Patients' acceptance of outcome and experience measurements during hospitalisation for COPD exacerbations: a CICERO Clinical Research Collaboration–European Lung Foundation online patient survey

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Shareable abstract (@ERSpublications)
In the CICERO–ELF patient survey, European patients endorsed a selection of outcome and experience measurements from a previously obtained expert consensus list, for standardised assessments during hospitalisation and follow-up of acute COPD exacerbations https://bit.ly/3oSHbUo

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Abstract

Background The lack of standardised outcome assessments during hospitalisation and follow-up for acute COPD exacerbations has hampered scientific progress and clinical proficiency. The objective of the present study was to evaluate patients' acceptance of selected outcome and experience measurements during hospitalisations for COPD exacerbations and follow-up.

Methods An online survey was held amongst COPD patients in France, Belgium, The Netherlands, Germany and the UK. The European Lung Foundation COPD Patient Advisory Group was involved in the conceptualisation, development and dissemination of the survey. The survey was complementary to a previously obtained expert consensus. We assessed patients' views and acceptance of selected patient-reported outcomes or experiences and corresponding measurement instruments (for dyspnoea, frequent productive cough, health status and hospitalisation experience), and of selected clinical investigations (blood draw, pulmonary function test, 6-min walk test, chest computed tomography, echocardiography).

Findings 200 patients completed the survey. All selected outcomes and experiences were deemed important, and acceptance of their methods of assessment was high. The modified Medical Research Council scale and a numerical rating scale to address dyspnoea, the COPD Assessment Test for quality of

life and frequent productive cough, and the Hospital Consumer Assessment of Healthcare Providers and Systems for hospital experiences were the instruments preferred by patients. Consensus on importance of blood draw and spirometry was higher compared with the other investigations.
Interpretation The survey results endorse the use of the selected outcome and experience measurements during hospitalisations for COPD exacerbations. They can be used to optimise standardised and patient-centred care and facilitate multicentric data collection.

Introduction

Severe acute exacerbations of COPD (AECOPD) with a need for hospitalisation are the main drivers of the increasing COPD-associated healthcare resource utilisation and COPD-related mortality [1, 2]. Yet, there is limited guidance on standardised treatment or clinical assessments, examinations, and laboratory, radiological and functional tests during hospital stay or during follow-up. Where strong consensus or solid evidence does exist, there is often a translation gap, given that results from randomised controlled trials are not evaluated in real-world settings, and guideline recommendations are ineffectively implemented [3].

Not only does this affect clinical outcomes, but it may also leave a scientific resource untapped. The hospitalisation period for an AECOPD provides an optimal setting for accurate and extensive clinical and biological characterisation of severe events. Adherence to standardised treatment and assessment protocols would facilitate pooling of real-world data and setting up registries or multicentre clinical studies. Such large-scale initiatives are much needed to advance the data-hungry research on aetiological grouping of AECOPD and to provide a framework for more targeted treatments of specific exacerbation subgroups [4].

The Collaboration In COPD ExaceRbatiOns (CICERO) is a clinical research collaboration (CRC) supported by the European Respiratory Society (ERS) and a network of expert centres aiming to understand and improve outcomes in severe COPD exacerbations across Europe [5]. In a recent expert Delphi, we have obtained consensus from expert COPD researchers and clinicians regarding standardisation of assessments at the time of hospitalisation for AECOPD and during follow-up [6]. However, it remains elusive how acceptable these are to patients. In this patient survey, a joint-initiative of CICERO and the European Lung Foundation (ELF), we investigated patients' acceptance of the proposed assessments, with an emphasis on the patient-reported outcome (PROMs) and patient-reported experience measures (PREMs), and some frequently performed clinical investigations. The results were used to inform the protocol of CICERO's multicentric European prospective cohort study (CATALINA – ClinicalTrials.gov: NCT05008081).

Materials and methods

Design

Between 29 April 2021 and 11 November 2021, the ELF and CICERO held an anonymous online survey to evaluate patients' acceptance of a selection of PROMs, PREMs and clinical investigations to be obtained during and after a hospitalisation for an AECOPD. A general outline of the survey and the full English translation are provided in the appendices (supplementary Appendix 1 and 10).

Patient and public involvement

Members of the ELF's COPD patient advisory group (PAG) were involved in all stages of survey building, including reviewing and refining the content, and reviewing the language and lay-out for accessibility and understanding. Survey awareness and dissemination strategy was established together with the PAG and representatives of national patient associations from Belgium, France and The Netherlands. Information videos and brochures were revised by the patients.

