizations of WHO sources that were based on this review were considered in discussions of how to categorize interventions as essential, suitable or unsuitable for inclusion with SHS, by location.
3. **Prioritization exercises:** based on the survey and review findings above, and their own experience and expertise, the GDG undertook an exercise to prioritize interventions within SHS. First, two subgroups of the GDG independently reviewed, ranked and categorized the 86 interventions that were the focus of the survey. They also considered the survey write-in interventions and whether any new interventions should be added to the working list of 86. Each subgroup engaged in extensive discussion and debate until they came to consensus about the interventions to include in the list and how they should be categorized as essential, suitable or unsuitable within SHS, by location. Next, both subgroups discussed and resolved differences by consensus in plenary. The overall results were similar to those of the survey, in that the GDG identified 65 (76%) of the 86 interventions as **essential in SHS everywhere**. In addition, the GDG agreed to add eight new interventions to the list to create a final list of 94 interventions. This included:
 - 71 interventions categorized as **essential in SHS everywhere**
 - nine as suitable in SHS everywhere
 - seven as *essential or suitable in SHS in certain geographical contexts only*
 - seven as **UNSUITABLE IN SHS EVERYWHERE**.
4. **Further categorization of interventions by health area and type of SHS activity:** the GDG engaged in more subgroup activities to organize the 87 essential or suitable interventions by seven types of health activity (see section 3.2) – health promotion, health education, health screening, preventive interventions, clinical assessment, health services management and support for other pillars of HPS. In addition, they categorized these interventions by seven health areas (see section 3.2): positive health and development; unintentional injury; violence; sexual and reproductive health, including HIV; communicable disease; noncommunicable disease, sensory functions, physical disability, oral health, nutrition and physical activity; and mental health, substance use and self-harm. A further, eighth, category was added to cover general/cross-cutting interventions.

3.5.4 Design and finalization of the menu and compendium of interventions

The GDG proposed that the 87 essential or suitable interventions be organized in an at-a-glance menu of interventions for national governments to consider when developing or refining SHS in their respective countries. This menu should provide an overview of each intervention's health area, type of health activity, WHO source and final GDG categorization as essential or suitable for inclusion within SHS, by location. Box 3 explains the different categories of "WHO source" as used in this guideline.

The GDG further instructed WHO that the at-a-glance menu should be linked to a compendium

that lists the WHO sources and details published WHO procedures or activities for each of the 87 interventions that were identified as essential or suitable. Like the menu, this compendium was used for background information while the GDG considered possible SHS categorization of interventions during the guideline development, but was also intended to be a resource for national governments and their partners within the guideline itself.

In November 2019, an additional targeted review of global WHO guiding documents was undertaken to update the February 2019 literature review. This final review clarified the WHO sources of interventions where needed and produced the final list of 531 health service procedures or activities that provide evidence to the menu and compendium of 87 interventions.

BOX 3. Understanding the WHO sources of interventions

The GDG drew on multiple sources of information when considering how to categorize interventions for inclusion within SHS, including their own expertise and discussion, the survey of experts, and the review of information published for each intervention within global WHO guidance documents. The review of 149 global WHO publications identified 531 health service PAs for 5–19-year-olds. While the GDG reviewed this detailed information during their decision-making, they also requested an overview of it, as follows.

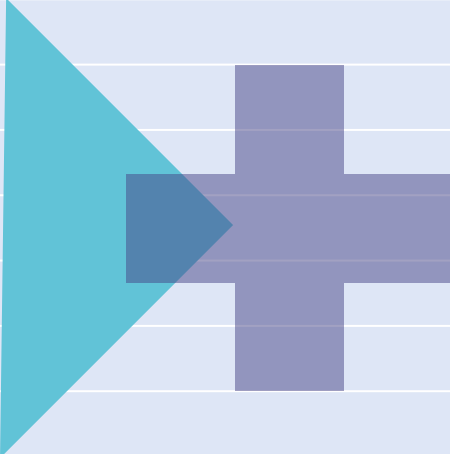
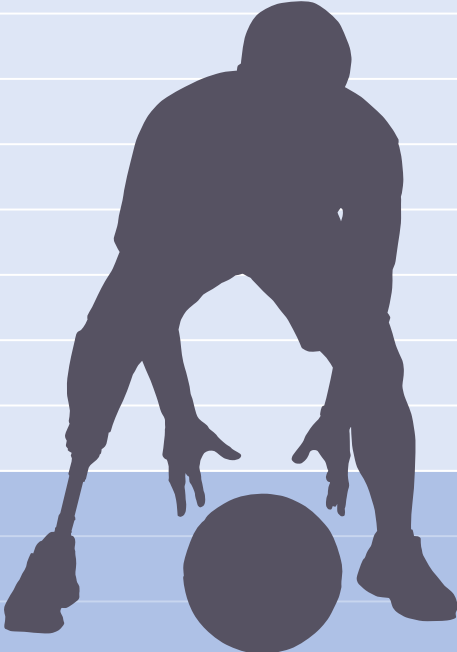
1. First, global WHO publications were considered to be approved by the GRC ("**GRC-approved**") if they detailed the GRC approval process and/or were included in a list of GRC-approved publications within a WHO compilation.
2. Second, an intervention was considered to have:
 - "**full GRC**" support if all aspects of the intervention were supported by a GRC-approved guideline;
 - "**partial GRC**" support if some, but not all, aspects of the intervention were supported by a GRC-approved guideline (in addition, some or all aspects of the intervention may have been supported by "other WHO" publications);

- "**other WHO**" support if some or all aspects of the intervention were supported by other global WHO publications (that is, those that have not gone through the GRC-approval process); and
- "**no WHO source identified**" if no supporting procedures or activities had been found in global WHO publications or a GRC-approved recommendation specifically stated that the intervention should not be done.

"WHO source" is a novel form of categorization and is not an evidentiary standard. Recommendations within GRC-approved guidelines may have variable certainty of evidence, so "WHO source" neither indicates the quality nor the strength of the evidence. WHO publications are cited throughout this guideline and its Web Annexes so readers can directly consult them for information about the strength and quality of evidence for specific interventions.

Chapter 4

Recommendation



4.1 Recommendation, rationale and implementation considerations

The recommendation, rationale, summary of evidence-to-decision judgements and implementation considerations are shown in Box 4.

BOX 4.

Recommendation, rationale, summary of evidence-to-decision judgements and implementation considerations

Recommendation

Comprehensive school health services should be implemented.

Strength of recommendation: strong.

Certainty of evidence: moderate.

Rationale: this recommendation is strong because:

- all evidence consistently points in a beneficial direction, including evidence related to acceptability and equity;
- the evidence suggests that – if school health services are implemented well – they will have lasting benefits for students;
- the overall certainty of the evidence in the systematic reviews is moderate;
- although there were no studies in LMIC that provided high-certainty evidence, the observational studies that took place in LMIC also identified benefits and did not identify significant harms; and
- schools offer a compelling, broad and relatively convenient opportunity to reach children and adolescents with needed comprehensive health services.

Summary of GDG evidence-to-decision judgements

1. Is the problem a priority? → Yes
2. How substantial are the benefits? → **Moderate**
3. How substantial are the harms? → **Uncertain or small**
4. What is the overall certainty of the evidence? → **Moderate**
5. What is the balance between benefits and harms? → **Favours SHS**

6. Do students value a comprehensive SHS? → **Important variability and possibly important uncertainty**
7. How large are the resource requirements (costs)? → **Varies**
8. What is the certainty of the evidence for the costs? → **Very low**
9. Is a comprehensive SHS cost-effective? → **Favours SHS**
10. What would the impact be on health equity? → **Increased**
11. Is a SHS acceptable to all stakeholders? → **Probably yes**
12. Is a SHS feasible to implement? → **Yes, although varies**

Implementation considerations

- This recommendation is for comprehensive SHS that have adequate resources and are implemented well.
- SHS need to be implemented with quality, fidelity and over the long term. The resource implications must be carefully identified, examined and met.
- In practice, implementation will be variable. In some settings it may be difficult and/or not yet feasible to implement comprehensive SHS similar to those that the systematic reviews found were evaluated in the controlled studies in HIC. Substantial resources, time and leadership may be needed to achieve this. In many LMIC, it may nonetheless be feasible to implement some aspects of comprehensive SHS now, even if not yet all aspects.
- Protecting student confidentiality is paramount, and school health workers are also obliged to prevent possible discrimination or stigma towards students.

The GDG found that the research on SHS effectiveness and acceptability has been limited to date (for instance, it has taken place primarily in HIC), so the certainty or quality of evidence is moderate. They considered this **moderate certainty of evidence** together with other factors – such as the balance of benefits and harms, values and preferences, resource implications, priority of the problem, equity and human rights, acceptability and feasibility – in its judgement of the strength of the evidence (for example, all evidence from HIC and LMIC consistently points in a beneficial direction). These factors together contributed to the GDG's **strong recommendation that comprehensive SHS be implemented**. In other words:

- a **strong recommendation** indicates the GDG's confidence that the desirable effects of comprehensive SHS outweigh possible undesirable consequences; and

- **moderate certainty of evidence** means that the GDG was moderately confident in the effect estimate – that is, that the true effect is likely to be close to the estimate of the effect, but there is a possibility that it is substantially different (2).

Section 4.2 provides a brief summary of the evidence for this recommendation, while section 4.3 provides an overview of the evidence-to-decision process that informed it. Web Annex E provides more detailed evidence summaries from the systematic reviews of effectiveness and acceptability of comprehensive SHS. Web Annex F provides the GRADE evidence profiles and evidence-to-decision tables; note the GRADE tables are included within the evidence-to-decision tables.

4.2 Summary of evidence

In total, 18 studies with high-quality research designs were the main evidence source for the systematic reviews. None of the systematic reviews identified in the search directly addressed the review questions, so they were only used to check that the searches had identified all eligible primary studies. No eligible randomized controlled studies were found.

Of the 18 controlled studies, 11 addressed effectiveness, eight addressed economic outcomes and four addressed acceptability (five studies addressed two of these outcomes: effectiveness plus economic ($n = 2$) or effectiveness plus acceptability ($n = 3$)).

As all of this evidence was derived from HIC, supplementary data from observational studies in LMIC were also included, which yielded an additional 19 studies (11 quantitative and eight qualitative). Of the 19 observational studies in LMIC, two addressed effectiveness (one quantitative and one qualitative), none addressed economic outcomes and 18 addressed acceptability (one study addressed both effectiveness and acceptability).

The summary of evidence presented to the GDG is given in Web Annex F, Table F.1. This is further described below.

4.2.1 Effectiveness

4.2.1.1 Critical effectiveness outcomes

From the 11 studies with high-quality, non-randomized controlled research designs that reported on effectiveness outcomes (all of which were conducted in HIC), seven reported on at least one critical effectiveness outcome; the others reported only important outcomes. The studies with non-randomized controlled research designs that could be assessed using GRADE were all conducted in HIC. Specifically, there was moderate strength of evidence of a benefit of SHS on the critical effectiveness outcomes of emergency department visits for asthma in two studies in the United States of America (total 2762 participants, OR = 0.48 (95% CI: 0.31, 0.73; $p = 0.0006$); no heterogeneity; $I^2 = 0\%$), with reduced risk of emergency department visits for asthma among students attending schools with, versus those without, comprehensive SHS (60,61). Also, there was very low strength of evidence on school absence/attendance (three studies in the United States of America with 6664, 3181 and 2305 participants, totalling 12 150, OR = 0.78 (95% CI: 0.69, 0.87; $p < 0.0001$)) for the risk of absence among students with, versus those without, SHS (substantial heterogeneity; $I^2 = 64\%$) (61–63). The heterogeneity between the study findings may have been because one included

children from pre-kindergarten to eighth grade (up to approximately 14 years) whereas the other covered the age range from 12 to over 18 years.

One observational study of only 31 participants in Turkey provided very low strength of evidence of a benefit of comprehensive SHS on school absence and academic progress (64).

4.2.1.2 Critical economic effectiveness outcomes

The eight studies with high-quality, non-randomized controlled research designs that reported on economic outcomes were conducted in HIC. Specifically, seven in the United States of America reported on at least one critical economic outcome, while the eighth, in Japan, reported willingness to pay.

Four studies conducted in the United States of America provided moderate strength of evidence that comprehensive SHS were cost-saving; these studies involved a total of 7704 participants (273, 109, 6664 and 658 respectively) (61,62,65,66).

Three other studies in the United States of America (5056, 1430 and 477 163 participants; total 483 649) showed cost-benefits (67–69).

4.2.1.3 Important effectiveness outcomes

From the 11 studies with non-randomized controlled research designs that reported on effectiveness outcomes (all of which were conducted in HIC), five reported on at least one important effectiveness outcome. Of those that could be assessed in GRADE, one study of 1994 participants in the United States of America had a moderate strength of evidence of a benefit of SHS on the important effectiveness outcomes in terms of students who reported that they had carried a weapon (OR 0.68 (0.53 to 0.88)), been in a fight (OR 0.73 (CI 95%: 0.60, 0.88)), ever had sex (OR 0.75 (CI 95%: 0.63, 0.90)), exercised at least four times a week (OR 1.21 (CI 95%: 1.02, 1.45)), ever used alcohol (OR 0.63 (CI 95%: 0.52, 0.76)) or used marijuana (OR 0.63 (CI 95%: 0.52, 0.76)) and the responsiveness of SHS to unmet need (OR 1.75 (CI 95%: 1.46, 2.09)) (70).

Other important outcomes from non-randomized controlled studies that could not be assessed using GRADE were relatively low health complaints, and relatively improved quality of life and school engagement (65,71,72).

One very small quantitative observational study from LMIC that involved only 31 participants provided very low strength of evidence of a benefit of comprehensive SHS on quality of life (64).

Regarding the qualitative data from LMIC, using the GRADE-CERQual approach, there was low confidence in the evidence on the existence of policies regarding SHS. One study of 30 health workers found there were no written plans guiding SHS work in the region of the United Republic of Tanzania studied (73).

