Arab Republic of Egypt

Egyptian Pediatric Clinical Practice Guidelines Committee (EPG)
Chronic Cough Guideline Adaptation Group (CCGAG)

Evidence-Based Clinical Practice Guideline for Management of Chronic Cough in Children

Adapted with permission from

American collage of chest physician 2006,2020,
European respiratory society 2019,
Korean AAACI 2018

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Disclaimer

Clinical Practice Guidelines (CPGs) are "systematically developed statements to assist health care professionals and patients in medical decision-making for specific clinical conditions" or they are "statements that include recommendations intended to optimize patient care that are informed by a systematic review of evidence and an assessment of the benefits and harms of alternative care options". It is in no way a substitute for a medical professional's independent judgment. Most of the content herein is based on literature reviews. In areas of uncertainty, professional judgment was applied.

This CPG is a working document that reflects the state of the art in the field and is based upon the accessible best-updated published evidence. Because rapid changes in this area are expected, periodic revisions are inevitable. We encourage medical professionals to use this information in conjunction with, and not as a replacement for, their best clinical judgment. The presented recommendations may not be appropriate in all situations. Any decision by practitioners to apply these guidelines must be made considering local resources and individual patient circumstances.

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Abbreviations

ACCP	American collage of chest physicians
ACEI	Angiotensin-converting enzyme inhibitors
Adolopment	Adoption-Adaptation-Development
AFCM	Armed Forces College of Medicine
AGREE II	Appraisal of Guidelines for Research and Evaluation Instrument
CCGAG	Chronic Cough Guideline Adaptation Group
CPG	Clinical Practice Guideline
CT	Computed tomography
CVA	Cough variant asthma
DHS	Demographic and Health Survey
EBCPG	Evidence Based Clinical Practice Guideline
EBM	Evidence-based medicine
EPG	Egyptian Pediatrics Clinical Practice Guidelines Committee
EPG CPG	EPG Clinical Practice Guideline
ERG	External Review Group
ERS	European Respiratory Society
FeNO	Fractional exhaled nitric oxide
GAG	Guideline Adaptation Group
GDG	Guideline Development Group
GER	Gastro-esophageal reflux
GERD	Gastro-esophageal reflux disease
GOR	Grade of Recommendation
GPS	Good Practice Statement
GRADE	Grading of Recommendations Assessment, Development and Evaluation
H1Ras	Histamine 1-receptor antagonists
HRCT	High resolution computed tomography
KAAACI	Korean Academy of Asthma, Allergy and Clinical Immunology
LOE	Level of Evidence
LTRAs	Leukotriene receptor antagonists
MTB/ RIF	Mycobacterium tuberculosis complex resistance to rifampicin
OSA	Obstructive sleep apnea
PBB	Protracted bacterial bronchitis
pH	Potential of hydrogen
PHC	Primary Health Care
PIPOH	Patient population, intervention, professionals, outcomes, and healthcare context
QOL	Quality Of Life
RCT	Randomized controlled trial
RIGHT	A Reporting Tool for Practice Guidelines in Health Care
TB	Tuberculosis

Glossary

1. Acceptability
Is the extent to which the users are likely to adopt a recommendation, based on internal qualities such as clarity, comprehensiveness, and logical reasoning and on external factors such as the burden imposed on the process and system of care, patient and providers attitudes and beliefs, and patients needs, expectations, and preferences.

2. Adaptation (of guidelines)
Is the systematic approach to considering the use and/or modification of (a) guidelines(s) produced in one cultural and organizational setting for application in different context? Adaptation can be used as an alternative to de novo guideline development or for customizing (an) existing guideline(s) to suit the local context.

3. Adoption (of a guideline)
Is the acceptance of a guideline as a whole after the assessment of its quality, currency, and content. When health care providers (or other users of recommendations) adopt a guideline, they feel committed to change their practices in accordance with the recommendations of the guideline.

4. Applicability
Is the extent to which the users are able to put a recommendation into practice, based on internal qualities such as a clearly defined eligible patient population that matches the population to which the intervention is targeted in the local setting and external factors such as the availability of the necessary knowledge, skills, provider time, staff, equipment, and other resources.
Applicability is sometimes taken as a synonym for feasibility:
- Feasibility of the acquisition of necessary skills and knowledge
- Feasibility of the necessary increase in provider time, staff, equipment, and so on.

5. Culture
Culture represents the norms and values of a specific group, community, or population.

6. Diffusion
Is a passive means of transferring knowledge; it is not directed towards a target audience (e.g. publication of articles in medical journals).

7. Dissemination
Is more active than diffusion in that it targets a specific audience and involve tailoring the information for that audience (e.g. of dissemination strategies include targeted mailings, presentations, and press conferences.

8. Evidence-based principles
Evidence-Based Medicine (EBM) has been defined as : the conscientious, explicit, and judicious use of current best evidence in making decisions about the care of individual patients. The practice of EBM means integrating individual clinical expertise with the best available external clinical evidence from systematic research**.**

9. Evidence tables
Are summaries of the most salient information from studies identified in the systematic review. The elements of evidence tables are dependent on the types of information in studies related to a particular topic but might include information such as the article reference, the study type (e.g. RCT or Cohort), the number of patients and their characteristics, and the intervention, comparison arms, outcome measures, and effect sizes.

10. Guideline or Clinical Practice Guideline (CPG)
Systematically developed statements about specific health problems, intended to assist practitioners and patients in making decisions about appropriate health care.

11. Guideline consistency
Agreement between the evidence and the recommendations, based on the:
□□Comprehensiveness of the study search and selection process,
□□Coherence between the results of the studies and their interpretation by the guideline authors, and
□□Transparency between interpretation and recommendations.

12. Guideline content
In the 'ADAPTE Manual and Resource Toolkit for Guideline Adaptation' document, guideline content refers to the recommendations in the source guidelines.

13. Guideline currency
A CPG may be considered up to date —when (no) new information on interventions, outcomes, and performance justifies updating (it).

14. Guideline quality
By quality of clinical practice guidelines, we mean the confidence that the potential biases of guideline development addressed adequately and that the recommendations are both internally and externally valid and are feasible for practice. This process involves taking into account the benefits, harms and costs of the recommendations, as well as the practical issues attached to them. Therefore, the assessment (of quality) includes judgments about the methods used for developing the guidelines, the content of the final recommendations, and the factors linked to their uptake.

15. Guideline topic
In the ADAPTE Manual and Resource Toolkit for Guideline Adaptation' document, the topic refers to the theme of the guideline, as described in the guideline title, for a targeted population (disease and patients) and intervention. The purpose, the audience, and the setting intended for the guideline, although not necessarily explicitly stated in the title, are also part of the topic. A guideline on a given topic may contain more than one health question.

16. Health question or clinical question or key question
Is a precisely described health issue (e.g. clinical, professional practice or public health) relating to the topic of the guideline? Guideline may include one or more questions.

17. Implementation

Implementation includes methods to promote the uptake of research findings into routine healthcare in both clinical and policy contexts and hence to improve the quality and effectiveness of healthcare. It includes the study of influences on healthcare professional and organizational behavior.

18. Intra-class correlations
Intra-class correlations provide a measurement of the extent to which two or more raters agree when rating the same set of things. It is a reliability index and is typically a ratio of the variance of interest over the sum of the variance of interest plus error.

19. Recommendation
Any statement that promotes or advocate a particular course of action in clinical care.

20. Stakeholder
A stakeholder is an individual, group and/or organization with a stake in your decision to implement a guideline. Stakeholders include individuals or groups who will be directly or indirectly affected by the implementation of a guideline.

21. Source guideline
In the ADAPTE Manual and Resource Toolkit for Guideline Adaptation' document, source guideline refers to those guidelines selected to undergo assessments of quality, currency, content, consistency, and acceptability/applicability and upon which an adapted guideline may be based.

Executive Summary

Introduction
Chronic cough is defined as the presence of daily cough of more than 4 weeks duration in children aged <14 years old (4). It has been divided into specific and nonspecific cough. Specific cough is usually associated with an underlying disease and non-specific cough indicates prolonged cough in the absence of any symptoms, signs, history, or laboratory findings indicating a specific diagnosis (specific cough pointers) (5).

Scope
This guideline focuses on prevention and management of Chronic Cough in Children

Guideline development process and methods
After reviewing all the inclusion and exclusion criteria and quality appraisal results, the GDG/ GAG recommended using the following source original clinical practice guidelines (CPGs):
1- Chronic cough guidelines ACCP (2006-2020)
2- Chronic cough guidelines (ERS 2019)
3- Chronic cough guidelines (KAAACI 2018)
We conducted Adolopment for these guidelines: (Adoption, Adaptation, and Development)

- Adoption for most of the guideline recommendations.

