Each year, consumers spend billions of dollars on over-the-counter (OTC) medications to soothe their coughs. But many parents are left looking for alternative remedies in light of announcements that dextromethorphan (DM)—the most common OTC treatment—is not recommended by the American Academy of Pediatrics or the American College of Chest Physicians for children.

For centuries, honey has been used to help soothe coughs and research confirms this approach for children ages 1 and over. However, research also indicates that moms are not aware of the alternative uses of honey and health professionals may not be familiar with the science.

Today’s webinar will teach you about the research supporting honey as a natural cough suppressant as well as tools developed for health professionals by the National Honey Board that you can use to educate your patients and clients.
Learning Objectives

• Define the age that children can begin consuming honey.
• Describe the findings from at least 2 research studies that examined the role of honey as a cough suppressant.
• List 2 insights about honey from focus group research of moms and pediatric nurse practitioners.
• List 2 tools from the National Honey Board that health professionals can use to educate patients and clients.
Dr. Ian M. Paul, M.D., M.Sc

- Professor of Pediatrics and Public Health Sciences in Hershey, PA
- Earned a Doctor of Medicine and Masters of Science degree from Penn State and completed his Pediatric Residency at Duke University Medical Center.
- Clinical Research Focus:
  1) preventive interventions delivered after childbirth to newborns and their mothers
  2) clinical therapeutics for children
- He has been funded by National Institute of Diabetes and Digestive and Kidney Diseases to study early life interventions to prevent obesity and HRSA/MCHB to study healthcare delivery for newborns and mothers after hospital discharge.
- Dr. Paul is co-investigator on grants from National Heart Lung and Blood Institute, National Institute of Child Health & Human Development, and the Centers for Disease Control.
- Dr. Paul is recognized as a leading researcher and expert on the use of over-the-counter cough and colds medicine for children.
- A member of the American Academy of Pediatrics' Committee on Drugs.
- Dr. Paul is a consultant with the NHB.
Mitzi Dulan, R.D., C.S.S.D

- Mitzi is a Registered Dietitian (RD), Board Certified Specialist in Sports Dietetics (CSSD), and Certified Health Fitness Specialist (HFS) through the American College of Sports Medicine.
- Earned her dual B.S. degrees in Nutrition & Exercise Science, graduating Cum laude in both from Kansas State University.
- She is currently a member of the National Speakers Association, the American Dietetic Association, the Sports, Cardiovascular, and Wellness Nutritionists Dietetic Practice Group (SCAN), and Nutrition Entrepreneurs Dietetic Practice Group.
- Mitzi was named 2001 Outstanding Young Dietitian of the Year in California by American Dietetic Association and 2005 Entrepreneur of the Year by Kansas State University.
- She is known to many as America’s Nutrition Expert®, a nationally recognized nutrition and fitness expert who has inspired millions to lose weight and get fit.
- Co-authored The All-Pro Diet: Lose Fat, Build Muscle, and Live Like a Champion (Rodale, 2009) with NFL future Hall-of-Famer Tony Gonzalez helping people learn how to eat clean to get lean.
- Mitzi is currently the team nutritionist for Kansas City Royals Baseball Team.
- She has her own monthly "Wellness Wisdom" column in 435 South Magazine, and owns Mitzi Dulan’s Adventure Boot Camp for women and is the "Head Coach" for women wanting to get fit and lose weight in the Kansas City area.
- Mitzi Dulan, R.D., C.S.S.D, is a spokesperson for the NHB.
National Honey Board

- A federal research and promotion board under USDA oversight that conducts research, advertising and promotion programs to help maintain and expand markets for honey and honey products. These programs are funded by an assessment of one cent per pound on domestic and imported honey.
Science and Research

Presented by:

Ian M. Paul, M.D., M.Sc
Disclosures – Last 3 Years

**Consultant**
- Procter & Gamble Company
- Pfizer Consumer Healthcare
- Novartis Consumer Health, Inc.
- Consumer Healthcare Products Association
- National Honey Board

**Research Grant**
- Procter & Gamble Company
Upper Respiratory Infections (URIs)

• Among the most common acute illnesses affecting children

• Disruptive for children and families

• No cure available for common viral causes
Symptomatic Relief for Acute URI

• With no cure available, we all would like symptomatic relief for cough and cold symptoms

• 10% of U.S. children use OTC cough/cold medications each week (Vernacchio L et al. *Pediatrics*, 2008)
H. PEDIATRIC DOSAGE

The Panel is aware that data on the use in children of most drugs in CCABA products are negligible or nonexistent. Yet, pediatric patients comprise a substantial proportion of the population that receives these OTC products.