Patients' acceptance of PROMs and PREMs in this survey, based on a predefined consensus measure, was taken into consideration during the development of CICERO's CATALINA study. Through this survey, we also sought patient input on the perceived importance and feasibility of selected clinical investigations during and after a hospitalised COPD exacerbation, but without establishing a minimal patient consensus as a prerequisite for inclusion of these outcomes in CATALINA.

Procedures and patients

The survey was developed in English and translated by members of the research team into Dutch, French and German. The online survey was hosted on the ELF website and accessible through an anonymous link. It was featured on the ELF social media platforms (Facebook, Twitter, Instagram), and in the newsletters of the ELF and ERS. COPDvzw (Belgium), Alpha-1Plus Belgium, Santé Respiratoire France (France), Longfonds (The Netherlands), the international COPD Foundation and other patient associations disseminated the survey amongst their members and through their information channels. Ethical approval

was not necessary following the recommendation of the NHS Health Research Authority ethical approval decision tool [7].

Survey content

The content was based on CICERO's previously published expert consensus on standardised assessments during a hospitalised AECOPD and on discussions with the PAG [6]. The focus was on patient-reported outcomes in the first part of the survey, and on frequently performed clinical investigations that were presumed to be most burdensome for patients in the second part. An overview of the development of the survey is given in supplementary figure S1 and supplementary table S1 in Appendix 1.

Outcome measurements that were prioritised in the expert consensus (*i.e.* they were deemed feasible and got the label "must be assessed" or "can be considered" both during hospitalisation and follow-up) were eligible for inclusion in this patient survey and discussed with the PAG. Questionnaires additionally had to be available free of charge. For the clinical investigations, the PAG was consulted to select the investigations that were presumed to be most burdensome for patients. If the PAG felt that important outcomes and outcome measures were missing, they could suggest additional measurement instruments.

Patient-reported outcome measurements that were assessed in the first part of the survey were: the modified Medical Research Council scale (mMRC) [8] or a numerical rating scale (NRS) [9] to measure dyspnoea; the COPD Assessment Test (CAT) [10] or the Clinical COPD Questionnaire (CCQ) [11] to measure health-related quality of life; and the classical chronic bronchitis definition [12], the two cough and phlegm questions of the St George's Respiratory Questionnaire (SGRQ) [13], and the two cough and phlegm questions of the CAT [10] to measure frequent cough and phlegm [11, 14–20]. Two PREMs to measure hospital experience were also assessed: the Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS) [21] and the howRwe instrument [22]. As part of the survey, respondents were asked to fill in all the PROMs and PREMs to get familiarised with them. Time to complete the PROMs and PREMs was recorded by the survey software. In the second part of the survey concerning clinical investigations, participants' opinions on blood draws, echocardiogram, chest computed tomography (CT), six-min walk test, spirometry and plethysmography were evaluated.

The survey contained Likert questions with a response range from 1 (strongly agree) to 5 (strongly disagree), with a score of 1 signifying a higher and 5 a lower importance or acceptance of the outcome or outcome measure. In the first part, acceptance of the PROMs and PREMs was calculated as the mean of five complementary Likert questions (ease of use, relevance, detailedness, time efficiency and general willingness to use the PROM/PREM with every clinical contact; Cronbach's α was above 0.8 for all scales, see supplementary Appendix 2). There were a small number of open questions asking whether or not all-important patient-reported outcomes were included in the survey, and if patients had additional remarks on the outcome measurements.

Data analysis

Medians and means of Likert items and the Likert scales were compared with the Wilcoxon signed rank test or Friedman test. The dispersion of the Likert responses was interpreted as a measure for consensus or dissensus and was quantified by a Shannon entropy-based consensus measure according to Tastle *et al*. [23], ranging from 0 (absolute dissensus) to 1 (absolute consensus). Based on the probability distribution of this consensus measure, our cut-off for consensus was set at 0.7, consistent with a probability of <5% that such consensus level was a chance occurrence (supplementary Appendix 3).

Qualitative content analysis was done by coding recurrent themes in the free text and counting their frequency.

Subgroups were predefined based on language, time since diagnosis, exacerbation history and history of past hospitalisations.

The survey was performed with Qualtrics (Seattle, Washington & Provo, UT, USA). All analyses were performed using R v4.0.4 (R Core Team, Vienna, Austria).

Sample size

A minimum of 231 responses on all PROM-related questions was predefined based on Park *et al*. [24], as we aimed to use these results to inform the development of the CATALINA protocol.

