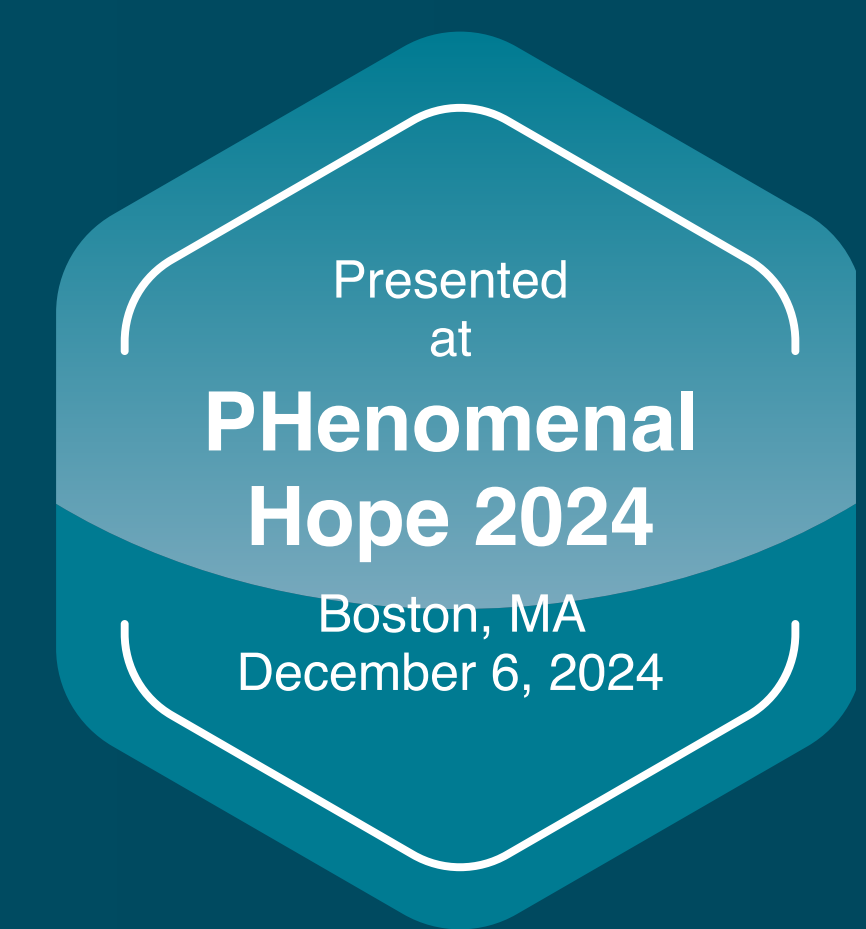


BEST PRACTICES FOR MANAGING COUGH IN PAH PATIENTS RECEIVING INHALED THERAPIES



Stephen Sallee¹, Meagan Chavarria², Christina M. Eagan³, Emily Fedewa⁴, Jennifer Keeley⁵, Denise J. Lewis⁶, Jennalyn Mayeux⁷, Andrew Mintz⁸, Ellen Newton-Lovato⁹, Jordyn Rice¹⁰, Kimberly H. Robinson¹¹, Nicole Victor¹², Mary Whittenhall¹³, Gina Nelson¹⁴, Sandy L. Nguyen¹⁴, Lee Ann McDowell¹⁴, Martha Kingman¹⁵

¹Ascension St. Vincent Hospital, Indianapolis, IN, USA; ²Houston Methodist Hospital, Houston, TX, USA; ³University of Florida College of Medicine, Gainesville, FL, USA; ⁴University of California San Francisco, San Francisco, CA, USA; ⁵Allegheny General Hospital, Pittsburgh, PA, USA; ⁶George Washington University Hospital, Washington, DC, USA; ⁷University of Utah, Salt Lake City, UT, USA; ⁸University of Rochester Medical Center, Rochester, NY, USA; ⁹Washington University School of Medicine, St. Louis, MO, USA; ¹⁰National Jewish Hospital, Denver, CO, USA; ¹¹Norton Pulmonary Specialists, Louisville, KY, USA; ¹²Advocate Christ Medical Center, Oak Lawn, IL, USA; ¹³Rhode Island Hospital, Providence, RI, USA; ¹⁴Gossamer Bio, Inc., San Diego, CA, USA; ¹⁵Retired 2024 from UT Southwestern Medical Center, Dallas, TX, USA