Definitive pediatric drug dosage should be derived from data obtained in clinical trials with children using protocols similar to those used in adult patients.
3 Classes of Oral Drugs for Cough

<table>
<thead>
<tr>
<th>Class</th>
<th>Examples</th>
<th>Peer-reviewed clinical trials since 1976</th>
</tr>
</thead>
<tbody>
<tr>
<td>OTC Antitussives</td>
<td>Dextromethorphan 5</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Chlophedianol 0</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Diphenhydramine 3</td>
<td></td>
</tr>
<tr>
<td>Narcotics</td>
<td>Codeine 1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Hydrocodone 0</td>
<td></td>
</tr>
<tr>
<td>Expectorants</td>
<td>Guaifenesin 1</td>
<td></td>
</tr>
</tbody>
</table>
1991 DM / Placebo Study

- DM ± albuterol **not** better than placebo for cough due to URI for children aged 1-10 years
- Questions to parents regarding day and night symptoms
- Scores ranged from 0 (no symptoms) to 3 (severe)

1993 DM + Guaifenesin Study

- Dextromethorphan + guaifenesin & codeine + guaifenesin not better than placebo for cough due to URI for children 18 months - 12 years (mean 4.7 years)

- Cough scored by parents from 0 (none) to 4 (very often)

American Academy of Pediatrics – 1997

AMERICAN ACADEMY OF PEDIATRICS
Committee on Drugs

Use of Codeine- and Dextromethorphan-Containing Cough Remedies in Children

ABSTRACT. Numerous prescription and nonprescription medications are currently available for suppression of cough, a common symptom in children. Because adverse effects and overdosage associated with the administration of cough and cold preparations in children have been reported, education of patients and parents about the lack of proven antitussive effects and the potential risks of these products is needed.

“No well-controlled scientific studies were found that support the efficacy & safety of narcotics (including codeine) or dextromethorphan as antitussives in children. Indications for their use in children have not been established.”
- **Dextromethorphan** – “no clear recommendation can be made in favor of its use.”

- **Antihistamines** – “no clear evidence of cough suppression”

- **Expectorants** – “no proven benefit in children.”
“Over the counter cough medicines for acute cough cannot be recommended because there is no good evidence for their effectiveness.”
Are OTC cough medications better than placebo?

• 100 children ages 2-16 years with URIs ≤ 7 days
• 2 consecutive night study
  – 1st night – NO medicine
  – 2nd night – randomized to single dose of either:
    • dextromethorphan (DM)
    • diphenhydramine (DPH)
    • placebo (PL)
1. How frequent was your child’s coughing last night?
   - 6 Extremely
   - 5 Very much
   - 4 A lot
   - 3 Somewhat
   - 2 A little
   - 1 Not Much
   - 0 Not at all

2. How severe was your child’s cough last night?
   - 6 Extremely
   - 5 Very much
   - 4 A lot
   - 3 Somewhat
   - 2 A little
   - 1 Not Much
   - 0 Not at all

3. How bothersome was last night’s cough to your child?
   - 6 Extremely
   - 5 Very much
   - 4 A lot
   - 3 Somewhat
   - 2 A little
   - 1 Not Much
   - 0 Not at all

4. How much did last night’s cough affect your child’s ability to sleep?
   - 6 Extremely
   - 5 Very much
   - 4 A lot
   - 3 Somewhat
   - 2 A little
   - 1 Not Much
   - 0 Not at all

5. How much did last night’s cough affect your (parent) ability to sleep?
   - 6 Extremely
   - 5 Very much
   - 4 A lot
   - 3 Somewhat
   - 2 A little
   - 1 Not Much
   - 0 Not at all
2004 DM / DPH / Placebo Study

- Significant improvement ($p<0.0001$) from 1st night of study (no med) to 2nd night of study (+med or placebo) regardless of treatment
  - Cough Frequency
  - Cough Severity
  - “Bothersome” Nature of Cough
  - Cough Impact on Child Sleep
  - Cough Impact on Parent Sleep
Cough Frequency
1st night vs. 2nd night change
p = .56

<table>
<thead>
<tr>
<th></th>
<th>Dextromethorphan</th>
<th>Diphenhydramine</th>
<th>Placebo</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st night</td>
<td>-0.75</td>
<td>-2.0</td>
<td>-3.0</td>
</tr>
<tr>
<td>2nd night</td>
<td>-0.75</td>
<td>-2.0</td>
<td>-3.0</td>
</tr>
</tbody>
</table>
Cough Severity
1\textsuperscript{st} night vs. 2\textsuperscript{nd} night change
\( p = .70 \)
Impact on Child’s Sleep
1\text{st} night vs. 2\text{nd} night change
\( p = .28 \)
Impact on Parent’s Sleep
1st night vs. 2nd night change
\( p = .85 \)
Combined Symptom Score
1st night vs. 2nd night change

\[ p = .62 \]
Where can I get that placebo???
WHO cited honey as an affordable and safe demulcent treatment for cough and cold symptoms in their 2001 topic review (World Health Organization, 2001).

Honey is used by cultures around the world for symptomatic relief from URIs (Pfeiffer WF. Pediatr Rev, 2005).

Honey is generally regarded as safe for children over 1 year of age.
Is *honey* better than *DM* or *no treatment*?

