Clinical preventive guidelines for school-aged children and adolescents in primary care: a protocol for a systematic review

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ABSTRACT

Introduction  Guidelines for clinical preventive services targeting school-aged children and adolescents in primary care are limited, often inconsistent and difficult to apply in clinical contexts. This publication describes the protocol concerning a comprehensive systematic review that primarily aims to collect and synthesise available guidelines for prevention in primary care focused on school-aged children living in high-income regions. A second objective is to assess the quality of identified documents.

Methods and analysis  We will search for reports providing clinical practice guidelines or consensus or expert opinion on preventive actions in paediatric primary care. We will use the WHO definition of prevention. We will focus on children aged 6–18 years living in the European region, the USA, Canada and Australia. We will search PubMed, Embase, Web of Science and Cochrane Library and guidelines-specific databases from 1 January 2010. We will also explore the grey literature using web search engines (Google and Google Scholar). We will finally obtain unpublished information through personal contact with national paediatric societies. We will summarise all identified documents as well as their potential methodological bias. We will further use the Appraisal of Guidelines Research and Evaluation Instrument, version II tool to critically appraise their quality.

Ethics and dissemination  Our findings will contribute to the identification of clinical preventive guidelines for which implementation in routine paediatric primary care should be considered. We intend to disseminate our results through publication in peer-reviewed journals and conference proceedings.

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INTRODUCTION

Primary care physicians, in particular paediatricians, recognise prevention as a central part of their mission towards patients. Clinical practice guidelines (CPGs) are valuable tools that can assist paediatricians in their preventive activities and improve the quality of care for young patients.1 Guidance focused on the prevention of a set of specific diseases and conditions in children is well documented5–6; however, it appears that guidance addressing the broader concept of preventive primary healthcare throughout childhood and adolescence is rather limited, particularly outside the USA and Canada.7 In fact, availability of high-quality studies conducted in paediatric primary care settings remains insufficient because of the general lack of research interest in the area of prevention as well as the multiple barriers to conducting research in children populations.8–9

Globally, there is a plethora of guidelines regarding regular health maintenance visits (well-child visits) for children up to the age of 5. During these visits, basic immunisations are given and the growth of children is monitored.5–6 Yet, provision of clinical preventive care in the postschool entry period is particularly problematic.10 Due to the absence of routine scheduled immunisations, older children and adolescents often consult their doctors in case of acute illness or injury, therefore, potentially benefiting only from opportunistic preventive counselling.11–12

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Strengths and limitations of this study

► The present study will be the first systematic review to identify and assess the quality of available guidance on clinical preventive services in school-aged children and adolescents in European high-income countries, the USA, Canada and Australia.

► The extensive search strategy covering both indexed and grey literature as well as personal contact with different study groups is an important strength.

► The input of a national as well as an international advisory group will limit the risk of missing important documents.

► The application of the Appraisal of Guidelines Research and Evaluation Instrument, version II tool, which has established validity and reliability, will enable us to appraise the quality of guidelines.

► A limitation will be the exclusion of documents regarding high-income countries other than the European region, the USA, Canada or Australia.
preventive medicine appointments and related costs are not reimbursed by health insurers (the case in Switzerland), thus leading to unavoidable inequalities in access to preventive healthcare.\textsuperscript{13-15}

Available guidelines for primary care prevention in paediatric populations usually come in the form of long checklists describing a variety of detailed assessments to be done in each age group. However, these lists are difficult to integrate into the busy routine of primary care practice, a fact that contributes to their underuse by clinicians.\textsuperscript{16} The development of brief essential recommendations reduces time lost due to unnecessary activities and, therefore, reduces unnecessary costs.

CPGs’ trustworthiness is an important prerequisite to promoting their use.\textsuperscript{17, 18} Potential inconsistencies observed between different study groups that develop CPGs are mainly due to different methodological approaches applied. The development of low-quality guidelines has significant implications when implementing them in clinical practice in terms of both absence of health benefits to patients and potential risk of harm as well as wasted resources.\textsuperscript{19, 20} On the other hand, it is well observed that certain countries proceed to full endorsement of evidence-based guidance that has been previously published by specific trustworthy groups from other countries. However, local epidemiology and practice contexts, medical costs, as well as ethical and social differences, play a significant role in defining each country's specific healthcare needs and should be taken into consideration when establishing national CPGs.

In view of this, our aim is to review all available clinical preventive guidelines regarding school-aged children in high-income countries and identify key effective preventive services for which implementation in routine paediatric primary care should be considered.

Objective

Our main objective is to collect, summarise and assess the quality of available guidelines for prevention in primary care targeting school-aged children and adolescents living in European high-income regions, the USA, Canada and Australia. Our secondary objective is to create a list of preventive services with evidence supporting their routine use in primary care.

METHODS AND ANALYSIS

This protocol is prepared based on the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) for Protocols\textsuperscript{21} (online supplemental file 1).

Patient and public involvement

No patient involved.

Eligibility criteria

We will include all available guidance for prevention in school-aged children in European high-income countries, as well as the USA, Canada and Australia.

