Priorities from the
Cold and Cough Therapeutics
Working Group

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Upper Respiratory Infections (URIs)

- Most common reason for acute care physician visits in the U.S.; #2 for children
- No cures available, but many OTC medications claim symptomatic relief
- **Billions** of dollars are spent each year in the United States on OTC cough & cold medications
- 10% of children use cough and cold medications **each week** in the U.S. (Vernacchio L et al. *Pediatrics*, 2008)
4 Classes of PO Drugs Marketed for URIs*

- **Antitussives** – Dextromethorphan
- **Decongestants** – Pseudoephedrine
  - Phenylephrine
- **Antihistamines** – Diphenhydramine
  - Brompheniramine
  - Chlorpheniramine
  - Doxylamine
- **Expectorants** – Guaifenesin

*Numerous other topical or nasal products*
Safety Concerns

- >7000 ED visits/year in US children <12 years old due to adverse events associated with cough/cold medications (Schaefer MK et al. Pediatrics, 2008)
Efficacy Concerns

• 1997 – American Academy of Pediatrics:
  “No well-controlled scientific studies ... support the efficacy & safety of narcotics or dextromethorphan as antitussives in children. Indications for their use in children have not been established.”
Efficacy Concerns

• 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.”
Problems Interpreting Data

• Unclear endpoints for efficacy
• Lack of validated tools for measuring outcomes
• Are the doses right?
• Single dose vs. multiple dose outcomes?
Working Group Questions in Determining Priorities

- Where is the evidence gap?
- Which ages are affected?
- What research is being done, what should be done, and who should do it?
- What is achievable within BPCA?
- What areas will have the highest impact?
- What areas will move science AND clinical care forward?
Priority Area #1

• “Development of clinically meaningful endpoints and validated tools to measure them”
  – subjective and objective
  – all ages <12 years (may differ by age grouping)
  – single and multiple doses
Priority Area #2

• “Pharmacokinetic studies of orally administered cough and cold ingredients in children including the study of pharmacogenetic variability”
  – all ages <12 years including infants <2 years
  – may duplicate some ongoing industry efforts
Priority Area #3

• “Efficacy studies of orally administered OTC cough and cold ingredients”
  – all ages <12 years
  – randomized, masked, placebo controlled trials
  – dependent on priority areas 1 & 2
Priority Area #4

• “Studies to better elucidate the primary biochemical mediators of cough and cold symptoms to identify new targets for drug therapy”
  – longer term research priority
Moving Forward – Cough/Cold Medication Research

• These drugs will continue to be used by a large percentage of children despite lack of science to justify use or doses administered

• Surveillance and safety efforts currently being performed by industry and CDC for OTC medications should continue
Moving Forward –
Cough/Cold Medication Research

- Funding needed to determine PK, dose, pharmacogenetic impact, efficacy → fits within BPCA since drugs are off-patent and have no market exclusivity

- Most of the drugs included in the monograph are >50 years old. Innovative tools for symptom & outcome measurement are required, new targets for treatment are needed, and new drugs need to be developed → fits within BPCA’s pre-clinical data collection mission