4.2.2 Acceptability

4.2.2.1 Critical acceptability outcomes

All of the studies with non-randomized controlled research designs were conducted in HIC. From those that evaluated the acceptability of comprehensive SHS there was moderate strength of evidence of a benefit of SHS on the critical acceptability outcome of user satisfaction in HIC (74,75).

The observational (cross-sectional) studies from LMIC that evaluated the acceptability of comprehensive SHS were conducted in Egypt and Tunisia (two studies; 1121 and 625 participants; total 1746) (76,77). These studies suggest that users were less satisfied with their SHS than those in HIC, although there was no information about how satisfied they would have been with any realistic alternative or with no SHS.

4.2.2.2 Important acceptability outcomes

All of the studies with non-randomized controlled research designs that evaluated the acceptability of comprehensive SHS and reported on one or more important acceptability outcomes were conducted in HIC. For these studies, there was moderate strength of evidence of a benefit of SHS on confidentiality (one study in the United States of America with 2076 participants; OR 2.45 (2.04 to 2.95)) (74). There was low strength of evidence about access to health services (students having a regular health-care provider: two studies in the United States of America with 2076 and 1994 participants, respectively, totalling 4070; OR 1.33 (1.15 to 1.54)) (70,74).

The 10 observational (cross-sectional) studies from LMIC that addressed important acceptability outcomes showed that access to SHS, when measured by utilization, was variable (four studies in Egypt, India, Mexico and South Africa, with 1577, 360, 3005 and 830 participants, respectively, totalling 5772) (78–81). Access ranged from almost all students (97%) using the SHS in one study to only 5% of adolescents seeking health care through a school clinic in another.

One observational (cross-sectional) study in Tunisia with 625 participants suggested that students were disappointed in terms of confidentiality, communication, respect and health-care workers spending enough time with them (77).

Three observational (cross-sectional) studies from LMIC provided variable results in terms of provider or other professional satisfaction (148, 720 and 60 participants, respectively, totalling 928):

- in the first study, in Iraq, school principals' overall satisfaction was rated as "satisfied to some extent" (82);
- in the second, in Turkey, 337 (93.6%) teachers in private schools and 338 (93.9%) teachers in public schools believed that school nurses were needed (83); and
- in the third, in the Islamic Republic of Iran, the percentage of participants (health trainers, training managers and teachers working in elementary schools) agreeing that standards were met was: 94% for first-aid and screening functions of nurses; 69% for consultations with colleagues, peers and mental health consultants; 72% for health education; 76% for diagnosis; 62% for managing health planning with educational plans; but only 39% for using a suitable evaluation system for the plan for students, parents and staff (84).

A key issue in implementation reported by one observational (cross-sectional) study in an LMIC was lack of competency among primary school nurses regarding sexual health issues (one study in the Republic of Korea with 595 participants) (85).

4.2.2.3 Qualitative acceptability findings

In the qualitative studies, there was moderate confidence in the evidence that users were satisfied with SHS. This is based on three studies that ascertained the views of 20 school nurses in South Africa (86), 44 adolescents in Brazil (87) and 21 managers and health professionals in Brazil (88) (total 85). Particular attributes of SHS highlighted were that they were comprehensive, convenient, necessary, and offered an opportunity for gaining information and learning that may be beneficial in maintaining health. In addition, in one of the studies in Brazil, some of the student users perceived them as a "blessing" that inspired their gratitude (87).

The synthesis of the qualitative data from LMIC also showed moderate confidence in the evidence of the feasibility of SHS implementation (seven studies with a total of 157 participants). Four of these took place in Brazil and assessed the views of 15 primary health-care nurses (89), 39 health professionals, teachers and managers (90), 10 teachers (91) and 21 managers and health professionals (87). One study of 30 health workers took place in the United Republic of Tanzania (73), while two studies took place in South Africa, assessing the views of 20 school nurses (86) and 22 health-care providers (92). Potential SHS benefits noted in the seven studies were identifying health problems such as dental, visual and nutritional problems (including obesity), delayed vaccination status and social risk conditions, and integrating health, school and family.

4.3 Evidence-to-decision process

In its April 2020 meeting, the GDG reviewed the findings of the systematic reviews. Where no evidence was available for criteria within the evidence-to-decision tables, this was noted and GDG participants were requested to comment based on their expert opinion. Based on the

evidence from the systematic reviews and their own expert opinions, each GDG subgroup made independent judgements about each of the questions, as summarized in Table 5, which also shows the overall direction and main points of the group discussion prior to making judgements.

Table 5. SHS recommendation evidence-to-decision table: questions, judgements by GDG subgroup and rationales

Questions related to the health of school-age children and adolescents and/or SHS	GDG judgement	
	Subgroup 1	Subgroup 2
1. Is the problem a priority?	Yes	Yes
Rationale: the Convention on the Rights of the Child includes the right to the highest attainable standard of health (93). The SDGs also support this; for example, ensure healthy lives and promote well-being for all at all ages (SDG 3), reduce inequality within and among countries (SDG 10) and build effective, accountable and inclusive institutions at all levels (SDG 16). Moreover, adolescents are recognized as having very high unmet needs for health, including those related to mental health and sexual and reproductive health. Problems that arise during the second decade of life affect later health and development (4,16). In addition to worldwide recognition of child and adolescent health as a priority, individual countries (such as the United States of America) have also stated that it is a national priority to support the health and education of students and have specific priorities, such as reducing suicides among young people.		
2. How substantial are the benefits?	Moderate	Moderate
Rationale: the systematic reviews of controlled studies found evidence of a benefit of comprehensive SHS on the critical effectiveness outcomes of reduction in suicide planning (one study; 1 994 participants), hospitalization for asthma (one study; 273 participants), emergency department visits for asthma (five studies; total 17 166); school absence/attendance (three studies; total 12 150); and academic progress (one study; 2 305 participants). Some of these are critical outcomes (such as reduction in suicide planning). The judgement was "Moderate" because some of the benefits were based only on one study and there was little evidence to date based on LMIC experiences. The GDG noted that benefits may vary in LMIC.		
3. How substantial are the harms?	Uncertain	Small
Rationale: the reviews considered a wide range of critical and important outcomes that could have gone in either direction of benefit or harm, but there was no evidence of harm. One possible exception was a qualitative study of SHS acceptability in an LMIC in which SHS health workers reported they did not have plans to guide their work. In addition, the lack of evidence of harm may reflect a lack of measuring and/or a lack of reporting of possible harms. Both subgroups discussed making a judgement of "Small", "Trivial" or "Uncertain". Both subgroups acknowledged that an intrinsically sound and beneficial SHS design could potentially become harmful if implemented in inappropriate ways, such as in resource-limited LMIC, but the same could be said for all health services. Subgroup 1 ultimately selected "Uncertain" because some studies did not specifically ask whether there were potential negative outcomes. Subgroup 2 instead selected "Small", while noting that there was uncertainty, particularly as there was little evidence from LMIC.		

Table 5 contd

Questions related to the health of school-age children and adolescents and/or SHS	GDG judgement	
	Subgroup 1	Subgroup 2
4. What is the overall certainty of the evidence?	Moderate	Moderate
<p>Rationale: the GRADE tables present some variability. The overall body of evidence ranged from moderate to low certainty of evidence for critical outcomes. Several of the outcomes were based only on single studies and some important outcomes were not included (such as obesity, communicable disease, myopia and substance abuse). However, many of the studies were large and diverse in terms of geographic area and type of health outcomes assessed. Also, the direction of effects was consistently towards benefit, with minor exceptions, including a subset of males for suicide ideation (this was not statistically significant). All of these points contributed to a “Moderate” certainty of evidence judgement in both GDG subgroups.</p>		
5. What is the balance between benefits and harms?	Favours SHS	Favours SHS
<p>Rationale: the body of evidence collated in the systematic reviews indicated that provision of services can impact beneficially on key indicators of child and adolescent health. Again, the reviews considered a wide range of critical and important outcomes that could have gone in either direction of benefit or harm and there was no evidence of harm, although it was also possible that the lack of evidence of harm reflected a lack of measuring and/or a lack of reporting of additional possible harms. GDG members judged that the evidence favoured SHS, but both subgroups independently noted that if SHS are not implemented with fidelity to recommended standards and/or are provided by an inappropriate person, harms may result (such as a teacher responsible for SHS who does not make a life-saving referral, or a health worker who does not respect a student’s rights).</p>		
6. Do students value a comprehensive SHS?	Possibly important uncertainty or variability	Important variability
<p>Rationale: controlled studies from HIC found evidence of a benefit of SHS on the critical acceptability outcome of user satisfaction: confidentiality (one study; 2 076 participants; OR 2.45 (CI 95%: 2.04, 2.95)); and access (students having a regular health-care provider (two studies; total 4 070; OR 1.33 (CI 95%: 1.15, 1.54)). The 10 cross-sectional studies from LMIC showed that access to SHS was variable (four studies; total 5 772), ranging from almost all students (97%) to only 5.4% of adolescents. One cross-sectional LMIC study (625 participants) found that a high proportion of students were disappointed in terms of confidentiality (62%), respect for privacy (57%), listening (85%), understanding (83%), dialogue (82%), support (79%), information (51%), empathy (43%), respect (53%) and exam time (71%). Both GDG subgroups discussed that evidence was limited, particularly in LMIC, which led Subgroup 1 to select “Possibly important uncertainty or variability”. Subgroup 2 instead felt the very positive results in HIC provided some certainty that the majority of students value comprehensive SHS. However, this subgroup felt that important variability in service delivery remains, which in turn influences how students may value SHS in practice, leading to their judgement of “Important variability”.</p>		
7. How large are the resource requirements (costs)?	Varies	Varies (such as start-up and maintenance costs)
<p>Rationale: this question was not examined in the reviews and indeed no evidence was found about it in the reviews. In their discussion, GDG members raised several points based on their experience and expertise. They noted that resource requirements may be kept relatively low if specialist health professionals are involved in staff capacity-building, monitoring and supervision rather than service delivery. For example, in LMIC resource requirements may be moderate or even low if a task-sharing system is created, while in HIC costs may be relatively low if SHS create access to existing health services rather than establish entirely new ones. These different factors led to a judgement of “Varies” by both subgroups. Subgroup 2 further chose to emphasize that there are likely to be large start-up costs in most settings as well as maintenance costs, but that these should be assessed in terms of benefit–cost ratios.</p>		

Table 5 contd

Questions related to the health of school-age children and adolescents and/or SHS	GDG judgement	
	Subgroup 1	Subgroup 2
8. What is the certainty of the evidence for the costs?	Very low	Very low
Rationale: limited evidence on costs was found in the reviews, so both subgroups judged the certainty of the evidence for the costs to be “Very low”.		
9. Is a comprehensive SHS cost-effective?	Favours SHS	Favours SHS
Rationale: four studies (total 7 704) provided moderate strength of evidence that comprehensive SHS were cost-saving. Three studies (total 483 649 participants) showed cost-benefits. Outcomes assessed included: reduced number of hospitalizations, reduced absenteeism, Medicaid savings and parent productivity. Although these studies were all based in HIC, both subgroups felt the evidence favoured SHS.		
10. What would the impact be on health equity?	Increased	Increased
Rationale: the reviews found that school-based health centres in the United States of America helped African-American children and adolescents from low-income families receive health care they may not have otherwise received, closing the gap in potential health-care disparities (67). Based on their joint experience and expertise, both subgroups further agreed that SHS are likely to increase health equity. The GDG noted that one of the roles of SHS should specifically be to work with the most vulnerable children and adolescents.		
11. Is a SHS acceptable to all stakeholders?	Probably yes	Probably yes
Rationale: in the HIC studies there were strong beneficial findings related to SHS acceptability in terms of, for instance, student use, access and confidentiality. Three cross-sectional studies from LMIC provided variable results in terms of provider or other professional satisfaction (total 928 participants). In a study in Iraq, school principals’ overall satisfaction was rated as “satisfied to some extent” (82). In a second study, in Turkey, a very high proportion of teachers (337/360, 93.6%) in private schools and 338/360 (93.9%) in public schools believed that school nurses were needed (83). In a third study, in the Islamic Republic of Iran, authors reported that standards were met in 94% of schools for first-aid and screening functions of nurses, 69% for consultations with colleagues, peers and mental health consultants, 72% for health education, 76% for diagnosis and 62% for managing health planning with educational plans, but only 39% for using a suitable evaluation system for the plan for students, parents and staff (84). The GDG discussed how SHS, if designed and implemented to a high standard, might well be acceptable to most stakeholders, but there was uncertainty as to whether SHS would be acceptable to all stakeholders (such as students, parents, school staff, community members and policy-makers) as worded in the question. This influenced both subgroups’ judgement of “Probably yes”.		
12. Is a SHS feasible to implement?	Varies	Yes
Rationale: the systematic reviews generally found comprehensive SHS to be feasible to implement in HIC. However, they may face challenges in implementation, including time and budget constraints, children moving within and between schools, SHS staff turnover and communication challenges between SHS and school staff (about, for instance, SHS staff roles). Subgroup 2 felt that SHS nonetheless are feasible to implement and judged the answer to be “Yes”. Subgroup 1 noted that similar challenges were likely to take place in LMIC, where the feasibility of SHS may be especially likely to vary between schools and between countries, depending on resources; this led to their judgement of “Varies”.		

After each GDG subgroup had discussed and answered the 12 questions in Table 5, both independently came to a consensus in answering three final questions and determining a recommendation. Responses to the final questions were unanimous in both GDG subgroups, as follows.

1. Is there enough evidence to make a recommendation? → YES
2. Is the recommendation in favour of SHS or against SHS? → IN FAVOUR
3. Is the recommendation strong or conditional? → STRONG

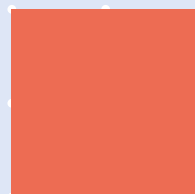
Both GDG subgroups then independently and unanimously agreed to recommend in the

guideline that comprehensive SHS should be implemented in schools. This was assessed to be a strong recommendation, based on moderate certainty of evidence.