- Adaptation for 2 recommendations according to GRADE criteria to be suitable to our Economic implications (Evidence-to-Decision (EtD) table was done)
- Development of Good Practice Statements

Recommendations and Good Practice Statements (GPS)

This version of the CPG includes recommendations and good practice statements on the Management of Chronic Cough in Children

The guideline covers children up to 14 years of age

We can summarize the guidelines' recommendations in the following:

- For patients seeking medical care complaining of cough, clinician suggest that estimating the duration of cough is the first step in narrowing the list of potential diagnoses. (Low quality evidence, Weak (conditional) recommendation).
- We recommend that history should include cough characteristics and the associated clinical history such as using specific cough pointers like presence of productive/wet cough. (High qulaity evidence, strong recommandation).
- We suggest that history should include symptoms of red flags or other potential life-threatening symptoms and if present, they should be immediately addressed and evaluated. (good practice statement).
- We suggest that exposure to airborne irritants (e.g. tobacco exposure, combustions, traffic related exposure etc.), allergens or infection may be a reason for dry chronic cough. (Very low quality evidence, weak (conditional) recommendation).
- We suggest that in unexplained or unresponsive chronic cough, obstructive sleep apnea should be included in the differential diagnosis. (Very low quality evidence, weak (conditional) recommendation).
- We suggest that detailed history of drug intake is needed including ACEI and *other drugs such as* bisphosphonates or calcium channel antagonists and-prostanoid eye drops. (Very low quality evidence, weak (conditional) recommendation).
- We recommend basing the management on the etiology of the cough. An empirical approach aimed at treating upper airway cough syndrome due to a rhinosinus condition, gastroesophageal reflux disease and/or asthma should not be used unless other features consistent with these conditions are present. (high evidence, strong recommendation).
- We suggest that diagnosis of asthma is suggested by presence of risk factors and/or response to a short (2-4 weeks) therapeutic trial of 400 ug/day of beclomethasone equivalent may be warranted, and these children should be evaluated in 2-4 weeks. (Very low quality evidence, weak (conditional) recommendation).
- We suggest that cough variant asthma (CVA) was originally described as asthma with cough as the sole symptom and where treatment with bronchodilators improved coughing. (Very low quality evidence, weak (conditional) recommendation).
- We suggest that patients with cough with or without fever, night sweats, hemoptysis, weight loss and/or contact with TB case and -who are at risk of pulmonary TB in community high in TB prevalence. (Very low quality evidence, weak (conditional) recommendation).
- We recommend that the clinician should recommend chest radiography. (Intermediate quality evidence, strong recommendation).

- We suggest that the clinician should not routinely perform a chest CT scan in patients who have normal physical examination and chest X-ray. (Very low quality evidence, weak (conditional) recommendation).
- We recommend that the clinician should recommend spirometry (pre and post β2 agonist) when age is appropriate. (Intermediate evidence, strong recommendation).
- We suggest that the clinician should suggest a test for airway hyper-responsiveness (mannitol or methacholine inhalation). (low quality evidence, weak (conditional) recommendation).
- We suggest that this recommendation places relatively higher value on predictability for the treatment response and the impact on the treatment decision. (Very low quality evidence, weak (conditional) recommendation).
- We recommend that clinicians should not routinely perform additional tests. These should be individualized and undertaken according to the child's clinical symptoms and signs. (Intermediate quality evidence, strong recommendation).
- We suggest that the clinician should suggest undertaking tests for evaluating recent Bordetella pertussis infection when pertussis is clinically suspected (if there is post-tussive vomiting, paroxysmal cough or inspiratory whoop). (Very low quality evidence, weak (conditional) recommendation).
- We recommend that the clinician should suggest further investigations (e.g. flexible bronchoscopy with quantitative culture and sensitivity with or without chest CT assessment for aspiration) to be undertaken. (Intermediate quality evidence, strong recommendation).
- We recommend that the clinician should recommend evaluation of the immunologic competence in presence of criteria suspicious of immunodeficiency (appendix) to assess for an underlying disease. (Intermediate quality evidence, strong recommendation).
- We recommend that in patients with suspected bronchiectasis without a characteristic chest radiograph finding, a high-resolution CT (HRCT) scan of the chest should be ordered because it is the diagnostic procedure of choice to confirm the diagnosis. (low quality evidence, strong recommendation).
- We recommend that A 24-h esophageal pH monitoring test is the most sensitive and specific test. (low quality evidence, strong recommendation).
- We recommend that barium esophagography may be beneficial. It can be considered if it is the only available test to reveal that GERD is of potential pathologic significance. (quality evidence, strong recommendation).
- We recommend that a normal esophagoscopy finding does not rule out GERD as the cause of cough. (low quality evidence, strong recommendation0.
- We recommend that the clinician should suggest screening for TB regardless of cough duration. (low quality evidence, stromg recommendation).
- We suggest that the clinician should suggest Xpert MTB/RIF test, when available, to replace sputum microscopy as an initial diagnostic test. (Very low quality evidence, weak (conditional) recommendation).
- We suggest that in patients who report upper airway symptoms laryngoscopy, rhinoscopy or CT sinuses may be performed but not routinely. (good practice statement).
- For children with non-specific cough, we suggest that if cough does not resolve within 2 to 4 weeks, the child should be re-evaluated for emergence of specific etiological pointers. (Very low quality evidence, weak (conditional) recommendation).

- We recommend that when risk factors for asthma are present, a short (2-4 weeks) trial of 400 microgram/day of beclomethasone equivalent, and re-evaluated. (Intermediate quality evidence, strong recommendation).
- We suggest that asthma medications should not be used for cough unless other evidence of asthma is present. (Very low quality evidence, weak (conditional) recommendation).
- We recommend that an empirical approach should not be used unless other features consistent with these conditions are present. (High quality evidence, strong recommendation).
- We suggest that if an empirical trial is used, the trial should be of a defined limited duration in order to confirm or refute the hypothesized diagnosis. (Very low quality evidence, weak (conditional) recommendation).
- For wet or productive cough unrelated to an underlying disease and without any other specific cough pointers we recommend that Two weeks of antibiotics targeting the common respiratory bacteria (Streptococcus pneumoniae, Haemophilus influenzae, Moraxella catarrhalis) and depending on the local antibiotic sensitivities. (High quality evidence, strong recommendation).
- We recommend that the diagnosis of PBB be made when the wet cough persists after2 weeks of appropriate antibiotics, consider treatment with an additional 2 weeks of the appropriate antibiotic(s). (low quality evidence, strong recommendation).
- We recommend that when the wet cough persists after 4 weeks of appropriate antibiotics, further investigations as flexible bronchoscopy with quantitative cultures and sensitivities with or without chest CT) can be undertaken. (Intermediate quality evidence, strong recommendation).
- In children without an underlying lung disease who have symptoms and signs or tests consistent with gastroesophageal pathological reflux we recommend that they can be treated for GERD according to evidence-based GERD-specific guidelines (intermediate quality evidence, strong recommendation(& acid suppressive therapy should not be used solely for their chronic cough (low quality evidence, strong recommendation).
- For a child diagnosed as somatic cough disorder we recommend that non-pharmacological trials of hypnosis or suggestion therapy or reassurance and counseling or referral to a psychologist or psychiatrist. (low quality evidence, strong recommendation).
- For children suspected for having OSA we suggest that they are managed in according to sleep guidelines. (Very low quality evidence, weak (conditional) recommendation).
- We suggest that the use of H1RAs in children with non-specific cough must be balanced against the well-known adverse events, especially in very young children, (Low quality evidence, weak (conditional) recommendation). ACCP recommended against the empirical use of H1RAs in children with chronic cough, unless other features consistent with upper airways cough syndrome due to rhinosinusitis are present. (Good practice statement)
- We suggest that careful considerations of cost, risk and benefits are needed until there is sufficient data to determine the efficacy of LTRAs in these children. (Very low quality evidence, weak (conditional) recommendation).
- We suggest that cough neuromodulators, are not used in children due to reported adverse events, possible toxicity and lack of clinical trials. (Good practice statement).

Guideline Registration

PREPARE (Practice guideline REgistration for transPAREncy), WHO Collaborating Center for Guideline Implementation and Knowledge Translation, EBM Center, University of Lanzhou, Lanzhou, China. **Registration Number:** ((submitted and in process)). Link: http://www.guidelines-registry.org/

Introduction

Chronic cough is defined as the presence of daily cough of more than 4 weeks duration in children aged <14 years old (4). It has been divided into specific and nonspecific cough. Specific cough is usually associated with an underlying disease and non-specific cough indicates prolonged cough in the absence of any symptoms, signs, history, or laboratory findings indicating a specific diagnosis (specific cough pointers) (5). Table (1)

Table (1): Specific cough pointers

Abnormality	**Examples of etiology**
Symptoms or signs Auscultatory finding	 Wheeze Crepitations-any airway lesions (from secretions) or parenchymal disease such as interstitial disease
Cardiac abnormalities	Associated airway abnormalities, cardiac failure, arrhythmia
Chest pain	Arrhythmia, asthma
Chocked	Foreign body inhalation
Dyspnea or tachypnea	Any pulmonary airway or parenchymal disease
Chest wall deformity	Any pulmonary airway or parenchymal disease
Digital clubbing	Suppurative lung disease
Daily wet/ productive cough	Protracted bacterial bronchitis, suppurative lung disease, recurrent aspiration, atypical infections, TB, diffuse panbronchiolitis
Exertional dyspnea	Any airway or parenchymal disease
Facial pain/purulent nasal discharge	Chronic sinusitis, (protracted bacterial bronchitis), primary ciliary dyskinesia
Feeding difficulties	Any serious systemic including pulmonary illness, aspiration
Growth failure	Any serious systemic including pulmonary illness such as cystic fibrosis
Hoarse voice/stridor	Laryngeal cleft/problems, airway abnormalities
Hemoptysis	Suppurative lung disease, vascular abnormalities
Hypoxia/cyanosis	Any airway or parenchymal disease, cardiac disease
Neurodevelopmental abnormalities	Aspiration lung disease
Recurrent pneumonia	Immunodeficiency, atypical infections, suppurative lung disease, congenital lung abnormalities, trachea-esophageal H-type fistula
Recurrent infections	Immunodeficiency
Previous history of chronic lung disease, esophageal disease (neonatal lung disease, esophageal atresia)	Multiple causes (eg, second H-type fistula, bronchiectasis, aspiration, asthma)
Wheeze-monophonic	Large airway obstruction(eg, from froing body aspiration, malacia, and/or stenosis, vascular ring, lymphadenopathy, and mediastinal tumors)

Wheeze-polyphonic	Asthma, bronchiolitis obliterans, bronchiolitis
Tests	
Chest radiograph (other than peribronchial changes or spirometry abnormalities)	Any cardiopulmonary disease

(Chang et al., 2020)

Chronic cough is common in the community and causes significant morbidity. It is a prevalent problem in about 10% of the general populations worldwide (6) and poses a considerable socioeconomic burden and serious impairment to quality of life (QOL) (7) of children and their parents (8).
Children with chronic cough may experience physical pain, sleep disturbance, loss of school productivity, and social isolation for several months to years (9) Successful management requires a treatment program based on accurate diagnosis and understanding of the cough etiology.
Common pediatric etiologies are different from those in adults (10).This is not surprising as, while the physiology of the respiratory system in children and adults share similarities, there are also distinct differences between prepubertal children and adults that include maturational differences in airway, respiratory muscles and chest wall structure, sleep-related characteristics, respiratory reflexes and respiratory control (11).