Background

- Inhaled therapy for pulmonary arterial hypertension (PAH) is of great interest as it enables drug delivery directly to the site of disease at higher concentrations, allowing mitigation of systemic side effects^{1,2}
- Systemic PAH therapies can be associated with significant side effects^{3,4} which can impact patient adherence and treatment efficacy⁵
- Cough is often associated with inhaled therapies,^{1,2,6} especially in patients with other comorbid obstructive or restrictive lung disease⁶
- Our objective was to identify best practices for cough management in patients receiving inhaled therapies for PAH

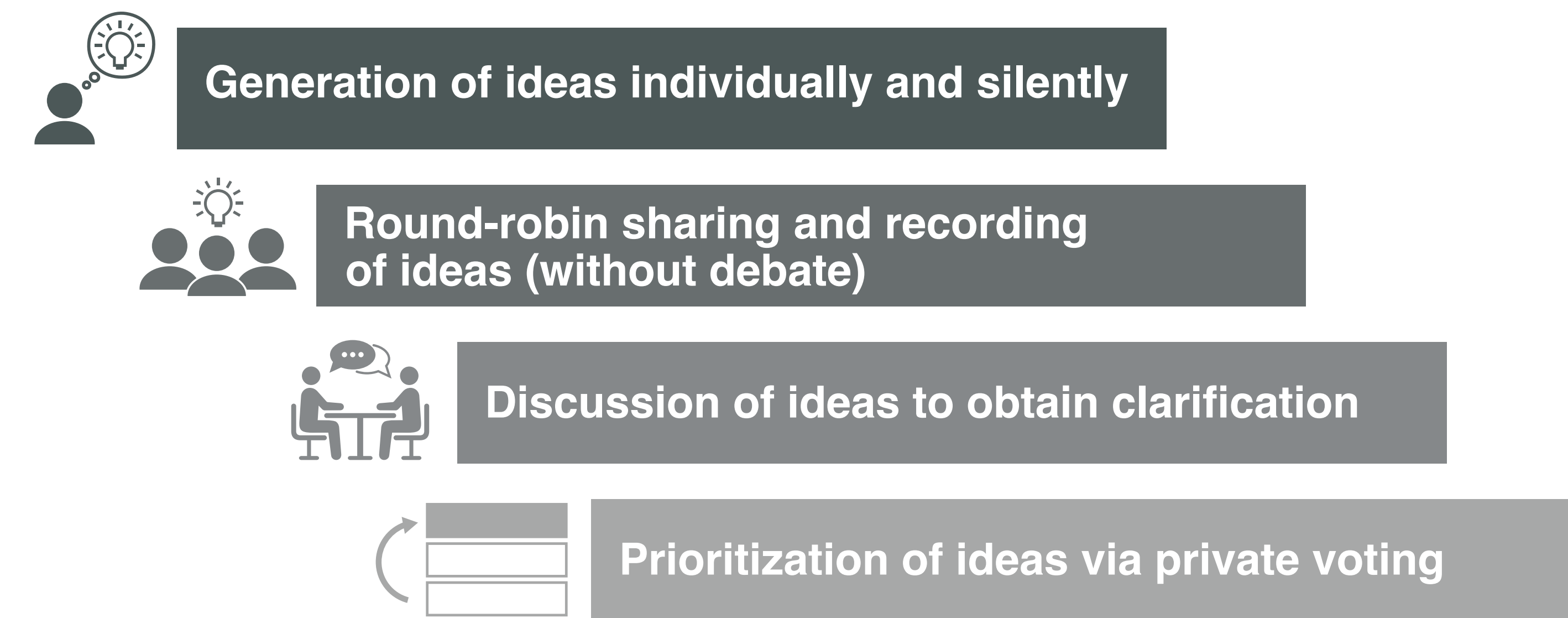
Methods

- An expert panel of 14 PAH nurse practitioners and nurses based in the United States met on August 15, 2024, in Indianapolis, IN; two served as moderators
- Participants were selected based on their cardiac/pulmonary expertise and experience in treating patients with PAH
- Participants shared best practices in managing cough with inhaled therapies for PAH across three topics:



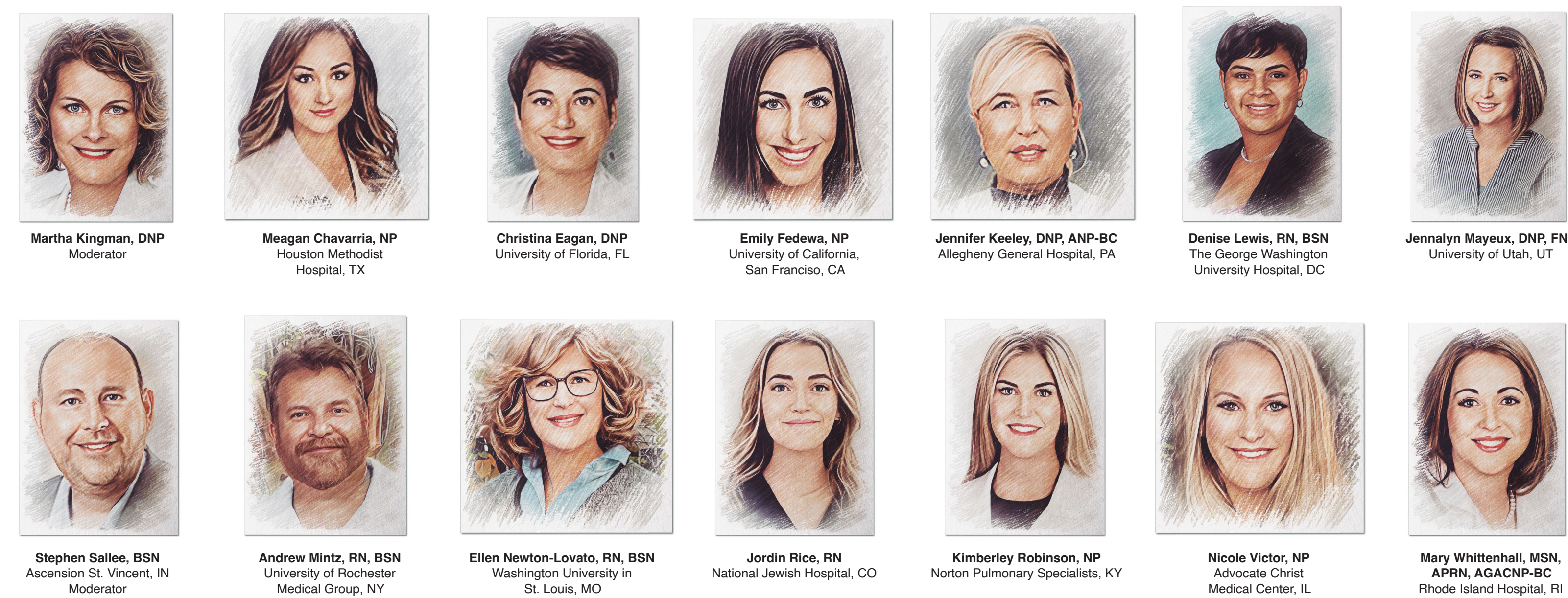
- A Nominal Group Technique⁷ was conducted to generate ideas for best practices in each of the three topics and to gain consensus regarding which ideas to prioritize (Figure 1)

Figure 1. Nominal Group Technique Process^{7,8}



- Proposed ideas were entered into an online polling instrument, which allowed for anonymous voting. Depending on the number of ideas generated, participants were allotted 5 or 10 votes to prioritize the ideas they considered most important within each topic

Our Expert Panel



SUMMARY OF BEST PRACTICE IDEAS

Key themes that emerged among the best practice ideas for each topic:

COMMUNICATING THE REASONS FOR COUGH

- Cough is a natural, expected, reaction to the inhalation of foreign particles
- Deep inhalation can induce a cough
- The patient's baseline cough should be considered, as not all cough may be attributed to the inhaled medication

SETTING PATIENT EXPECTATIONS REGARDING COUGH PRIOR TO THERAPY INITIATION

- Cough is a potential, expected, response to inhaled therapy and is typically transient in nature
- Inhalation technique may be modified to reduce cough
- Some cough may be attributed to comorbid conditions and/or concomitant medications
- Supportive measures are often successful in reducing cough with inhaled therapies
- It is important to communicate to patients the potential benefits of the inhaled medication in relation to the potential side effects they may experience