It should be highlighted that the main evidence source for the systematic reviews was 18 controlled studies in HIC, and such research has only limited applicability in LMIC. While it is useful that an additional 19 observational studies from LMIC also informed the systematic reviews, higher-quality studies in LMIC (such as randomized controlled trials or non-randomized controlled studies of SHS effectiveness and acceptability) should be a future research priority.

Chapter 5

Menu and compendium of interventions



5.1 Rationale for the menu and compendium of interventions

The reviews of national SHS described in section 1.3 showed that the health areas covered and the types of SHS activities included in national SHS programmes vary considerably between countries. The systematic reviews of the effectiveness and acceptability of comprehensive SHS conducted to provide background information for this guideline had similar findings, as a range of SHS health areas and types of activity were described in the studies of comprehensive SHS (see Chapter 4). However, the systematic reviews identified very few studies that compared the effectiveness of SHS with different ranges of interventions. The GDG therefore found it very difficult to make specific recommendations about the preferred scope of SHS based on the literature review and systematic reviews.

In an effort to further clarify and prioritize health areas and activities that should be included within SHS, the GDG requested that WHO compile all WHO health service recommendations for 5–19-year-olds (section 3.5.1) and also conduct a global survey of

SHS experts (section 3.5.2). Based on these findings, the GDG identified 94 interventions as **essential in SHS everywhere** (n = 71), suitable in SHS everywhere (n = 9), *essential or suitable in SHS in certain geographical contexts only* (n = 7) or **UNSUITABLE IN SHS EVERYWHERE** (n = 7) (section 3.5.3).

To assist countries and programmes as they choose which specific interventions to include in their SHS, the GDG created a menu of these interventions. Table 6 shows the menu of interventions that the GDG identified as essential or suitable for inclusion within SHS organized by health area, type of health activity and specific GDG categorization. Web Annex H provides an expanded version of this menu with the WHO sources of interventions (section 3.5.4). Both Table 6 and Web Annex H provide a simplified overview. This at-a-glance menu is linked to a compendium in Web Annex A that details the published global WHO evidence base and specific procedures or activities for each of the 87 interventions.

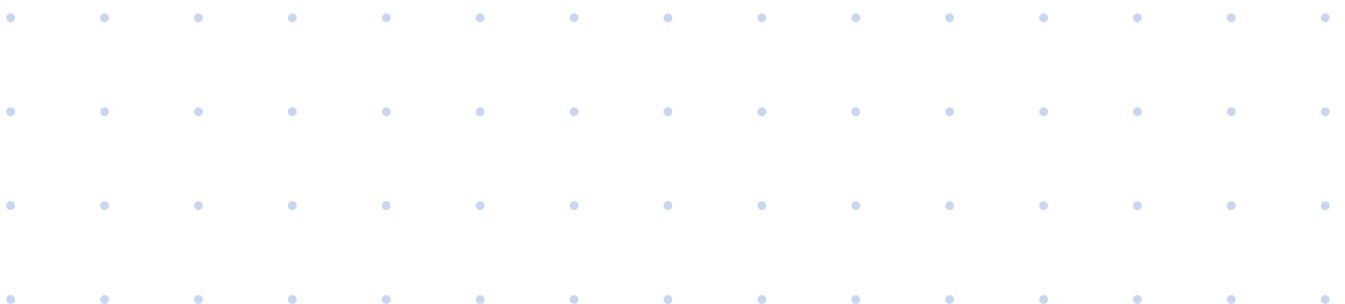


Table 6. SHS guideline menu of interventions by health area, type of health service activity and GDG categorization

GDG categorization of interventions as <i>essential</i> or <i>suitable</i> within SHS, by location							
Category formatting	Definition						
Essential everywhere	Should be included in SHS everywhere						
Suitable everywhere	Appropriate, but not essential, in SHS everywhere						
<i>Essential/suitable in certain areas</i>	Essential and/or appropriate in SHS in certain geographic areas only						
Health area	Type of SHS activity						
	1. Health promotion	2. Health education	3. Screening leading to care and/or referral and support as appropriate	4. Preventive interventions (such as immunizations and mass drug administration)	5. Clinical assessment leading to care and/or referral and support as appropriate	6. Health services management	7. Support for other pillars of a health-promoting school
a. General/cross-cutting	<p>I-01. Promotion of care-seeking</p> <p>I-02. Promotion of health literacy</p>	<p>I-16. Support for health-promoting curriculum</p>	<p>I-27. Ensure compliance with school entry requirements</p> <p>I-28. Routine preventive health check-ups</p>	-	<p>I-56. Provision of first aid</p> <p>I-57. Administration of medications</p> <p>I-58. Referral and support for pain management</p> <p>I-59. Referral and support for non-specific symptoms</p>	<p>I-25. Use population-level data to plan school health services</p> <p>I-26. Use data on school health services for monitoring and improvement</p> <p>I-60. Implement risk-management plan</p>	<p>I-17. Support for policies on health promotion</p> <p>I-18. Support for other aspects of health-promoting schools</p> <p>I-19. Support for policies on disease/injury prevention</p> <p>I-23. Training of school staff</p> <p>I-24. Inspection of school environment</p> <p>I-77. Referral and support for child carers</p>
b. Positive health and development	<p>I-07. Promotion of appropriate use of electronic devices</p> <p>I-08. Promotion of adequate sleep</p> <p>I-10. Promotion of parenting skills</p>	-	-	-	<p>I-30. Identification of developmental disabilities</p> <p>I-44. Counselling related to development</p> <p>I-43. Psychosocial intervention for well-being</p> <p>I-45. Support for caregiver related to a child's development</p>	-	-
c. Unintentional injury	-	I-48. Provision of education to prevent unintentional injury	-	-	<p>I-70. Referral and support for injury</p> <p>I-71. Referral and support for burns</p> <p>I-72. Referral and support for drowning</p>	-	-
d. Violence	-	I-49. Provision of education to prevent violence	-	-	<p>I-50. Counselling to prevent violence</p> <p>I-73. Referral and support for victims of violence</p>	-	-

Table 6 contd

		Type of SHS activity					
Health area	1. Health promotion	2. Health education	3. Screening leading to care and/or referral and support as appropriate	4. Preventive interventions (such as immunizations and mass drug administration)	5. Clinical assessment leading to care and/or referral and support as appropriate	6. Health services management	7. Support for other pillars of a health-promoting school
e. Sexual and reproductive health, including HIV	I-09. Promotion of menstrual hygiene management	I-15. Provision of sexual and reproductive health education	–	–	I-51. Contraceptive counselling I-52. Counselling on sexually transmitted infection prevention I-54. Referral and support for HIV prophylaxis I-55. Referral and support for HIV testing services I-74. Referral and support for pregnancy I-75. Referral and support for sexually transmitted infection I-53. Referral and support for voluntary medical male circumcision	–	–
f. Communicable disease	I-03. Promotion of personal hygiene I-12. Promotion of insecticide-treated bed nets	–	I-36. Screening – infectious diseases	I-38. Immunizations for all children I-40. Immunizations for children in high-risk populations I-39. Immunizations for children in certain regions I-41. Mass drug administration	I-61. Referral and support for common infections I-62. Referral and support for less common infections I-64. Referral and support for HIV-infected children	I-63. Management of infectious disease outbreaks	–
g. Noncommunicable disease, sensory functions, physical disability, oral health, nutrition and physical activity	I-04. Promotion of oral health care I-05. Promotion of reduced sugar I-06. Promotion of increased physical activity I-11. Promotion of appropriate sun exposure	I-13. Provision of nutrition education I-14. Provision of physical activity education	I-31. Screening – vision problems I-32. Screening – hearing problems I-33. Screening – oral health problems I-34. Screening – nutrition problems I-35. Screening – diabetes	I-42. Micronutrient supplementation	I-65. Referral and support for anaemia I-66. Referral and support for overweight I-67. Referral and support for asthma I-68. Referral and support for chronic conditions other than HIV, anaemia and asthma I-69. Referral and support for disability I-46. Counselling on nutrition and physical activity	–	I-21. Support for policies on anaphylaxis

Table 6 contd

Health area	Type of SHS activity						
	1. Health promotion	2. Health education	3. Screening leading to care and/or referral and support as appropriate	4. Preventive interventions (such as immunizations and mass drug administration)	5. Clinical assessment leading to care and/or referral and support as appropriate	6. Health services management	7. Support for other pillars of a health-promoting school
h. Mental health, substance use and self harm	-	-	I-37. Screening – mental health concerns	-	I-29. Conduct HEADSSS assessments I-47. Counselling on substance use I-76. Provide short-term or crisis counselling I-78. Referral and support for behavioural disorders I-79. Referral and support for emotional, anxiety, depressive disorders I-80. Referral and support for eating disorders I-81. Referral and support for stress I-82. Referral and support for suicide risk/self-harm I-83. Referral and support for somatoform disorders I-84. Referral and support for psychotic disorders I-85. Referral and support for harmful substance use I-86. Referral and support for substance dependence I-87. Referral and support for substance withdrawal	-	I-18. Support for policies on mental health promotion I-22. Support for policies on bullying

Note: each of the 87 interventions is categorized in the menu by health area, type of health activity, and final GDG ranking as essential or suitable within SHS, by location. Importantly, many interventions could be placed in multiple menu cells, but for clarity, one cell is selected for each intervention. Also, for the sake of brevity, summary names of interventions have been used in this matrix; full, precise names are given in Table 7. Web Annex H (Menu of interventions with WHO sources) and Web Annex A (Compendium of interventions with WHO evidence) provide more detailed information about each intervention.

HEADSSS: home, education, employment, eating, activity, drugs, sexuality, safety, suicidal thinking and depression status (assessment).

5.2 Full wording of the interventions

The 87 interventions that the GDG identified as essential or suitable within SHS are numbered and abbreviated in the menu in Table 6 and Web Annex H, so it can be read at a glance. The full, precise wording of each intervention is given in Table 7 and Web Annex A. For example, I-69 in short form is “Referral to rehabilitation and support for disability” (Table 6), but in long form it is “Referral and support for rehabilitation, habilitation, assistive technology, assistance and support services for

injured or disabled individuals (e.g. those who are visually or hearing impaired or have eye/ear problems, who have physical disabilities or motor disorders or who have injuries)” (Table 7).

In addition, for each of the 87 interventions listed in Table 7, supporting WHO publications are cited. These publications can be accessed directly for more information, but Web Annex A also compiles excerpts from the cited publications which support and elaborate on each intervention.

Table 7. Full wording of the 87 interventions categorized as essential or suitable within SHS, by location













Interventions organized by GDG categorization (a-c) and type of health service activity (1-7)	WHO source
(a) Essential in school health services everywhere	
1. HEALTH PROMOTION	
I-01. Promotion of timely care-seeking from an appropriate provider (7,94,95)	 Partial GRC support
I-02. Promotion of health literacy (4,7,94,96,97)	 Other WHO support
I-03. Promotion of personal hygiene and handwashing with soap (7,36,94,98-100)	 Other WHO support
I-04. Promotion of oral health care (32,38)	 Other WHO support
I-05. Promotion of reduced consumption of sugar and sugar-sweetened beverages (4,98,101-103)	 Full GRC support
I-06. Promotion of increased physical activity and limited sedentary behaviour (4,94,98,101-105)	 Full GRC support
I-07. Promotion of appropriate use of electronic devices, e.g. television, Internet, games (19,94,97,106,107)	 Partial GRC support
I-08. Promotion of adequate sleep (94,97,107)	 Partial GRC support
I-09. Promotion of menstrual hygiene management (4,19,39,94,100,108)	 Other WHO support
I-11. Promotion of appropriate sun exposure for the context (e.g. prevention of sunburn or overheating; promotion of appropriate exposure for vitamin D) (108,109)	 Other WHO support
2. HEALTH EDUCATION	
I-13. Provision of health education about nutrition (4,7,94,97,101,108)	 Full GRC support
I-14. Provision of health education about physical activity (4,94,97,98,99,101-103,105,108)	 Full GRC support

Table 7 contd

Interventions organized by GDG categorization (a-c) and type of health service activity (1-7)	WHO source
2. HEALTH EDUCATION (CONTD)	
I-15. Provision of sexual and reproductive health education (4,19,94,102,110-116)	■ Full GRC support
I-16. Support for a health-promoting curriculum (e.g. curriculum-based sexuality education; curriculum on nutrition and physical activity) (4,39,94,97,100-102,110,111,113,115,117)	■ Full GRC support
I-48. Provision of health education to prevent common unintentional injuries (e.g. how to prevent unintentional injuries in the home, while playing or engaged in sports and on roads) (105,108, 118,119)	▣ Partial GRC support
I-49. Provision of health education to prevent violence, including intimate-partner violence, sexual violence, gender-based violence, bullying and gang violence (e.g. universal information provided on prevention of violence and abuse) (98,106-108,113,120)	▣ Partial GRC support
3. SCREENING LEADING TO CARE AND/OR REFERRAL AND SUPPORT AS APPROPRIATE	
I-27. Assess and ensure compliance with school entry health requirements (e.g. medical history, comprehensive physical examination and immunization) (7,100,104,121)	▣ Other WHO support
I-28. Routine preventive health check-ups (e.g. at beginning of pre-school, primary and secondary school to assess physical growth, motor development, social and emotional maturation and feeding and sleep problems and to offer appropriate care or referrals), meeting WHO criteria for a screening programme (7,38,94,96,108,122)	▣ Other WHO support
3. SCREENING LEADING TO CARE AND/OR REFERRAL AND SUPPORT AS APPROPRIATE (CONTD)	
I-31. Screening for eye and vision problems (32,94,123)	▣ Other WHO support
I-32. Screening for ear and hearing problems (121,122,124-126)	▣ Other WHO support
I-33. Screening for oral health problems (32,38)	▣ Other WHO support
I-34. Screening for nutrition problems (e.g. anaemia, malnutrition, obesity) (7,38,127)	▣ Other WHO support
4. PREVENTIVE INTERVENTIONS (e.g. IMMUNIZATIONS, MASS DRUG ADMINISTRATION)	
I-38. Administration of immunizations recommended for all children (e.g. diphtheria-tetanus-pertussis, hepatitis B, human papillomavirus (females only), measles, rubella) (4,43,94,100,104,128-131)	■ Full GRC support
5. CLINICAL ASSESSMENT LEADING TO CARE AND/OR REFERRAL AND SUPPORT AS APPROPRIATE	
I-29. Conduct HEADSSS or equivalent assessments, i.e. assessments of adolescent risk behaviours related to Home, Education/Employment, Eating, Activity, Drugs, Sexuality, Safety and Suicidal thinking/Depression (to detect adolescent health and development problems; if their behaviour puts them at risk of negative health outcomes; and important factors in their environment that increase the likelihood of these behaviours) (4,107,108)	▣ Other WHO support
I-30. Identification of developmental difficulties and disabilities (94,132)	▣ Other WHO support