- 105 children ages 2-17 years with URIs ≤ 7 days
- 2 consecutive night study
  - 1st night – NO medicine
  - 2nd night – randomized to single dose of either:
    - honey flavored dextromethorphan (DM)
    - Buckwheat Honey (Honey)
    - No treatment
Given the non-superiority of DM over placebo in previous study another important clinical question:

"Is giving something for URIs better than doing nothing?"
Cough Frequency
1\textsuperscript{st} night vs. 2\textsuperscript{nd} night change
$p<.001$
Cough Severity
1\textsuperscript{st} night vs. 2\textsuperscript{nd} night change
\( p < .001 \)
Impact on Child’s Sleep
1\textsuperscript{st} night vs. 2\textsuperscript{nd} night change
$p<.001$
Impact on Parent’s Sleep
1st night vs. 2nd night change
p<.001
Combined Symptom Score
1\textsuperscript{st} night vs. 2\textsuperscript{nd} night change
\( p<.001 \)
A Comparison of the Effect of Honey, Dextromethorphan, and Diphenhydramine on Nightly Cough and Sleep Quality in Children and Their Parents

Mahmood Noori Shadkam, MD,1 Hassan Mozaffari-Khosravi, PhD,2 and Mohammad Reza Mozayan, MSc3

- Honey vs. DM vs. Diphenhydramine vs. Supportive care
- 139 Iranian children ages 24-60 months
- Honey was local from a nearby village and dosed as 2.5 mL before bed
- Outcomes based on subjective parental report
Iranian Study Results

Groups with similar scores at baseline, but scores significantly lower for honey group on the 2nd night

<table>
<thead>
<tr>
<th>Variables</th>
<th>HG</th>
<th>DMG</th>
<th>DPHG</th>
<th>CG</th>
<th>p-value (^a)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cough frequency score</td>
<td>1.93 ± 0.65</td>
<td>2.47 ± 0.72</td>
<td>2.50 ± 0.70</td>
<td>3.11 ± 0.57</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Cough severity score</td>
<td>1.51 ± 0.61</td>
<td>2.16 ± 0.69</td>
<td>2.11 ± 0.68</td>
<td>2.69 ± 0.66</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Cough impact on child sleep score</td>
<td>1.42 ± 0.56</td>
<td>1.91 ± 0.69</td>
<td>1.97 ± 0.62</td>
<td>2.50 ± 0.65</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Cough impact on parent sleep score</td>
<td>1.54 ± 0.56</td>
<td>1.94 ± 0.53</td>
<td>2.02 ± 0.52</td>
<td>2.44 ± 0.69</td>
<td>&lt;0.001</td>
</tr>
</tbody>
</table>

\(^a\)One-way analysis of variance.
HG, honey group; DMG, dextromethorphan group; DPHG, diphenhydramine group; CG, control group.
**Iranian Study Results**

Table 4. Multiple Comparisons Between Groups at the End of the Study

<table>
<thead>
<tr>
<th>Dependent variables</th>
<th>Group</th>
<th>vs</th>
<th>Groups</th>
<th>Mean difference</th>
<th>p-value^a</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>HG</td>
<td>DMPG</td>
<td>-0.53</td>
<td>0.001</td>
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<tr>
<td></td>
<td>HG</td>
<td>DPHG</td>
<td>-0.56</td>
<td>0.001</td>
<td></td>
</tr>
<tr>
<td></td>
<td>HG</td>
<td>CG</td>
<td>-1.17</td>
<td>&lt;0.001</td>
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<tr>
<td></td>
<td>DMG</td>
<td>DPHG</td>
<td>-0.02</td>
<td>0.86</td>
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<td></td>
<td>DMG</td>
<td>CG</td>
<td>-0.63</td>
<td>&lt;0.001</td>
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<tr>
<td></td>
<td>DPHG</td>
<td>CG</td>
<td>-0.61</td>
<td>&lt;0.001</td>
<td></td>
</tr>
<tr>
<td>Cough severity score</td>
<td>HG</td>
<td>DMG</td>
<td>-0.65</td>
<td>&lt;0.001</td>
<td></td>
</tr>
<tr>
<td></td>
<td>HG</td>
<td>DPHG</td>
<td>-0.60</td>
<td>&lt;0.001</td>
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</tr>
<tr>
<td></td>
<td>HG</td>
<td>CG</td>
<td>-1.17</td>
<td>&lt;0.001</td>
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<tr>
<td></td>
<td>DMG</td>
<td>DPHG</td>
<td>0.04</td>
<td>0.36</td>
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<tr>
<td></td>
<td>DMG</td>
<td>CG</td>
<td>-0.52</td>
<td>0.001</td>
<td></td>
</tr>
<tr>
<td></td>
<td>DPHG</td>
<td>CG</td>
<td>-0.57</td>
<td>&lt;0.001</td>
<td></td>
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<tr>
<td>Cough impact on child sleep score</td>
<td>HG</td>
<td>DMG</td>
<td>-0.49</td>
<td>0.002</td>
<td></td>
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<tr>
<td></td>
<td>HG</td>
<td>DPHG</td>
<td>-0.54</td>
<td>0.001</td>
<td></td>
</tr>
<tr>
<td></td>
<td>HG</td>
<td>CG</td>
<td>-1.07</td>
<td>&lt;0.001</td>
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<tr>
<td></td>
<td>DMG</td>
<td>DPHG</td>
<td>-0.05</td>
<td>0.72</td>
<td></td>
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<tr>
<td></td>
<td>DMG</td>
<td>CG</td>
<td>-0.58</td>
<td>0.001</td>
<td></td>
</tr>
<tr>
<td></td>
<td>DPHG</td>
<td>CG</td>
<td>-0.52</td>
<td>0.001</td>
<td></td>
</tr>
<tr>
<td>Cough impact on parent sleep score</td>
<td>HG</td>
<td>DMG</td>
<td>-0.39</td>
<td>0.005</td>
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<tr>
<td></td>
<td>HG</td>
<td>DPHG</td>
<td>-0.48</td>
<td>0.001</td>
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</tr>
<tr>
<td></td>
<td>HG</td>
<td>CG</td>
<td>-0.89</td>
<td>&lt;0.001</td>
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<tr>
<td></td>
<td>DMG</td>
<td>DPHG</td>
<td>-0.08</td>
<td>0.50</td>
<td></td>
</tr>
<tr>
<td></td>
<td>DMG</td>
<td>CG</td>
<td>-0.50</td>
<td>&lt;0.001</td>
<td></td>
</tr>
<tr>
<td></td>
<td>DPHG</td>
<td>CG</td>
<td>-0.41</td>
<td>0.003</td>
<td></td>
</tr>
</tbody>
</table>