TABLE 1 Baseline characteristics of participants (n=377 started survey, n=200 finished survey)

Responses	
Median time needed to complete survey (min:s), median (IQR)	22:20 (8:6–35:44)
Language, n (%)	
Dutch	178 (47)
English	134 (36)
French	54 (14)
German	11 (3)
Time since COPD diagnosis, n (%)	
<5 years	71 (22)
10 years	112 (35)
>10 years	137 (43)
Exacerbations during last year, n (%)	
0	113 (35)
1	91 (29)
2 or more	115 (36)
Hospitalised for COPD before, n (%)	
Yes	125 (56)
No	99 (44)

Results

Sample characteristics

377 subjects initiated the survey, and 200 patients reached the end. At least 234 responses were obtained for all PROM-related questions. Baseline patient characteristics are shown in table 1. All responses were included for analysis, regardless of the subject's survey completion status; response rate on all variables is presented in supplementary figure S11 and table S12 in Appendix 7.

Outcomes, experiences, PROMs and PREMs

Main results are shown in figures 1 and 2. Scores of individual Likert items are shown in supplementary figures S3–S10 (Appendix 5). Subgroup analyses are shown in supplementary tables S4–S7 (Appendix 5).

There was good consensus on the importance of measuring all selected patient-reported outcomes both during hospitalisation for an exacerbation and during ambulatory follow-up, indicated by median responses of 1 (strongly agree) or 2 (agree), and consensus of 0.70 or more. Consensus was lower for the question whether doctors paid enough attention to any of these outcomes (figure 1).

To assess dyspnoea, mean acceptance of both mMRC and NRS was high and did not significantly differ (figure 2 and supplementary figure S4 in Appendix 5). Both of these PROMs scored lowest on detailedness (supplementary figure S3 in Appendix 5). From the free text in the open questions, it was clear that some patients preferred the objectiveness of numerical scales, while others found it easier to agree or disagree with concrete descriptions of their situation as provided by the mMRC (supplementary tables S8–S9 in Appendix 6).

There was a significant difference in mean acceptance of the three PROMs to assess frequent productive cough. Participants slightly preferred the SGRQ cough and phlegm questions and CAT cough and phlegm questions over the classical chronic bronchitis definition (figure 2 and supplementary figures S5–S6 in Appendix 5). In the free text, the long recall time and use of two timespans in the classical chronic bronchitis definition (cough/sputum for at least 3 months and 2 consecutive years) were raised as possible drawbacks and may have reduced comprehensibility and perceived relevance of this PROM (supplementary tables S8–S9 in Appendix 7).

For health status measurement, responses of all evaluation questions on CAT and CCQ coalesced almost entirely on the "agree" and "strongly agree" response categories, without a significant difference in their overall acceptance (figure 2 and supplementary figures S7–S8 in Appendix 5).

Completion time stayed below 2 min for all PROMs (supplementary table S3 in Appendix 4). Symptoms that were reported in the free text fields as not sufficiently assessed in the included PROMs are summarised in a wordcloud (figure 3). Fatigue, anxiety and panic, oedema and pain were most frequently raised (supplementary tables S9–S10 in Appendix 6).

