

# Consensus Goals and Standards of Specialist Cough Clinics: the NEuroCOUGH International Delphi Study

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## OBJECTIVE

- Chronic cough is a globally prevalent condition. However, the managements are widely variable across countries and clinics. Establishing the goals and standards of specialist cough clinics will improve patient outcomes and promote future clinical research.
- This study aims to examine the areas of consensus among cough experts and clinicians actively involved in cough clinical practice worldwide, and to propose goals and standard operating procedures.

## METHODS

- The electronic Delphi study was organized by the NEuroCOUGH Clinical Research Collaboration network to reach consensus among the NEuroCOUGH national leads, clinicians on the international advisory board, and key clinicians recommended by national leads. A total of 74 members (from 19 countries) were invited.
- Survey items and key statements on the goals and practice procedures of specialist cough clinics were drafted based on recent cough clinic surveys, literature, and iterative discussion among expert working group. The panelists ranked each statement using a 11-point Likert scale (0-10).
- Statements were refined over two Delphi rounds. After the first round, the statements and items were adapted based on the responses from the previous round.
- Consensus was achieved if (a)  $\geq 75\%$  voted, (b)  $>60\%$  were generally positive (8-10) or negative (0-2), and (c) the proportion of extreme opponent group (0-2 or 8-10, respectively) was  $<20\%$ .

## RESULTS

- A total of 57 cough experts and clinicians from 19 countries participated in the study (**Figure 1**). Response rate was 77.0% (55/74).
- The panel reached consensus on 15 statements, covering the aims, roles, and standard operating procedures of specialist cough clinics.

Europe	31	Asia	8
UK	11	China	2
Belgium	2	Japan	2
Finland	3	South Korea	4
France	1	North America	17
Germany	2	Canada	10
Israel	1	US	7
Italy	1	Oceania	1
Latvia	1	Australia	1
Netherlands	1		
Poland	3		
Slovakia	1		
Spain	2		
Sweden	2		



**Figure 1.** Geographical presentation of 57 participating sites from 19 countries

- The final consensus statements and degrees of agreement were as follows.
- Statement 1:** Specialist cough clinics should be established to provide the optimal care for patients with chronic cough and refractory cough (**84.5% positive**).
- Statement 2:** Aims of specialist cough clinics should be to improve patient outcomes, optimize investigations and treatments, reduce burden of disease, and advance clinical research through patient registry and intervention clinical trials (**94.3% positive**).
- Statement 3:** Specialist cough clinics should be supervised by clinicians with expertise in cough management (**96.2% positive**).
- Statement 4:** Specialist cough clinics should provide evaluation and management of chronic cough patients guided by the agreed national and/or international consensus. Such standardized management should also be encouraged in general respiratory or allergy care taking care of patients with chronic cough (**90.6% positive**).
- Statement 5:** Cough should be routinely assessed at baseline and follow-ups, using a rating scale for cough severity (such as 0-10 score, modified Borg scale, a visual analogue scale or an appropriate alternative). Cough-specific quality-of-life should also be a part of the assessment at specialist cough clinics, particularly for research purposes (**73.6% positive**).
- Statement 6:** Cough triggers and cough complications should be a part of routine history taking, preferably by means of validated measurement tools (**83.0% positive**).

- Statement 7:** In every patient newly referred with chronic cough, a minimum panel of routine tests should be reviewed, or undertaken if not already performed. The minimum panel of tests are (1) chest X-ray, (2) spirometry (with bronchodilator testing if indicated), and (3) a type 2 inflammatory marker (such as blood eosinophils, fractional exhaled nitric oxide, or sputum eosinophils) (**96.2% positive**).
- Statement 8:** Decision to commence opiates (as anti-tussives) should be carefully made by clinicians with expertise in cough management (**90.6% positive**).
- Statement 9:** Decision to commence current neuromodulators (such as gabapentin or amitriptyline, as anti-tussives) should be carefully made by clinicians with expertise in cough management (**88.7% positive**).
- Statement 10:** Cough control therapy, or speech language and pathology therapy, should be available in specialist cough clinics (**90.6% positive**).
- Statement 11:** In specialist cough clinics, multi-disciplinary team meetings should take place to discuss specific cough patients (**81.1% positive**).
- Statement 12:** Specialist cough clinics should offer opportunities to patients to participate in clinical research or trials of novel cough therapies, and also should share experience and facilitate the clinical trials (**94.3% positive**).
- Statement 13:** Specialist cough clinics should participate in local and international audit on an ongoing basis with the aim of providing high-quality cough services (**83.0% positive**).
- Statement 14:** Cough evaluation and management should be integrated into the post graduate specialty (e.g., respiratory or allergy) training curriculum (**96.2% positive**).
- Statement 15:** Specialty trainees/fellows (e.g., respiratory or allergy) should be required to undertake a period of training/participate in clinics which regularly receive referrals for chronic cough (**92.5% positive**).

## CONCLUSIONS

- Based on the international consensus, we propose the goals and standard procedures of specialist cough clinics.