The common cold in children: Management and prevention

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INTRODUCTION

The common cold is an acute, self-limiting viral infection of the upper respiratory tract characterized by variable degrees of sneezing, nasal congestion and discharge (rhinorrhea), sore throat, cough, low grade fever, headache, and malaise.

The management and prevention of the common cold in children will be discussed here. The epidemiology, clinical features, and diagnosis of the common cold in children and the common cold in adults are discussed separately. (See "The common cold in children: Clinical features and diagnosis" and "The common cold in adults: Diagnosis and clinical features" and "The common cold in adults: Treatment and prevention".)

CAREGIVER EDUCATION

The common cold is usually a mild and self-limiting viral illness, usually caused by rhinoviruses. Caregiver education is the mainstay of management [1,2] and is recommended by the American Academy of Pediatrics [3], the United Kingdom's National Institute for Health and Care Excellence [4-6], and British Thoracic Society guidelines for the assessment and management of cough in children [7].

Antiviral therapy is not available for the viruses that cause the common cold with the exception of influenza virus. The clinical features of influenza and treatment of influenza with antiviral agents are discussed separately. (See "Seasonal influenza in children: Management", section on 'Antiviral therapy'.)

Expected course of illness — In infants and young children, the symptoms of the common cold usually peak on day 2 to 3 of illness and then gradually improve over 10 to 14 days (figure 1) [8,9]. The cough may linger in a minority of children but should steadily resolve over three to four weeks. In older children and adolescents, symptoms usually resolve in five to seven days (longer in those with underlying lung disease or who smoke cigarettes) [10-12].

Indications for re-evaluation — Re-evaluation may be warranted if the symptoms worsen (eg, difficulty breathing or swallowing, high fever) or exceed the expected duration. Worsening or persistent symptoms (eg, persistent cough) may indicate the development of complications or the need to consider a diagnosis other than the common cold (eg, acute bacterial sinusitis, pneumonia, pertussis). (See "The common cold in children: Clinical features and diagnosis", section on 'Complications' and "The common cold in children: Clinical features and diagnosis", section on 'Differential diagnosis'.)

Supportive care — We generally recommend one or a combination of the following interventions as first-line therapy for children with the common cold [3,13-18]. Although most of these interventions have not been studied in randomized trials, they are relatively inexpensive and unlikely to be harmful [14,16,19].

- **Maintaining adequate hydration** – Maintaining adequate hydration may help to thin secretions and soothe the respiratory mucosa [16].

- **Ingestion of warm fluids** – Ingestion of warm liquids (eg, tea, chicken soup) may have a soothing effect on the respiratory mucosa, increase the flow of nasal mucus, and loosen respiratory secretions, making them easier to remove [15,16,20]. The warmed liquids should be appropriate for the age of the infant or child. (See "Introducing solid foods and vitamin and mineral supplementation during infancy", section on 'When to initiate complementary foods' and "Dietary recommendations for toddlers, preschool, and school-age children", section on 'Dietary composition'.)

- **Topical** saline – Topical saline may be beneficial, is inexpensive, and is unlikely to be harmful or impede recovery. The application of saline to the nasal cavity may temporarily remove bothersome nasal secretions, improve mucociliary clearance, and lead to vasoconstriction (decongestion) [21]. Side effects may include mucosal irritation or nosebleed.

  In infants, topical saline is applied with saline nose drops and a bulb syringe (table 1). In older children, a saline nasal spray or saline nasal irrigation (eg, squeeze bottle, neti pot, or nasal douche) may be used. It is important that saline irrigants be prepared from sterile or bottled water; cases of amebic encephalitis associated with

nasal irrigation prepared from tap water have been reported [22]. (See "Free-living amebas and Prototheca", section on 'Epidemiology'.)

The Centers for Disease Control and Prevention provides information about safe methods for nasal irrigation.

A 2015 systematic review of five randomized trials (including 544 children and 205 adults) concluded that nasal saline irrigation may be beneficial in relieving upper respiratory infection symptoms [23]. Different outcome measures precluded pooling of results. In the largest trial, nasal saline irrigation modestly improved symptoms, decreased use of other therapies, decreased recurrence of symptoms, and decreased school absence [24].

- **Humidified air** – A cool mist humidifier/vaporizer may add moisture to the air to loosen nasal secretions, although this treatment is not well studied [17,25,26]. It is important to counsel caregivers who use cool mist humidifiers to clean the humidifier after each use according to the manufacturer's instructions to minimize the risk of infection or inhalation injury [27-29].

  We do not recommend the inhalation of steam or heated humidified air as a treatment for nasal symptoms in children with the common cold. Inhalation of heated humidified air or steam does not reduce symptoms and may result in burns [30,31].

  A 2017 systematic review of six randomized trials (387 participants) evaluating the effects of inhalation of heated humidified air on symptoms of the common cold found the benefits to be inconsistent [32]. A randomized trial including 899 patients (≥3 years) that was not included in the systematic review found that advice to use steam inhalation did not reduce symptoms of acute respiratory infection [33].

  The World Health Organization suggests that neither steam nor cool mist therapy be encouraged in the management of a cough or cold [16].

Over-the-counter medications — Over-the-counter (OTC) products for symptomatic relief of the common cold in children include antihistamines, decongestants, antitussives, expectorants, mucolytics, antipyretics/analgesics, and combinations of these medications (table 2).