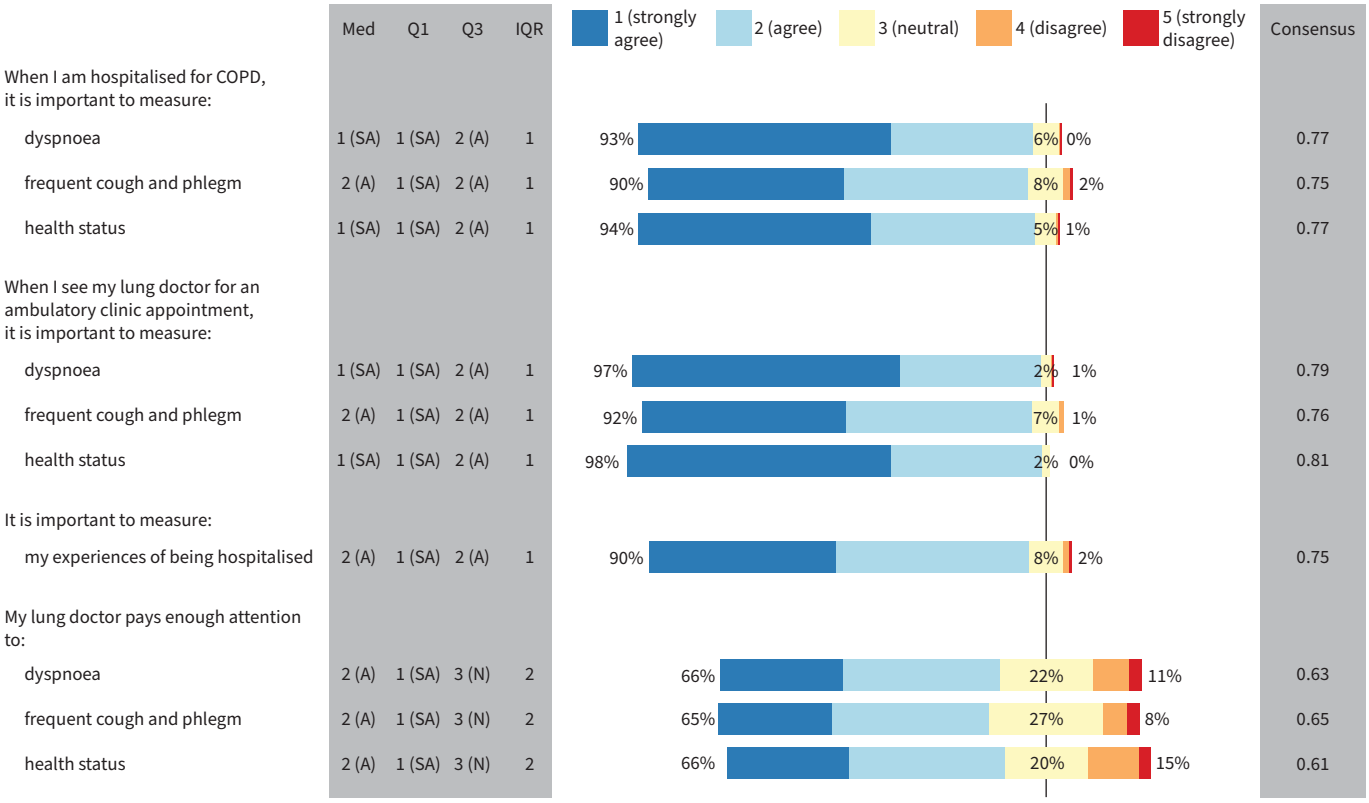

FIGURE 1 Importance of measuring outcomes and experiences included in the survey. Participants scored the importance of measuring three outcomes (dyspnoea, frequent productive cough, health status) and one experience (hospitalisation experience) during hospitalisation for an acute COPD exacerbation or during follow-up. They also rated if sufficient attention is currently paid to the measurement of these outcomes. Participants answered to Likert items with a 5-point response range (1 – strongly agree (SA), 2 – agree (A), 3 – neutral (N), 4 – disagree (D), 5 – strongly disagree (SD)) with 1 indicating a better and 5 indicating a worse score. Medians, quartiles and interquartile ranges are shown, as well as the relative frequency bar charts per Likert item. A Shannon entropy-based consensus measure was calculated to express ordinal dispersion, and a value above 0.70 was considered good consensus. Consensus was stronger on the importance of measuring these outcomes and experiences than on the adequacy of their current assessment in routine practice. Med: median; Q1: quartile 1; Q3: quartile 3; IQR: interquartile range.

There was good consensus on the importance of measuring hospitalisation experience (figure 1). Despite longer completion time, the mean acceptance of HCAHPS PREM was slightly higher than of howRwe PREM (Figure 2 and supplementary figures S9–S10 in Appendix 5).

Subgroup preferences were similar to the whole sample and no relevant differences were identified (supplementary tables S4–S7 in Appendix 5).

Clinical investigations

Results for patients' views on selected clinical investigations are shown in figure 4. Consensus was good on the importance of blood draw and spirometry but stayed below 0.70 for the other investigations. The 6-min walk test and plethysmography were perceived as larger burdens than the other investigations.

Discussion

The patient-reported outcomes and experiences included in the survey were deemed highly important by patients. Notably, the survey revealed that there was more consensus on the importance of these outcomes and experiences than on the satisfaction with their current assessment in routine clinical practice. This implies room for improvement. With our previously published expert consensus, and endorsed by this patient survey, CICERO aims to prioritise a minimal set of outcome measurements, while still assimilating the most essential data to achieve high-quality norms of COPD management, and in a standardised fashion.