We define school-aged children as those between 6 and 18 years. We will also consider reports concerning recommendations for the full range of the paediatric population, namely from birth to 18 years, and we will screen them by hand in order to identify specific guidance for children and adolescents aged 6–18 years.

For identifying high-income countries, we will use the WHO classification of countries by income level, which is based on the World Bank list.\textsuperscript{22} We will focus on the European region, since the needs in disease prevention and health promotion in Switzerland are quite similar to those met in the rest of the high-income European countries. We will further include the USA, Canada and Australia because historically these countries have led the way in following rigorous standards when developing clinical guidelines. We choose not to include other high-income countries in order to focus on information that will be specifically relevant to the European context, and also because access to data from these other countries is likely to be limited by language/writing barriers.

We will include guidance for preventive services that result in the maintenance and promotion of health in the general paediatric and adolescent population. As such, we refer to every action that aims at avoiding or detecting the manifestation of disease or injury, in line with the WHO definition for primary and secondary prevention.\textsuperscript{23} This may include vaccinations, provision of information and education on behavioural health risks and measures to reduce these risks, actions to improve health through changing the impact of certain social and economic determinants, nutritional and food supplementation, dental hygiene education and oral health services, as well as evidence-based screening programmes for early detection of illness.

We will focus on preventive activities implemented in primary care settings. Primary care is a whole-to-society approach to health and well-being, characterised by accessible and comprehensive healthcare, centred on the needs of individuals and communities. It addresses the broader determinants of health and focuses on the inter-related aspects of physical, mental and social health and well-being.\textsuperscript{23} We will initially search for CPGs. We will use the CPGs definition proposed by the Institute of Medicine according to which, every statement that includes recommendations intended to optimise patient care and that is informed by a systematic review of evidence and an assessment of the benefits and harms of alternative care options, is considered a CPG.\textsuperscript{4} We will further search for consensus statements, recommendations and position papers based on expert opinions, as we expect that the number of available CPGs will be limited.

We will examine all documents published in languages understood by the members of our research team, namely English, French, German, Italian, Spanish, Greek, Portuguese, Swedish and Dutch. As we assume that there is a high probability of identifying a large number of publications and some of them will be updates of documents...
issued by the same group, we will limit our search to the
last 10 years, and we will update it before publishing our
final findings.

We will exclude older versions of identified documents
if previously issued by the same organisation.

**Search strategy**

1. We will search for published guidelines concerning
paediatric preventive care in the following scientific
databases: PubMed, Embase, Web of Science and
Cochrane Library. We will use combinations of the fol-
lowing free-text words and medical subject headings
(MeSH terms) as well as their synonyms: ‘guideline’,
‘recommendation’, ‘statement’, ‘consensus’, ‘preven-
tion’, ‘primary care’, ‘child’ and ‘adolescent’ (for de-
tails on the search methodology concerning PubMed,
see online supplemental file 2). We will additionally
search for relevant links and citations through hand
screening of reference lists of all documents included
in full-text screening.

2. We will also search databases specific to guidelines: the
Guidelines International Network, the Guidelines and
Audit Implementation Network, the Institute for Clin-
ical Systems Improvement, the Turning Research into
Practice, the WHO, the Epistemonikos, the National
Institute for Health and Care Excellence, the National
Health Service Evidence, the Canadian Medical Associ-
ation Infobase, the Scottish Intercollegiate Guidelines
Network and the Australian CPGs.

3. We will further expand our search outside of scientific
databases. For that reason, we will search grey litera-
ture using Web engines, mainly Google and Google
Scholar. We will use some of the same free-text search
words, namely: ‘guidelines’, ‘recommendations’,
‘statement’, ‘consensus’, ‘prevention’, ‘preventive’,
‘children’, ‘adolescents’, ‘primary care’ (for details on
the search strategy on Google and Google Scholar, see
online supplemental file 3). We will be limited to the
form of pdf files and we will screen the first 200 records
for each search string. Besides, we will systematically
search publications in the websites of all relevant na-
tional paediatric societies and associations.

4. We also consider obtaining unpublished or published
information in languages other than those already
specified for the study purposes, through personal
contact with representatives from relevant national
paediatric organisations. If a response is not received
after three contact attempts, we will exclude the rele-
vant society from the review.

**Guidelines selection process**

We will import retrieved references from each database
into EndNote X9 citation manager software (Clarivate
Analytics, Philadelphia, USA). This will allow for system-
atric storage as well as the ability to remove duplicate
documents. Then, we will import references into Cov-
dience (Veritas Health Innovation, Melbourne Australia),
a web-based standardised systematic review platform, to
facilitate the screening process. The primary reviewer
(MP) will select articles by reading the title and the
abstract after having ensured consistency with the second
reviewer (EP) who will independently screen the first 200
references. Finally, the two reviewers will blindly under-
take the full-text screening. Potential disagreements will
be resolved through discussion with the third reviewer
(DH).

The documents selection and review process will be
demonstrated on a PRISMA flow chart. Reasons for exclu-
sion will be reported in the full-text screening step.