Table 7 contd

Interventions organized by GDG categorization (a-c) and type of health service activity (1-7)	WHO source
5. CLINICAL ASSESSMENT LEADING TO CARE AND/OR REFERRAL AND SUPPORT AS APPROPRIATE (CONTD)	
I-44. Counselling and care related to a child's physical and psychosocial development (e.g. puberty, skin changes, body image, hygiene, child marriage) (4,7,39,94,97,98,102,107,108,115,117,133,134)	■ Partial GRC support
I-47. Counselling on tobacco, alcohol and other substance use (94,102,107,108,135-139)	■ Partial GRC support
I-50. Counselling to prevent violence, including intimate-partner violence, sexual violence, gender-based violence, bullying and gang violence (e.g. selected therapeutic approaches for high-risk youth) (95,120,140,141)	■ Partial GRC support
I-51. Contraceptive counselling (e.g. brief sexuality-related communication; counselling on contraception to enable a voluntary, informed choice; referral or provision of contraception if requested post-counselling and legal) (39,102,103,115,142)	■ Full GRC support
I-52. Counselling on HIV/sexually transmitted infection prevention methods (e.g. brief sexuality-related communication; counselling on correct condom use to enable a voluntary, informed choice; referral or provision of condoms if requested post-counselling and legal) (4,39,101,112,116,142,143)	■ Partial GRC support
I-54. Referral and support for HIV pre-exposure and/or post-exposure prophylaxis (144-146)	■ Partial GRC support
I-55. Referral and support for HIV testing services (4,7,94,112,116,144,147)	■ Full GRC support
I-56. Provision of first aid, i.e. identification and prioritization of problems, provision of immediate care and referral for full medical treatment, if required (e.g. acute conditions such as asthma, diabetes, seizures; bleeding or injury; mental health concerns, including self-harm; life-threatening allergy; poisoning and envenoming; substance abuse) (4,7,98,104,105,118,148-156)	■ Full GRC support
I-57. Administration of over-the-counter and prescribed medications by a school health-care provider (7,94,96,98,127,149,155,157-161)	■ Partial GRC support
I-58. Referral and support for pain control and management, e.g. headache (7,94,98, 107,108,153,158)	■ Full GRC support
I-59. Referral and support for management of non-specific symptoms (e.g. diarrhoea, fever) (4,7,41,94,104,154,155,162)	■ Partial GRC support
I-61. Referral and support for management of common infections (e.g. ear, eye oral/dental, skin, throat, urinary tract) (4,7,94,107,108,123,133,155)	■ Partial GRC support
I-62. Referral and support for management of less common infectious diseases (e.g. bone infections, cholera, dengue, dysentery, helminths, joint infections, malaria, meningitis, other neglected tropical diseases, pertussis, pneumonia, rheumatic fever, septicemia, typhoid fever, tuberculosis, viral encephalitis) (7,32,94,98,102,154,155,163-170)	■ Partial GRC support
I-64. Referral and support for chronic care of HIV-infected children (4,94,98,103,112,116,143,147,155,162,171-176)	■ Full GRC support
I-65. Referral and support for management of anaemia (e.g. iron supplementation) (7,41,94,100,105,107,108,177-179)	■ Partial GRC support

Table 7 contd

Interventions organized by GDG categorization (a-c) and type of health service activity (1-7)	WHO source
5. CLINICAL ASSESSMENT LEADING TO CARE AND/OR REFERRAL AND SUPPORT AS APPROPRIATE (CONTD)	
I-66. Referral and support for overweight and obesity (94,97,101,105,149)	■ Full GRC support
I-67. Referral and support for management of asthma (94,98,105,149,154,155,161)	■ Full GRC support
I-68. Referral and support for management of other chronic conditions (e.g. developmental disabilities/delay, diabetes, heart disease, seizures, sickle cell disease) (4,7,94,98,101,104–106,132,149,150,180)	■ Partial GRC support
I-69. Referral and support for rehabilitation, habilitation, assistive technology, assistance and support services for injured or disabled individuals (e.g. those who are visually or hearing impaired or have eye/ear problems, who have physical disabilities or motor disorders, who have experienced female genital mutilation (FGM) or who have sports injuries) (4,94,104,121,123–126,151,181–183)	■ Partial GRC support
I-70. Referral and support for management of common childhood injuries (e.g. head, chest and abdominal injuries; fractures; wounds) (4,104,105,118,151,152,154,184)	■ Full GRC support
I-71. Referral and support for management of burns (4,94,104,153,185)	■ Other WHO support
I-72. Referral and support for management of non-fatal drowning and related complications (e.g. respiratory impairment; long-term disability) (94,118)	■ Partial GRC support
I-73. Referral and support for victims of violence (e.g. child abuse and neglect by parents or other caregivers; collective violence; gender-based or sexual violence; harmful cultural practices, such as FGM, child marriage and forced marriage; violence among adolescents; and violence by intimate partners) (4,7,39,94,95,98,102,104,106–108,113,117,120,136,143,144,181,184)	■ Full GRC support
I-74. Referral and support for management of pregnancy, including the option for pregnant or parenting adolescents to continue or return to school (4,39,102,107,108,115,116,185–187)	■ Full GRC support
I-75. Referral and support for management of sexually transmitted infection (4,104,107,108,112,120,143,144,185,188–192)	■ Full GRC support
I-76. Provide short-term counselling or crisis intervention focused on mental health or situational concerns (e.g. grief, difficult transitions) (4,19,32,104,108,193,194)	■ Partial GRC support
I-78. Referral and support for management of common behavioural disorders in children (e.g. attention-deficit hyperactivity disorder) (4,19,94,98,104,159,195,196)	■ Full GRC support
I-79. Referral and support for management of emotional, anxiety and depressive disorders (4,19,32,98,102,104,144,160,181,197–199)	■ Full GRC support
I-80. Referral and support for management of eating disorders (e.g. anorexia, bulimia) (19,94,103,107,108)	■ Other WHO support
I-81. Referral and support for management of stress (19,32,104,108,144,181,193,194)	■ Partial GRC support
I-82. Referral and support for management of self-harm and/or suicide risk (4,184,200)	■ Full GRC support

Table 7 contd

Interventions organized by GDG categorization (a-c) and type of health service activity (1-7)	WHO source
5. CLINICAL ASSESSMENT LEADING TO CARE AND/OR REFERRAL AND SUPPORT AS APPROPRIATE (CONTD)	
I-83. Referral and support for management of somatoform disorders (i.e. physical symptoms that suggest illness or injury, but which cannot be explained fully by a general medical condition or by the direct effect of a substance) and other psychosomatic conditions (19,32,104,201)	■ Full GRC support
I-84. Referral and support for management of psychotic disorders (19,32,104,160)	■ Full GRC support
I-85. Referral and support for management of harmful use of a substance (e.g. alcohol, illicit drugs) (4,102,104,135,136,148,160)	■ Full GRC support
I-86. Referral and support for management of dependence on a substance (e.g. alcohol, illicit drugs) (4,102,135–139,160)	■ Full GRC support
I-87. Referral and support for management of substance withdrawal (4,102, 135–139,160)	■ Full GRC support
6. HEALTH SERVICES MANAGEMENT	
I-25. Appropriate use of data at population level for planning school health (4,94,108,113,121,202)	▨ Other WHO support
I-26. Collection, analysis and use of data on school health service utilization and quality of care, to monitor performance and support quality improvement and for evaluation and planning (4,7,94,96,202)	▨ Other WHO support
I-60. Implementation of and support for a health-facility risk management plan linked with primary, secondary and tertiary care systems (e.g. protocol if school health services should provide essential services during complex emergencies) (4,7,94,99,101,104,105,151,154,188,203–205)	▨ Other WHO support
I-63. Management of infectious disease outbreaks in school, including surveillance, reporting suspected outbreaks to health authorities and following isolation or quarantine protocols (e.g. cholera; conjunctivitis; coronaviruses; dysentery; hand, foot and mouth disease; influenza; meningococcal disease; rubella; scabies; scarlet fever; tuberculosis; typhoid; varicella) (98,100,154,204–212)	▩ Partial GRC support
7. SUPPORT FOR OTHER PILLARS OF A HEALTH-PROMOTING SCHOOL	
I-17. Support for school policies on general health promotion (e.g. related to chronic conditions, hygiene and nutrition) (4,39,94,97,100,101,104,105)	▩ Partial GRC support
I-18. Support for school policies on mental health promotion, including listening services (pre-counselling) (4,7,94,100,102,105,117)	▩ Partial GRC support
I-19. Support for school policies on risk reduction and disease/injury prevention (e.g. prevention of adolescent pregnancy, school violence and substance use) (4,32,39,94,95,102,104,105,112–115,118,119,143,213,214)	▩ Partial GRC support
I-20. Support for school policies that address bullying and harassment (4,7,19,94,102,105,106,114–116,140,184)	▩ Partial GRC support
I-21. Support for school policies on prevention and response to anaphylaxis (4,104,156,215)	▩ Partial GRC support

Table 7 contd











Interventions organized by GDG categorization (a-c) and type of health service activity (1-7)	WHO source
7. SUPPORT FOR OTHER PILLARS OF A HEALTH-PROMOTING SCHOOL (CONTD)	
I-22. Support for other aspects of a health-promoting school (e.g. nutritional content of school feeding programmes; inspection of food safety; engagement with the community to make the school a healthy place) (4,7,41,94,100,101,105,114)	 Partial GRC support
(b) Suitable in school health services everywhere	
1. HEALTH PROMOTION	
I-10. Promotion of responsible parenting skills for all students (4,216)	 Other WHO support
3. SCREENING LEADING TO CARE AND/OR REFERRAL AND SUPPORT AS APPROPRIATE	
I-37. Screening for mental health concerns (e.g. to identify students at risk of poor mental health outcomes and/or who may need monitoring or referral) (4,19,32,104,141,200,217)	 Other WHO support
4. PREVENTIVE INTERVENTIONS (e.g. IMMUNIZATIONS, MASS DRUG ADMINISTRATION)	
I-40. Administration of immunizations recommended for children in some high-risk populations (e.g. cholera, dengue, hepatitis A, meningococcal, rabies, typhoid) (94,100,130,209)	 Full GRC support
5. CLINICAL ASSESSMENT LEADING TO CARE AND/OR REFERRAL AND SUPPORT AS APPROPRIATE	
I-43. Psychosocial intervention to promote well-being and functioning (e.g. encouraging and/or assisting a child to: get enough sleep; eat regularly; be physically active; participate in social activities; spend time with trusted friends and family; avoid the use of alcohol, drugs and nicotine; and develop interpersonal skills, emotion regulation and problem-solving and stress management skills) (4,19,100,102,104,117)	 Full GRC support
I-45. Counselling and support for a child's caregiver related to the child's physical and psychosocial development (e.g. nutrition, physical activity, puberty, positive development in adolescence, sexual and reproductive health) (4,7,19,39,94,97,98,101,102,104,105,107,108,143,147,160,180,193,196,197,218)	 Partial GRC support
I-46. Counselling on nutrition, physical activity and a management plan, if needed (7,94,101,104,105,107,108)	 Partial GRC support
7. SUPPORT FOR OTHER PILLARS OF A HEALTH-PROMOTING SCHOOL	
I-23. Training school staff on first aid, hygiene promotion, etc. (4,38,105,110,113,128,151)	 Other WHO support
I-24. Inspection of the physical environment of the school (e.g. prevention of injuries; water, sanitation and hygiene facilities) (4,7,94,98,99,106,113,119,154)	 Other WHO support
I-77. Referral and support for child carers (e.g. students who provide unpaid support to a parent who could not manage without this help)	 No WHO source identified

Table 7 contd

Interventions organized by GDG categorization (a-c) and type of health service activity (1-7)	WHO source
7. SUPPORT FOR OTHER PILLARS OF A HEALTH-PROMOTING SCHOOL (CONTD)	
<i>(c) Essential or suitable in school health services in certain geographic areas only</i>	
1. HEALTH PROMOTION	
<i>I-12. Provision and promotion of use of insecticide-treated bed nets (41,94,104,154)</i>	Other WHO support
3. SCREENING LEADING TO CARE AND/OR REFERRAL AND SUPPORT AS APPROPRIATE	
<i>I-35. Screening for Type II diabetes (127)</i>	Other WHO support
<i>I-36. Screening for infectious diseases (e.g. tuberculosis; neglected tropical diseases, such as Chagas disease; COVID-19) (114,188,205)</i>	Other WHO support
4. PREVENTIVE INTERVENTIONS (e.g. IMMUNIZATIONS, MASS DRUG ADMINISTRATION)	
<i>I-39. Administration of immunizations recommended for children residing in certain regions (e.g. Japanese encephalitis) (94,100,130)</i>	Full GRC support
<i>I-41. Mass drug administration (e.g. for soil-transmitted helminths, schistosomiasis, trachoma, malaria, lymphatic filariasis) (32,41,94,98,100,103,127,154,167,219,220)</i>	Full GRC support
<i>I-42. Iron, folic acid and other micronutrient supplementation (94,100,102,104,127,177-179)</i>	Full GRC support
5. CLINICAL ASSESSMENT LEADING TO CARE AND/OR REFERRAL AND SUPPORT AS APPROPRIATE	
<i>I-53. Referral and support for voluntary medical male circumcision (4,103,104,112,116)</i>	Full GRC support

Note: this list contains the precise wording of each intervention; the wording used in the menu is abbreviated in some instances.