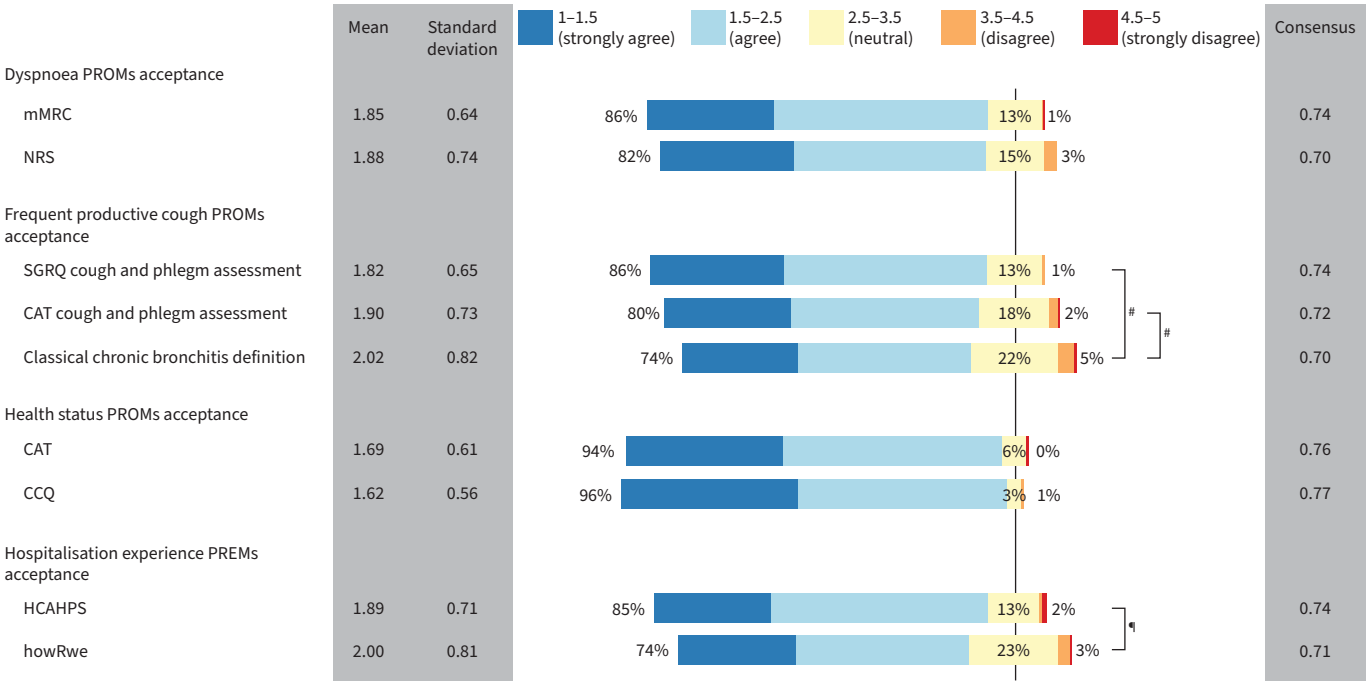

FIGURE 2 Acceptance of patient-reported outcome (PROMs) and patient-reported experience measures (PREMs). PROM and PREM acceptance were assessed by having patients answer to the same five Likert questions for each PROM/PREM (see supplementary Appendix 5) addressing 1) comprehensibility of the PROM/PREM, 2) appropriateness of the PROM/PREM or its statements to assess outcome, 3) detailedness of the PROM/PREM, 4) acceptability of time needed to complete the PROM/PREM and 5) willingness of respondents to use the PROM/PREM to assess their condition during a hospitalised acute exacerbation of COPD (AECOPD) and every follow-up visit. Each Likert item had a 5-point response range (1 – strongly agree, 2 – agree, 3 – neutral, 4 – disagree, 5 – strongly disagree) with 1 indicating a better and 5 indicating a worse score. Mean scores over the five questions were calculated per PROM and PREM for each participant and treated as a continuous variable. A Shannon entropy-based consensus measure was calculated to express ordinal dispersion, and a value above 0.70 was considered good consensus. [#]: there was a significant difference between the mean acceptance scores of the frequent productive cough PROMs (Friedman p<0.0005). *Post hoc* testing (Benjamini–Hochberg corrected) showed a difference between St George's Respiratory Questionnaire (SGRQ) productive cough questions *versus* the classical chronic bronchitis definition (Wilcoxon signed rank p-value 0.010) and the CAT productive cough questions *versus* the classical chronic bronchitis definition (Wilcoxon signed rank p-value 0.0046), but not between the SGRQ and CAT questions (Wilcoxon signed rank p-value 0.28). [¶]: there was a significant difference between the mean acceptance scores of HCAHPS and howRwe (Wilcoxon signed rank p<0.0005). SGRQ cough and phlegm assessment: *i.e.* first two questions of the SGRQ concerning cough and phlegm; CAT cough and phlegm assessment: *i.e.* the first two questions of the CAT concerning cough and phlegm; classical chronic bronchitis definition: *i.e.* a) cough most days for at least 3 months per year and for >2 consecutive years and b) sputum most days for at least 3 months per year and for >2 consecutive years. mMRC: modified Medical Research Council scale (for dyspnoea); NRS: numerical rating scale (for dyspnoea); CAT: COPD Assessment Test; CCQ: Clinical COPD Questionnaire; HCAHPS: Hospital Consumers Assessment of Healthcare Providers and Systems.