- **Children <6 years** – Except for antipyretics/analgesics, OTC medications for the common cold should be **avoided** in children <6 years of age [34-36].

- **6 to 12 years** – Except for antipyretics/analgesics, we suggest **not** using OTC medications for the common cold in children 6 to 12 years of age.

- **Adolescents ≥12 years** – OTC decongestants may provide symptomatic relief of nasal symptoms in adolescents ≥12 years. (See 'Nasal symptoms' below.)

In randomized trials, systematic reviews, and meta-analyses, OTC medications have not been proven to work any better than placebo in children and may have serious side effects [37-46]. OTC cough and cold medications have been associated with fatal overdose in children younger than two years [47-50]. OTC medications have the potential for enhanced toxicity in young children because metabolism, clearance, and drug effects may vary according to age. Safe dosing recommendations have not been established for children [19]. (See "Over-the-counter cough and cold preparations: Approach to pediatric poisoning".)

If caregivers choose to administer OTC medications to treat the common cold in children >6 years, they should be advised to use single-ingredient medications for the most bothersome symptom and be provided with proper dosing, storage, and administration instructions to avoid potential toxicity [19]. As an example, inverting the container rather than holding it upright when administering intranasal medication may provide a dose that is 20 to 30 times greater than recommended [45]. As with all medications, OTC cough and cold remedies should be stored out of the reach of children. Data from the Pediatric Cough and Cold Safety Surveillance System (2009 to 2014) indicate that approximately two-thirds of adverse events related to OTC cough and cold medications among children <12 years are related to accidental unsupervised ingestion [50]. (See 'Symptomatic therapy' below and "Over-the-counter cough and cold preparations: Approach to pediatric poisoning".)

Colds caused by SARS-CoV-2 — Supportive care and symptomatic management of colds caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), the virus that causes coronavirus disease 2019 (COVID-19), in children are the same as that for colds caused by other viruses. (See 'Supportive care' above and 'Symptomatic therapy' below.)

Additional management for children at risk for progression to severe COVID-19 disease (eg, those who are immunocompromised, those with medical-related technologic dependence unrelated to COVID-19 infection, those with multiple underlying conditions) is discussed separately. (See "COVID-19: Management in children", section on 'Outpatient therapy for select children'.)

SYMPTOMATIC THERAPY

Symptoms of the common cold need not be treated unless they bother the child or other family members (eg, interrupting sleep, interfering with drinking, causing discomfort) [51]. Symptomatic therapies have associated risks and benefits, particularly in young children (table 2).

Discomfort due to fever — We suggest that discomfort due to fever in the first few days of the common cold be treated with acetaminophen (for children older than three months) or ibuprofen (for children older than six months) [52]. (See "Fever in infants and children: Pathophysiology and management", section on 'Management of fever'.)

When suggesting antipyretics and analgesics, it is important for clinicians to counsel caregivers against the concomitant use of combination over-the-counter (OTC) medications to avoid overdose from multiple medications that contain the same ingredient (eg, acetaminophen). (See "Clinical manifestations and diagnosis of acetaminophen (paracetamol) poisoning in children and adolescents", section on 'Inappropriate dosing by a caregiver'.)

Nasal symptoms — Nasal symptoms include rhinitis and nasal congestion/obstruction. Nasal obstruction can interfere with drinking and may be the most bothersome symptom in infants and young children [14].

- **First-line interventions** – For first-line therapy of bothersome nasal symptoms, we suggest one or more supportive interventions (eg nasal suction; saline nasal drops, spray, or irrigation; adequate hydration; cool mist humidifier) rather than OTC medications or topical aromatic therapies. Although supportive interventions have not been demonstrated to be effective in randomized trials, the common cold is a self-limiting illness and supportive interventions are safe and inexpensive [19]. (See 'Supportive care' above and 'Unproven therapies' below.)

- **Second-line interventions** – Our second-line interventions for bothersome nasal symptoms that do not improve with supportive care vary according to age:

  - **<6 years** – For children <6 years with bothersome nasal symptoms that persist despite supportive interventions, we generally suggest increasing the frequency of nasal suction, sprays, or irrigation. We do not use OTC medications for nasal symptoms in children <6 years. The benefits are unproven and there are associated risks. (See 'Over-the-counter medications' above.)

    Ipratropium nasal spray 0.06% is available by prescription for children older than five years and may be warranted on a case-by-case basis. Two sprays are administered to each nostril three times per day for four days.

  - **6 to 12 years** – For children age 6 to 12 years with bothersome nasal symptoms that do not respond to supportive interventions, we generally suggest increasing the frequency of nasal suction, sprays, or irrigation rather than other interventions. We suggest not using OTC decongestants or decongestant/antihistamine combinations. Evidence of benefit is limited and there are associated risks [46,53]. Ipratropium

nasal spray is available by prescription and may be warranted on a case-by-case basis.

The regimen varies according to age:

- 6 through 11 years – Ipratropium 0.06% nasal spray, two sprays in each nostril three times per day for four days
- ≥12 years – Ipratropium 0.06% nasal spray, two sprays in each nostril three to four times per day for four days

In a systematic review of seven randomized trials comparing ipratropium nasal spray with placebo in children ≥5 years and adults, ipratropium was effective in reducing subjective nasal discharge but not nasal congestion [54]. Adverse effects (nosebleeds, nasal dryness, mouth dryness) were approximately two to four times as common in patients treated with ipratropium.