^aPost hoc multiple comparisons.
HG, honey group; DMG, dextromethorphan group; DPHG, diphenhydramine group; CG, control group.

- Concluded that 2.5 mL dose of honey was an effective treatment for cough due to URI in 2-5 year old children.
How Does Honey Suppress Cough?

1) Antioxidant effects of phenolic compounds – particularly with darker honeys, may help fight infectious etiology

2) Topical / demulcent effect on the back of the throat
3) Sweet substances cause salivation and increase in secretion of airway mucus → demulcent effect along with improved mucociliary clearance
4) close anatomical relationship between the sensory nerves that initiate cough and the gustatory nerves that taste sweetness → interaction between the opioid-responsive sensory may produce the antitussive effects via a CNS mechanism.

Fig. 3. Gustatory effects on cough. Gustation is mediated by branches of the VII (facial) IX (glossopharyngeal) and X (vagus) cranial nerves that supply the taste buds of the tongue. These gustatory fibres relay in the nucleus of the tractus solitarius (NTS) that also serves as the first relay for the X cranial nerves that mediate the cough reflex. It is possible that there may be some interaction between gustatory and cough pathways that influences the cough reflex, perhaps by modulating the production of endogenous opioids.

Eccles R. Respiratory Physiology & Neurobiology, 2006
The Prevalence of Dextromethorphan Abuse Among High School Students

To the Editor.—

Dextromethorphan is the d-isomer of the codeine analog, levorphanol, and the active ingredient in >100 over-the-counter cough and cold preparations. Reports of dextromethorphan abuse date back to the 1960s.

Adverse Events From Cough and Cold Medications in Children

Melissa K. Schaefer, MD, PhD, Nadine Shohab, PharmD, Adam L. Cohen, MD, MPH; Daniel S. Budinicz, MD, MPH*;

*Division of Healthcare Quality Promotion, National Center for Preparedness, Detection, and Control of Infectious Diseases, Coordinating Center for Infectious Diseases, *Epidemiology, Intelligence Service, Office of Workforce and Career Development, and "Division of Bacterial Diseases, National Center for Immunization and Respiratory Diseases, Centers for Disease Control and Prevention, Atlanta, Georgia

Pediatrics 2008;121:783-787

PEDIATRICS/ORIGINAL RESEARCH

Pediatric Fatalities Associated With Over the Counter (Nonprescription) Cough and Cold Medications

Richard C. Dart, MD, PhD
From the Rocky Mountain Poison and Drug Center, Denver Health and Hospital Authority, Denver, CO (Dart, Panda, Green, Runkle) and the University of Colorado School of Medicine, Aurora, CO

Dextromethorphan Abuse in Adolescence

An Increasing Trend: 1999-2004

Joel K. Broyer, PharmD; Lizzie K. Wang, PharmD; Jenny W. Hui, PI; Conen MacDougall, PharmD; Ilene B. Anderson, PharmD

Arch Pediatr Adolesc Med. 2006;160:1217-1222

Toxicity of Over-the-Counter Cough and Cold Medications

Veronica L. Gunz, MD; Samantha H. Taho, MD; Erica L. Liebel, MD; and Janet R. Servint, MD

ABSTRACT. Over-the-counter (OTC) cough and cold medications are marketed widely for relief of common cold symptoms, and yet studies have failed to demonstrate a benefit of these medications for young children. In addition, OTC medications can be associated with significant morbidity and even mortality in both acute overdoses and when administered in correct doses for chronic periods of time. Physicians often do not inquire about OTC medication use, and parents for other reasons often do not perceive OTCs as medications. We present 3 cases of adverse outcomes over a 15-month period—including 1 death—as a result of OTC cough and cold medication use. We explore the toxicities of OTC cough and cold medications, discuss mechanisms of dosing errors, and suggest why physicians should be more vigilant in specifically inquiring about OTCs when evaluating an ill child. Pediatrics 2008;100(3). URL: http://www.pediatrics.org/cgi/content/full/108/3/582

case-the-counter medications, cough and cold preparations, morbidity, mortality, phenylpropanolamine.