Clinical History and Examination:
The etiology of chronic cough in children can accurately be identified by observation, a careful history, and progressing to appropriate tests and therapeutic trials based on pointers obtained in the history (12). The impact of cough should be assessed either by recording simple measures such a cough scores out of 10 (Appendix) or by more detailed, validated measures of cough quality of life (QOL) (13,14).

Etiology and Differential Diagnosis:

Cause	Remarks
Asthma	- Cough is commonly associated with recurrent wheezing - Asthma can be manifested only with cough and is then called cough-variant asthma or cough-dominant asthma. - A therapeutic trial of prednisolone should be offered if diagnoses of cough-predominant asthma or eosinophilic bronchitis are being considered (15).
Cystic fibrosis	- Clubbing and failure to thrive. - Universal newborn screening - Diagnosis is by measurement of sweat chloride concentration and genetic identification (16).
Primary ciliary dyskinesia	- Chronic wet cough - History of transient neonatal distress is common - Begins in infancy and persists (17). - Screening by measuring nitric oxide from nose - Diagnosis by electron microscopy and high-speed video-microscopy analysis (18).
Bronchiectasis	- Bronchiectasis can occurs with cystic fibrosis, primary ciliary dyskinesia, and in some patients with protracted bacterial bronchitis Bronchiectasis unrelated to chronic lung disease is also seen (19).

	-Diagnosis by radiology confirmed by computed tomography (20).
Pertussis (whooping cough)	- Frequent spasms of coughing followed by nausea or vomiting, cyanosis or apnea. like the barking cough - No history DPT vaccination (21).
Tracheomalacia or trachea-broncho-malacia	- Occasionally cause chronic cough - Barking quality - But persists during sleep, unlike habit cough. - Diagnosed only by bronchoscopy performed with light sedation so that dynamic movements can be visualized (22).
Protracted bacterial bronchitis (PBB)	Diagnosed clinically by: 1) Presence of continuous chronic (>4 weeks' duration) wet or productive cough; 2) Absence of symptoms or signs (i.e. specific cough pointers) suggestive of other causes of wet or productive cough; and 3) Cough resolved following a 2–4-week course of an appropriate oral antibiotic. Diagnosed as PBB-micro by the contents of a broncho-alveolar lavage (23).
Habit cough (tic cough)	- Now labeled as somatic cough disorder (24). - Diagnosis should only be made after an extensive evaluation (25).
Postnasal drip syndrome/Upper airways cough syndrome (UACS)	UACS acting as a trigger for cough hypersensitivity although the mechanism remains obscure (26), (27).
Foreign body aspiration	- Causes localizing auscultatory findings. - History of sudden shocking (28).
Medications and Adverse Events	As a side effect of • Angiotensin converting inhibitors (ACEI) (29), • Asthma medications immediately after inhalation (30). • Psychostimulant medications (e.g. Dextro-amphetamine resulting in new onset tics) (31).
Cardiac causes	Associated with specific manifestations (cough pointers)
Immunodeficiency	Two or more of these warning signs should alert clinician to the possibility of primary immunodeficiency and merit further assessment (32) (Appendix)
Gastro-esophageal reflux disease (GERD)	- GIT manifestations must be present - (GERD is not commonly identified as the cause of pediatric chronic cough (33).
Otogenic etiology Arnold's nerve reflex	Uncommon cause of chronic cough -The ears should always be examined for the presence of any foreign material (34).

Investigations:

The investigation and therapeutic trials should include those for common cough-triggering conditions (rhinitis, rhinosinusitis, asthma, eosinophilic bronchitis, and GERD) as chest X-rays, spirometry (35),

computed tomography (36) , flexible bronchoscopy and alveolar lavage (37). Other investigations include barium swallow, video fluoroscopic evaluation of swallowing, echocardiography, complex sleep polysomnography, immunological studies and nuclear medicine scans (5).

Treatment of chronic cough in children:
All children with chronic cough should be carefully assessed, as chronic cough may be due to a serious underlying condition (e.g. inhaled foreign body). In addition to etiology-based management (38), it is prudent that children with chronic cough receive common management interventions as cessation of exposure to environmental tobacco smoke and other environmental pollutants (39).
The present clinical practice guideline aims to address major clinical questions regarding, practical diagnostic tools for specific and nonspecific chronic cough. Also, available therapeutic options for chronic cough in children are included.

Purpose and Scope
These guidelines have been developed to standardize the delivery of services and to implement the guidance on the management (Diagnosis and Treatment) of chronic cough in children < 14 years.
It provides guidance to physicians, pediatricians primary Health Care (PHC) Physicians, family Practitioners, nurses & clinical pharmacist.
The guidelines aimed to optimizing the medical management of children with chronic cough. Providing optimal pharmacotherapy to prevent or minimize adverse effects of therapy.

Methods

Methods of search:
A comprehensive search for guidelines was undertaken to identify the most relevant guidelines to consider for adaptation. Keywords used for search are cough, chronic, children, guideline, management.
Inclusion / exclusion criteria followed in the search and retrieval of guidelines to be adapted:
• Selecting only evidence-based guidelines (guideline must include a report on methodology of development including the systematic literature searches and explicit links between individual recommendations and their supporting evidence)
• Selecting national and/or international guidelines
• Specific range of dates for publication (using Guidelines published or updated 2013 and later or the last 5 years)
• Selecting peer-reviewed publications only
• Selecting guidelines written in English language
• Excluding guidelines written by a single author
The following three categories of databases and websites were searched:

1. *CPG databases and libraries (e.g., GIN, ECRI, SIGN, DynaMed, BIGG-REC PAHO)*
2. *Bibliographic databases (e.g., PubMed, Google Scholar)*
3. *Specialized professional societies (related to the pediatric subspecialty)*

All retrieved Guidelines were screened and appraised using AGREE II instrument (www.agreetrust.org) by at least two members. The panel decided a cut-off point or rank the guidelines (any guideline scoring above 60% on the rigor dimension was retained)
After reviewing all the previous criteria, the GDG/ GAG recommended using 3 guidelines:
1- Chronic cough guidelines ACCP (2006-2020)
2- Chronic cough guidelines (ERS 2019)
3- Chronic cough guidelines (KAAACI 2018)
We did Adolopment for these guidelines: (Adoption, Adaptation, and Development)

- Adoption for most of the guideline recommendations.
- Development of Good Practice Statement

Contributors to the guideline development process:
Guideline Development Group (GDG)/ Guideline Adaptation Group (GAG):
The GDG/ GAG included two subgroups: the clinicians/ healthcare providers subgroup and the guideline methodologists' subgroup.
Clinicians Subgroups
The clinicians' subgroup or clinical panel for this guideline included experts with a range of knowledge, technical skills and diverse perspectives in the field of pulmonology.
The main functions of the clinical panel were adolopment of Chronic Cough Guidelines, determining the scope of the guideline and guideline, reviewing the evidence, and formulating evidence-informed recommendations in case of changing strength of recommendations.

Guideline Methodologists Subgroup
There were 7 guideline methodologists with expertise in guidelines development, adaptation, GRADE and translation of evidence into recommendations. Methodologists provided orientation and overview of evidence-informed guideline development processes using the GRADE approach, guideline adaptation using the Adapted ADAPTE, provided AGREE II assessment of the source guidelines in collaboration with the clinician's subgroup, generation of the EtD frameworks whenever applicable.

External Review Group:
The External Review Group for this guideline comprises 3 clinical national experts who have interest and expertise in

Names	**Affiliations**
Prof Nader Fasseh	Prof. of paediatrics, Alexandria University
Prof Magdy Zidan	Prof of paediatrics, Mansoura University
Prof Laila abd al Ghafar	Prof of pediatrics, Ain shams University

They were identified by Egyptian Pediatric Clinical Practice Guidelines Committee (EPG) as people who can provide valuable insights during the guideline development process.
The External Review Group was asked to comment on (peer review) the final guideline to identify any criticism on the content and to comment on clarity and applicability as well as issues relating to implementation, dissemination, ethics, regulations, or monitoring, but not to change the recommendations formulated by the GDG/ GAG. The members of the External Review Group were required to submit declarations of interest before the peer review process.

Guideline Development/ Adaptation Group meetings:

GDG/ GAG meetings were organized virtually (weekly/bimonthly). Due to the extensive scope of
the guideline, EPG was responsible for overseeing the adolopment process. the timetable and objectives of each meeting. GDG/ GAG meetings were also attended by members of the methodologists. Working rules for each contributor type were outlined by the chair at the start of each meeting, covering aspects such as vocal rights, voting, and evidence to decision and recommendation formulating processes.