For dyspnoea measurement, patients appreciated the mMRC and an NRS equally and raised strong arguments for both instruments in the survey's free text fields. As time to complete both instruments was very short (both below 1 min), combining both instruments seems feasible even in routine practice. For health status measurement, both the CAT and CCQ were acceptable for patients, and completion times were also short (below 1 min for CAT and below 2 min for CCQ). As standard assessment, CAT seems however the more rational choice, as it has been more often used in clinical trials, and it received more support in CICERO's expert Delphi [6, 25]. Moreover, the two first questions of the CAT ("I never cough" to "I cough all the time" and "I have no phlegm in my chest at all" to "My chest is full of phlegm") were accepted by patients to assess their symptoms of frequent cough and phlegm.

Of note, the two cough and phlegm questions of CAT have been repeatedly used in large cohorts to identify patients with a chronic bronchitis phenotype and, by the survey respondents, were deemed easier to comprehend than the classical definition of chronic bronchitis. Yet, strictly, they have not been validated as a separate PROM [11, 14–20]. It is not our aim to redefine established phenotypical traits based on the limited assessments here proposed. Rather, we encourage the clinician, instead of only looking at the overall score, to also pay notice to the individual questions of the PROMs and the problems patients raise

FIGURE 3 Wordcloud with additional symptoms raised in the survey's free text fields. At the end of the survey's patient-reported outcome measures (PROMs) assessment, patients were asked if they experienced other symptoms that were not or not sufficiently addressed in the proposed PROMs. Free text was interpreted in the source language, and recurrent themes and symptoms were summarised in a codebook and this wordcloud. The font size corresponds to the relative frequency by which the symptom or theme was raised. Despite statements in the COPD Assessment Test (CAT) or Clinical COPD Questionnaire (CCQ) concerning sleep quality, energy level, self-dependency and self-confidence, symptoms related to these domains were still frequently raised as insufficiently addressed. This supports the use of such general PROMs as a first screening tool to identify problems that then may require further attention during the visit with the treating physician.

by them. A worse score on the CAT cough and phlegm questions may alert clinicians to the possible presence of chronic bronchitis and may urge them to do a more dedicated evaluation in that direction, to exclude comorbidities like bronchiectasis, or to see whether patients meet more validated criteria to justify targeted interventions. The same goes for the additional symptoms that patients raised in the survey's free text fields. It is impossible to include in a standard evaluation validated questionnaires that cover all these symptoms in detail, and this would defeat the purpose of a minimal set of outcome measurements. Yet, most of these symptoms may be addressed when examining the specific domains in detail where the patient indicates a problem through the proposed selection of PROMs.

An exception to this might be anxiety and affective symptoms, which were also frequently put forward in the survey's free text spaces. In CICERO's expert Delphi, experts did consider including a separate PROM to measure anxiety and depression – the hospital anxiety and depression scale (HADS) – as a standard assessment, albeit with remarks on the feasibility. Use of this questionnaire is however restricted, as it is not freely available, which was also the reason for excluding it in this patient survey. Still, care providers should at least acknowledge the importance and impact of mood and anxiety in this context, and alternative PROMs may be considered as part of a standardised assessment.

If hospital experience is measured, while considerably longer, the HCAHPS is better validated and was slightly preferred by patients in the survey.

With this survey we also gauged patients' opinions on clinical investigations and tests that are frequently performed in the context of COPD exacerbations. Although we did not seek to validate the use of these tests, it was surprising to see that patients' consensus on their need and importance was much lower as compared to the use of PROMs and PREMs, which were uniformly accepted. In general, though without reaching our criteria for consensus, patients agreed on the doctor's primary role in when to plan these investigations.