APPLYING SPECIFIC TECHNIQUES TO MANAGE/MITIGATE COUGH

- Evaluate, describe, document, and manage baseline cough (including optimizing therapies for respiratory comorbidities)
- Observe patients during inhalation and provide/repeat training to ensure proper posture and inhalation technique
- Recommend beverages, foods, and over-the-counter and prescription medications to assist in mitigating cough (including optimizing lung therapies for comorbid respiratory conditions)

Conclusions

- This initiative led by an expert panel of PAH nurses and nurse practitioners has identified actionable ideas for best practice regarding cough mitigation in patients receiving inhaled pulmonary hypertension therapies
- These findings will support both health care providers and patients with techniques to better manage cough with inhaled therapies
- To build on this work, we are exploring future initiatives to evaluate the real-world efficacy of the proposed cough-management recommendations in PAH and pulmonary hypertension associated with interstitial lung disease



For a supplement with the full results, please scan the QR code.

References: 1. Kumbhare U, et al. *Cureus*. 2022;14(10):e30134. 2. Chang RYK, et al. *Br J Pharmacol*. 2020;177(18):4096-4112. 3. Chin KM, et al. *Eur Respir J*. 2024;64(4):2401325. 4. Humbert M, et al. *Eur Heart J*. 2022;43(38):3618-3731. 5. Narechania S, et al. *J Cardiovasc Pharmacol Ther*. 2020;25(2):131-141. 6. Sahakijijarn S, et al. *Adv Drug Deliv Rev*. 2020;165-166:127-141. 7. Arakawa N, and Bader LR. *Res Social Adm Pharm*. 2022;18(1):2222-2229. 8. US Department of Health and Human Services. Available at: <https://www.cdc.gov/healthyyouth/evaluation/pdf/brief7.pdf> (accessed November 2024)

Research supported by: Gossamer Bio, Inc.