Declarations of interests:
Prospective members of the GDG/ GAG were asked to fill in and sign the standard WHO declaration of interest and confidentiality undertaking forms. All guideline members and methodologists were also asked to fill in and sign the standard WHO declaration-of-interests.
Members of the external review group will be asked to fill in and sign the standard WHO declaration-of-interests form before the peer review process.

Evidence for the guideline:
We used the GRADE system (Grading of Recommendations, Assessment, Development and Evaluation) for assigning the quality of evidence and strength of recommendations that includes the following definitions [13]. Informed by the evidence required for the GRADE Evidence to Decision (EtD) framework(s) was(were) done while considering changing strength of recommendations according to availability of some resources in the recommendations (both ETD and changing strength of recommendation were not done in this guideline).
Description of the interpretation of the GRADE four levels of certainty of evidence:

Table 1. Classification of the Quality of Evidence

High	We are very confident that the true effect lies close to that of the estimate of the effect.
Moderate	We are moderately confident in the effect estimate; the true effect is likely to be close to the estimate of the effect, but there is a possibility that it is substantially different.
Low	Our confidence in the effect estimate is limited; the true effect may be substantially different from the estimate of the effect.
Very Low	We have very little confidence in the effect estimate; the true effect is likely to be substantially different from the estimate of the effect.

GRADE EtD's contextual factors, criteria and considerations that link to the strength of recommendations:
Criteria and Considerations:

1. Benefits and harms: When a new recommendation is developed, desirable effects (benefits) need to be weighed against undesirable effects (risks/harms), considering any previous recommendation or another alternative. The larger the gap or gradient in

favor of the desirable effects over the undesirable effects, the more likely that a strong recommendation will be made.

2. Certainty of the evidence about the effects: The higher the certainty of the scientific evidence base, the more likely that a strong will be made.

3. Values and preferences: If there is no important uncertainty or variability in how much people value the main outcomes, it is likely that a strong recommendation will be made. Uncertainty or variability around these values that could likely lead to different decisions, is more likely to lead to a conditional recommendation.

4. Economic implications: Lower costs (monetary, infrastructure, equipment or human resources) or greater cost-effectiveness are more likely to support a strong recommendation.

5. Equity and human rights: If an intervention will reduce inequities, improve equity or contribute to the realization of human rights, the greater the likelihood of a strong recommendation.

6. Feasibility: The greater the feasibility of an intervention to all stakeholders, the greater the likelihood of a strong recommendation.

7. Acceptability: If a recommendation is widely supported by health workers and program managers and there is widespread acceptance for implementation within the health service, the likelihood of a strong recommendation is greater.

Table 2. Classification of the Strengths of Recommendations

Strong	The desirable effects of an intervention clearly outweigh the undesirable effects (or vice versa), so most patients should receive the recommended course of action.
Conditional	There is uncertainty about the trade-offs. The clinician and patient need to discuss the patient's values and preferences, and the decision should be individualized.

Developing good practice statements:

The GDG/ GAG also developed good practice statements for this guideline, which are actionable messages relevant to the guideline questions. The justification for each good practice statement was carefully considered by the GDG/ GAG with an emphasis that they are clearly needed. Good practice statements were developed, guided by the following GRADE criteria:

1- Message is really necessary with regard to actual healthcare practice

2- Have large net positive consequence (relevant outcomes and downstream consequences) (GRADE EtD domains)

3- Collecting and summarizing the evidence is a poor use of time and resources

4- Include awell-documented, clear rationale connecting indirect evidence
5- Are clear and actionable statements.
The GDG/ GAG collectively drafted and finalized good practice statements with relevant justifications and remarks to help with their interpretation, with close support and input from the consultant and guideline methodologists.

We have used the Reporting Items for Practice Guidelines in Healthcare (RIGHT) extension for adapted guidelines (RIGHT-Ad@pt Tool) as a reporting checklist for this guideline adaptation process as recommended by the EQUATOR network.

Recommendations

Table 3. Recommendations

A. Evaluating children aged ≤ 14 years with chronic cough:					
N	**Health questions**	**Source Guideline**	**Recommendations**	**Quality of evidence**	**Strength of Recommendation**
A1	What is the value of estimating the duration of cough?	ACCP 2020	For patients seeking medical care complaining of cough, clinician suggest that estimating the duration of cough is the first step in narrowing the list of potential diagnoses.	Low	Weak (Conditional)
A2	Should history include specific cough pointers?	ACCP 2020	History should include cough characteristics and the associated clinical history such as using specific cough pointers like presence of productive/wet cough.	High	Strong
A3	Should history include red flags?		History should include symptoms of red flags or other potential life-threatening symptoms and if present, they should be immediately addressed and evaluated.		Good Practice statement Glashan and Mahmoud, 2019 (40)

A4	What is the value of detailed history to determine environmental exposure to respiratory irritants?	ERS 2019	Exposure to airborne irritants (e.g. tobacco exposure, combustions, traffic related exposure etc.), allergens or infection may be a reason for dry chronic cough.	Very low	Weak (conditional)
A5	Is history suggestive of OSA (mouth breathing, snoring, restless sleep, morning somnolence, daytime sleepiness and poor academic achievement) important for the diagnosis?	Korean 2016	In unexplained or unresponsive chronic cough, obstructive sleep apnea should be included in the differential diagnosis.	Very low	Weak (conditional)
A6	Is history of drug intake important to evaluate cough?	ERS 2019	Detailed history of drug intake is needed including ACEI and *other drugs such as* bisphosphonates or calcium channel antagonists and prostanoid eye drops.	Very low	Weak (conditional)
A7	What is the importance of clinical evaluation of upper airway cough syndrome due to a rhinosinus condition, gastroesophageal reflux disease and/or asthma before starting any empiric therapy for these conditions?	ACCP 2020	We recommend basing the management on the etiology of the cough. An empirical approach aimed at treating upper airway cough syndrome due to a rhinosinus condition, gastroesophageal reflux disease and/or asthma should not be used unless other features consistent with these conditions are present.	High	Strong
A8	**8a-** How to suspect asthma from history?	ACCP 2020	Diagnosis of asthma is suggested by presence of risk factors and/or response to a short (2-4 weeks)	Very low	Weak (conditional)

			therapeutic trial of 400 ug/day of beclomethasone equivalent may be warranted, and these children should be evaluated in 2-4 weeks.		
	8 b- How to suspect cough variant asthma by history?	ERS 2019 Korean 2016	Cough variant asthma (CVA) was originally described as asthma with cough as the sole symptom and where treatment with bronchodilators improved coughing	Very low Very low	Weak (conditional) Weak (conditional)
A9	How to suspect TB in a child with chronic cough	ACCP 2020	Patients with cough with or without fever, night sweats, hemoptysis, weight loss and/or contact with TB case and - who are at risk of pulmonary TB in community high in TB prevalence.	Very low	Weak (conditional)

Table 4. Recommendations					
B. Investigations					
N	**Health questions**	**Source Guideline**	**Recommendations**	**Quality of evidence**	**Strength of Recommendation**
B10	**10a-**Should the clinician recommend chest radiography?	ACCP 2006-2020	The clinician should recommend chest radiography.	Intermediate	Strong
	10b- Should chest CT scan be routinely performed for children with normal physical examination and plain chest X-ray?	ERS 2019	The clinician should not routinely perform a chest CT scan in patients who have normal physical examination and chest X-ray.	Very low	Weak (Conditional)
B11	**11a-** When age is appropriate, should the clinician	ACCP 2006-2020	The clinician should recommend spirometry (pre and	Intermediate	Strong

	recommend spirometry (pre and post β2 agonist)?		post β2 agonist) when age is appropriate.		
	11b- For children aged > 6 years and asthma is clinically suspected, should the clinician suggest a test for airway hyper-responsiveness?	ACCP 2006-2020	The clinician should suggest a test for airway hyper-responsiveness (mannitol or methacholine inhalation).	Low	Weak (conditional)
	11c- Should FeNO (if available)/blood eosinophil count be used in aiding the diagnosis or predicting the treatment response when asthma is clinically suspected?	ERS 2019	This recommendation places relatively higher value on predictability for the treatment response and the impact on the treatment decision.	Very low	Weak (conditional)
B12	Should the clinician perform additional tests (e.g. skin prick test, Mantoux, bronchoscopy, chest CT)?	ACCP 2006-2020	Clinicians should not routinely perform additional tests. These should be individualized and undertaken according to the child's clinical symptoms and signs.	Intermediate	Strong
B13	Should the clinician suggest undertaking tests for evaluating recent Bordetella pertussis infection when pertussis is clinically suspected?	ACCP 2020	The clinician should suggest undertaking tests for evaluating recent Bordetella pertussis infection when pertussis is clinically suspected (if there is post-tussive vomiting, paroxysmal cough or inspiratory whoop).	Very low	Weak (conditional)