Exemplary for how the survey results complement the expert consensus and how these can be put in practice is the development of CICERO's CATALINA study (selection of PROMs, PREMs and clinical

	Med	Q1	Q3	IQR	Consensus
Important to assess my condition:					
Blood draw	1 (SA)	1 (SA)	2 (A)	1	0.80
Spirometry	1 (SA)	1 (SA)	2 (A)	1	0.76
Body plethysmography	2 (A)	1 (SA)	3 (N)	2	0.64
6-min walk test	2 (A)	1 (SA)	2 (A)	1	0.67
Chest CT	1 (SA)	1 (SA)	2 (A)	1	0.68
Cardiac ultrasound	2 (A)	1 (SA)	2 (A)	1	0.68
Perceived as a burden:					
Blood draw	4 (D)	3 (N)	5 (SD)	2	0.54
Spirometry	3 (N)	2 (A)	4 (D)	2	0.44
Body plethysmography	3 (N)	2 (A)	4 (D)	2	0.47
6-min walk test	3 (N)	2 (A)	4 (D)	2	0.50
Chest CT	4 (D)	3 (N)	5 (SD)	2	0.52
Cardiac ultrasound	4 (D)	3 (N)	5 (SD)	2	0.56
Should be done during a hospitalisation for COPD:					
(Multiple) blood draw(s)	2 (A)	1 (SA)	2.5 (A-N)	1.5	0.70
Spirometry	2 (A)	1 (SA)	3 (N)	2	0.56
Body plethysmography	3 (N)	2 (A)	3 (N)	1	0.61
6-min walk test	3 (N)	2 (A)	3 (N)	1	0.61
Should be done with every ambulatory visit:					
Blood draw	3 (N)	2 (A)	3 (N)	1	0.65
Spirometry	2 (A)	1 (SA)	3 (N)	2	0.51
Body plethysmography	3 (N)	2 (A)	4 (D)	2	0.60
6-min walk test	3 (N)	3 (N)	4 (D)	1	0.59
Despite my preferences , I don't have a strong opinion on this and would rather have my doctor decide on the necessity of a:					
Blood draw	2 (A)	1 (SA)	3 (N)	2	0.57
Pulmonary function tests	2 (A)	1 (SA)	3 (N)	2	0.54
6-min walk test	2 (A)	1 (SA)	3 (N)	2	0.53
Chest CT	2 (A)	1 (SA)	3 (N)	2	0.57
Cardiac ultrasound	2 (A)	1 (SA)	3 (N)	2	0.62