Box 5 lists the seven interventions categorized by the GDG as unsuitable for inclusion within SHS. These fell under the health activity categories of screening

and preventive interventions (immunizations). Importantly, some of these interventions may be suitable within other types of health service.

BOX 5.

Interventions that are unsuitable for inclusion within SHS

The GDG categorized seven interventions as unsuitable for inclusion within SHS. Some of these interventions are supported by WHO guidance for use in other health-care settings; some currently are not mentioned in WHO guidance, while others have WHO recommendations that state they should NOT be implemented in any health-care setting.

WHO guidance supports these interventions in other health-care settings:

1. administration of immunizations recommended for children with specific health conditions (such as seasonal influenza for children with specific conditions) (43); and
2. screening for substance use (such as tobacco, alcohol and illicit drugs) (217).

WHO guidance documents currently do not mention these interventions:

3. screening for hypertension;
4. screening for scoliosis; and
5. screening for other chronic conditions that may be undiagnosed, such as asthma and sickle cell disease.

WHO guidance recommends NOT to implement these interventions:

6. (universal) screening for maltreatment by a parent or guardian (95); and
7. (universal) screening for exposure to intimate-partner violence (120).

5.3 Final intervention categorization and WHO sources of the interventions

Table 8 summarizes the final categorization and WHO sources for the 94 interventions that were considered for SHS inclusion by the GDG. Notably, 61 of 87 interventions that the GDG categorized as essential or suitable have full or partial GRC support. The review was unable to identify an explicit recommendation in a global WHO source for one of the interventions that was added to the list of interventions by the GDG (1-77. Referral and support for child carers, e.g. students who provide unpaid

support to a parent who could not manage without this help).

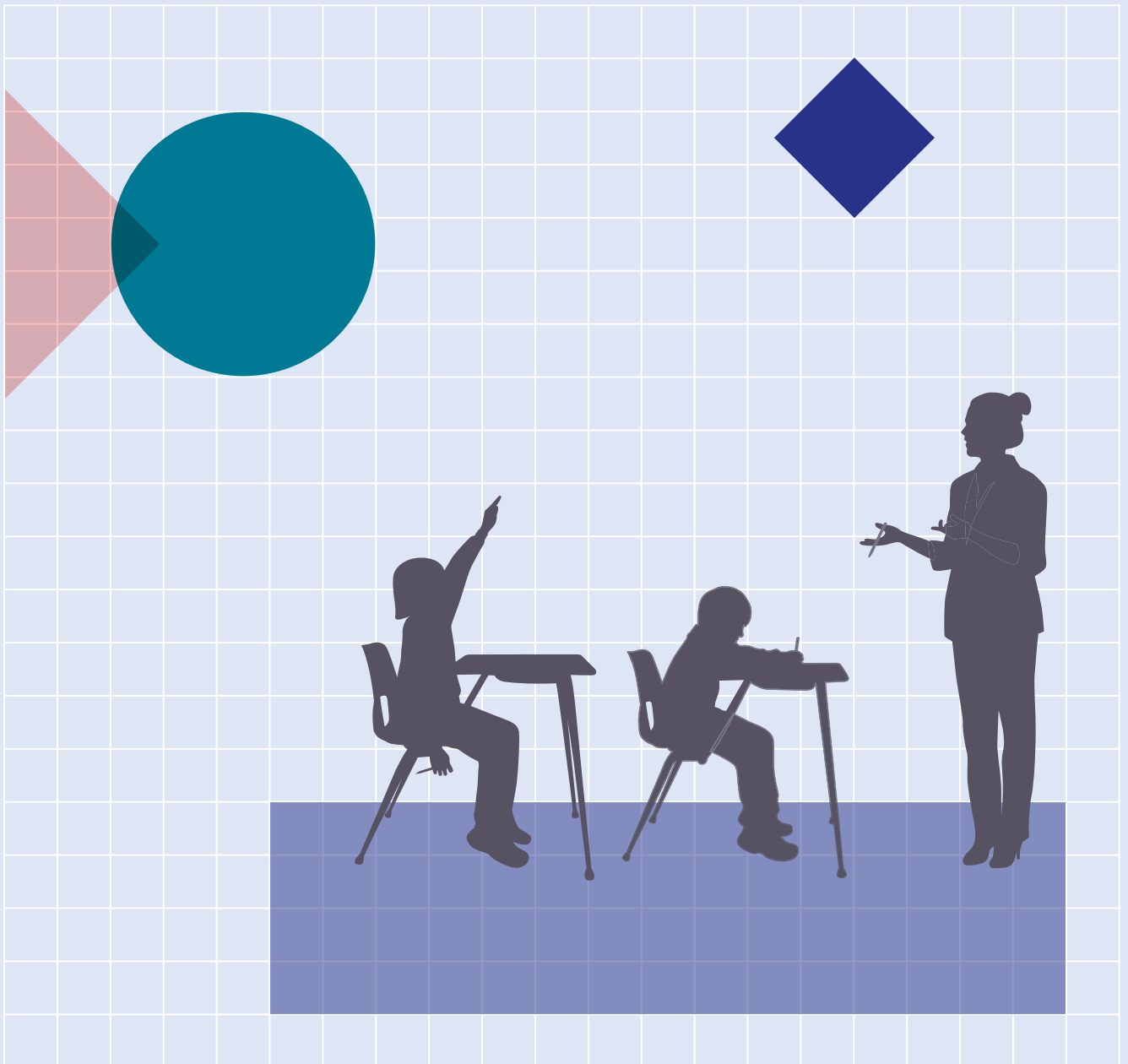
The majority of these interventions – both GRC-approved and other – have been broadly evaluated for 5–19-year-olds and not specifically for delivery within SHS. For further information, Web Annex H provides examples of interventions for each type of “WHO source”, with relevant support from the compendium of interventions with WHO evidence in Web Annex A.

Table 8. Number of interventions by WHO source and GDG categorization as essential, suitable or unsuitable within SHS, by location

WHO status	Categorization as essential/suitable/unsuitable by location (number of interventions)				Total
	Essential everywhere	Suitable everywhere	Essential or suitable in certain geographic areas only	UNSUITABLE	
■ Full GRC	26	2	4	1	33
■ Partial GRC	27	2	0	0	29
■ Other WHO	18	4	3	1	26
□ No WHO source identified	0	1	0	5	6
Total	71	9	7	7	94

Chapter 6

Implementation of the WHO guideline on SHS



6.1 Dissemination of the WHO guideline on SHS

The current guideline is being disseminated as a printed publication and also is posted with its Web Annexes on the WHO website. It will be disseminated through a broad network of international partners, including WHO country and regional offices, ministries of education and health, WHO collaborating centres, universities and other United Nations agencies and nongovernmental organizations (NGOs). The guideline has been developed in English and will be translated into other WHO official languages for wider dissemination, in collaboration with WHO regional offices.

Use of digital technology will also be explored in the dissemination and implementation of the WHO guideline on SHS. Box 6 describes ways in which digital interventions may be used in disseminating and implementing the guideline. Section 6.2 briefly describes other implementation considerations, but it is expected that detailed WHO SHS implementation guidance materials will be produced in the coming years to facilitate operationalization of the guideline's recommendation and intervention menu.

BOX 6.

Use of digital technology to support dissemination and implementation of the guideline

WHO has identified a wide range of digital health approaches that can be useful within health systems (221,222), some of which might also be useful in WHO guideline on SHS dissemination and implementation, depending on the national context. Examples of digital technology that might be explored for potential SHS usefulness include (223):

- **students and families:** targeted and untargeted communication (including transmitted health information or health event alerts); citizen-based reporting (such as reporting of health system feedback or public health events);
- **health-care providers:** provision of training and educational content to health workers; provider decision support; telemedicine (remote monitoring of student health, for example); student registration and health records; tracking

of patients'/clients' health status and services; provider communication; referral coordination; planning and scheduling; training; medication management; laboratory and diagnostic imaging management;

- **health system managers:** human resource management; stock notification and commodity management; public health event notification; health financing; equipment and asset management; facility management; and
- **data services:** data collection, management, and use; location mapping.

Many of these activities can be achieved through mobile devices, making them applicable in low-resource settings where extensive computerized systems may not be available or feasible. However, they can also be deployed through non-mobile digital devices, such as desktop computers (221).

6.2 National adaptation of the WHO guideline on SHS

This is a global guideline, so WHO Member States are expected to adapt the SHS recommendation and intervention menu depending on their context and local feasibility. WHO regional and country offices will be able to assist with these processes.

6.2.1 SHS within broader national health strategies

SHS programmes already exist in some form in most countries, so in most cases governments will not be creating a national SHS programme from scratch, but rather evaluating and strategically improving on an existing programme to become more comprehensive and evidence-based. In either case, development or improvement of national SHS programming needs to take place within the broader national strategizing for health. WHO has produced practical guidance on national strategizing for health that can be adapted in such efforts (224–226). For example, the 2016 WHO *Strategizing national health in the 21st century: a handbook* publication (225) outlines key steps in national health strategizing that can be adapted to national SHS strategizing, including:

- population consultation on needs and expectations;
- intersectoral situation analysis;
- priority-setting for national policies, strategies and plans;
- strategic planning (transforming priorities into plans);
- operational planning (transforming plans into action);
- estimating the cost implications of a policy, strategy or plan;
- budgeting for health;
- monitoring, evaluation and review of policies, strategies and plans;
- law, regulation and strategizing;
- strategizing for health at subnational level;
- intersectoral planning for health and equity; and
- strategizing in distressed contexts.

6.2.2 An organizational model of SHS

Fig. 5 provides a basic organizational model of SHS that shows the key stakeholders involved in

SHS programming. From national to local levels, it is important that SHS are led through close collaboration of the health and education sectors. Collaboration between the health and education sectors is ideal for implementing all pillars of HPS, but to effectively provide comprehensive SHS, genuine, close collaboration of the health and education sectors is critical.

6.2.2.1 National policy, planning and financing

In addition to the health and education sectors, other sectors also can play a valuable role in policy, planning and financing at national level, including other government ministries (such as social services, and water and sanitation), the private sector and NGOs.

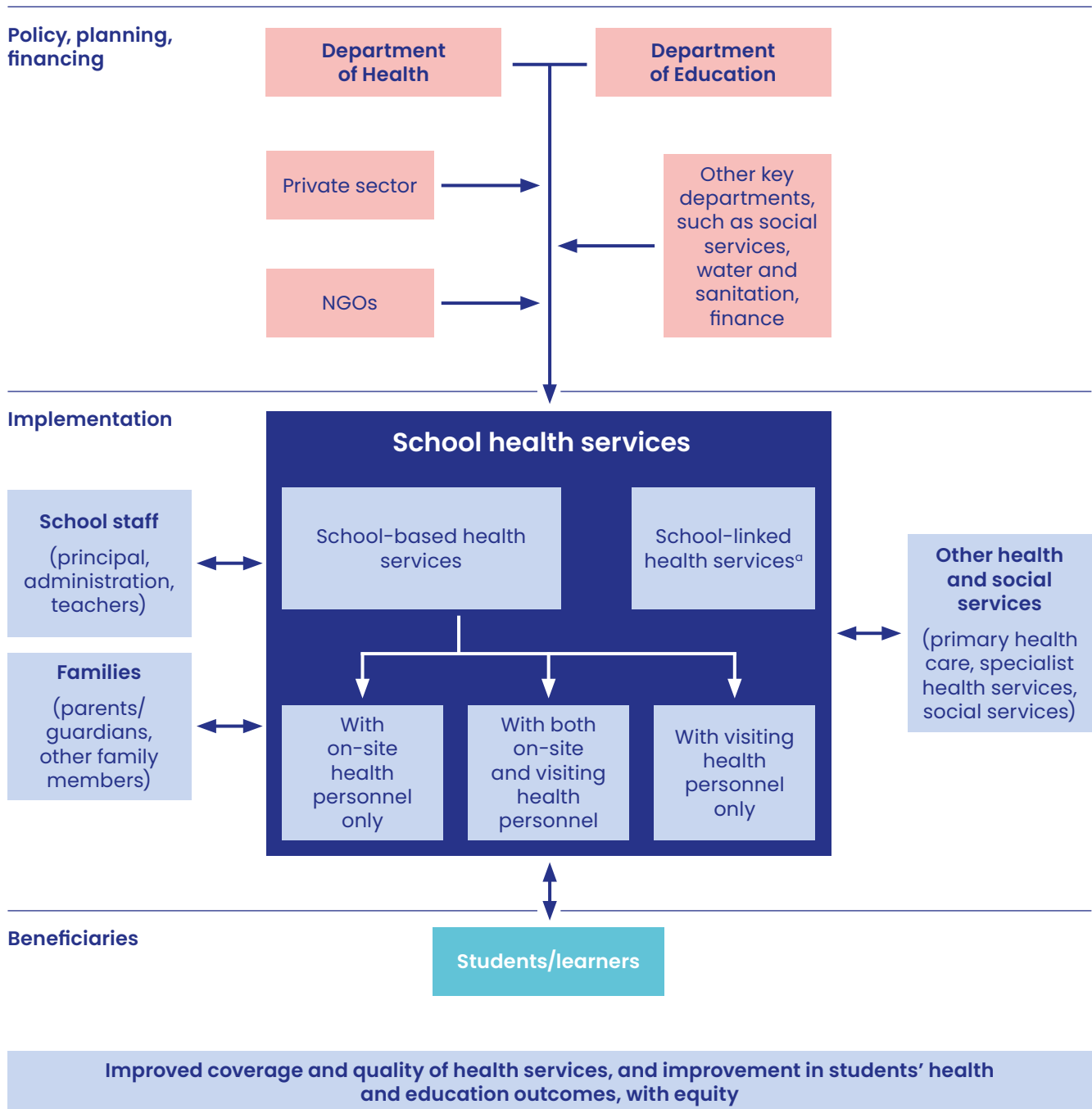
6.2.2.2 Local implementation

SHS can be implemented through different structures at local level. Most commonly, they are school-based health services – that is, services provided by on-site health personnel only, by both on-site and visiting health personnel or by visiting health personnel only (8). However, SHS may also (or instead) be provided through school-linked services; these are SHS that are not physically located within the school but are provided outside of school premises (at primary care facilities or community centres, for instance). These school-linked SHS facilities and/or providers have a formal agreement with the school administration to provide health services to their students/learners. Trained health workers (like nurses, clinical officers, doctors, medical assistants, physical therapists, dentists, psychologists and counsellors) are expected to be the main SHS staff. They should work closely with education sector staff (including school principals, administrators and teachers) and staff from other parts of the health and social services (such as primary health care, specialist services or social workers). In addition, they need to communicate directly with parents to coordinate a student's care related to, for example, referral and follow-up.