B14	**14a-** Should the clinician suggest further investigations when wet cough (unrelated to an underlying disease and with no specific cough pointers) persists after 4 weeks of appropriate antibiotics?	ACCP 2006-2020	The clinician should suggest further investigations (e.g. flexible bronchoscopy with quantitative culture and sensitivity with or without chest CT assessment for aspiration) to be undertaken.	Intermediate	Strong
	14b- Should the clinician recommend evaluation of immunologic competence for children with wet cough unrelated to an underlying disease and with specific cough pointers?	ACCP 2006	The clinician should recommend evaluation of the immunologic competence in presence of criteria suspicious of immunodeficiency (appendix) to assess for an underlying disease.	Intermediate	Strong
B15	For children with chronic productive purulent cough, do you recommend investigations to document the presence or absence of bronchiectasis?	ACCP 2012	In patients with suspected bronchiectasis without a characteristic chest radiograph finding, a high-resolution CT (HRCT) scan of the chest should be ordered because it is the diagnostic procedure of choice to confirm the diagnosis.	Low	Strong
B16	**16a-** In patients evaluated for GERD, what is the most sensitive and specific tests for the diagnosis?	ACCP 2006-2020	A 24-h esophageal pH monitoring test is the most sensitive and specific test.	Low	Strong
	16b- Is barium esophagography beneficial for diagnosing GERD as the cause of cough?	ACCP 2012	Barium esophagography may be beneficial. It can be considered if it is the only available test to reveal that GERD	Low	Strong

			is of potential pathologic significance.		
	16c-In patients with suspected GERD, are the esophagoscopy findings helpful to rule out GERD as the cause of cough?	ACCP 2012	A normal esophagoscopy finding does not rule out GERD as the cause of cough.	Low	Strong
B17	**17a-** Should the clinician suggest screening for TB to patients in high TB prevalence countries or settings?	ACCP 2020	The clinician should suggest screening for TB regardless of cough duration.	low	Strong
	17b- Should the clinician suggest Xpert MTB/RIF test, when available, to replace sputum microscopy as an initial diagnostic test for patients with high risk of pulmonary TB but at low risk of drug-resistance?	ACCP 2020	The clinician should suggest Xpert MTB/RIF test, when available, to replace sputum microscopy as an initial diagnostic tests.	Very low	Weak (conditional)
B18	For children with upper airway symptoms, should the clinician advise for routine laryngoscopy, rhinoscopy or CT sinuses?		In patients who report upper airway symptoms laryngoscopy, rhinoscopy or CT sinuses may be performed but not routinely.		Good practice statement O'Hara & Jones 2006 (25)

B19	For children with non-specific cough, if cough does not resolve within 2 to 4 weeks, should the child be re-evaluated for emergence of specific etiological pointers?	ACCP 2020	For children with non-specific cough, we suggest that if cough does not resolve within 2 to 4 weeks, the child should be re-evaluated for emergence of specific etiological pointers.	Very low	Weak (conditional)

Table 5. Recommendations					
C. Treatment					
N	**Health questions**	**Source Guideline**	**Recommendations**	**Quality of evidence**	**Strength of Recommendation**
C20	**21a-**What is the recommended treatment for children aged > 6 years and < 14 years with clinically suspected asthma	ACCP 2020	When risk factors for asthma are present, a short (2-4 weeks) trial of 400 microgram/day of beclomethasone equivalent, and re-evaluated	Intermediate	Strong
	21b- Should asthma medications be used after acute viral bronchiolitis if cough persist for more than 4 weeks?	ACCP 2020	Asthma medications should not be used for cough unless other evidence of asthma is present.	Very low	Weak (conditional)
C21	Should an empirical approach aiming at treating upper airway cough syndrome due to a rhinosinus condition, gastroesophageal	ACCP 2020	1- An empirical approach should not be used unless other features consistent with these conditions are present. 2-- If an empirical trial is used, the trial should be of a defined limited	High Very low	Strong Weak (conditional)

	reflux disease or asthma be used?		duration in order to confirm or refute the hypothesized diagnosis.		
C22	What are the recommendations for wet or productive cough unrelated to an underlying disease and without any other specific cough pointers?	ACCP 2020	1-Two weeks of antibiotics targeting the common respiratory bacteria (Streptococcus pneumoniae, Haemophilus influenzae, Moraxella catarrhalis) and depending on the local antibiotic sensitivities. 2- The diagnosis of PBB be made 3- When the wet cough persists after2 weeks of appropriate antibiotics, consider treatment with an additional 2 weeks of the appropriate antibiotic(s). 4- When the wet cough persists after 4 weeks of appropriate antibiotics, further investigations as flexible bronchoscopy with quantitative cultures and sensitivities with or without chest CT) can be undertaken	High Low Intermediate Intermediate	Strong Strong Strong Strong
C23	What is the treatment in children without an underlying lung disease who have symptoms and signs or tests consistent with gastroesophageal	ACCP 2020	a) They can be treated for GERD according to evidence-based GERD-specific guidelines. (b) Acid suppressive therapy should not	Intermediate Low	Strong Strong

	pathological reflux?		be used solely for their chronic cough.		
C24	What is the suggested treatment for a child diagnosed as somatic cough disorder?	ACCP 2020	Non-pharmacological trials of hypnosis or Suggestion therapy or Reassurance and counseling or Referral to a psychologist or psychiatrist.	Low	Strong
C25	For children suspected for having OSA, what is the management?	ACCP 2020	They are managed in according to sleep guidelines.	Very low	Weak (conditional)
C26	Should histamine H1-receptor antagonists (H1RAs) be used to treat non-specific chronic cough?	Korean 2019	The use of H1RAs in children with non-specific cough must be balanced against the well-known adverse events, especially in very young children ACCP recommended against the empirical use of H1RAs in children with chronic cough, unless other features consistent with upper airways cough syndrome due to rhinosinusitis are present.	Low	Weak (Conditional) Good practice statement Chang et al, 2017 (41)
C27	Should LTRAs be used to treat non-specific chronic cough?	Korean 2019	Careful considerations of cost, risk and benefits are needed until there is sufficient data to determine the efficacy of LTRAs in these children.	Very low	Weak (Conditional)

C28	Should neuromodulators (opioids, gabapentin or pregabalin,) be used?		Cough neuromodulators, are not used in children due to reported adverse events, possible toxicity and lack of clinical trials.		Good practice statement Gardiner et al., 2016 (42)

Evidence to recommendations: Considerations

The GDG/ GAG was guided by the results of the AGREE II appraisals of the eligible CPGs and thoroughly reviewed the recommendations of the original source WHO CPGs in consideration of local contextual factors related to the national Egyptian health system like burden of the disease, equity, acceptability, feasibility, and other relevant factors. The GDG decided through an informal consensus process to adopt most recommendations however, there was a need to change the strength of 2 recommendations (B2 and B3) as they lack feasibility. Also, GDG/ GAG develops group of good practice statements to improve acceptability and feasibility.

Implementation Tools and Considerations

To improve healthcare provision, quality, safety, and patient outcome, evidence-based recommendations must not only be developed, but also disseminated and implemented at national and local levels and integrated into clinical practice.

Dissemination involves educating related healthcare providers to improve their awareness, knowledge and understanding of the guideline's recommendations. It is one part of implementation, which involved translation of evidence-based guidelines into real life practice with improvement of health outcomes for the patients.

Implementation requires an evidence-based strategy involving professional groups and stakeholders and should consider the local cultural and socioeconomic conditions. Cost-effectiveness of implementation programs should be assessed.

Specific steps need to be followed before clinical practice recommendations can be integrated into local clinical practice, particularly in low resource settings.

Steps of implementing chronic cough diagnosis, treatment, and prevention strategies into the Egyptian health system:

1. Develop a multidisciplinary working group.
2. Assess the status of nutritional care delivery, care gaps and current needs.
3. Select the material to be implemented, agree on the main goals, identify the key recommendations for diagnosis, treatment and prevention and adapt them to the local context or environment.
4. Identify barriers to, and facilitators of implementation.
5. Select an implementation framework and its component strategies.
6. Develop a step-by-step implementation plan:
    - Select the target populations and evaluate the outcome.
    - Identify the local resources to support the implementation.
    - Set timelines.

- Distribute the tasks to the members.
- Evaluate the outcomes.

7. Continuously review the progress and results to determine if the strategy requires modification.

Guideline implementation strategies will focus on the following: -

1. **For Practitioners**
    - Educational meetings: conferences, lectures, workshops, grand rounds, seminars, and symposia.
    - Educational materials: printed or electronic information (software).
    - Web-based education: computer-based educational activities.
    - A trained person meets with providers in their practice setting to provide information with the intention of changing the provider's practice. The information may include feedback on the performance of the provider(s).
    - Reminders: the provision of information verbally, on papers or on a computer screen to prompt a health professional to recall information or to perform or avoid a particular action related to patient care.
    - Optimize professional-patient interactions, through mass media campaigns, reminders, and education materials.
    - Practice tools: tools designed to facilitate behavioral/practice changes, e.g., flow charts.
2. **For Patients and care givers**
    - Patient education materials (Arabic booklet): Printed/electronic information aimed at the patient/consumer, family, caregivers, etc.
    - Reminders: the provision of information verbally, on papers or electronically to remind a patient/consumer to perform a particular health-related behaviors.
    - Mass media campaigns.
3. **For Nurses**
    - Educational meetings: lectures, workshops or traineeships, seminars, and symposia.
    - Educational materials: printed.
    - A trained person meets with nurses in their practice setting to provide information with the intention of changing the provider's practice.
    - Reminders: the provision of information verbally, on paper or on a computer screen to prompt them to recall information or to perform or avoid a particular action related to patient care.
    - Practice tools: tools designed to facilitate behavioral/practice changes.
4. **For Stakeholders**

    Plans have been made to contact with all the health sectors in Egypt including all sectors of the Ministry of Health and Population, National Nutrition Institute, University Hospitals, Ministry of Interior, Ministry of Defense, Non-Governmental Organizations, Private sector, and all Health Care Facilities.
    - Information and communication technology: Electronic decision support, order sets, care maps, electronic health records, office-based personal digital assistants, etc.
    - Any summary of clinical provision of health care over a specified period may include recommendations for clinical action. The information is obtained from

medical records, databases, or observations by patients. Summary may be targeted at the individual practitioner or the organization.
- Administrative policies and procedures.
- Formularies: Drug safety programs, electronic medication administration records.

5. **Other activities to assist the implementation of the adapted guideline's recommendations include:**
   - **International initiative:** Dissemination of the presented adapted CPG internationally via sending the final adapted CPG to the Guidelines International Network (GIN) Adaptation Working Group and contacting the CPG developers.
   - **Gantt chart** has been designed to manage the dissemination and implementation stages for the adapted CPG over an accurate time frame (Appendix).