- **≥12 years** – For children ≥12 years with bothersome nasal symptoms that do not respond to supportive interventions, we suggest OTC decongestants (oral or topical) or ipratropium nasal spray.

  Decongestants (oral or topical) cause vasoconstriction of the nasal mucosa.

  - We prefer oral pseudoephedrine to phenylephrine and other oral OTC nasal decongestants. Side effects of oral decongestants may include tachycardia, elevated diastolic blood pressure, and palpitations [55].
  - Commonly used topical decongestants include oxymetazoline, xylometazoline, and phenylephrine [1]. Side effects of topical decongestants include nosebleeds and drying of the nasal membranes. Topical decongestants should only be used for two to three days; longer use may result in rebound nasal congestion after discontinuation [1,14].

  A 2016 systematic review found low-quality evidence that multiple doses of oral and/or topical decongestants subjectively improved nasal congestion in adults [56]. No studies directly compared oral with topical decongestants. In randomized trials in adult patients with allergic rhinitis, oral pseudoephedrine was more effective in reducing nasal congestion than phenylephrine or placebo, whereas phenylephrine was no more effective than placebo [57-59].

Diagnoses other than the common cold should be considered in children whose nasal symptoms persist or worsen despite second line interventions. (See 'Persistent symptoms' below.)

Cough — Cough may affect the child's sleep, school performance, and ability to play; it also may disturb the sleep of other family members and be disruptive in the classroom [7]. Although caregivers frequently seek interventions to suppress cough, they should understand that cough clears secretions from the respiratory tract and suppression of cough may result in retention of secretions and potentially harmful airway obstruction [3,16].

We suggest that airway irritation contributing to cough be relieved with oral hydration, warm fluids (eg, tea, chicken soup), honey (in children older than one year), or cough lozenges or hard candy (in children in whom they are not an aspiration risk) rather than OTC or prescription antitussives, antihistamines, expectorants, or mucolytics. Fluids, honey, cough lozenges, and hard candy are inexpensive and unlikely to be harmful, although they may provide only placebo effect [60]. (See 'Unproven therapies' below.)

- **Oral hydration** and **warm fluids** are discussed above. (See 'Supportive care' above.)

- **Honey** – We suggest honey as an option for treating cough in children ≥1 year with the common cold. The honey (2.5 to 5 mL [0.5 to 1 teaspoon]) can be given straight or diluted in liquid (eg, tea, juice [51]). Corn syrup may be substituted if honey is not available. Honey has a modest beneficial effect on nocturnal cough and is unlikely to be harmful in children older than one year of age. Honey should be avoided in children younger than one year because of the risk of botulism. (See "Botulism", section on 'Infant botulism'.)

  A systematic review of 14 randomized trials comparing honey with other interventions in children and adults with upper respiratory tract infections concluded that honey was superior to usual care (eg, placebo, diphenhydramine, dextromethorphan) [61]. In meta-analyses, honey reduced cough frequency (standard mean difference [SMD] -0.36, 95% CI -0.50 to -0.21; eight trials, 832 participants) and cough severity (SMD -0. 44, 95% CI -0.64 to -0.25; five trials, 598 participants). In direct comparisons, honey was more effective than diphenhydramine and similarly effective to dextromethorphan in reducing cough frequency and severity. Adverse effects were uncommon and mild (eg, nausea).

  Given the relative safety and low cost of honey, the World Health Organization (WHO) and American Academy of Pediatrics (AAP) suggest it as a potential treatment for URI in young children who are older than one year [16,51]. The American College of Chest Physicians suggests that honey is more effective than placebo for cough due to the common cold [62].

- **Lozenges** – We suggest hard candy or lozenges as an option for treating cough in children in whom they are not an aspiration risk. Although there is no evidence from controlled trials that cough lozenges and hard candy are effective in decreasing cough,

they are unlikely to be harmful [16]. The AAP suggests that cough lozenges or hard candy may be used to coat the irritated throat for children older than six years [51].

We do not use codeine or other antitussive agents (eg, dextromethorphan) for the treatment of cold-related cough in children. They have potential harms with no proven benefit [62,63]. Adverse effects of codeine in children include somnolence, respiratory depression, and even death [64]; adverse effects of dextromethorphan include behavioral disturbances and respiratory depression [3].

The AAP recommends against codeine and dextromethorphan-containing medications for the treatment of cough associated with viral respiratory infections because there are no well-controlled studies demonstrating efficacy and safety [3,64]. The US Food and Drug Administration recommends against codeine- or hydrocodone-containing prescription cough and cold medicines in children and adolescents younger than 18 years [65]. The European Medicines Agency recommends against codeine to treat cough and cold in children younger than 12 years and in children between 12 and 18 years who have breathing problems (eg, asthma) [66]. The WHO guidelines recommend against the use of codeine preparations for cough in children but suggest that dextromethorphan may be warranted in the unusual circumstance when severe prolonged coughing interferes with feeding or sleeping [16]. In such cases, a diagnosis other than the common cold should be considered (eg, pertussis, asthma, pneumonia) [67]. (See "The common cold in children: Clinical features and diagnosis", section on 'Differential diagnosis' and "Causes of chronic cough in children" and "Approach to chronic cough in children".)