Unexpected Infant Deaths Associated With Use of Cough and Cold Medications

Nady E. Rimawi, MD, Susan Newberry, MSW*

*Department of Pediatrics, University of Arizona College of Medicine, Tucson, Arizona; Arizona Child Fatality Program, Arizona Department of Health Services, Phoenix, Arizona

OVER THE COUNTER KILLER

Morbidity and Mortality Weekly Report

Infant Deaths Associated With Cough and Cold Medications — Two States, 2005

Cough and cold medications that contain nasal decongestants, antihistamines, cough suppressants, and expectorants

In January 2006, NAME, in collaboration with CDC, initiated an e-mail inquiry, requesting reports of deaths in...
Recent Topic Reviews

• 2006 – American College of Chest Physicians – “There is no evidence for using medications for the symptomatic relief of cough.”

• “In children with cough, cough suppressants and other OTC cough medicines should not be used as patients, especially young children, may experience significant morbidity and mortality.”
Recent Topic Reviews

Recommendations for the assessment and management of cough in children


M D Shields,¹ A Bush,² M L Everard,³ S McKenzie,⁴ R Primhak,³ on behalf of the British Thoracic Society Cough Guideline Group

- Over-the-counter medications are as effective as placebo for acute cough with head colds in children.

A systematic review of six RCTs and a further recent RCT found that over-the-counter antitussives, antihistamines and antihistamine-decongestant combinations were as effective as placebo with the potential for causing side effects.²⁹ ³⁰
Public Health Advisory
Nonprescription Cough and Cold Medicine Use in Children

FDA Recommends that Over-the-Counter (OTC) Cough and Cold Products not be used for Infants and Children under 2 Years of Age

FDAs has completed its review of information about the safety of over-the-counter (OTC) cough and cold medicines in infants and children under 2 years of age. FDA is recommending that these drugs not be used to treat infants and children under 2 years of age because serious and potentially life-threatening side effects can occur.
FDA Statement

FOR IMMEDIATE RELEASE
October 8, 2008

FDA Statement Following CHPA's Announcement on Nonprescription Over-the-Counter Cough and Cold Medicines in Children

Background: The Consumer Healthcare Products Association (CHPA), an association that represents most of the makers of nonprescription over-the-counter (OTC) cough and cold medicines in children, recently announced that its members are voluntarily modifying the product labels for consumers of OTC cough and cold medicines to state "do not use" in children under 4 years of age. Additionally, the manufacturers are introducing new child-resistant packaging and new measuring devices for use with the products.
Is Honey Safe?

• Generally incredibly safe for most people

• Caution with diabetics given high sugar content

• Very low allergy risk

• Biggest known potential adverse event – infantile botulism
Infantile Botulism

- Infants acquire botulism by ingesting *Clostridium botulinum* spores, which are found in soil and honey (found in up to 25% of honey products in US (Aureli P et al. Ped ID J, 2002))

- Commercial heat pasteurization may not kill spores

- Spores germinate into bacteria that colonize the bowel and synthesize toxin
Infantile Botulism

• The toxin irreversibly binds to acetylcholine receptors on nerve terminals at the neuromuscular junction causing progressive weakness and decreased muscle tone

• Infants present with constipation, lethargy, a weak cry, poor feeding, and dehydration. This can progress to respiratory failure
Infant Botulism

- Approximately 250 cases yearly in the US, with ~15% of cases attributed to honey (<40 cases yearly (Mygrant Bl, Heart Lung, 1994))

- Mortality is ~2% though infants require mechanical ventilation until resolved (Cochran DP, Dev Med Child Neurol, 1995)

- Unclear exactly why it does not affect children or adults over age 1 year, but gut and gut flora maturation are likely the reason
Summary

• Honey is an effective treatment for cough due to colds in children over age 1 year

• It is probable that honey is also effective for adults with cough due to cold

• Doses of 2.5 mL for 1-5 year olds, 5 mL for 6-11 year olds, and 10 mL for ages 12 and up are reasonable and can be repeated every few hours as needed
References


NHB Focus Groups and Survey Research

Presented by:
Mitzi Dulan, R.D., C.S.S.D
The Ketchum Global Research Network designed, executed and analyzed both qualitative and quantitative research among moms and health care professionals as follows:

**Three focus groups among moms**
- Misinformed moms in Denver and Chicago (January 26 and 27, 2011)
- Informed moms in Denver (January 26, 2011)

**Three focus groups among health care professionals**
- Misinformed health care professionals in Chicago (January 27, 2011)
- Two groups of misinformed nurse practitioners from across the U.S. in Baltimore at the National Association of Pediatric Nurse Practitioners (NAPNAP) conference, March 25, 2011

**Online survey of 500 moms with children ages 5 and younger**
- Including 100 moms from the Lifestyles of Health and Sustainability marketing segment and 100 first-time moms
- Fielded March 23-30, 2011; Margin of Error: +/- 4.4%
Focus Group
Findings: Moms
Honey is a forgotten food

• I haven’t had [honey] in years.