Evidence to Decision Tables: (if any)

Guideline Implementation Tools

Educational materials based on this Adapted CPG for treatment of chronic cough in children have been made available in several forms including:

1- web site of the committee
2- Declaration via validation day
3- Dissemination of booklet for PHC physicians
4- Educational meetings: Conferences, lectures, workshops or traineeships, grand rounds, seminars, and symposia.
5- Arabic summary for mothers

Coughing score:

This is a quantitative scoring system of cough used to assess the severity of cough and efficacy of treatment. Daytime and nighttime scoring is done, however it may be difficult to discriminate between grades (Table)

Score	Daytime cough symptom score	Nighttime cough symptom score
0	No cough	No cough
1	Occasional, transient cough	Transient cough when falling sleep or occasional cough during the night
2	Frequent cough, slightly influencing daytime activities	Cough slightly influencing sleep
3	Frequent cough, significantly influencing daytime activities	Cough significantly influencing sleep

(Chung 2006 & Irwin 2006)(5&27)

Red flags that prompt referral include:

- Significant systemic illness
- Change in mental status
- Dyspnea (breathlessness)
- Pleuritic chest pain
- Prolonged or high fever
- Abnormal respiratory exam (e.g., wheezing, crackles, stridor)
- Increased work of breathing (e.g., respiratory rate >20 breaths/minute, using accessory muscles to breathe, unable to speak normally)
- Cyanosis (e.g., bluish or purple discoloration of lips/mouth, or fingers/hands, which may feel cold to the touch)
- Hemoptysis
- Suspicion of inhaled foreign body
- Dysphagia

(Glashan & Mahmoud 2019)(40)

Ten WARNING SIGNS OF PRIMARY IMMUNODEFICIENCY:

Two or more of these warning signs should alert the clinician to the possibility of primary immunodeficiency and merit further assessment

1- Four or more new ear infections within 1 year
2- Two or more serious sinus infections within 1 year
3- Two or more month on antibiotics with little effect
4- Two or more pneumonia within 1 year
5- Failure of an infant to gain weight or grow normally
6- Recurrent, deep skin or organ abscesses
7- Persistent thrush in mouth or fungal infection on skin
8- Need for intravenous antibiotics to clear infections
9- Two or more deep-seated infections, including septicemia
10- A family history of primary immunodeficiency

From : Modell v, et al 2011 . available at :http://downloads .info4pi .org / pdfs /Physician-Algorithm—2-pdf (23)

Limitations and suggestions for further research needs

Future research recommendations for the management of chronic cough in children in the Egyptian context could include:

- What are the most common causes of chronic cough in Egypt?
- Environmental pollution and cough?

These recommendations aim to address specific challenges and characteristics of the Egyptian context, potentially leading to more effective prevention and management strategies for chronic cough in children.

Challenges

- Situation of cough therapy in chronic cough management.
- Proper training for family physicians to manage chronic cough.

Strengthen the evidence base of the next update of this guideline by generating GRADE summary of finding tables, evidence profiles, and EtD frameworks.

Monitoring and evaluating the impact of the guideline.

The following are three performance measures or indicators for implementing this adapted CPG for chronic cough in children:

1. **Adherence to management of chronic cough Guidelines**
   - *Numerator:* Number of children with chronic cough who received treatment as per guideline recommendations.
   - *Denominator:* Total number of children diagnosed with chronic cough
   - *Data Source:* Hospital or clinic patient records.
2. **Duration of Hospital Stay**
   - *Numerator:* Total number of hospitals stay days for children with chronic cough
   - *Denominator:* Total number of children admitted with chronic cough
   - *Data Source:* Hospital admission and discharge records.
3. **Rate of Readmission**
   - *Numerator:* Number of children readmitted with symptoms of chronic cough
   - within a certain period (e.g., 30 days) after discharge.
   - *Denominator:* Total number of children initially admitted with chronic cough
   - *Data Source:* Hospital readmission records.

These key performance indicators are designed to measure the effectiveness and adherence to the guidelines, the efficiency of the treatment in terms of resource utilization (hospital stay), and the success of the treatment in preventing further complications (readmissions).

Updating of the guideline

The EPG Chronic Cough Guideline Adaptation Group GAG has decided to conduct the next review of this adapted CPG for updates after five years. This should be carried out in 2029 after checking for updates in the source CPGs, consultation of expert opinion on the changes needed for updating according to the newest evidence and recommendations published in this area and the clinical audit and feedback from implementation efforts in the aforementioned local healthcare settings except if any breakthrough evidence- based recommendations are published before that date. The process will be guided by the Checklist for the Reporting of Updated Guidelines (CheckUp) Tool that is freely provided by the AGREE Enterprise and by the Reporting Items for Practice Guidelines in Healthcare (RIGHT) extension for adapted guidelines RIGHT-Ad@pt Checklist.

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Annexes

Annex Table 1.
Declaration of Conflict of Interests

The members of the guideline development/ adaptation group and the external review group have no academic, financial, or competing interests to declare and none of them were involved in the development of the original source guideline(s).
Any identified potential COI has been reported below.

Egyptian Pediatric Clinical Practice Guidelines Committee (EPG) ***Guideline Adaptation Group (Clinical subgroup)***			
Name	**Affiliation, Area of expertise / Role, Country / Primary location [work]**	**Declaration of interests**	
		Interest identified	**Management plan & decision**
Prof. Abla Saleh Mostafa	Professor of Pediatrics, Cairo University	None	Not Applicable
Prof. Ahmed Abd Al-Razek	Professor of Pediatrics, Tanta University	None	Not Applicable
Prof. Ashraf Abdel Baky (Chairman)	Professor of Pediatrics, AFCM/ Ain Shams University	None	Not Applicable
Prof. Dina Hossam-Eldine Hamed	Ass. Professor of Pediatrics, Cairo University	None	Not Applicable
Prof: Dina Tawfeek Sarhan	Ass. Professor of Pediatrics, Zagazig University	None	Not Applicable
Prof. Eman Mahmoud Fouda	Professor of Pediatrics, Ain Shams University	None	Not Applicable
Prof. Hala Gouda Elnady	Professor of Pediatrics, National Research Center	None	Not Applicable
Prof. Hala Hamdi	Professor of Pediatrics, Cairo University	None	Not Applicable
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Prof. Magda Hassab Allah Mohamed	Professor of Pediatrics, , Faculty of medicine Girls Al-Azhar University	None	Not Applicable
Prof. Mohamed Mahmoud Rashad	Professor of Pediatrics, Benha University	None	Not Applicable
Prof. Mona Mohsen Elattar	Professor of Pediatrics, Cairo University	None	Not Applicable
Prof. Mostafa Al-Saeed	Professor of Pediatrics, Assuit university	None	Not Applicable
Prof. Shahenaz Mohamoud Hussein	Professor of Pediatrics, Al-Azhar University	None	Not Applicable
Prof Tarek Hamed	Professor of Pediatrics, Zagazig University	None	Not Applicable
Guideline Adaptation Group (Methodology Subgroup)			
Prof. Ashraf Abdel Baky	Professor of Pediatrics Ain Shams University, Egypt Founder and Chair of EPG	None	Not Applicable
Prof. Tarek Omar	Professor of Pediatrics, Alexandria University	None	Not Applicable
Dr. Yasser Sami Amer	1. Pediatrics Department and Clinical Practice Guidelines and Quality Research Unit, Quality	None	Not Applicable

	Management Department, King Saud University Medical City, Riyadh, Saudi Arabia; 2. Research Chair for Evidence-Based Health Care and Knowledge Translation, King Saud University, Riyadh, Saudi Arabia; 3. Chair, Adaptation Working Group, Guidelines International Network (GIN), Perth, Scotland 4. Department of Internal Medicine, Ribeirão Preto Medical School, University of São Paulo (FMRP-USP), Ribeirão Preto, São Paulo, Brazil.		
Dr. Nanis Sulieman	Associate Professor of Pediatrics Ain Shams University, Egypt	None	Not Applicable
Dr. Ranin Soliman	1. Assistant Professor of Evidence-based Practice, School of Life and Medical Sciences, University of Hertfordshire, Egypt. 2. Consultant at WHO/EMRO for the Clinical and Public Heath Guideline Adaptation Project in the EMR. 3. Head of Heath Economics and Value Unit, Children's Cancer Hospital Egypt.	None	Not applicable
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External Review Group			
Prof Nader Fasseh	Prof. of paediatrics, Alexandria University	None	Not Applicable

Prof Magdy Zidan	Prof of paediatrics, Mansoura University	None	Not Applicable
Prof Laila abd al Ghafar	Prof of pediatrics, Ain shams University	None	Not Applicable
External Reviewer for methodology			
Prof. Iván D. Flórez	Department of Pediatrics, University of Antioquia, Medellín, Colombia, Department of Health Research Methods, Evidence, and Impact, McMaster University, Hamilton, Canada, Leader, AGREE Collaboration (Appraisal of Guidelines for Research & Evaluation) Director, Cochrane Colombia	None	Not Applicable
Prof. Airton Tetelbom Stein	Professor Titular de Saúde Coletiva, Fundação Universidade Federal de Ciências da Saúde de Porto Alegre (UFCSPA), Porto Alegre, Brazil Professor Adjunto, Universidade Luterana do Brasil (Ulbra), Canoas, Brazil Coordenador de Diretrizes Clínicas, Grupo Hospitalar Conceição, Porto Alegre, Brazil 4. Member, Board of Trustees, Guidelines International Network (G-I-N)	None	Not Applicable

Web annexes

The following annexes can be added as a package of standalone supplementary documents.