Sore throat — Symptomatic relief of sore throat in children and adolescents is discussed separately. (See "Acute pharyngitis in children and adolescents: Symptomatic treatment".)

Middle ear abnormalities — We do not suggest decongestants or decongestant-antihistamine combinations for symptoms of middle ear abnormalities (eg, conductive hearing loss) in children with the common cold. Although abnormalities of middle ear pressure associated with the common cold may predispose to development of acute otitis media, in a prospective crossover study, treatment with a decongestant-antihistamine did not prevent the development of acute otitis media [68]. (See "Acute otitis media in children: Epidemiology, microbiology, and complications", section on 'Pathogenesis'.)

PERSISTENT SYMPTOMS

- **Persistent nasal symptoms** – Diagnoses other than the common cold should be considered in children who have nasal discharge that is more severe or prolonged than expected with the common cold (eg, persists for more than 10 days without

improvement or is worsening). (See "The common cold in children: Clinical features and diagnosis", section on 'Differential diagnosis'.)

Alternative diagnoses include:

- Nasal foreign body (see "Diagnosis and management of intranasal foreign bodies")
- Allergic rhinitis, nonallergic rhinitis, medication-induced rhinitis (see "An overview of rhinitis")
- Acute bacterial sinusitis (see "Acute bacterial rhinosinusitis in children: Clinical features and diagnosis")

- **Persistent cough** – Diagnoses other than the common cold should be considered in children who have cough that is more severe or prolonged than expected with the common cold (eg, persists for more than two weeks without improvement or is worsening) [67].

  Alternative diagnoses include pneumonia, asthma, pertussis, cystic fibrosis, and inhaled foreign body, among others. (See "The common cold in children: Clinical features and diagnosis", section on 'Differential diagnosis' and "Causes of chronic cough in children" and "Approach to chronic cough in children".)

UNPROVEN THERAPIES

- **Antibiotics** – There is no role for antibiotics in the treatment of the common cold [7]. Antibiotics do not alter the course of the common cold and do not prevent secondary complications, but may cause significant side effects and contribute to increasing bacterial antimicrobial resistance [69]. The use of antibiotics should be reserved for clearly diagnosed secondary bacterial infections, including bacterial otitis media, sinusitis, and pneumonia. (See "The common cold in children: Clinical features and diagnosis", section on 'Complications'.)

- **Antihistamines** – We do not suggest antihistamines for the treatment of the common cold. In randomized trials, neither antihistamines nor combination antihistamine-decongestants have been effective in relieving nasal symptoms or cough in children with the common cold [38,40,41,70], and these medications may have adverse effects, including sedation, paradoxic excitability, respiratory depression, and hallucinations (table 2).

- **Intranasal glucocorticoids** – We do not suggest intranasal corticosteroids for the treatment of nasal symptoms of the common cold. A 2015 systematic review of three trials (353 participants) found no benefit [71].

- **Antitussives** – We do not suggest prescription (codeine) or over-the-counter (OTC; dextromethorphan) antitussive medications to treat cough in children with the common cold. Their efficacy has not been proven, and they have the potential for enhanced toxicity [38,42,47,66,72,73]. (See "Dextromethorphan misuse and poisoning: Clinical features and diagnosis", section on 'Epidemiology' and "Opioid intoxication in children and adolescents", section on 'Clinical manifestations'.)

  The American Academy of Pediatrics recommends against codeine and dextromethorphan-containing medications for the treatment of cough associated with viral respiratory infections because there are no well-controlled studies demonstrating efficacy and safety [3,64]. The US Food and Drug Administration and Health Canada recommend against codeine- or hydrocodone-containing prescription cough and cold medicines for children and adolescents younger than 18 years [65,74].

- **Expectorants and mucolytics** – We suggest not using OTC expectorants (eg, guaifenesin) or mucolytics (eg, acetylcysteine, bromhexine, letosteine) to treat cough in children with the common cold. Expectorants and mucolytics increase mucus production and thin respiratory secretions, respectively, to make the secretions easier to expel [44]. Neither expectorants nor mucolytics are of proven benefit in children [14,16,44]. By itself, guaifenesin alone is without proven benefit but is relatively safe, causing only mild gastrointestinal irritation. However, in OTC medications, guaifenesin is usually combined with other ingredients [67]. Adverse effects of mucolytics include bronchospasm, gastrointestinal disturbance, and fever [16].

- **Bronchodilators** – We do not suggest bronchodilators to treat cough in nonasthmatic children with the common cold. Bronchodilators are not effective for acute cough in nonasthmatic children [7,75,76]. However, children with asthma who develop a cold should use their bronchodilator rescue agent as indicated according to their asthma action plan. (See "Asthma in children younger than 12 years: Quick-relief (rescue) treatment for acute symptoms", section on 'Summary and recommendations'.)

- **Aromatic vapors (for external rub)** – We do not suggest topical aromatic agents/external rubs (eg, menthol, camphor, eucalyptus oil) for the treatment of nasal congestion or cough in children with the common cold.

  In a randomized crossover trial comparing menthol and eucalyptus oil in 42 healthy school children, menthol increased the perception of nasal patency but did not affect spirometry [77].