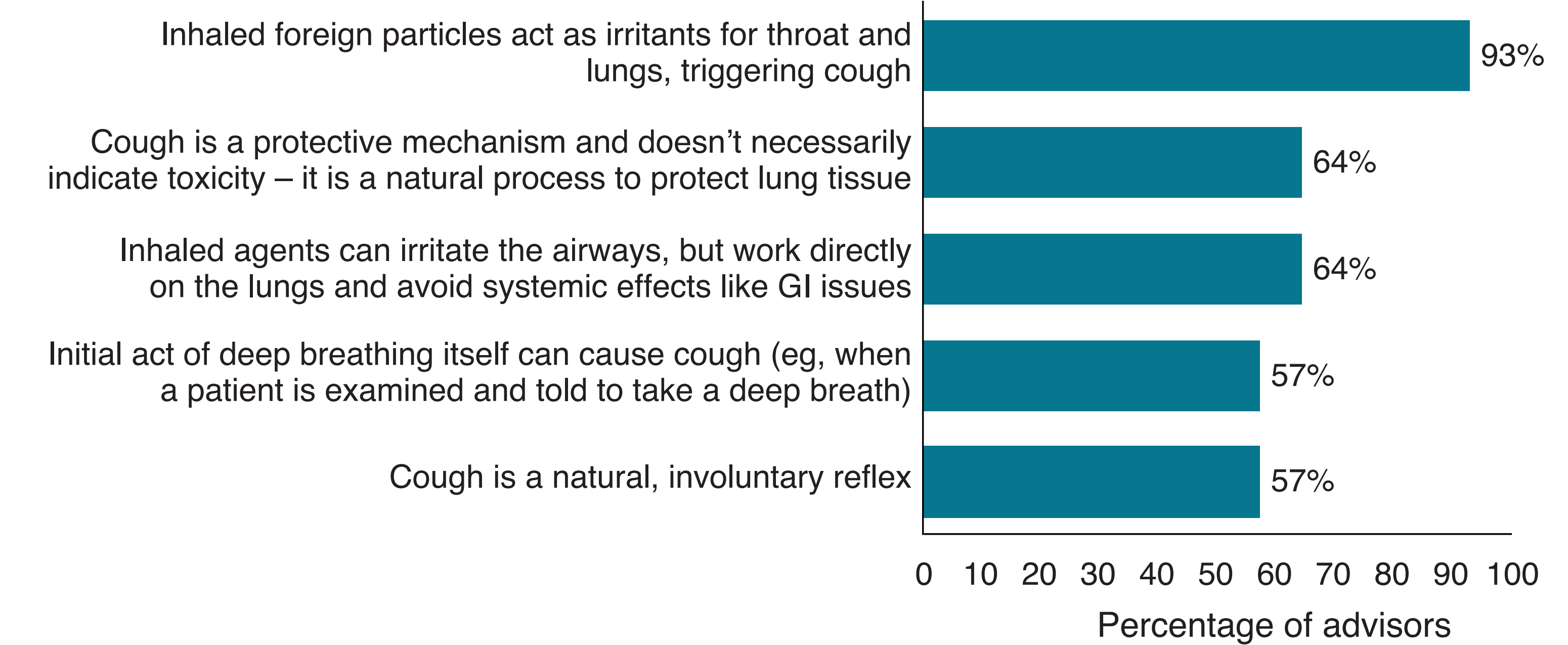


Download your copy of this poster here.

Voting Results For Best Practice Ideas

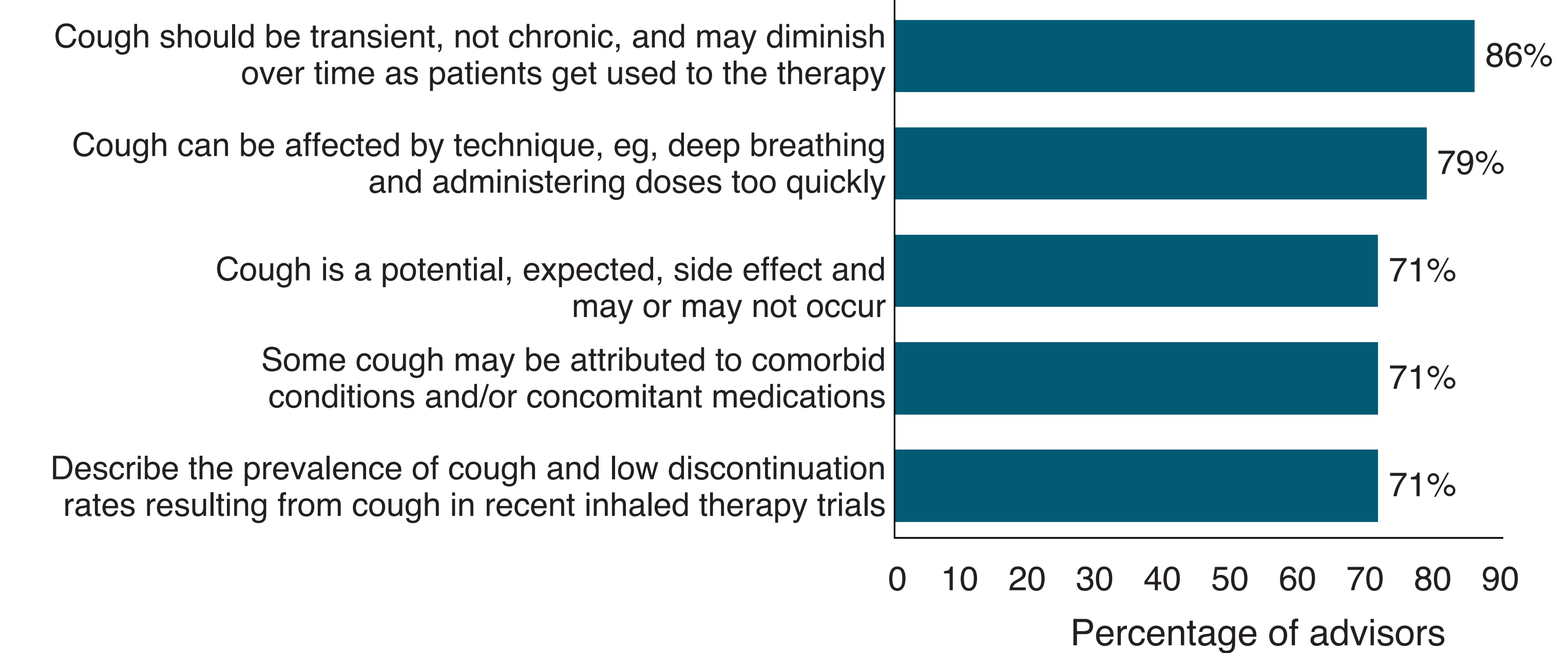
Results reflect the proportion of advisors that voted for each concept.