Keywords: The MeSH terms for "Guideline for the prevention and management of … cough, chronic, children, guideline, management " on PubMed are: … cough, chronic, children, guideline, management.

Annex Table 2. Results of the AGREE II assessment of the three source guidelines for chronic cough

AGREE II/ CPGs	**ACCP**
Domain 1 (Scope)	%86
Domain 2 (Stakeholder)	%74
Domain 3 (Rigour)	%72
Domain 4 (Clarity)	%86
Domain 5 (Applicability)	%53
Domain 6 (Independence)	%88
Overall assessment .	%54
Recommend for use (Overall assessment .)	YES 0,Yes with modifications 4, NO 0

AGREE II/ CPGs	**ERS**
Domain 1 (Scope)	%89
Domain 2 (Stakeholder)	%90
Domain 3 (Rigour)	%75
Domain 4 (Clarity)	%93
Domain 5 (Applicability)	%66
Domain 6 (Independence)	%94
Overall assessment .	%83

Recommend for use **(Overall assessment .)**	YES 3,Yes with modifications 1, NO 0

AGREE II/ CPGs	**KAAACI**
Domain 1 (Scope)	%90
Domain 2 (Stakeholder)	%79
Domain 3 (Rigour)	%67
Domain 4 (Clarity)	%89
Domain 5 (Applicability)	%59
Domain 6 (Independence)	%88
Overall assessment .	%79
Recommend for use **(Overall assessment .)**	YES 4,Yes with modifications 0, NO 0

Annex Table 3. Annex Nurses and Parents Educational Guide in Arabic

يعتبر السعال مزمنا إذا استمر أكثر من أربعة أسابيع وهو يعد من الأعراض الشائعة لدى الأطفال والتي تؤدي إلى التردد المتكرر على عيادة الطبيب

إن وظيفة السعال هي التخلص من البلغم والأجسام الغريبة التي تدخل مجرى التنفس ولذلك لا يوصى بمعالجته بواسطة مثبطات السعال عندما يكون مصحوبا ببلغم.

تقع معظم مستقبلات السعال في مجرى التنفس والرئتين، كما تتواجد في البلعوم والجيوب الأنفية وقنوات الأذن الخارجية لذا من الممكن أن يحدث السعال عند استثارة إي من هذه الأعضاء.

تعد القصبة الهوائية من الأجزاء الرئيسة في الجهاز التنفسي ووظيفتها الأساسية هي توفير مجري هوائي من وإلى الرئتين إلا أن لها عدة وظائف أخرى تسهم في عملية التنفس بشكلٍ جوهري

عند التوجه لطلب النصيحة الطبية بما يتعلق بالسعال المزمن، من الضروري وصف السعال وإجراء الكشف الطبي وجميع الفحوصات الممكنة. بعدها يقرر الطبيب ما قد يلزم من فحوصات إضافية أوعلاج.

خصائص السعال:

فترة استمرار السعال: السعال المزمن هو السعال الذي يتواصل لأكثر من أربعة اسابيع.

مواسم السعال: ظهور السعال في الفصول الانتقالية يحتمل أن يكون مؤشرا على وجود حساسية (ربو شعبي).

موعد ظهور السعال خلال اليوم: عندما يزداد السعال في ساعات الليل فغالباً ما يكون نتيجة حساسية صدرية (ربو شعبي) او ارتجاع في المريء أما عند اختفائه ليلا فغالبا ما يكون نفسيا.

العوامل التي تفاقم السعال: إن السعال الذي يتفاقم عند القيام بمجهود جسدي والتعرض لدخان السجائر او الرطوبة العالية او الهواء البارد او الروائح الشديدة غالبا ما يكون نتيجة الاصابة بالربو أما لو كان اثناء تناول الطعام فيكون نتيجة ارتجاع احماض المعدة الي القصبة الهوائية (ارتجاع المريء).

صوت السعال :

- السعال النباحي يظهر في أعقاب استثارة المجري التنفسي العلويَ لأسباب مثل العدوى الجرثومية، الحساسية, دخول أجسام غريبة، أو وجود عيوب خلقيه في المجري التنفسي العلويَ. أما اذا كان السعال نحاسي صاخب (جهوري) فقد يكون اعتياديا (نفسيا).
- السعال الجاف يصاحب العديد من الأمراض مثل الحساسية.
- السعال المصحوب ببلغمٍ يصاحب أمراضا مثل الربو ,التليف الكيسى او تمدد الشعب الهوائية .

علامات السعال المزمن التي تستوجب التوجه لاستشارة الطبيب المختص:

- الحمى المتواصلة.

- عدم القدرة على بذل مجهود.
- عدم زيادة الوزن.
- وجود بلغم ذي لون.
- عندما تكون نتائج أشعه الصدر غير سليمة.
- عند وجود حالات مرض رئوي مزمن في العائلة.

أهم أسباب السعال المزمن:

عدوى فيروسية تصيب الأطفال عادة من 10 الى 12 مرة سنويا خلال العامين الأولين من حياتهم وتكون مصحوبة بسيلان الأنف وسعال مع أو بدون حمى.

السعال الديكي (الشاهوق): يظهر السعال على شكل نوبات ويرافقه احمرار في الوجه وتقيؤ. قد يستمر السعال من شهرين إلى ستة أشهر ويختفي بشكل تلقائي. يمكن تشخيص المرض من خلال فحص الدم أو عينة من المخاط تؤخذ من البلعوم الخلفي.

سيلان أنفي خلفي: يظهر السعال عند الاستلقاء وعادة (وليس دائماً) ما يكون هناك سيلان من الأنف تقل حدته عند استخدام أدوية تقليل مخاط الأنف. بالإمكان إجراء اختبارات الحساسية، التفكير في تخفيف حدة سيلان الأنف، الحد من التعرض للعوامل المثيرة الحساسية واستخدام الأدوية المضادة للهيستامين.

الربوالشعبي سبب شائع للسعال الليلي عند الأطفال وعادةً ما يظهر السعال في ساعات الليل المتأخرة أو قبيل الصباح. يظهر السعال عند التعرض لعدوى فيروسية، بذل جهد بدني، أو التعرض لدخان السجائر، أو هواء بارد.

أحياناً (وليس بالضرورة) يكون السعال مصحوباً بضيق في التنفس وصفير (أزيز) وتاريخ مرضي لأمراض حساسية اخرى لدى المريض او أحد أفراد عائلته.

ينبغي إجراء اختبار لوظائف الرئة للأطفال ابتداءا من سن الخامسة أو السادسة. إذا كانت نتائج الفحوصات سليمة فيمكن إجراء اختبارات تحدى التنفس.

يمكن إجراء اختبارات تحدى التنفس ووظائف الرئة للأطفال دون سن السادسة بواسطة أجهزة خاصة ويكون العلاج حسب البروتوكول المتبع.

التهاب الجيوب الانفية يحدث عادةً فوق سن الخامسة مصحوبا بسعال وسيلان في الأنف يشتدان في ساعات الليل الأولى. الصداع وحساسية الجيوب الأنفية في هذه السن ليست من الاعراض المميزة للمرض. أحياناً تسبب هذه الحالة الضرر لحاسة الشم. لتشخيص التهاب الجيوب، من الممكن عمل أشعة مقطعية. إذا كانت التهابات الجيوب الأنفية متكررة ينبغي استشارة الطبيب. تستخدم المضادات الحيوية للعلاج بالإضافة إلى أدوية مزيلة لاحتقان الأنف.

فرط الحموضة: يتفاقم السعال عند النوم وقد يكون مصحوباً ببصاق وعدم الراحة والتقيؤ.

السعال الارتجالي (النفسي): من مواصفات هذا النوع من السعال أنه يختفي أثناء النوم ويتفاقم مع الضغط النفسى، يكون السعال جهوريا وأحياناً نحاسيا. يمكن التشخيص باقصاء أسباب السعال المزمن الاأخرى.

عادة لا تكون هنالك حاجة لتلقي العلاج، باستثناء الحالات القصوى، عندها من المستحسن التوجه لطلب الاستشارة النفسية أو للعلاج بالحوار,

إستنشاق جسم غريب غالبا ما يحدث فى الأطفال من سن 6 شهور وحتى ست سنوات.

أحياناً يكون السبب واضحاً كالاختناق عند تناول المكسرات (ممنوع اعطاؤها للأطفال في هذه المرحلة العمرية) أو اللعب بغرض صغير. إستنشاق جسم غريب قد يسبب التهاباً متكررا في الرئتين وفي نفس المكان. في معظم الحالات لا يمكن التشخيص بواسطة الأشعة على الصدر ولكن يمكن التشخيص بواسطة منظار القصبة الهوائية .

العلاج: إخراج الجسم الغريب.

العيوب الخلقية في مجرى التنفس: يبدأ السعال مع بدء الرَّضاعة وأحياناً يكون السعال نباحيا.

للتشخيص، من الممكن إجراء أشعة على الصدر، تخطيط صدى القلب، أشعة اثناء بلع الباريوم، أشعة مقطعية او منظار القصبة الهوائية .

العلاج حسب نوع التشوه.

أمرض التهابية مزمنة: يترافق السعال في هذه الحالة بخروج بلغم، في بعض الأحيان قد يكون البلغم أخضر اللون.

علاج السعال المتكرر باستخدام الأدوية: ينبغي تحديد سبب السعال واختيار العلاج الملائم. هناك تشكيلة متنوعة من الأدوية المضادة للسعال ولكن فعاليتها ليست مثبتة واستخدامها للعلاج لا يزال مثيرا للجدل.