  In another randomized trial that compared a vapor rub combination (camphor, menthol, and eucalyptus oils) with petrolatum and no treatment, vapor rub had no effect on rhinorrhea but reduced cough severity, improved child and caregiver sleep,

and reduced a combined symptom score; all outcomes were caregiver-reported [78]. The vapor rub combination was associated with at least one mild irritant effect in nearly one-half of children. Because the study was not well blinded (86 percent of caregivers applying the vapor rub correctly guessed that they were applying it), the likelihood of a significant placebo effect cannot be eliminated [79]. In addition, caregiver report of cough must be interpreted with caution; caregiver reporting of the frequency and severity of cough is unreliable compared with objective measures [80-82].

- **Vitamins, minerals, and herbal products**

  - Vitamin C – We suggest not using vitamin C for the treatment of the common cold in children. In a 2013 meta-analysis of randomized trials, vitamin C (≥200 mg/day) initiated after the onset of symptoms did not reduce the duration (seven trials, 3249 cold episodes) or severity (four trials, 2708 cold episodes) of cold symptoms [83]. No serious adverse effects were reported.

  - **Zinc** – We suggest not using zinc for the treatment of the common cold in children. The efficacy of zinc in reducing the duration or severity of cold symptoms in children remains unclear, and side effects are common [84].

    Although several systematic reviews of randomized trials suggest that zinc may shorten the duration of cold symptoms, there was significant heterogeneity among the individual trials [84-86]. In a meta-analysis of eight trials (934 participants: 371 adults and 563 children), zinc reduced the duration of symptoms (mean difference -1.65 days, 95% CI -2.5 to -0.8) [84]. In subgroup analysis, zinc reduced the duration of symptoms in adults (mean difference -2.63 days, 95% CI -3.69 to -1.58) but not in children (mean difference -0.26 days, 95% CI -0.78 to 0.25). Adverse effects, including bad taste and nausea, were common and may contribute to the limited usefulness of zinc in children [84,87].

    Zinc nasal products, including homeopathic intranasal zinc gluconate, have been associated with long-standing or permanent loss of sense of smell and are not recommended for children [88-90].

  - ***Echinacea purpurea*** – We suggest not using *E. purpurea* for the treatment of the common cold in children. Several rigorously designed randomized trials and a meta-analysis of randomized trials in adults found that echinacea is no better than placebo for the treatment of upper respiratory infections (URIs) [91-94]. Similarly, a randomized trial in children (age 2 to 11 years) found no differences in the duration or severity of URI symptoms in children treated with echinacea or placebo [95]. However, children treated with echinacea had an increased rate of rash (7 versus 2.7

percent). (See "Clinical use of echinacea", section on 'Upper respiratory tract infection'.)

- ***Pelargonium sidoides* (Umckaloabo, South African geranium) extract** – We suggest not using *P. sidoides* extract for the treatment of the common cold in children. Although a systematic review found one study suggesting that 10 days of therapy was effective in adults, the evidence was very low quality [96]. Evidence regarding the safety of *P. sidoides* in children is limited. In pooled analysis of trials evaluating *P. sidoides* for the treatment of acute respiratory infections, adverse events were rarely reported but slightly more common among recipients of *P. sidoides* than placebo.

- **Homeopathy** – We suggest not using homeopathic remedies for the treatment of the common cold in children. A systematic review found no evidence to support homeopathic remedies for the treatment of acute respiratory tract infections in children [97]. Poor reporting of adverse effects precluded conclusions about safety.

PREVENTION

Child care and school — Most children with colds need not be excluded from out-of-home child care or school because transmission is likely to have occurred before the child became symptomatic [98]. The risk of spread can be decreased by following common sense prevention measures, discussed in the following sections.

Children with cold symptoms who are known or suspected to have SARS-CoV-2 infection should isolate according to local and Centers for Disease Control and Prevention guidance.

Hygiene — The best methods for preventing transmission of the common cold are frequent handwashing and avoiding touching one's mouth, nose, and eyes. In observational studies, alcohol-based hand sanitizers and virucidal hand treatments (eg, iodine, salicylic acid, pyroglutamic acid) were associated with decreased transmission [99-101]. (See "The common cold in children: Clinical features and diagnosis", section on 'Epidemiology'.)

Cold viruses can be transmitted from the hands to objects in the environment or to other people. To avoid contaminating their hands, children with the common cold can be instructed to cough into a tissue or the crook of their elbow rather than into their hands. Used tissues should be discarded in a waste basket.

In combination with other mitigation measures related to the COVID-19 pandemic (eg, mask-wearing, avoiding crowds), these hygiene interventions were associated with decreased rates of other cold viruses [102,103].

Disinfectants — Decontamination of environmental surfaces with virucidal disinfectants such as phenol/alcohol (eg, Lysol) may help decrease the rate of transmission of cold-inducing viruses [104]. Virucidal-impregnated nasal tissues also may reduce the transmission of cold viruses [105-107].

A randomized trial of antibacterial cleaning products versus standard cleaning products in households with at least one preschool child detected no difference in respiratory symptoms (runny nose, cough, sore throat) among household members [108]. However, antibacterial products would not necessarily be expected to be active against viral pathogens.

Immunizations — There is not an immunization to prevent the common cold. However, there are immunizations to prevent some of the viruses that can cause clinical syndromes similar to common cold.

