

PHARMACY MEDICINE
KEEP OUT OF REACH OF CHILDREN

DO

COUGH & COLD
preparations work
IN CHILDREN?

Key concepts:

- There is little evidence of clinical effectiveness of cough and cold preparations in children
- Most cough and cold preparations contain medicines that are not recommended for use in children aged under six years
- Simple analgesics such as paracetamol can be considered for symptomatic treatment of the pain or fever associated with cough and cold
- Saline spray or drops may be effective for nasal congestion in younger children
- Environmental factors such as a warm, dry, smokefree home, warm clothing, adequate nutrition and good hygiene are important

The short answer is...no

There is little evidence that cough and cold preparations containing antitussives, mucolytics, expectorants, decongestants or antihistamines, have any clinically significant effect on reducing the symptoms or duration of the common cold in children.

In addition, Medsafe recommends that cough and cold preparations containing certain medicines (Box 1) should not be used in children aged under six years.¹ This decision was made based on the balance of benefit, which is low, versus risk – there is a significant potential for adverse effects and risk of toxicity in overdose.

Box 1. Cough and cold preparations containing the following medicines should not be used in children aged under six years:¹

- The antihistamines brompheniramine, chlorpheniramine, diphenhydramine, doxylamine, promethazine or triprolidine
- The antitussives (cough suppressants) dextromethorphan or pholcodine
- The expectorants guaifenesin or ipecacuanha
- The decongestants phenylephrine or pseudoephedrine

Cough and cold preparations are now required to be labelled as such, although some companies may still be phasing in new product packaging.

A list of cough and cold preparations available in New Zealand that are affected by these restrictions is available from: www.medsafe.govt.nz/hot/alerts/coughandcold/affectedmedicinesoct2009.asp

Sales restrictions on cough and cold preparations for children aged under 12 years

Medsafe has recently announced that cough and cold preparations containing dextromethorphan, phenylephrine and ipecacuanha will now be required to be re-labelled for use in adults and children aged over 12 years, when sold in supermarkets. These products will still be available for sale to children aged between six and 12 years at pharmacies, where parents can receive professional advice on their use and safety.²

This restriction does not apply to cough and cold preparations containing ingredients such as glycerol, honey, lemon and other natural substances. These products will remain for general sale in supermarkets.²



N.B. Medsafe advises that preparations containing only bromhexine (mucolytic) or intranasal decongestants such as oxymetazoline and xylometazoline remain restricted to use in children aged over two years.¹

Cough and cold preparations

Cough and cold preparations are designed to provide relief from the symptoms of viral respiratory infections.

Cough and cold preparations commonly contain:

- Mucolytics/expectorants which aim to loosen phlegm from the respiratory tract, making it easier to expel e.g. bromhexine, guaifenesin
- Antitussives which aim to decrease the urge to cough e.g. pholcodine, dextromethorphan
- Nasal decongestants which aim to reduce the amount of fluid reaching the nose and reduce swelling inside the nose e.g. phenylephrine, pseudoephedrine
- Antihistamines which are used based on the premise that they reduce similar types of symptoms in allergies (rhinitis, sneezing) e.g. promethazine, diphenhydramine

Limited evidence of effectiveness in children

Although widely used, cough and cold preparations containing any of these medicines, or combinations, are not particularly effective at reducing symptoms in children. Infection with the common cold affects children and adults differently, therefore products which may be effective for adults do not necessarily work in the same way for children. It is acknowledged that the placebo effect may play a significant role in the anecdotal success and popularity of using cough and cold preparations.

A recent review of over-the-counter cough preparations in children found that antitussives, antihistamines, antihistamine/decongestant combinations and antitussive/bronchodilator combinations were no more effective than placebo in alleviating symptoms of cough and cold. There was insufficient evidence to evaluate expectorants or mucolytics.³

There is no evidence to support the use of beta-2 antagonists e.g. salbutamol in children with acute cough with no airflow obstruction. They do not reduce the incidence or severity of cough.⁴

Harmful effects

Most cough and cold preparations contain either a CNS depressant (e.g. promethazine) leading to possible sedation, psychomotor impairment, dizziness and hallucinations or a CNS stimulant (e.g. phenylephrine) leading to possible insomnia, tremor, hallucinations and palpitations. Combination products increase the risk of CNS effects, resulting in additive drowsiness or paradoxical CNS stimulation. It is recommended that the use of CNS-acting medicines in children is avoided unless there is a clear need and benefit.



There is some suggestion that cough suppressants may cause retention of sputum. This can be harmful as the retained sputum then becomes a site for bacterial infection e.g. as in bronchiectasis.⁵

Other treatments for cough and cold

As parents begin to accept that cough and cold medicines may not be appropriate or effective for their child, other treatments are likely to be sought.

Consider paracetamol or ibuprofen

Paracetamol can be considered first-line for the treatment of pain and fever associated with cough and cold. **Ibuprofen** may also be significantly effective for associated headache, earache, muscle and joint pain, and could be considered for children as a second-line alternative to paracetamol.⁶

Saline

Saline drops or spray may be used as a nasal decongestant, particularly in younger children and infants. Commercial products are available (sodium chloride 0.9%). Alternatively a home-made salt water solution could be used: mix ¼ tsp salt with two cups of cooled, boiled water and administer using a small spray bottle, nasal dropper or syringe.