1. Communicating the Reasons for Cough



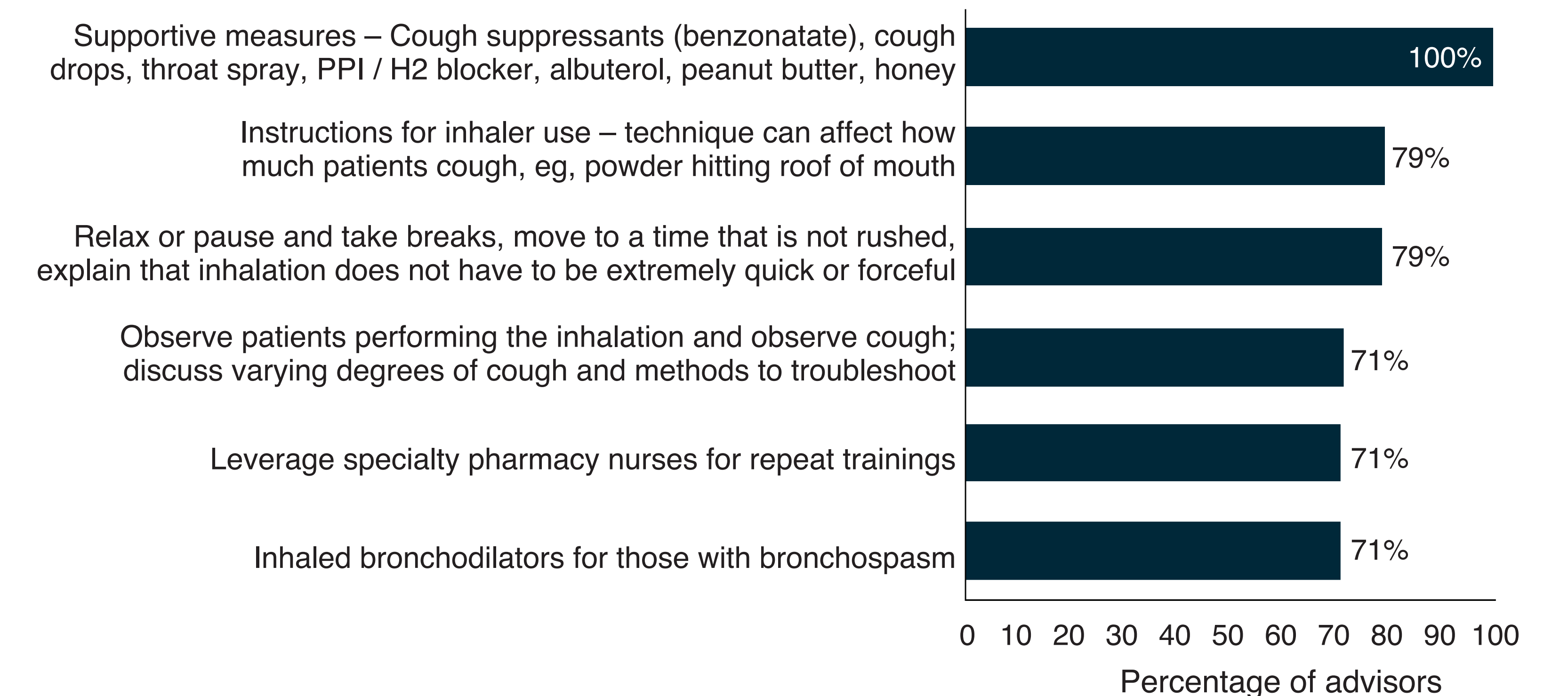
Top 5 ideas shown (out of 14 ideas in total); GI, gastrointestinal.

2. Setting Patient Expectations Regarding Cough Prior to Therapy Initiation



Top 5 ideas shown (out of 24 ideas in total).

3. Applying Specific Techniques to Manage/Mitigate Cough



Top 6 ideas shown, including ties (out of 30 ideas in total); H2, histamine 2; PPI, proton pump inhibitor.