- Yearly influenza immunization is recommended for all individuals older than six months to prevent influenza infection and its complications. (See "Seasonal influenza in children: Prevention with vaccines", section on 'Target groups'.)
- COVID-19 vaccination is recommended for all individuals aged five years and older [109]. (See "COVID-19: Vaccines", section on 'Children'.)
- Respiratory syncytial virus (RSV) lower respiratory tract infections in young infants can be prevented with either maternal vaccination during pregnancy or immunoprophylxais in the newborn after birth. This is discussed separately. (See "Immunizations during pregnancy" and "Respiratory syncytial virus infection: Prevention in infants and children".)

Unproven preventive measures — We do not suggest herbal products, vitamins, minerals, homeopathy, or probiotics to prevent the common cold in children. These agents have not been proven beneficial and may be harmful.

- **Herbal products** – Meta-analyses have not found conclusive evidence that *E. purpurea or Allium sativum* (garlic) prevents the common cold in children [94,110]. (See "Clinical use of echinacea", section on 'Prevention'.)
- **Vitamin D** – In randomized trials, neither daily nor monthly administration of vitamin D has reduced the incidence or severity of the common cold. (See "Vitamin D and extraskeletal health", section on 'Immune system'.)
- **Vitamin C** – A 2013 meta-analysis of 24 trials (10,708 participants) found no evidence that daily vitamin C supplementation prevents the common cold in the general community (risk ratio [RR] 0.97, 95% CI 0.94-1.00) [83]. However, daily vitamin C supplementation may shorten the duration of the common cold in children. In meta-

analysis of 14 trials (2530 cold episodes), daily vitamin C (at least 200 mg/day) by children shortened the duration of the common cold by 14 percent (95% CI 7.3-21 percent); no serious adverse effects were reported.

- **Zinc** – Although randomized trials indicate that oral zinc may provide some benefit in preventing colds and decreasing cold duration and severity [111,112], the benefits are limited by the need for prolonged daily administration (≥5 months) and adverse effects including bad taste and nausea.

- **Homeopathy** – We suggest not using homeopathic remedies for the prevention of the common cold in children. A systematic review found no evidence to support homeopathic remedies for the prevention of acute respiratory tract infections in children [97]. Poor reporting of adverse effects precluded conclusions about safety.

- **Probiotics** – We suggest not using probiotics for the prevention of colds in children. Although meta-analyses of randomized trials comparing probiotics (various strains of lactobacilli and *Bifidobacterium*) with placebo in children and adults found low-certainty evidence that probiotics reduced the number of participants who had ≥1 acute respiratory infection (36 versus 44 percent; RR 0.76, 95% CI 0.67-0.87; 16 trials, 4798 participants) and the mean duration of illness (mean difference -1.2 days, 95% CI -2.1 to -0.3; 6 trials, 2406 participants) [113], additional studies are necessary to confirm these results and determine which doses and strains are most beneficial before probiotics can be routinely recommended.

INFORMATION FOR PATIENTS

UpToDate offers two types of patient education materials, "The Basics" and "Beyond the Basics." The Basics patient education pieces are written in plain language, at the 5th to 6th grade reading level, and they answer the four or five key questions a patient might have about a given condition. These articles are best for patients who want a general overview and who prefer short, easy-to-read materials. Beyond the Basics patient education pieces are longer, more sophisticated, and more detailed. These articles are written at the 10th to 12th grade reading level and are best for patients who want in-depth information and are comfortable with some medical jargon.

Here are the patient education articles that are relevant to this topic. We encourage you to print or email these topics to your patients. (You can also locate patient education articles on a variety of subjects by searching on "patient education" and the keyword[s] of interest.)

- Basics topics (see "Patient education: Giving your child over-the-counter medicines (The Basics)" and "Patient education: Cough in children (The Basics)")

- Beyond the Basics topics (see "Patient education: The common cold in children (Beyond the Basics)")

SUMMARY AND RECOMMENDATIONS

- **Caregiver education** – The common cold is usually a mild and self-limiting viral illness. Caregiver education is the mainstay of management and should include information about the expected course, indications for re-evaluation, supportive interventions, the potential dangers of over-the-counter (OTC) medications for young children, and symptomatic therapy. (See 'Caregiver education' above.)

  In infants and young children, the symptoms usually peak on day 2 to 3 of illness and then gradually improve over 10 to 14 days (figure 1). In older children and adolescents, symptoms usually resolve in five to seven days. Re-evaluation may be warranted if the symptoms worsen or exceed the expected duration. (See 'Expected course of illness' above and 'Indications for re-evaluation' above.)

  OTC cough and cold medications should be **avoided** in children <6 years. We suggest not using OTC cough and cold medications in children between 6 and 12 years of age (**Grade 2B**). These medications have no proven benefit for children and may have serious adverse effects (table 2). (See 'Over-the-counter medications' above.)

  The management and follow-up of children with colds caused by SARS-CoV-2 are discussed separately. (See "COVID-19: Management in children".)

- **Symptomatic therapy** – Symptomatic therapy may be warranted if the symptoms bother the child (eg, interrupting sleep, interfering with drinking, causing discomfort) or other family members. (See 'Symptomatic therapy' above.)