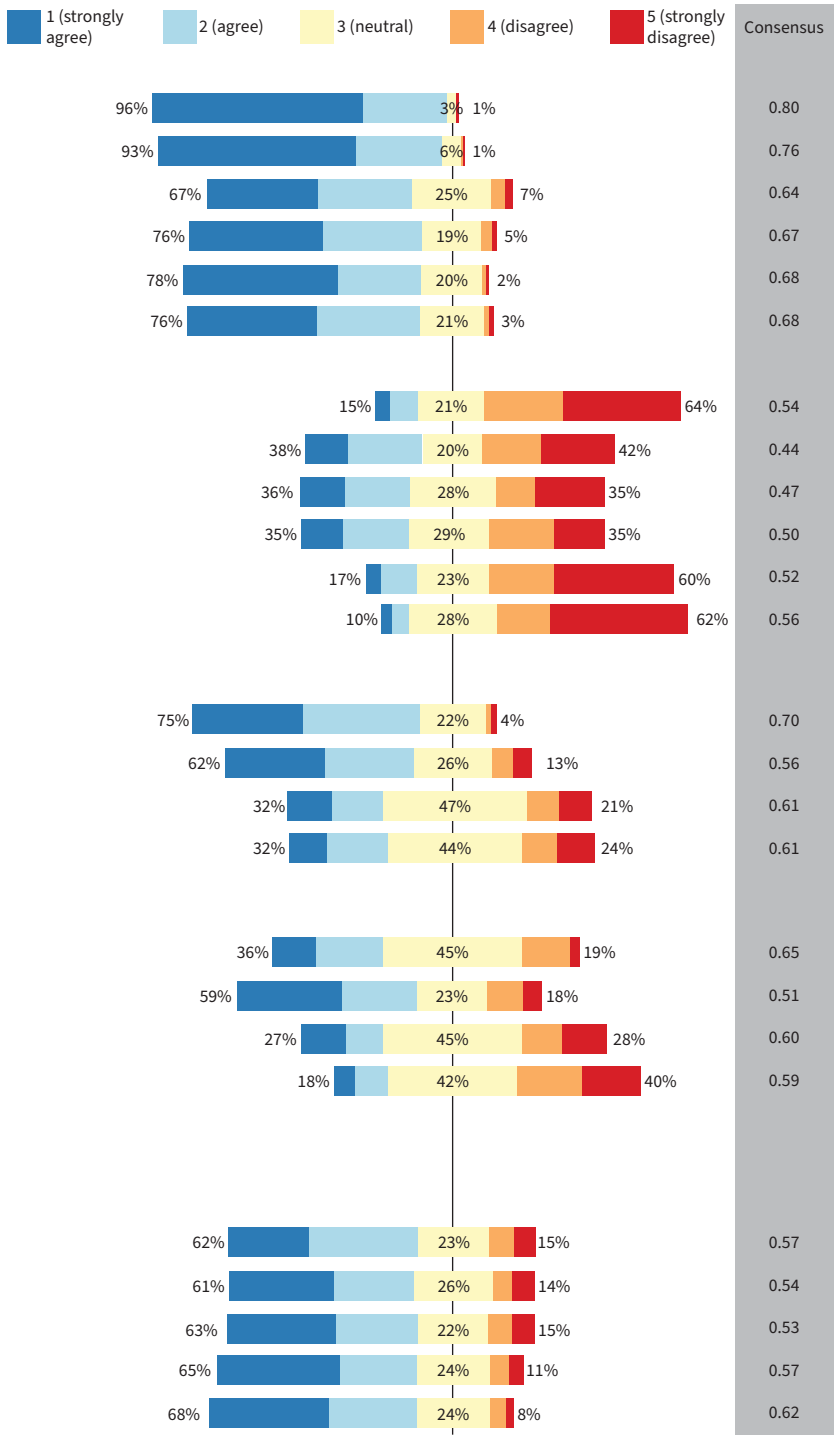

FIGURE 4 Patients' views on selected clinical investigations. Participants expressed their views on selected clinical investigations during hospitalisation for an acute COPD exacerbation or during follow-up. Patients answered to Likert items with a 5-point response range (1 – strongly agree (SA), 2 – agree (A), 3 – neutral (N), 4 – disagree (D), 5 – strongly disagree (SD)) with 1 indicating a better and 5 indicating a worse score. Medians, quartiles and interquartile ranges are shown, as well as the relative frequency bar charts per Likert item. A Shannon entropy-based consensus measure was calculated to express ordinal dispersion, and a value above 0.70 was considered good consensus. Consensus was strongest on the importance of blood draw and spirometry. More patients agreed on the 6-min walk test and body plethysmography being a burden, followed by spirometry, but all with a large dispersion of responses reflected in low consensus measures. A majority of patients agreed on the doctor's primary role to plan these investigations, but again with consensus below 0.70. Med: median; Q1: quartile 1; Q3: quartile 3; IQR: interquartile range; CT: computed tomography.

investigations for this prospective cohort study are presented in supplementary table S1 in Appendix 1). Our proposed assessments accord with and, in a way, concretise the recommendations of recent large international commissions, and are very compatible with the core outcome set for interventional COPD exacerbation trials that was recently established by another ERS task force [26–28].

This survey has limitations. Firstly, due to ethical constraints and the anonymous nature of the survey, more extensive data on demographics and disease history were not available. Secondly, only a slight majority of our sample had been hospitalised for their COPD before. Notably, however, there was no difference in acceptance of any of the proposed PROMs based on subjects' hospitalisation history. Thirdly, due to the dissemination methods, using local and national patient organisations' membership networks and communication channels, we were unable to calculate the survey's reach or response rate. Patients who engage with patient organisations are more likely to be highly engaged in their healthcare, meaning that the results may not be generalisable to the whole patient population. Also, the survey was developed in only four languages, most likely resulting in a significantly higher response rate in central European countries with native speakers and limiting generalisability of the results to the whole European continent. Fourthly, we used no question randomisation, meaning that the order of questions was the same for all respondents and that only the most motivated participants completed part two (PREM assessment) and three (clinical investigations) of the survey. This may have introduced non-response bias. Finally, consensus was reached for only a few items during the assessment of patients' views on clinical investigations in part three. It is uncertain whether a multi-round Delphi design would have led to stronger consensus on some of these items. Yet, our survey setting in a large multinational patient sample has reached consensus on most PROMs and PREMs assessments and was not powered or designed to obtain consensus on these clinical investigations.

Conclusion

This CICERO–ELF patient survey shows that patients are supportive of the use of PROMs and PREMs during hospitalisation for an AECOPD and follow-up. We advocate their rational but consistent use in routine care, especially as patients sometimes felt that their symptoms are not given sufficient importance by their treating clinicians. Together with CICERO's expert consensus statement, our survey results can be used to institute or optimise standardised integrated care pathways for hospitalised AECOPD in a manner that is supported by both experts and patients. Adherence to such a standardised series of assessments would facilitate real-world data collection and may aid the design of multicentric observational studies.

Provenance: Submitted article, peer reviewed.

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