• I don’t think I’ve ever given my kids honey… it’s just not something I use.

• Our kids just really don’t have [honey].

• We don’t really bring [honey] out.
For many, honey is rarely used because they are unsure how to use honey

- Well, I just don’t know what – I didn’t grow up eating [honey], maybe my mom used it in tea or something.

- Education and better advertising [would be helpful] because I really think a lot people don’t think about honey. I mean it’s just... I mean I really haven’t thought about the good uses of honey.

- I feel like honey is a good alternative. But I’m not educated to know what exactly that is.

- I know that after they’re one, they can have [honey], but I just wouldn’t know what to put it on.
When it comes to honey and children, “misinformed” moms are actually simply “uninformed” moms

• I didn’t know why, I was just told, “no.”

• I don’t know why I avoided it. My grandmother said avoid it. And I said, “Okay.”

• People thought one year and now they’ve bumped it up to two. So I went...well, I’ll go somewhere in the middle.

• [Pediatricians] just told me not to so I think, “Okay, I won’t.”

• Well, the kind of ruling I’ve heard is 12 months, but some of the newer articles I’ve seen, they’re debating all the way from 12 months to four [years].
When it comes to treating their children, moms will opt for natural remedies first

• I would definitely go the natural way first - I just haven’t had a lot of need for it yet.

• I turn to natural remedies first. I hate using medicines.

• You’ve got the natural in the house already; you don’t have to go out. It’s on hand.

• Yes, I would rather use something natural than over-the-counter medication, but it would have to be the pediatrician telling me to [for my child].

• If I can go to the natural side rather than with all the stuff added, then that’s what I would rather do.
There is a key opportunity for honey as a cough suppressant with the recent removal of OTC children’s cough suppressants from shelves

- [Traditional] cough medicine doesn’t help. It masks the problem.

- Even at five [years], it would make me nervous to give cough suppressants, I’d rather do natural.

- They’re pulling cough medicine off the shelves. That doesn’t make me want to use it.

- [Traditional cough medicine] doesn’t actually help with cough.

- I don’t like the side effects of cough medicine. It’s just not effective.

- The cough syrup dosage that was safe enough to give children under four, it doesn’t do anything… so then you can overdose. And that’s bad.
Moms trust health professionals when it comes to feeding advice

Top Ten Resources for Moms

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<th>Resource</th>
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<td>Their child’s pediatrician</td>
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<td>Nurses at their child’s pediatrician’s office</td>
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<td>American Academy of Pediatrics (AAP)</td>
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<td>National Association of Pediatric Nurse Practitioners (NAPNAP)</td>
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<td>Registered dietitians</td>
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<td>Parenting magazines</td>
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- At each immunization the doctor is like... okay you can try this! So then I would.

- Yes, I would rather use something natural than over-the-counter medication, but it would have to be the pediatrician telling me to [for my child].
Key Findings

Moms know not to feed honey to young children, but they are unclear why and what makes it safe at age one.

• Moms are nearly as likely to think honey is a potential allergen as they are to identify its association with bacterial illness (36% avoid feeding infants honey because it’s an allergen, 39% avoid due to its association with bacterial illness).

• Only one percent of moms chose “risk of botulism” as a reason to avoid feeding infants honey. However, when asked which are accurate about feeding honey to infants, 43% chose “baby may get infant botulism.” This suggests that moms understand honey is related to a bacterial illness, but don’t identify it as botulism until they are given the response choice that states “infant botulism.”
There is a key opportunity to position honey as a cough suppressant as moms are both confused about over-the-counter cough suppressants and desire natural remedies when possible.

- 93% of moms would be more likely to use honey as a cough suppressant if their pediatrician’s office suggested it (78% very or somewhat more likely).

- Some health care professionals are already recommending honey as a cough suppressant, and others are interested in receiving research about the application.
Focus Group Findings: Health Care Professionals
Some health care professionals may be misinformed that honey is allergenic

• I heard that from my pediatricians [about holding off on honey]. I think it used to be over a year, but I think they’ve changed it because this allergy, botulism, pollen thing.

• Over four…. Honey and berries, because of allergy risks.

• Well, honey too. Not just ‘cause of botulism, but because of pollens. I guess they associate with the honey. They are afraid of that too. They, meaning doctors, are afraid for the children.
Health care professionals think it is a good idea to better educate parents about honey and health.