6.2.2.3 Beneficiaries

The primary beneficiaries of SHS are students/learners. In addition, students and their families can help to inform and monitor SHS through participatory research and other activities.

Fig. 5. An organizational model of SHS



^a SHS that are provided outside of school premises by facilities and/or providers that have a formal agreement with the school administration to provide health services to their students/learners.

6.2.3 Prioritizing health conditions and interventions within SHS

National governments need to identify and address their particular SHS programming priorities, because:

- the nature, scale and impact of child and adolescent health needs are unique in each country;
- all governments face resource constraints, so they must make difficult choices to ensure their SHS resources are used most effectively; and
- the structure and functioning of the health system as a whole varies between countries.

There are several global documents that provide guidance on how national governments can prioritize health conditions and interventions for their population. These can be adapted by policy-makers and programme developers who are deciding which interventions should be included within SHS. Box 7 lists some key resources that can be used in this process.

For example, the global AA-HA! Guidance (4) and its annexes and appendices (19) outline how governments can prioritize adolescent health interventions through three steps: a needs assessment, a landscape analysis, and a prioritization exercise. Similarly, SHS policy-makers and programme developers can evaluate their country's particular child and adolescent health needs and context before developing – or improving upon – SHS programming. This would include:

- a **needs assessment** to identify which conditions have the greatest impact on child and adolescent health and development, both as a whole (by age, sex and part of the country) and among those most vulnerable;

- a **landscape analysis** of:
 - existing school health programmes, policies, legislation, capacity and resources and how these relate to the rest of the health and education systems within the country;
 - current global and local guidance on evidence-based interventions: a starting point for this process can be the menu of interventions (Table 6 and Web Annex H) and its supporting compendium (see Web Annex A), which compiles excerpts from WHO guidance specific to each intervention and cites WHO sources that can be accessed for further information; and
- **priority-setting** that considers:
 - the severity, frequency, scale and consequences of particular burdens;
 - the needs of the most vulnerable adolescents;
 - the existence of effective, appropriate, acceptable, feasible and/or cost-effective interventions to reduce burdens;
 - the availability of resources and capacity to implement or expand priority interventions equitably within SHS; and
 - GDG intervention categorization of interventions as **essential in SHS everywhere**, suitable in SHS everywhere, *essential or suitable in SHS in certain geographic areas only*, and **UNSUITABLE IN SHS EVERYWHERE** (menu of interventions in Table 6 and Web Annex H; compendium of interventions in Web Annex A).

Fig. 6 provides an overview of national SHS intervention priority setting.

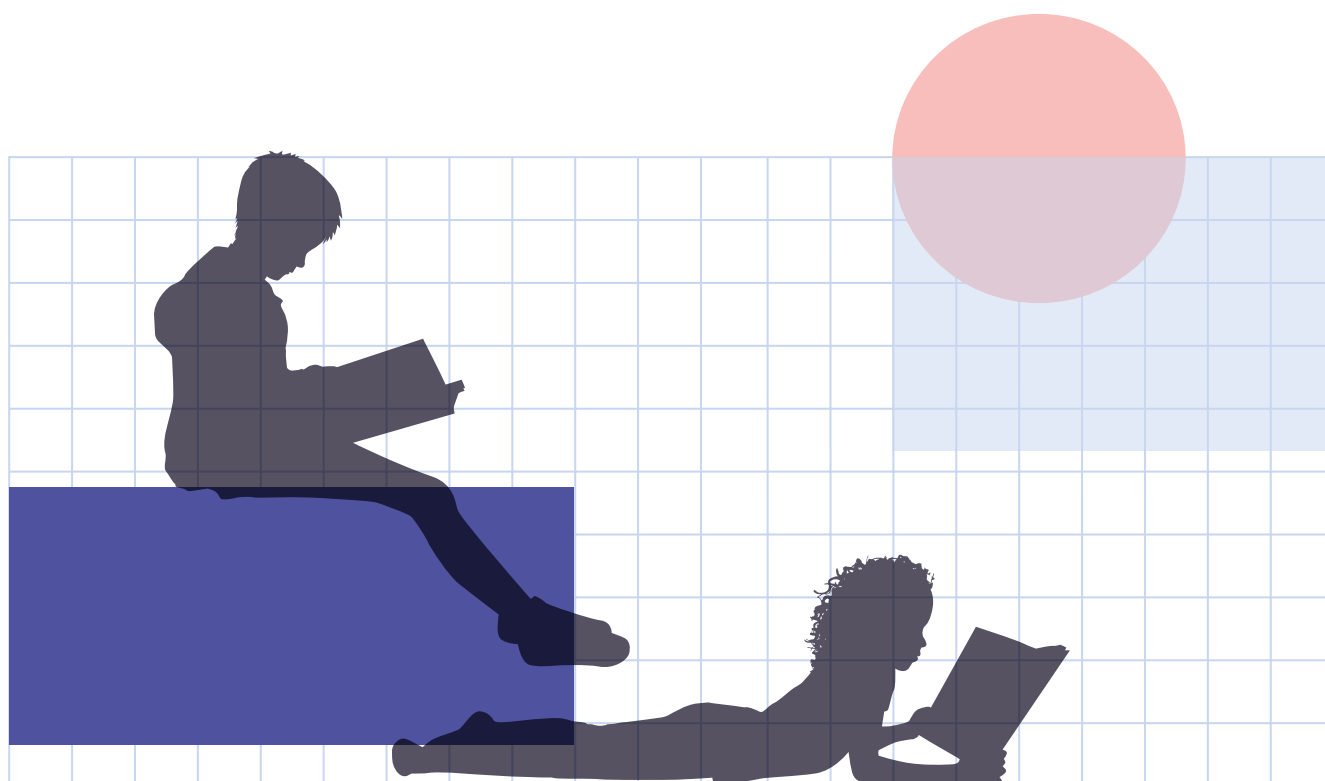
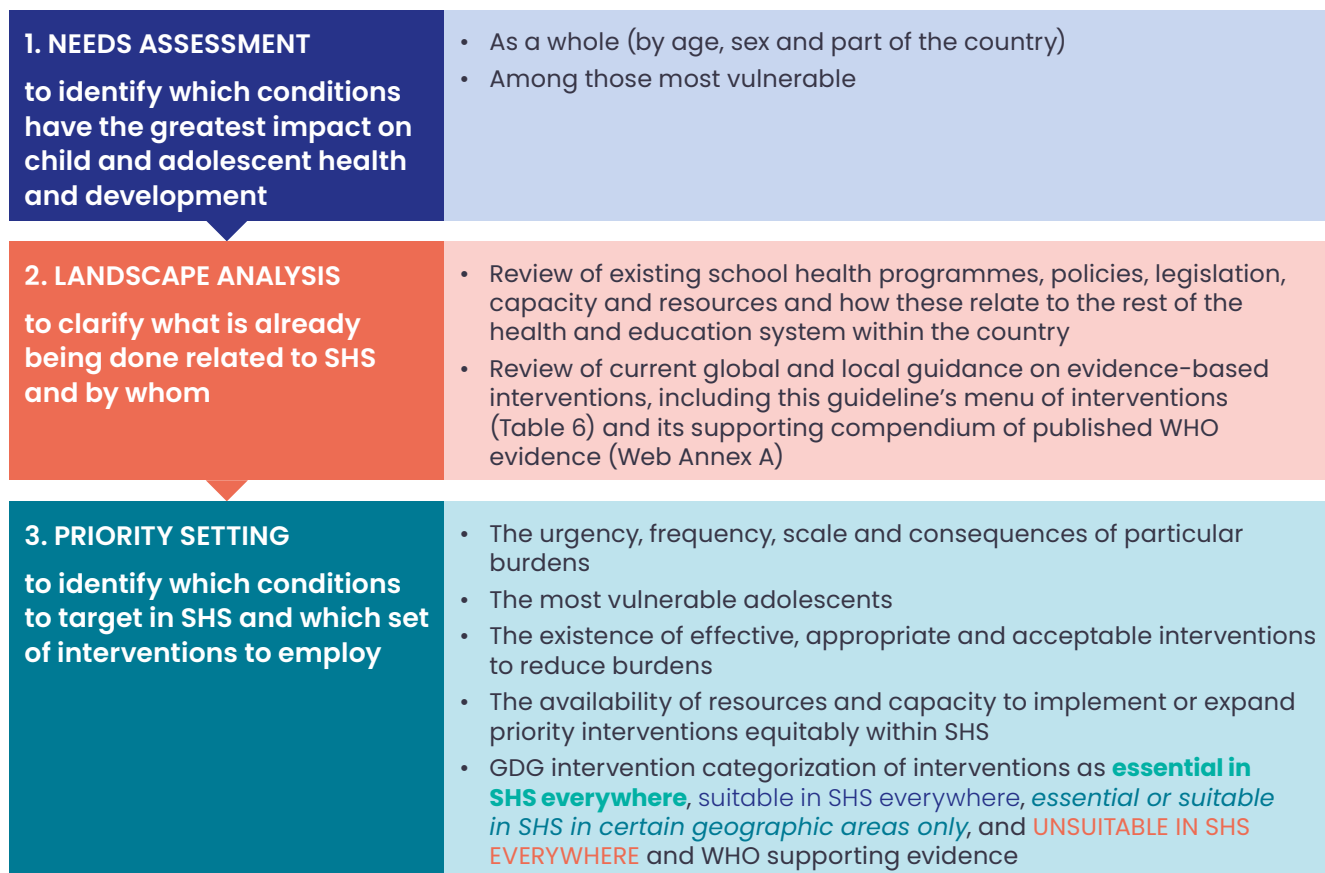
BOX 7.

Resources for prioritizing interventions within national SHS programming

In addition to the menu (Table 6 and Web Annex H) and the compendium of interventions (see Web Annex A), the following publications provide generic guidance on identification of disadvantaged subpopulations and/or priority setting within national health programming. These documents may be of assistance to stakeholders who need to prioritize interventions within national SHS programming:

- WHO, *Making fair choices on the path to universal health coverage*, 2014 (227);
- WHO, *Strategizing national health in the 21st century: a handbook*, Chapter 4, 2016 (225);
- WHO, *Global Accelerated Action for the Health of Adolescents (AA-HA!) Guidance*, Chapter 4, 2017 (4);
- WHO, *Handbook for conducting an adolescent health services barriers assessment (AHSBA), with a focus on disadvantaged adolescents*, 2019 (6);
- WHO, *Accelerated Action for the Health of Adolescents (AA-HA!): a manual to facilitate the process of developing national adolescent health strategies and plans*, 2019 (226);
- Baltussen et al., *Priority setting for universal health coverage*, 2016 (228); and
- Tromp & Baltussen, *Mapping of multiple criteria for priority setting of health interventions*, 2012 (229).

Fig. 6. Steps in setting intervention priorities for national SHS



6.2.4 Implementation considerations to ensure coverage, quality, equity, and confidentiality

Effective SHS coverage is the proportion of a student population that needs SHS and obtains them in a timely manner and at a level of quality necessary to have the desired effect and potential health gains (5). SHS quality is the degree to which SHS increase the likelihood of desired student health outcomes and are consistent with current professional knowledge (7). SHS equity is the absence of avoidable, unfair or remediable differences within a student population. It implies that all students should have a fair opportunity to use SHS and no one is disadvantaged from doing so. More broadly, SHS may promote health equity by enabling disadvantaged students to receive health care they may not otherwise receive. This could be an important step towards achieving UHC and leaving no children and adolescents behind (6). The potential for SHS to increase health equity is described more in Box 8.

Confidentiality is another key area of SHS programming that warrants special consideration,

as in any health services for children and adolescents. It is important that national SHS programmes establish procedures to ensure:

- information about students is not disclosed to third parties;
- personal information, including student records, are held securely;
- there are clear requirements for the organization of the physical space of SHS facilities, and actions to ensure visual and auditory privacy during registration and consultations with a SHS provider; and
- consultations with adolescent students accompanied by parents or guardians routinely include time alone with the adolescent (4).

In addition, national laws and policies should be reviewed to indicate situations, clearly and unambiguously, when confidentiality may be breached within SHS, with whom and for what reasons (disclosure of sexual abuse of a minor, or significant suicidal thoughts, self-harm or homicidal intent, for instance). Standard operating procedures should be established for situations in which confidentiality might be breached due to legal requirements (4).