علاج الكحة للكبار والأطفال- هل هناك فرق؟

لا يصح تطبيق علاج الكحة للكبار على الأطفال المصابين بها، إذ يمنع إعطائهم أي دواء علاجي لهم دون استشارة الطبيب بتاتًا، كما يجب تجنب إعطاء الأطفال أية أعشاب قد تكون غير آمنة عليهم، وبالأخص في الحالات التالية:

- استمرت الكحة لفترة تجاوزت الأسبوعين
- ترافق الكحة مع ضيق التنفس أو ألم وخشخشة في الصدر عند التنفس.
- شعور الطفل بالتعب الشديد والإرهاق المستمر.
- صعوبة في البلع أو تقيؤ متكرر أو سيلان اللعاب.
- ارتفاع درجة الحرارة.
- ظهور أعراض أخرى إلى جانب الكحة مثل فقدان الوزن، أو تغير في الصوت، أو امتزاج البلغم مع الدم.
- يصاب الكثير من الاطفال بالكحة في فترات مختلفة من حياتهم، فيقوم الوالدين بتجربة علاج الكحة بكل الوصفات المتوفرة، بعضها يجدي نفعًا والاخر لا يكون سوى مضيعة للوقت.

اهم طرق العلاج المنزلي للكحة الجافة :

الكحة الجافة في هي السعال الذي لا يكون مصحوبًا بوجود بلغم في الحلق ويقترن وجوده أحيانًا مع شعور بالتورم والاحتقان في منطقة الحلق.

- استنشاق البخار الساخن يساعد في التقليل من شدة السعال
- عسل النحل: تمزج ملعقتين صغيرتين من العسل مع الشاي أو الأعشاب أو الماء الدافئ والليمون.
- البروبيوتيك يساعد في الحفاظ على توازن البكيتريا النافعة في الأمعاء وبالتالي تعزيز عمل الجهاز المناعي ومكافحة مسبب السعال.
- الأناناس يحتوي على إنزيم البروماليين الذي يحمل خصائص مضادة للالتهابات التى يساعد على تخفيف حدة السعال.
- النعناع: لدى النعناع ميزات تمكنه من تخفيف الاحتقان في الأنف والحنجرة والقصبات الهوائية والرئتين كما يعمل على تسريع عملية الشفاء من الإصابة بنزلات البرد والأنفلونزا. ينصح بتناول مغلي النعناع أو إضافة بضع قطرات من زيت النعنع للماء الدافئ.
- رفع الراس أثناء النوم: تعتبر الجاذبية عدوة الكحة الليلية، فالمخاط الذي تراكم خلال النهار يعمل على تهيج منطقة الحلق عند النوم، بالتالي حاول رفع الرأس باستخدام الوسادة
- جلسات البخار: المجاري الهوائية الجافة تزيد حدة وشدة الكحة

علاج الكحة يبدأ من الوقاية

فيجب تعليم الاطفال:

- تجنب التواصل المباشر مع الأشخاص المصابين.
- تغطية الأنف والفم عند العطس أو السعال.
- شرب كمية مناسبة من السوائل يوميًا. غسل اليدين باستمرار، وبالأخص بعد العطس وتناول الطعام.

Appendix Table 4. The RIGHT-Ad@pt checklist

7 sections, 27 topics, and 34 items		Assessment	Page(s)*	Note(s)
BASIC INFORMATION				
Title/subtitle				
1	Identify the report as an adaptation of practice guideline(s), that is include "guideline adaptation", "adapting", "adapted guideline/recommendation(s)", or similar terminology in the title/subtitle.	☒ Yes ☐ No ☐ Unclear		
2	Describe the topic/focus/scope of the adapted guideline.	☒ Yes ☐ No ☐ Unclear		
Cover/first page				
3	Report the respective dates of publication and the literature search of the adapted guideline.	☒ Yes ☐ No ☐ Unclear		
4	Describe the developer and country/region of the adapted guideline.	☒ Yes ☐ No ☐ Unclear		
Executive summary/abstract				
5	Provide a summary of the recommendations contained in the adapted guideline.	☒ Yes ☐ No ☐ Unclear		
Abbreviations and acronyms				
6	Define key terms and provide a list of abbreviations and acronyms (if applicable).	☒ Yes ☐ No ☐ Unclear		
Contact information of the guideline adaptation group				
7	Report the contact information of the developer of the adapted guideline.	☒ Yes ☐ No ☐ Unclear		
SCOPE				
Source guideline(s)				
8	Report the name and year of publication of the source guideline(s), provide the citation(s), and whether source authors were contacted.	☒ Yes ☐ No ☐ Unclear		
Brief description of the health problem(s)				
9	Provide the basic epidemiological information about the problem (including the associated burden), health systems relevant issues, and note any relevant differences compared to the source guideline(s).	☒ Yes ☐ No ☐ Unclear		
Aim(s) and specific objectives				
10	Describe the aim(s) of the adapted guideline and specific objectives, and note any relevant differences compared to the source guideline(s).	☒ Yes ☐ No ☐ Unclear		
Target population(s)				
11	Describe the target population(s) and subgroup(s) (if applicable) to which the recommendation(s) is addressed in the adapted guideline, and note any relevant differences compared to the source guideline(s).	☒ Yes ☐ No ☐ Unclear		
End-users and settings				
12	Describe the intended target users of the adapted guideline, and note any relevant differences compared to the source guideline(s).	☒ Yes ☐ No ☐ Unclear		
13	Describe the setting(s) for which the adapted guideline is intended, and note any relevant differences compared to the source guideline(s).	☒ Yes ☐ No ☐ Unclear		

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7 sections, 27 topics, and 34 items		Assessment	Page(s)*	Note(s)
RIGOR OF DEVELOPMENT				
Guideline adaptation group				
14	List all contributors to the guideline adaptation process and describe their selection process and responsibilities.	☒ Yes ☐ No ☐ Unclear		
Adaptation framework/methodology				
15	Report which framework or methodology was used in the guideline adaptation process.	☒ Yes ☐ No ☐ Unclear		
Source guideline(s)				
16	Describe how the specific source guideline(s) was(were) selected.	☒ Yes ☐ No ☐ Unclear		
Key questions				
17	State the key questions of the adapted guideline using a structured format, such as PICO (population, intervention, comparator, and outcome), or another format as appropriate.	☒ Yes ☐ No ☐ Unclear		
18	Describe how the key questions were developed/modified, and/or prioritized.	☐ Yes ☒ No ☐ Unclear		
Source recommendation(s)				
19	Describe how the recommendation(s) from the source guideline(s) was(were) assessed with respect to the evidence considered for the different criteria, the judgements and considerations made by the original panel.	☐ Yes ☒ No ☐ Unclear		
Evidence synthesis				
20	Indicate whether the adapted recommendation(s) is/are based on existing evidence from the source guideline(s), and/or additional evidence.	☐ Yes ☒ No ☐ Unclear		
21	If new research evidence was used, describe how it was identified and assessed.	☐ Yes ☒ No ☐ Unclear	NA	
Assessment of the certainty of the body of evidence and strength of recommendation				
22	Describe the approach used to assess the certainty/quality of the body/ies of evidence and the strength of recommendations in the adapted guideline and note any differences (if applicable) compared to the source guideline(s).	☐ Yes ☒ No ☐ Unclear	NA	
Decision-making processes				
23	Describe the processes used by the guideline adaptation group to make decisions, particularly the formulation of recommendations.	☒ Yes ☐ No ☐ Unclear		
RECOMMENDATIONS				
Recommendations				
24	Report recommendations and indicate whether they were adapted, adopted, or *de novo*.	☒ Yes ☐ No ☐ Unclear		
25	Indicate the direction and strength of the recommendations and the certainty/quality of the supporting evidence and note any differences compared to the source recommendations(s) (if applicable).	☒ Yes ☐ No ☐ Unclear		
26	Present separate recommendations for important subgroups if the evidence suggests important differences in factors influencing recommendations and note any differences compared to the source recommendations(s) (If applicable).	☒ Yes ☐ No ☐ Unclear		
Rationale/explanation for recommendations				
27	Describe the criteria/factors that were considered to formulate the recommendations or note any relevant differences compared to the source guideline(s) (if applicable).	☒ Yes ☐ No		

Appendix Table 4. The RIGHT-Ad@pt checklist

7 sections, 27 topics, and 34 items		Assessment	Page(s)*	Note(s)
		☐ Unclear		
EXTERNAL REVIEW AND QUALITY ASSURANCE				
External review				
28	Indicate whether the adapted guideline underwent an independent external review. If yes, describe the process.	☒ Yes ☐ No ☐ Unclear		
Organizational approval				
29	Indicate whether the adapted guideline obtained organizational approval. If yes, describe the process.	☒ Yes ☐ No ☐ Unclear	SNS & NEBMC	
FUNDING, DECLARATION, AND MANAGEMENT OF INTEREST				
Funding source(s) and funder role(s)				
30	Report all sources of funding for the adapted guideline and source guideline(s), and the role of the funders.	☒ Yes ☐ No ☐ Unclear		
Declaration and management of interests				
31	Report all conflicts of interest of the adapted and the source guideline(s) panels, and how they were evaluated and managed.	☒ Yes ☐ No ☐ Unclear		
OTHER INFORMATION				
Implementation				
32	Describe the potential barriers and strategies for implementing the recommendations (if applicable).	☒ Yes ☐ No ☐ Unclear		
Update				
33	Briefly describe the strategy for updating the adapted guideline (if applicable).	☒ Yes ☐ No ☐ Unclear		
Limitations and suggestions for further research				
34	Describe the challenges of the adaptation process, the limitations of the evidence, and provide suggestions for future research.	☐ Yes ☒ No ☐ Unclear	--	