- I don’t know [where I would direct parents if they had a multitude of honey-related questions]. That’d be really great to know.

- If there are some ways to tie into it – not just the natural route, but also maybe make it about cutting down [on sweets] or awareness of obesity… I think that would be crucial. That [honey]’s good, healthy.

- [Parents] should learn which honey they should use…and the cost…and its uses.

- They need to know the appropriate dose and at what frequency [for honey as a cough suppressant]. It’s not just they can use it.
Many health care professionals want more evidence-based research to feel confident when recommending honey.

- I think it would be helpful to have the research, the numbers and the reasons… substantial information for us… but I know parents just want to know it’s good, it’s approved. They need something short and sweet.

- It would be helpful to have standardized, evidence-based information.

- I think educating the support staff would really help.

- If research has shown and evidence-based studies show the advantages… so then [health care]providers are more comfortable and aware of it. They can vouch for it.

- I’d like to receive that information in a journal. Well-researched.

- I feel like I don’t have enough information to say [honey’s benefits].
Top resources for pediatric health care professionals

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<th>Top Resources</th>
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<td>American Academy of Pediatrics (AAP)</td>
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<td>Registered dietitians</td>
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<td>National Association of Pediatric Nurse Practitioners (NAPNAP)</td>
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- I went with the handouts with AAP, because I know their based on many studies. And they’re all evidence based.
- I think the AAP has a lot of parent friendly material.
Findings from Online Survey of Moms
Though two-thirds of moms say they use honey at least occasionally, less than a quarter use it regularly.

In general, which of the following best describes your current use of honey?

- I use honey regularly: 23%
- I use honey occasionally: 43%
- I rarely use honey: 25%
- I don't use honey: 9%

Regularly/Occasionally: 66%
Rarely/Don't: 34%
More than half of moms are not aware of alternative uses of honey (37%) or forget there are other applications (24%).

Which of the following reasons comes closest to why you rarely or never use honey for applications other than food or drinks?

- I was not aware that honey could be used beyond food and drinks. (37%)
- I forget that there are other applications of honey other than for food and drinks. (24%)
- I am aware of, but have not yet used, these applications of honey, though I would be... (17%)
- I do not think honey should be used for applications other than food or drinks. (7%)
- I am aware of these applications of honey but I would prefer to use mainstream products and/or... (6%)
- I am aware of these applications of honey but would like more information before trying them out. (5%)
- Other (4%)
Nearly as many moms say that they would avoid feeding infants honey due to allergens as say they would avoid it due to association with bacterial illness. Only one percent select risk of botulism as a concern.

For which reasons might you avoid feeding infants honey?

- Association with bacterial illness: 39%
- Allergens: 36%
- Association with toxins: 20%
- Avoiding sweet foods: 19%
- Choking hazard: 19%
- Association with immune problems: 13%
- Association with stomach upset/gassiness: 11%
- Too many calories: 5%
- Risk of botulism: 1%
- Dr. recommended against feeding honey to: 1%
- Other: 1%
- No reason: 16%
Pediatricians are most trusted as advisors on honey as a cough suppressant, followed by physician’s assistants and nurse practitioners.

Below is a list of people who might recommend you use honey as a natural cough suppressant for your child over age one. How likely are you to trust each of the following when it comes to using honey as a natural cough suppressant? If you are unfamiliar with any of the below people, please select don’t know.

- Pediatrician: 94% very likely to trust, 13% somewhat likely to trust
- Physician’s assistant at pediatrician’s office: 85% very likely to trust, 15% somewhat likely to trust
- Nurse practitioner at pediatrician’s office: 83% very likely to trust, 17% somewhat likely to trust
- Nurse at pediatrician’s office: 82% very likely to trust, 18% somewhat likely to trust
- Medical assistant at pediatrician’s office: 69% very likely to trust, 31% somewhat likely to trust
- Nurse phone hotline: 59% very likely to trust, 41% somewhat likely to trust
- Nurse via email or online: 52% very likely to trust, 48% somewhat likely to trust
Educational Tools
Welcome to the ONE-derful World of Honey

Turning one is certainly a milestone, a time when parents can introduce new foods into their little ones’ lives as they grow out of infancy. And one of those foods is nature’s pure sweetener — honey.

Did you know that you can introduce honey to your children’s diet when they turn one year old?

During infancy, a baby’s digestive system is not mature enough to tolerate certain foods. That’s why the National Association of Pediatric Nurse Practitioners, the American Academy of Pediatrics and other health care provider associations recommend that certain foods, including honey, not be fed to infants under one year of age. Because pure honey is natural, it could be a potential source of botulinum spores (a bacteria that may make babies sick), which may put infants under one year at risk for infant botulism. But after children turn one, their digestive systems are “grown up” enough to digest honey.

Honey is a natural, wholesome sweetener and a versatile ingredient for the entire family. As with any new food, introduce honey to young children gradually to help them broaden their tastes. Sweeteners are not an essential part of a child’s diet and should be used in moderation.