BOX 8.

How SHS can increase health equity

SHS may promote child and adolescent health equity by enabling students to access health services they may not otherwise receive (6). Disadvantaged students – such as those from low-income or socially marginalized populations – are less likely to have medical care and more likely to develop chronic health problems. They may be more chronically stressed and tired and be hungrier than other students, and more likely to have impaired vision and hearing.

One review of 46 studies mainly evaluated school-based health clinics serving urban, low-income, and racial or ethnic minority high-school students in the United States of America. It found that student use of school-based health centres was associated with improved educational (measured by grade-point average, grade promotion, suspension and non-completion rates) and

health-related (vaccination and other preventive services, asthma morbidity, emergency department use and hospital admissions, contraceptive use among females, prenatal care, birth weight, illegal substance use and alcohol consumption) outcomes (24). In addition, more services and more hours of availability were associated with greater reductions in emergency department overuse.

Given this review primarily considered SHS in the United States of America, its findings are limited and may not be generalizable to other countries, especially LMIC. Nonetheless, the findings are promising in suggesting that SHS can increase needed medical services for disadvantaged children and thereby advance health equity, particularly if achieving health equity is prioritized within SHS programming.

6.2.5 Using the menu of interventions and its supporting compendium

Box 9 provides a simplified, hypothetical example of how the menu (Table 6 and Web Annex H) and

compendium of interventions (see Web Annex A) can be used by stakeholders when developing or updating national SHS programming.

BOX 9.

Hypothetical example of how to use the menu and compendium of interventions while developing national SHS programming

Taking a simplified example in a hypothetical country, first, representatives at a high level in the health and education sectors agree to develop and co-lead a national SHS programme and then bring together an intersectoral working group of NGO and private stakeholders to work on this. The working group initiates a health needs assessment for school-age children, followed by a SHS landscape analysis and finally a SHS priority-setting exercise.

The findings of the needs assessment identified many conditions or issues that could be addressed within SHS, including nutrition, disability, child maltreatment and stress, which will be the examples discussed further.

Next, during the landscape analysis the government assesses what is currently being done for these conditions and identifies possible interventions that it would like to introduce or strengthen within SHS, including provision of nutrition education, screening for maltreatment by a parent or guardian, referral and support for disability, and referral and support for suicide risk/self-harm.

When consulting the WHO guideline on SHS menu of interventions (Table 6), the national stakeholders note that three of the interventions (I-13, I-34 and I-69) are categorized as **essential in SHS everywhere**; they then review the detailed guidance on each of the three interventions in Web Annex A.

In addition, the national stakeholders see that the fourth intervention (Screening for maltreatment by a parent or guardian) is identified as **UNSUITABLE IN SHS EVERYWHERE** in Box 5 of this guideline.

Box 5 cites the *WHO guidelines for the health sector response to child maltreatment (95)*, so they

review that source directly and see it recommends that health-care providers **do not** use a universal screening approach to identify possible child maltreatment. Moreover, they learn that WHO recommends three other interventions for the health sector response to child maltreatment. They fully review these three interventions and decide to adopt them within their national SHS programme. They are:

1. health-care providers should be alert to the clinical features associated with child maltreatment and associated risk factors and assess for child maltreatment without putting the child at increased risk;
2. health-care providers should consider exposure to child maltreatment when assessing children with conditions that may be caused or complicated by maltreatment, in order to improve diagnosis/identification and subsequent care, without putting the child at increased risk; and
3. written information on child maltreatment should be available in health-care settings in the form of posters and pamphlets or leaflets (with appropriate warnings about taking them home in case that could compromise safety).

Table 9 provides a simplified summary of information compiled from these sources about the four interventions. Based on these findings, the national policy-makers and programme developers decide to continue with further development and planning related to three of the four menu interventions in national SHS programming (I-13, I-34 and I-69), but they reject the fourth intervention for inclusion within SHS.

Table 9. Simplified example of how the guideline and its menu and compendium of interventions can be used when considering interventions for inclusion within a national SHS programme

MENU OF INTERVENTIONS		Web Annex A. Compendium of interventions Box 5. Interventions that are unsuitable for inclusion within SHS		Hypothetical national decision
Short name: categorization	Long name	Example of specific WHO guidance	Citation source	
I-13. Provision of nutrition education Essential in SHS everywhere	I-13. Provision of health education about nutrition	I-13 – PA265. High-intensity school-based interventions that focus on diet and/or physical activity, are comprehensive and multi-component and include: curriculum on diet and/or physical activity taught by trained teachers; supportive school environment/policies; a physical activity programme; a parental/family component; (and/or) healthy food options available through school food services: cafeteria, vending machines, etc. (101)	WHO (2009). Interventions on diet and physical activity: what works (101)	Further consult the report (101) and other sources under I-13 in the compendium for detailed adaptation of this evidence-based intervention within SHS
I-69. Referral to rehabilitation and support for disability Essential in SHS everywhere	I-69. Referral and support for rehabilitation, habilitation, assistive technology, assistance and support services for injured or disabled individuals (e.g. those who are visually or hearing impaired or have eye/ear problems, who have physical disabilities or motor disorders or who have sports injuries)	I-69 – PA246. Invest in specific programmes and services for people with disabilities (e.g. In addition to mainstream services, some people with disabilities may require access to specific measures, such as rehabilitation, support services or training. Rehabilitation – including assistive technologies such as wheelchairs, hearing aids and white canes – improves functioning and independence. A range of well-regulated assistance and support services in the community can meet needs for care, enabling people to live independently and to participate in the economic, social and cultural lives of their communities. ... While there is a need for more services, there is also a need for better, more accessible, flexible, integrated and well-coordinated multidisciplinary services, particularly at times of transition such as between child and adult services) (182)	WHO, World Bank (2011). World report on disability 2011 (182)	Further consult the report (182) and other sources under I-69 in the compendium for detailed adaptation of this evidence-based intervention within SHS
I-82. Referral and support for suicide risk/self-harm Essential in SHS everywhere	I-82 Referral and support for management of suicide risk/self-harm	I-82 – PA207. The 2016 WHO Mental Health Gap Action Programme (mhGAP) intervention guide recommends assessing comprehensively everyone presenting with thoughts, plans or acts of self-harm. The guide recommends asking any person over 10 years of age who is experiencing a priority mental, neurological or substance-use disorder – or chronic pain or acute emotional distress – about his or her thoughts, plans or acts related to self-harm and suicide (106)	WHO (2016). mhGAP intervention guide for mental, neurological and substance use disorders in non-specialized health settings: mental health Gap Action Programme (mhGAP). Version 2.0 (106)	Further consult the guide (106) and other sources under I-82 in the compendium for detailed adaptation of this evidence-based intervention within SHS
Screening for maltreatment by a parent or guardian UNSUITABLE IN SHS EVERYWHERE	Screening for maltreatment by a parent or guardian	(Box 5) Health-care providers should not use a universal screening approach (such as a standard instrument, set of criteria or questions asked of all children in health-care encounters) to identify possible child maltreatment (95)	WHO (2019). Technical report: WHO guidelines for the health sector response to child maltreatment (95)	Do not include this intervention in SHS programming Review the report (95) and decide on other (evidence-based) interventions to address child maltreatment

Note: see Box 9 for more description of this hypothetical example.

The references in Web Annex A list the 149 WHO publications that are the sources of evidence-based procedures and activities detailed in the compendium. This list includes many WHO guidelines and other global guidance documents that can be accessed online; some examples are shown in Box 10.

6.2.6 Monitoring and evaluation of implementation of the WHO guideline on SHS

Monitoring and evaluation should be built into any processes for implementing this guideline to determine effectiveness, document important lessons for uptake and guide further implementation.

WHO primarily will use the periodic Global Reproductive, Maternal, Newborn, Child and

Adolescent Health Policy Survey to evaluate how the SHS recommendation is included in national policies. This survey is conducted every 2–3 years. Other surveys will also be consulted to evaluate SHS inclusion in national policies, curricula and training courses. WHO will collaborate with national authorities to include questions about the new recommendation and how educators, health staff and other community members have experienced implementing it within relevant routine national training assessments, health surveillance and supervision practices. Progress towards implementation and any barriers encountered will be tracked.

WHO and UNESCO have developed global standards and indicators for health-promoting schools and systems (3,230). As one of the eight standards relate to SHS, monitoring and evaluation tools and indicators for SHS have been suggested (3).

BOX 10.

A selection of WHO resources for more in-depth guidance on evidence-based interventions

The references in Web Annex A provide information for the 149 WHO publications that are cited in the compendium of interventions. This resource list can be accessed for further information on a range of topics relevant to SHS; some examples are shown below.

- *WHO Framework Convention on Tobacco Control: guidelines for implementation*, 2009 (137)
- *WHO guidelines on preventing early pregnancy and poor reproductive health outcomes among adolescents in developing countries*, 2011 (115)
- *IMAI district clinician manual: hospital care for adolescents and adults: guidelines for the management of illnesses with limited resources*, 2012 (133)
- *Persisting pain in children package: WHO guidelines on the pharmacological treatment of persisting pain in children with medical illnesses*, 2012 (158)
- *Prevention and control of noncommunicable diseases: guidelines for primary health care in low resource settings*, 2012 (149)
- *Guideline for the management of conditions specifically related to stress*, 2013 (193)
- *Guideline: updates on the management of severe acute malnutrition in infants and children*, 2013 (173)
- *Guidelines for the treatment of malaria, third edition*, 2015 (167)
- *Update of the Mental Health Gap Action Programme (mhGAP) guideline for mental, neurological and substance use disorders: WHO mhGAP guideline update*, May 2015, 2015 (160)
- *WHO guideline on the use of safety-engineered syringes for intramuscular, intradermal and subcutaneous injections in health-care settings*, 2015 (157)
- *Updated guideline: paediatric emergency triage, assessment and treatment: care of critically ill children*, 2016 (150)
- *Consolidated guidelines on HIV prevention, diagnosis, treatment and care for key populations – 2016 update*, 2016 (116)
- *Guideline: daily iron supplementation in adult women and adolescent girls*, 2016 (178)
- *WHO guideline: daily iron supplementation in infants and children*, 2016 (177)
- *Responding to children and adolescents who have been sexually abused: WHO clinical guidelines*, 2017 (144)
- *Guideline: implementing effective actions for improving adolescent nutrition*, 2018 (103)
- *WHO guidelines for the health sector response to child maltreatment. Technical report*, 2019 (95).

6.3 Further guidance and research needed

6.3.1 SHS guidance

It is hoped that the WHO guideline on SHS will be part of a series of detailed global guidance documents on school health. This guideline attempts to set the stage for future guidance by recommending that comprehensive SHS should be implemented, because rigorous evidence suggests SHS are both effective and acceptable. This guideline also provides a menu of 87 interventions that should be considered for inclusion within SHS, with supporting WHO evidence, and further identifies seven interventions that are unsuitable for inclusion within SHS. While some guidance on intervention prioritization is provided to national governments in this guideline, this is broad.

In the coming years, further WHO guidance is expected on national SHS strategies and programming, intervention prioritization, implementation, and monitoring and evaluation. For example, while this guideline establishes that health sector involvement and medical expertise is indispensable in SHS at all levels of a national system, the optimal leadership roles and collaboration between health, education and other sectors in national policies and local SHS programming warrants further guidance. The development of such guidance will depend in part on further research, as described below.

6.3.2 SHS research

Given the large number of health areas and activities that potentially can be included in SHS, there are many topics for which further research and evidence is needed to inform SHS. Based on research gaps that were identified during development of this guideline, the GDG produced the following list of research needed. This list of research topics is not exhaustive, but instead provides important examples.

6.3.2.1 Governance and organization

Evaluation is required of:

- outcomes associated with different forms of SHS governance (such as education versus health-sector lead, at national and local levels);
- different infrastructure or organizational models that result from differences in governance;
- outcomes associated with different SHS health-worker qualifications (like nurse and medical assistant) and different compositions of SHS teams (including qualifications, specialties and sectors);
- SHS management, including transparency, accountability and monitoring data at school and national levels, such as whether inclusion of simple, pragmatic monitoring indicators improves outcomes; and
- how effectively to meet the health needs of disadvantaged children and adolescents – including those who are out of school – with quality, coverage and equity.

6.3.2.2 Standards of care, delivery modes and effectiveness outcomes

Research is required on:

- standards of care and effectiveness outcomes;
- service delivery modes and effectiveness outcomes;
- sex and age differentiation of effectiveness outcomes, including for student age groups of 5–9, 10–14 and 15–19 years, by sex;
- possible harms of SHS (related, for example, to confidentiality);
- overall impact on well-being (beyond measurement of 1–2 outcomes);
- the combined effects of an SHS package on multiple outcomes, including educational outcomes;
- the combined effects of the six pillars of HPS on multiple outcomes; and
- quality and ethical issues in SHS, such as inclusion and confidentiality.

While randomized controlled trials may be the gold standard for some forms of medical research, they may not be feasible for evaluating social or public health interventions such as SHS due to their great cost, time and complex challenges, including randomizing schools or cities to comprehensive SHS. Instead, the GDG suggests adoption of an implementation-science approach using other methods, such as controlled before-after studies and interrupted time-series studies.

6.3.2.3 Acceptability outcomes

The following are required:

- qualitative research on student and family satisfaction or SHS acceptability;
- participatory research engaging young people on SHS priorities, best practices, acceptability and equity; and
- sex and age differentiation of acceptability outcomes for, for example, student age groups of 5–9, 10–14 and 15–19 years, by sex.

6.3.2.4 Intervention implementation research

Research is required on:

- how to improve SHS stewardship/leadership;
- assessment of training organization and fidelity of interventions;
- implementation of SHS in humanitarian or fragile settings; and
- how best to adapt SHS during a crisis, such as telemedicine during an epidemic (100,205).

6.3.2.5 Cost-effectiveness

The following is required:

- cost-effectiveness studies on, for instance, minimal investment needed to maximize effects.