Honey

Honey is often suggested as a suitable treatment for cough and cold, largely due to its demulcent properties, which act to soothe the throat and mucous membranes. Honey* can be administered directly on a teaspoon or given as a warm honey and lemon drink. Lozenges are not recommended due to the risk of choking. Honey is not recommended in children aged under one year due to its rare association with infant botulism.⁷

A systematic review of the clinical effectiveness of honey for cough and cold symptoms, found that there was insufficient evidence to advise for or against its use.⁸

*Any type of honey may be used

Honey was more effective in reducing frequency of cough and bothersome cough and improving sleep quality of the child, compared to no treatment. However, there was no difference between honey and no treatment, in reducing the severity of cough or the sleep quality of parents.⁸

Despite the lack of clinical evidence, honey can still be regarded as a safe treatment to trial for a child, aged over one year with cough and cold.

Aromatic inhalations and decongestants

Aromatic compounds such as menthol and eucalyptus oils can be added to warm water to create a vapour, which is inhaled to relieve congestion and ease breathing. This encourages inspiration of warm, moist air which can also provide comfort.⁵

A systematic review of steam inhalation used for the common cold in adults concluded that there was insufficient evidence to determine whether there was any beneficial clinical effect. For some people, the steam inhalation worsened the symptoms of congestion.⁹





Table 1: Evidence of effectiveness of non-pharmacological treatments for cough and cold

Intervention	Study population	Conclusions
Echinacea	Adults and children receiving echinacea for prevention or treatment of the common cold, compared to placebo and other treatments	<p>There is no evidence that echinacea prevents occurrences of cold.</p> <p>There was mixed evidence of echinacea as a treatment for cold, however overall no beneficial effect was shown.</p> <p>Echinacea medicines differ greatly (by species, parts of the plant used and manufacturing methods). There is some evidence that medicines based on the aerial parts of <i>E. purpurea</i> might be more effective than other medicines in adults.¹¹</p>
Garlic	Adults receiving either garlic supplement (180 mg allicin) or placebo daily for 12 weeks	A single trial suggested that garlic may prevent occurrences of cold, but does not reduce duration. More studies are needed to validate this finding. ¹²
Vitamin C	Adults and children receiving ≥ 0.2 g vitamin C per day as prophylaxis or therapy after symptom onset for the common cold	<p>There was some evidence that prophylactic vitamin C modestly reduced the duration and severity of cold symptoms. This effect was slightly greater in children (duration of cold reduced by 13% compared with 8% in adults).</p> <p>There was no evidence that therapeutic vitamin C reduced the duration of cold or alleviated symptoms.</p> <p>Routine prophylaxis or therapeutic use of vitamin C is not justified.¹³</p>

If this treatment is to be trialled for a child, it is important not to use boiling water due to the risk of scalding. In addition, accidental ingestion of aromatic oils, even in small amounts, is associated with a significant risk of CNS depression (due to toxicity) and aspiration (due to volatility). Remind parents that aromatic oils and inhalation solutions should be stored out of reach of children.

Aromatic decongestant rubs (e.g. Vicks VapoRub) are also used to provide comfort. They may be applied directly onto the throat, chest or back or onto a pillow or clothing for children with sensitive skin. Aromatic rubs are not recommended for use in children aged less than three months.⁵ Care must be taken to avoid ingestion due to the toxic nature of these products. There is no evidence that aromatic rubs have any clinically significant effect on cough and cold symptoms.

Ivy leaf extract

“Bronchial syrups” containing ivy leaf extract (*Hedera helix*) are commonly used throughout Europe for the treatment of cough and cold, and are gaining popularity in New Zealand. As this product is classified as a dietary supplement, there are no associated age restrictions for its use.

There is currently little evidence of clinical effectiveness of ivy leaf extract for treatment of cough and cold. A review of randomised controlled trials, testing the efficacy of ivy leaf extract in children with bronchial asthma, concluded that ivy leaf preparations have some effect on improving respiratory function, but there is insufficient evidence to make any recommendations for their use.¹⁰

Alternative remedies for cold prophylaxis and treatment

There is little evidence of effectiveness of products such as vitamin C, echinacea and garlic, which are commonly used for prevention and treatment of cough and cold (Table 1). These products are not recommended in children based on their lack of proven benefit.

Advice for parents

So if cough and cold preparations are not suitable for children and most alternative remedies lack evidence of effectiveness, what can parents actually do?

- Simple analgesia, such as paracetamol or ibuprofen, may be given as required for general aches and pains, fever and headache associated with cough and cold.
- For nasal congestion, a saline spray or drops can be effective and is well tolerated, without adverse effects. This is especially helpful in young children and infants.
- Honey (straight or added to a drink) may be trialled in children aged over one year, for the purpose of providing comfort.
- Provide general care such as encouraging rest, ensuring adequate fluid intake and keeping warm.