  - **Nasal symptoms** – For first-line therapy of bothersome nasal symptoms, we suggest one or more supportive interventions (eg nasal suction; saline nasal drops, spray, or irrigation; adequate hydration; cool mist humidifier) rather than OTC medications or topical aromatic therapies (**Grade 2C**). (See 'Nasal symptoms' above and 'Unproven therapies' above.)

    Second-line interventions for bothersome nasal symptoms vary according to age:

    - For children <6 years, we generally suggest increasing the frequency of nasal suction, sprays, or irrigation (**Grade 2C**).

    - For children 6 to 12 years, we generally suggest increasing the frequency of nasal suction, sprays, or irrigation rather than other interventions (**Grade 2C**).

- For children ≥12 years, we suggest either ipratropium nasal spray or OTC decongestants (oral or topical) (**Grade 2C**).

- **Cough** – We suggest that airway irritation contributing to cough be relieved with oral hydration, warm fluids (eg, tea, chicken soup), honey (in children older than one year), or cough lozenges or hard candy (in children in whom they are not an aspiration risk) rather than OTC or prescription antitussives, antihistamines, expectorants, or mucolytics (**Grade 2C**). (See 'Cough' above and 'Unproven therapies' above.)

- **Sore throat** – Symptomatic relief of sore throat is discussed separately. (See "Acute pharyngitis in children and adolescents: Symptomatic treatment".)

- **Unproven therapies** – We suggest not using vitamin C, zinc, *Echinacea purpurea*, or homeopathy for the treatment of the common cold in children (**Grade 2B**). (See 'Unproven therapies' above.)

- **Prevention** – Most children with the common cold need not be excluded from out-of-home child care or school. The risk of spread can be decreased through frequent hand washing and appropriate cough hygiene. (See 'Prevention' above.)

  Children with cold symptoms who are known or suspected to have SARS-CoV-2 infection should isolate according to local and Centers for Disease Control and Prevention guidance.

  We suggest not using *E. purpurea, Allium sativum* (garlic), vitamin D, vitamin C, zinc, or homeopathy for the prevention of the common cold in children (**Grade 2B**). (See 'Unproven preventive measures' above.)

ACKNOWLEDGMENT

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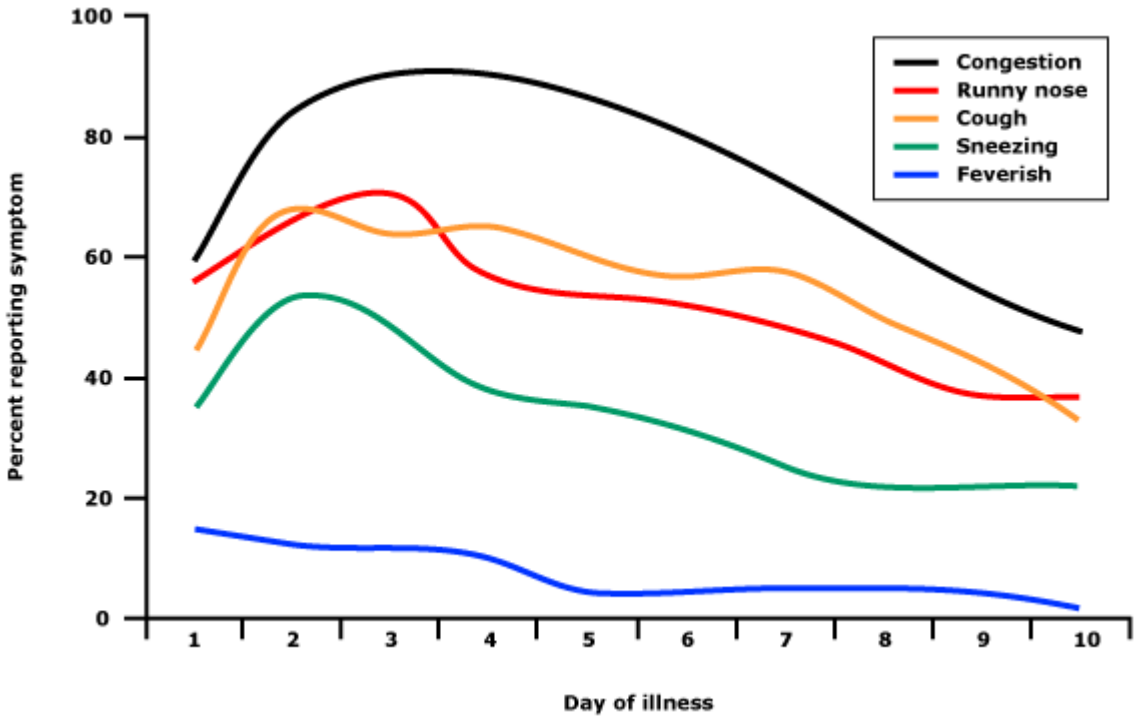
Topic 16629 Version 61.0

GRAPHICS

Symptom profile of the common cold in children



Symptom profile in 81 colds in healthy school children. Symptoms include congestion, runny nose, cough, sneezing, and feverish.

Adapted with permission from: Pappas DE, Hendley JO, Hayden FG, Winther B. Symptom profile of common colds in school-aged children. Pediatr Infect Dis J 2008; 27:8. Copyright © 2008 Lippincott Williams & Wilkins.

