INDIAN HEALTH SERVICE
National Pharmacy and Therapeutics Committee
Formulary Brief: ***Cough/Cold Medications***
-November 2024-

Background:

The Indian Health Service (IHS) National Pharmacy and Therapeutics Committee (NPTC) provided a drug class review of cough and cold medications. This marks the first NPTC review of medications specific to this condition. Medications listed on the National Core Formulary (NCF) relevant to this condition include acetaminophen and ibuprofen. Following clinical review and analysis, the NPTC **made no modifications** to the NCF

Discussion:

The common cold is a mild upper respiratory viral infection characterized by runny nose, nasal congestion, sneezing, sore throat, headache, body aches, and fever. Viral causative agents include rhinoviruses, coronaviruses, influenza viruses, respiratory syncytial virus, parainfluenza viruses, adenoviruses, enteroviruses, and human metapneumovirus. Adults are typically affected 2-3x yearly and pediatric patients can have up to 8 cases yearly with a peak incidence in the fall. Viral upper respiratory infections excluding influenza are estimated to cost >$22 billion annually and account for >20 million missed days of school and >20 million lost days of work annually.[1,2]

Goals for treatment include decreasing symptom severity and time to resolution of symptoms. Medications commonly used to treat cough and colds include antihistamines, decongestants, antitussives, mucolytics, expectorants, and combination therapies. Honey, zinc, and vitamins are used as natural remedies. Non-pharmacologic treatments include rest, hydration, nasal saline and suction, steam/humidified air, and warm liquids.

Recommendations from several professional medical organizations/societies were reviewed and all question the efficacy and safety of cough and cold medications.

- The American Academy of Pediatrics recommends avoiding cough and cold medications in children younger than 6 years and recommends against prescribing decongestants to children under the age of 12 years. The only safe and effective treatments for children are acetylcysteine, honey (for children ≥ 1 year), nasal saline irrigation, intranasal ipratropium, and topical application of ointment containing camphor, menthol, and eucalyptus oils.[3]
- The American Academy of Family Physicians states that over-the-counter (OTC) cold medications should not be used in children younger than four years of age because of potential harm and lack of benefit. Safe and effective treatments for cold symptoms in children include nasal irrigation, menthol rub, and honey (for children 12 months and older). Treatments with established effectiveness for cold symptoms in adults are limited to OTC analgesics and decongestants with or without antihistamines (but not antihistamine monotherapy). Codeine and other antitussives have not been proven effective for cough in adults. Antibiotics are ineffective for treatment of the common cold in adults and children and should not be prescribed.[4]
- The American College of Chest Physicians recommends against the use of OTC cough and cold medicines in adults and children and against the use of NSAIDS in adults as evidence for their effectiveness is lacking. They recommend against using codeine-containing medications in patients < 18 years of age because of the potential for serious side effects. Honey is suggested as an alternative treatment for cough in children as it is more effective than no treatment, diphenhydramine, or placebo.[5]

In September 2023, the Food and Drug Administration's (FDA) Nonprescription Drug Advisory Committee concluded that oral phenylephrine is not effective. In November 2024, the FDA proposed removing oral phenylephrine as an active ingredient in nasal decongestants on the Cough, Cold, Allergy, Bronchodilator, and Antiasthma OTC monograph.[6,7]

A 2012 randomized controlled trial comparing 3 honey products to placebo using a Likert scale for cough symptoms revealed decreases in cough frequency scores for eucalyptus honey (1.77 points), citrus honey (1.95 points), and labiatae honey (1.82 points) compared to placebo (1.0 points) ($F = 5.708$, $p<0.001$) and decreases in cough severity scores for eucalyptus honey (1.78 points), citrus honey (1.77 points), and labiatae honey (1.94 points) compared to placebo (0.99 points) ($F = 5.78$, $p<0.001$).[8]

A 2015 Cochrane Review on antihistamines for the common cold concluded that there is a limited short-term effect on the severity of overall symptoms (OR 0.74; 95% CI: 0.60 to 0.92; 1490 participants; moderate quality evidence), but not in the mid (OR 1.19; 95% CI: 0.67 to 2.11; 234 participants; high quality evidence) to long term (OR 0.71; 95% CI: 0.41 to 1.22; 1551 participants; high quality evidence). There was no evidence of effectiveness of antihistamines in children.[9]

A 2022 Cochrane Review on oral antihistamine-decongestant-analgesic combinations suggests that for adults there may be some general benefit of antihistamine-decongestant combinations (OR 0.31; 95% CI: 0.20 to 0.48; 565 participants; moderate quality evidence) (NNTB 3.9; 95% CI: 3.03 to 5.2), antihistamine-analgesic combinations (OR 0.33; 95% CI: 0.23 to 0.46; 582 participants; moderate certainty evidence) (NNTB 6.67; 95% CI: 4.76 to 12.5), analgesic-decongestant combinations (OR 0.28; 95% CI: 0.15 to 0.52; 2575 participants; moderate certainty evidence; NNTB 4.7), and antihistamine-analgesic-decongestant combinations (OR 0.47; 95% CI: 0.33 to 0.67; 1014 participants; low certainty evidence) (NNTB 5.6; 95% CI: 3.8 to 10.1). There were significantly more adverse effects with antihistamine-decongestant combinations (OR 1.58; 95% CI: 0.78 to 3.21; 842 participants; moderate quality evidence) and analgesic-decongestant combinations (OR 1.62; 95% CI: 1.18 to 2.23; 2575 participants; high certainty evidence; NNTH 17). There was no evidence to suggest effectiveness of antihistamine-decongestant-analgesic combinations in children.

There are significant concerns regarding the safety, misuse, and abuse of cough and cold medications. The Combat Methamphetamine Epidemic Act of 2005 banned OTC sale of cold medicines containing pseudoephedrine and limited the amount of pseudoephedrine that could be purchased behind the counter to curtail its use in the illicit production of methamphetamine. The FDA has released several warnings and advisories regarding cough and cold medications:

- January 2008: Public Health Advisory is issued recommending against the use of OTC cough and cold medications in children younger than two years of age because of the risk of life-threatening side effects
- December 2010: Warning is published that accidental ingestion of benzonatate by children under the age of 10 years can result in death from overdose
- January 2018: Labeling of prescription opioid cough and cold medication is restricted to adults over the age of 18 years of age and requires the addition of a Boxed Warning about the risks of misuse, abuse, addiction, overdose, death, and slowed or difficult breathing

A 2017 study on the safety of cough and cold medications in children < 12 years of age revealed 3251 adverse events in a 5-year period. Most of these adverse events were related to an accidental unintentional ingestion or medication errors. Twenty of these cases were fatal with 70% occurring in children < 2 years of age.

Findings:

The common cold is one of the top three diagnoses encountered in the outpatient setting with impacts on quality of life and work/school absenteeism.[1] While symptoms can be bothersome, this viral illness is self-limited. Commonly used medications including antihistamines, decongestants, antitussives, mucolytics, expectorants, and combinations therapies are generally not effective and can have significant and life-threatening adverse effects, particularly in young children. While no medical treatment is necessary, providers often feel the need to offer an alternative to either placate a patient or to preserve antibiotic stewardship. The safest treatment options which could be used for patients include humidified air, nasal saline irrigation, honey (in patients ≥ 12 months of age), and topical camphor/menthol. Providing reassurance and anticipatory guidance to patients is recommended.

If you have any questions regarding this document, please contact the NPTC at IHSNPTC1@ihs.gov . For more information about the NPTC, please visit the NPTC website.

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