Cough and cold preparations are not recommended, but if they are used in children aged over six years, advise parents to follow dose instructions carefully. Do not give more than one type of medicine at a time and do not use for longer than five days.


Focus on environmental factors

One of the most important things that parents can do for their child with cough and cold, is to provide a “healthy home” environment.

Encourage parents to make their home smoke free. Children exposed to cigarette smoke are more likely to develop asthma, chest infections e.g. bronchiolitis, ear infections and many other health problems.¹⁴

Make sure the house is warm and dry. Heat pumps, wood pellet burners and flued gas appliances are preferable to multi-fuel or coal burners, electric heaters and unflued gas heaters, which are associated with the release of moisture, nitrogen dioxide and emissions into the internal environment. The New Zealand Healthy Homes study demonstrated that there was a significant improvement in the self-reported respiratory health of families who received retro-fitting of insulation in their homes.¹⁵

A “healthy home” environment also means that children are provided with warm clothing and good nutrition. Good hygiene practices e.g. hand washing, covering the mouth and nose with a tissue when coughing or sneezing, should also be encouraged to help prevent transmission of cough and cold to others in the household.

 The Energy Efficiency and Conservation Authority (EECA) provides funding to assist people in insulating their homes and installing clean and efficient heating. Homeowners with houses built before 2000 are eligible. People in rental homes should speak to their landlords.

Local providers can be located on the EECA website: www.energywise.govt.nz

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References

1. Medsafe. Use of cough and cold medicines in children - new advice. Alerts/Letters, 2009. Available from: www.medsafe.govt.nz/hot/alerts/CoughandCold/InfoOct2009.asp (Accessed June, 2010).
2. Medsafe. Sales restrictions on some cough and cold medicines for children under 12. Hot topics: Media releases, 2010. Available from: www.medsafe.govt.nz (Accessed June, 2010).
3. Smith S, Schroeder K, Fahey T. Over-the-counter medications for acute cough in children and adults in ambulatory settings. *Cochrane Database Syst Rev* 2008;1:CD001831.
4. Smucny J, Becker L, Glazier R. Beta2-agonists for acute bronchitis. *Cochrane Database Syst Rev* 2006(4):CD001726.
5. British National Formulary. BNF for children. London: BMJ Group, 2009.
6. Kim S, Chang Y, Cho H, et al. Non-steroidal anti-inflammatory drugs for the common cold. *Cochrane Database Syst Rev* 2009;3:CD006362.
7. Mulholland S, Chang A. Honey and lozenges for children with non-specific cough. *Cochrane Database Syst Rev* 2009(2):CD007523.
8. Oduwole O, Meremikwu M, Oyo-Ita A, Udoh E. Honey for acute cough in children. *Cochrane Database Syst Rev* 2010(1):CD007094.
9. Singh M. Heated, humidified air for the common cold. *Cochrane Database Syst Rev* 2006(3):CD001728.
10. Hofmann D, Hecker M, Volp A. Efficacy of dry extract of ivy leaves in children with bronchial asthma - a review of randomised controlled trials. *Phytomedicine* 2003;10(2-3):213-20.
11. Linde K, Barrett B, Bauer R, et al. Echinacea for preventing and treating the common cold. *Cochrane Database Syst Rev* 2006;1:CD000530.
12. Lissiman E, Bhasale A, Cohen M. Garlic for the common cold. *Cochrane Database Syst Rev* 2009;3:CD006206.
13. Hemilä H, Chalker E, Douglas B. Vitamin C for preventing and treating the common cold. *Cochrane Database Syst Rev* 2007;3:CD000980.
14. Woodward A, Laugesen M. Morbidity attributable to second hand cigarette smoke in New Zealand. Wellington: Ministry of Health, 2001. Available from: www.moh.govt.nz (Accessed June, 2010).
15. The Asthma Foundation. Healthy homes. Wellington. Available from: www.asthmanz.co.nz/healthy_homes.php (Accessed June, 2010).

DEPRESSION in Young People

Depression in Young People is activated for patients under the age of 18 years when the Depression module is opened.

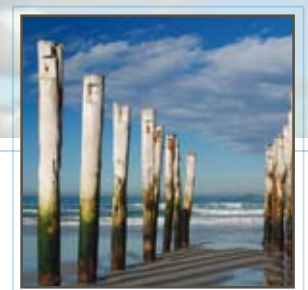
Structured clinical assessment is the key to identifying both problems and protective factors in young people.

It is desirable to offer opportunities for the young person to speak alone to the GP.

Differentiating abnormal from normal behaviour

The following criteria can be used to help distinguish normal variations in behaviour from more serious mental health problems:

- **Safety:** there is a perceived risk
- **Duration:** problems last more than a few weeks
- **Intensity:** symptoms are severe and fixed, with a loss of normal fluctuations in mood and behaviour
- **Impact:** problems impact significantly on school work, interpersonal relations, home and leisure activities
- **Hypomanic episodes:** these may indicate bipolar disorder
- **Profound hopelessness**



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