6.3.2.6 LMIC

The following are required:

- controlled studies and/or prospective studies in LMIC, including in diverse cultural settings, such as sub-Saharan Africa and south-east Asia; and
- case studies of SHS in different countries from all WHO regions.

6.3.2.7 Innovation

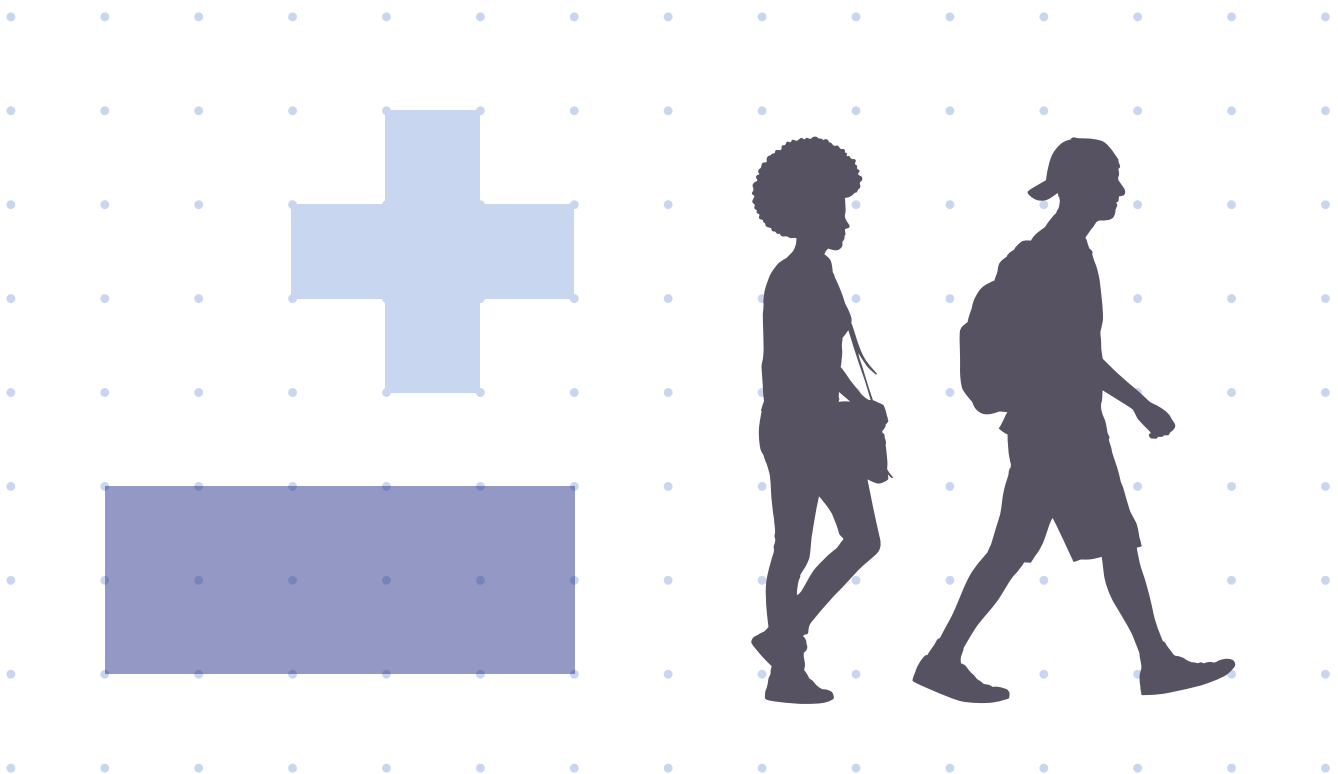
Research is required on:

- telehealth or telemedicine technology (including school to tertiary care connections, and remote/rural student mental health “visits” with urban specialists); and
- other relatively low-cost SHS options, such as task-sharing and mobile clinics.

6.4 Updating the WHO guideline on SHS

The Steering Group, in consultation with GDG members and technical experts, will continue to follow developments in research on SHS, particularly in relation to questions for which the certainty from the existing evidence is low or very low.

If new evidence makes the evidence review underpinning this guideline out of date, WHO will coordinate an update following the formal procedures of the *WHO handbook for guideline development* (2).



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Annex

GRADE methodologist, Guideline Development Group and External Review Group: affiliations, areas of expertise, and conflict of interest management

This annex provides additional information for the GRADE methodologist (Table A.1), Guideline Development Group (Table A.2) members and External Review Group members (Table A.3). Declarations of interest were documented for each of these individuals and assessed by the WHO Secretariat. The interests declared were not considered to hinder participation in the process to develop or review recommendations.

Table A.1. GRADE methodologist

#	SURNAME	First name	Gender	Based on nationality and/or country of residency		Institution	Title	Declared interests	Decision on interests
				WHO region	Country				
1.	SIEGFRIED	Nandi	F	Africa	South Africa	Public Health Medical Specialist, Cape Town, South Africa	GRADE Methodologist	Funding dependent on completion of guideline	No further action required

Table A.2. Guideline Development Group

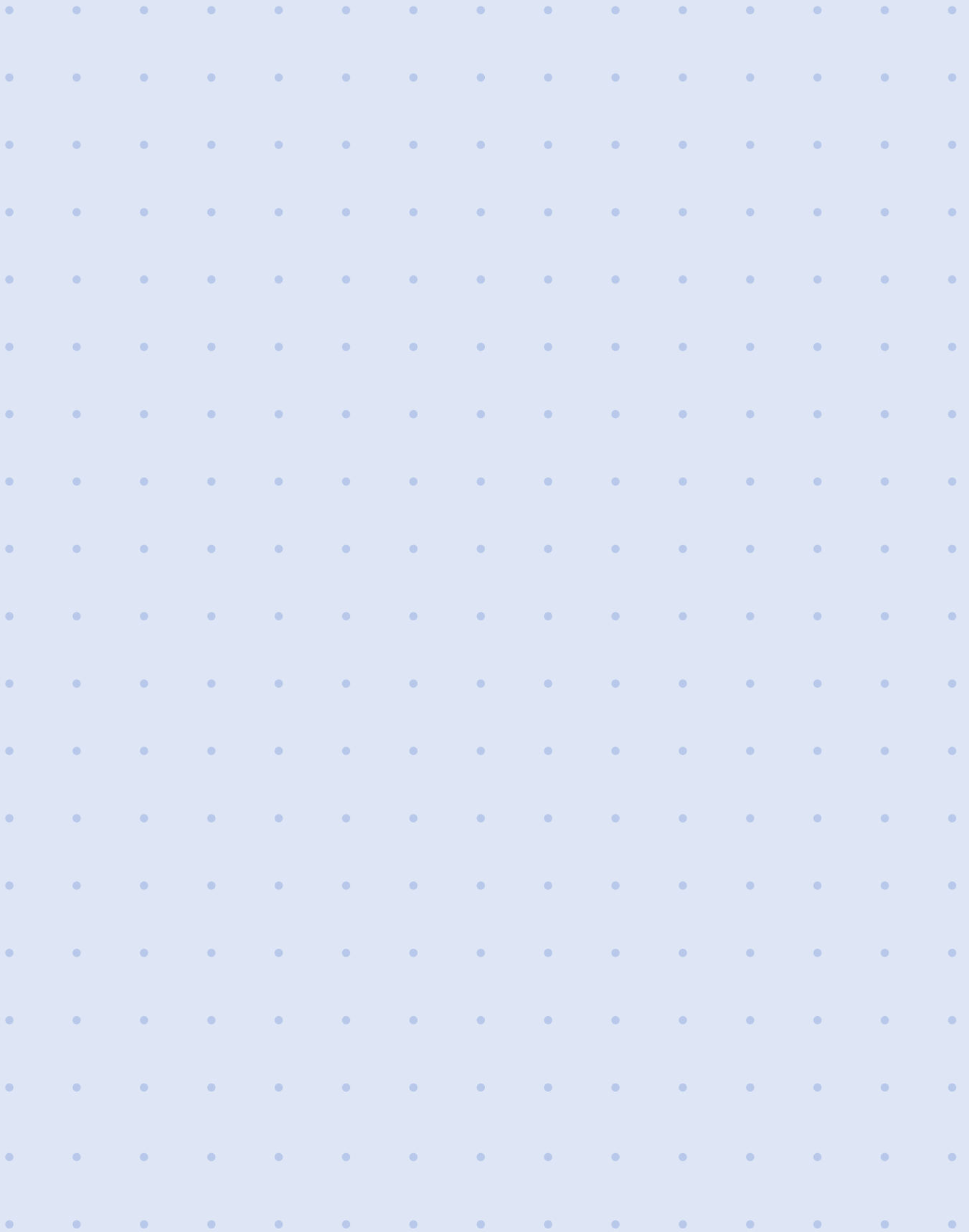
#	SURNAME	First name	Gender	Based on nationality and/or country of residency		Institution	Title	Other areas of expertise	Declared interests	Decision on interests
				WHO region	Country					
1	AFIFI	Rima	F	Eastern Mediterranean/Americas	Lebanon/United States of America	Prevention Research Center for Rural Health, Department of Community and Behavioral Health, College of Public Health, University of Iowa, United States of America	Director	Violence; youth protective factors; programme evaluation/academic	None	No further action required
2	BENZIAN	Habib	M	Europe/Americas	Germany/United States of America	College of Global Public Health, New York University, United States of America	Research Professor	Oral health; water, sanitation and hygiene; school health/academic	Once employed by Unilever on a toilet cleanliness project	No further action required
3	BIRUNGI	Harriet	F	Africa	Kenya	Population Council	Country Director	Sexual and reproductive health; medical anthropology/civil society programme implementer	None	No further action required
4	FERRAND	Rashida	F	Africa/Europe	Zimbabwe/United Kingdom	London School of Hygiene and Tropical Medicine and Biomedical Research, United Kingdom, and Training Institute, Harare, Zimbabwe	Professor	HIV and sexual and reproductive health/academic clinical epidemiologist	None	No further action required
5	GAETE	Jorge	F	Americas	Chile	Department of Public Health and Epidemiology, Faculty of Medicine, Universidad de los Andes, Santiago, Chile	Chair	Mental health; substance use, violence/academic	None	No further action required
6	GHARBI	Najat	F	Eastern Mediterranean	Morocco	Division of School and University Health, Ministry of Health, Morocco	Head	School health/programmes	None	No further action required
7	FRANSEN-JAIBI	Henrica (Hetty) J. M.	F	Eastern Mediterranean/Europe	Tunisia/Netherlands	Occupational Therapy Programme, University of Tunis-El Manar, Tunisia, and World Federation of Occupational Therapists	Head; and delegate	Occupational therapy/programmes	None	No further action required
8	LEVISON	Julia	F	Americas	United States of America	School of Public Health, Boston University, United States of America	Project Manager	School health/young academic	None	No further action required
9	MAUGHAN	Erin D.	F	Americas	United States of America	National Association of School Nurses, Silver Spring, Maryland, United States of America	Director of Research	School health/nursing; operational research/programmes	None	No further action required
10	MURTHY	Gudivalleti V.S.	M	South-East Asia	India	Indian Institute of Public Health, Hyderabad, Kavuri Hills, Madhapur – Hyderabad, India	Director	Hearing; vision/programmes	None	No further action required
11	NALIPONGUIT	Ella Cecilia	F	Western Pacific	Philippines	Bureau of Learner Support Services, Department of Education, Manila, Philippines	Director	Education/programmes	None	No further action required

Table A.2 contd

#	SURNAME	First name	Gender	Based on nationality and/or country of residency		Institution	Title	Other areas of expertise	Declared interests	Decision on interests
				WHO region	Country					
12	RAHMAN	Atif	M	Eastern Mediterranean/Europe	Pakistan/United Kingdom	Institute of Population Health Sciences, University of Liverpool, United Kingdom	Professor	School health; mental health/clinical academic	None	No further action required
13	SAEWYC <i>Chair</i>	Elizabeth	F	Americas	Canada	School of Nursing, Division of Adolescent Health and Medicine, Vancouver, Canada	Director	School health/ nursing; vulnerable youth; operational research/ academic	None	No further action required
14	SAWYER	Susan	F	Western Pacific	Australia	Adolescent Health, University of Melbourne; and Centre for Adolescent Health at the Royal Children's Hospital, a WHO Collaborating Centre for Adolescent Health, Melbourne, Australia	Chair; and Director	Adolescent health; chronic diseases; risk behaviours; models of care/academic	None	No further action required
15	SHI	Hui-Jing	F	Western Pacific	China	Maternal, Child and Adolescent Health Department, School of Public Health, Fudan University, Shanghai, China	Deputy Director	School health/academic	None	No further action required
16	VIGAN	Sharlen	F	Africa	Togo	World Bank Group, Lomé, Togo	Social Protection Specialist	School health; nutrition/programme implementation	None	No further action required

Table A.3. External Review Group

#	SURNAME	First name	Gender	Based on nationality and/or country of residency		Institution	Title	Declared interests	Decision on interests
				WHO region	Country				
1	DICK	Bruce	M	Europe	Switzerland	Independent Consultant, Geneva, Switzerland and Johns Hopkins School of Public Health, Baltimore, Maryland, United States of America	Consultant	None	No further action required
2	KJOLHEDE	Chris	M	Americas	United States of America	School-based Health Centers, Bassett Health Care Network, Cooperstown, New York, United States of America	Co-director	None	No further action required
3	MATEMVU	Maziko	F	Africa	Malawi	Her Liberty Malawi, Lilongwe, Malawi	Programs Manager	None	No further action required
4	MORGAN	Antony	M	European	United Kingdom	Glasgow Caledonian University London, United Kingdom	Dean and Professor	None	No further action required
5	PANIELLO CASTILLO	Bianca	F	European	Spain	International Federation of Medical Students' Associations, Barcelona, Spain	Public Health Development Assistant	None	No further action required



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