**Data extraction and management**

The two reviewers will independently extract data from
each eligible document to Covidence data extraction
form. The following data will be extracted: first author,
year of publication, country, title, issuing organisation,
funding body, target population, health topic (we antici-
pute the following key areas: nutrition, physical activity,
obesity, hypertension, oral health, vaccines and immuni-
sation, violence & injuries, substance use, sexual health,
mental health) content of recommendation, method
used to formulate guidance (systematic review, consensus,
position paper, not mentioned, other), methodological
quality (method of grading the evidence), if any, with
relevant strength of recommendation (high, low), if any.
We will contact the corresponding authors of the identi-
fied documents by email for questions about any available
information that is not included in the published docu-
ments but needed for the analysis.

**Critical appraisal of quality**

We will assess eligible guidelines using the Appraisal of
Guidelines Research and Evaluation Instrument, V.II
(AGREE II), an internationally well-validated tool for
the evaluation of the quality of evidence and the devel-
opment process of clinical guidelines. This instrument
consists of 25 items grouped in six domains: scope and
purpose, stakeholder involvement, rigour of develop-
ment, clarity and presentation, applicability, and edito-
rial independence. Each item is scored on a Likert scale
of seven points from strongly disagree to strongly agree
(1–7, respectively).

The two reviewers will perform the appraisal of guidance
after having completed the online AGREE II training.
Inter-rater reliability will be assessed by the intraclass
correlation coefficient (ICC) which will be calculated for
each domain of the AGREE II. An ICC ≥0.7 will be consid-
ered acceptable. A standardised quality scaled score will
be calculated for each of the six AGREE II domains as
follows:

$$\text{Scaled Domain Score}=(\text{Obtained score}-\text{Minimum possible score})/(\text{Maximum possible score}-\text{Minimum possible score}) \times 100$$

For each domain: The maximum score will be derived
by multiplying the number of items included in this
domain by two (since two reviewers), multiplied by 7
(‘strongly agree’). Accordingly, the minimum score will
be derived by multiplying the number of items in this domain by 2, multiplied by 1 (‘strongly disagree’). The ‘obtained score’ will be calculated as the sum of scores given by the two reviewers for all the items included in this domain.

**Results synthesis**

We expect that in the present systematic literature review, data will not be appropriate to be used in meta-analysis. Instead, we will present our results narratively. We will tabulate descriptive data of all eligible documents. If possible, we will group recommendations by topic (health condition), location and age group (we anticipate five age subgroups: 6–8, 9–12, 13–15 and 16–18 years). We will comment on the potential methodological bias. We will further demonstrate the scores of AGREE evaluation on a table format. We will finally discuss on the recommendations to be considered for implementation in routine primary care.

**Advisory Committee**

For the purpose of this study, we have created an advisory committee that includes national and international experts with great experience in both primary care and the development of preventive guidelines (see online supplemental file 4 for complete list). Their contribution will consist of commenting the list of guidelines identified by the research team for further analysis and suggesting additional sources of information potentially missed. They will further be asked to assess the summary of findings of the review and comment on the synthesis of evidence-based recommendations.

**ETHICS AND DISSEMINATION**

Ethical approval is not required for this systematic review because all data included in the review have been either published or are publicly available.

The purpose of this review is to identify rigorous recommendations for clinical preventive services in school-aged children. In a second step, we will adapt these identified recommendations to the Swiss epidemiological and practice context to create a list of clinically relevant and evidence-based practices. Thereafter, we aim to conduct a Delphi consensus study involving community paediatricians and general practitioners throughout Switzerland to define maximum five essential preventive activities to prioritise from the created list for each school-age group (6–8, 9–12, 13–15 and 16–18 years). We hope that our final findings will provide valuable information for Swiss stakeholders and decision-makers in planning better delivery strategies that overall will improve the quality of children’s preventive care. In addition, our methodology and findings will provide an entry point for further similar research in other countries.

We consider submitting a manuscript to a peer-reviewed journal to present the results of this review, as well as brief summaries at national and international meetings.

**Correction notice**

This article has been corrected since it was published. Middle initial added in author name Dagmar M Haller.

**Acknowledgements**

We thank the members of our advisory committee for accepting to share their knowledge and expertise throughout the project (see online supplemental file 4 for complete list). We also thank Ms Mafalda Burri, MSc librarian in the University of Geneva, for her valuable assistance in the development of the search strategy.

**Contributors**

MP is the principal investigator of this review, drafted the protocol and will be the primary reviewer. EP commented on the protocol and will be the second reviewer. DH conceived the original idea of the systematic review, will resolve potential conflicts and critically revised the protocol.

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**Disclaimer**

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**Competing interests**

All authors have completed the ICMJE uniform disclosure form at www.icmje.org/coi_disclosure.pdf and declare that the only support for the submitted work was from the funders mentioned in ‘funding sources’. The authors have no financial relationships with any organisations that might have an interest in the submitted work in the previous 3 years and no other relationships or activities that could appear to have influenced the submitted work.

**Patient consent for publication**

Not required.

**Provenance and peer review**

Not commissioned; externally peer reviewed.

**Supplemental material**

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