Honey’s pure goodness adds more to your life than just a sweet drizzle on toast...

- For centuries honey has been used to help soothe coughs. Emerging research confirms that honey can be used as an alternative to over-the-counter cough suppressants for children over the age of one, as well as adults.

- Honey is a versatile and affordable cooking ingredient with a long shelf life. It adds great flavor, helps retain moisture in baked goods, creates a sweet glaze and improves browning — along with countless other kitchen uses. That’s one amazing natural ingredient!

More information and recipes can be found on www.honey.com.
A Honey of a First Birthday

BEE IS FOR BIRTHDAY CAKE

Prep time: 25 minutes
Cook time: 20–25 minutes

FOR THE CAKE:
- Cooking spray
- All-purpose flour, for dusting pans
- 2 cups sifted white whole wheat flour
- 2 teaspoons baking powder
- 1½ teaspoons cinnamon
- ¼ teaspoon baking soda
- ¼ cup softened butter
- 2 eggs
- 1 cup honey
- 1 teaspoon vanilla
- ¾ cup 1% milk
- Honey Cream Cheese Frosting (recipe below)

FOR THE FROSTING:
- 8 ounces cream cheese, softened
- ¼ cup honey
- ½ teaspoon vanilla extract

Beat cream cheese, honey and vanilla until light and fluffy.

DIRECTIONS:

Heat oven to 350°F. Spray two 8-inch cake pans with cooking spray and dust with all-purpose flour. Whisk together white whole wheat flour, baking powder, cinnamon and baking soda.

In a stand mixer with the paddle attachment or with electric beaters, cream butter on medium speed until light and fluffy. Add eggs one at a time, mixing well after each addition. Add honey and vanilla, and beat until smooth. On low speed, add flour mixture to mixer alternately with milk, starting and ending with flour mixture, and mixing just until blended.

Portion batter into prepared cake pans, dividing it evenly. Bake 20–25 minutes or until top of cake springs back when lightly pressed. Cool cake in pans 15 minutes; unmold onto a rack and cool completely. Spread half the frosting onto one layer, place second layer on top and spread remaining frosting on top. If frosting is soft, refrigerate about 30 minutes or until frosting starts to firm up; cut into 10 pieces.

Serves 10.

Nutrition Information Per Serving: 390 calories; 19 g fat; 92 mg cholesterol; 242 mg sodium; 55 g carbohydrate; 3.5 g fiber; 7 g protein

The contents of NHB’s educational tool kit are for informational purposes only and should never replace the advice and care of a licensed health care practitioner. Neither the NHB nor NAPNAP shall be liable for any loss, damage or injury directly or indirectly caused by or resulting from the educational tool kit or its use. NAPNAP’s cooperation in the publication of these materials does not and shall not in any manner be interpreted to constitute approval by NAPNAP of any products or services that may be advertised or referenced on the products.

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Welcome to the ONE-derful World of Honey

Turning one is a fun time. Parents can introduce new foods into their little ones’ lives as they grow out of infancy. Did you know that your baby should NOT have honey until after 12 months of age? 

A baby’s digestive system (tummy) is immature, and cannot handle some kinds of food. The American Academy of Pediatrics, the Centers for Disease Control, and other health associations recommend that certain foods not be fed to infants under one year of age, including honey. Botulism spores, which can cause infant botulism, occur in nature, and because pure honey is natural, it could be a potential source of this bacteria. After 12 months of age, the baby’s digestive system is ‘grown up’ enough to be able to have honey.

Honey is a natural, wholesome sweetener and versatile ingredient for the entire family.

As you introduce pure honey into your child’s life, do it gradually and in moderation as your young ones broaden and explore new tastes. Honey adds more than just sweetness to your life. Did you know?

• For centuries honey has been used to help soothe coughs. Emerging research confirms honey as a safe alternative to over-the-counter cough medicine for children over the age of 1 year, as well as adults.
• Honey is a versatile and affordable culinary ingredient with a long shelf life. Use honey to enhance flavor, retain moisture in baked goods, improve browning and glazing—along with countless other uses in the kitchen.

*More information and recipes can be found on www.honey.com

CELEBRATE BIRTHDAYS with HONEY

NATIONAL HONEY BOARD
Combat Coughs with Honey

Honey Soother
Makes 4 servings

3 tea bags chamomile
1 cinnamon stick
3 cups boiling water
1/4 cup honey

- Place tea bags and cinnamon stick in a 1-quart tea pot. Add boiling water; steep 3 to 5 minutes. Remove cinnamon stick and tea bags; discard. Stir in honey.

Recipe available on www.honey.com
Online Resources

• For more information and recipes, please visit www.honey.com

• Follow NHB on Facebook.com/NationalHoneyBoard and Twitter.com/NationalHoney

• www.napnap.org

• www.aap.org

• http://live.psu.edu/story/27584

• www.eatright.org

• www.nutritionexpert.com
Dr. Paul and Dulan are available for questions