Graphic 65898 Version 11.0

Instructions on using a bulb syringe[1]

Nasal congestion from a cold can make it difficult for a young infant to breathe while eating. Mucus can be removed from the infant's nose with a bulb syringe.
Before using a bulb syringe, saline nose drops can be used to thin the mucus. Saline nose drops can be purchased in most pharmacies or can be made at home by adding 1/4 teaspoon salt to 8 ounces (1 cup) of warm (not hot) water. Stir to dissolve the salt, and store the solution for up to one week in a clean container with a cover.
▪ Place the infant on their back. Using a clean nose dropper, place 1 to 2 drops of saline solution in each nostril. Wait a short period.
▪ Squeeze and hold the bulb syringe to remove the air. Gently insert the tip of the bulb syringe into one nostril, and release the bulb. The suction will draw mucus out of the nostril into the bulb.
▪ Squeeze the mucus out of the bulb into a tissue.
▪ Repeat suction process several times in each nostril until most mucus is removed.
▪ Wash the dropper and bulb syringe in warm, soapy water. Rinse well, and squeeze to remove any water.
The bulb syringe can be used 2 to 3 times per day as needed to remove mucus. It is best to do this before feeding; the saline and suction process can cause vomiting after feeding.

Reference:

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Graphic 62558 Version 4.0

Overview of the risks and benefits of prescription and over-the-counter medications marketed for the treatment of the common cold in children

Active ingredient	Mechanism[1,2]	Potential benefits	Potential risks*[1-3]
Antipyretics/analgesics: ▪ Acetaminophen ▪ Ibuprofen		Reduction in temperature; little evidence regarding effects on discomfort[4]	Acetaminophen may suppress the neutralizing antibody response, resulting in increased nasal secretions and prolonged viral shedding
First generation antihistamines:¶ ▪ Diphenhydramine ▪ Hydroxyzine ▪ Chlorpheniramine ▪ Brompheniramine ▪ Clemastine	Anticholinergic effects decrease mucus secretionΔ	No clinically significant benefits[5]	▪ Sedation ▪ Paradoxic excitability ▪ Dizziness ▪ Respiratory depression ▪ Hallucinations ▪ Tachycardia ▪ Heart block ▪ Arrhythmia ▪ Dry mouth ▪ Blurred vision ▪ Urinary retention ▪ Dystonic reactions
Narcotic antitussives:¶ ◇ ▪ Codeine ▪ Hydrocodone	Act on cough center in brainstem	No more effective than placebo[5,6]	▪ Respiratory depression ▪ Nausea ▪ Vomiting ▪ Constipation ▪ Dizziness ▪ Palpitations
Nonnarcotic antitussives:¶ ▪ Dextromethorphan	Act on cough center in brainstem	No evidence of effectiveness[5-8]	▪ CNS effects ▪ Serotonin syndrome ▪ Hallucinations ▪ Respiratory depression (in overdose)

Oral decongestants:¶ ▪ Pseudoephedrine ▪ Phenylephrine	Vasoconstriction	No evidence of effectiveness in children <12 years[9,10]	▪ Tachycardia ▪ Irritability ▪ Agitation ▪ Sleeplessness ▪ Hypertension ▪ Anorexia ▪ Headache ▪ Nausea ▪ Vomiting ▪ Palpitations ▪ Dysrhythmias ▪ Seizures ▪ Dystonic reactions
Topical decongestants:¶ ▪ Oxymetazoline ▪ Xylometazoline ▪ Phenylephrine	Vasoconstriction	No evidence of effectiveness in children <12 years[10]	▪ Rebound nasal congestion ▪ Nosebleeds ▪ Drying of nasal membranes
Antihistamine-decongestant combination¶	Anticholinergic effects (antihistamine) Vasoconstriction (decongestant)	No more effective than placebo[5,9,11]	Refer to potential risks for antihistamines and decongestants above
Expectorant:¶ ▪ Guaifenesin	Increase mucus production to make secretions easier to remove with cough or mucociliary transport	No studies of effectiveness in children[1,2,5]	▪ Mild GI irritation
Mucolytics:¶ ▪ Acetylcysteine ▪ Bromhexine ▪ Letosteine	Thin secretions to make them easier to clear through coughing	Some evidence of improvement compared with placebo[5]	▪ Bronchospasm ▪ GI disturbance ▪ Fever
Topical aromatics: ▪ Menthol ▪ Camphor ▪ Eucalyptus oil	May act on TRPM8 cation channel to produce a cooling sensation	Subjective improvement of nasal patency without objective increase in air flow[12] Parental report of symptomatic improvement in nocturnal cough and	GI and CNS effects may result from accidental ingestion

		sleep in poorly blinded study§ [13]	
Ipratropium bromide◇ ¥ (nasal)	Decreases nasal discharge via anticholinergic activity	May decrease nasal discharge but not nasal congestion[14]	▪ Nosebleeds ▪ Nasal dryness ▪ Headache

CNS: central nervous system; GI: gastrointestinal.

* Overdose is a potential risk with all of these agents, particularly when combination products are used.

¶ Because the risks outweigh the proven benefits, these medications generally are not recommended for children younger than six years of age. We suggest not using these medications in children 6 to 12 years of age.

Δ Histamine is not an inflammatory mediator in the common cold.

◇ Requires a prescription.

§ Significant placebo effect cannot be excluded.

¥ For children older than five years.

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Contributor Disclosures

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Conflict of interest policy

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