

# Identifying the Benefits and Risks of Emerging Treatments for Idiopathic Pulmonary Fibrosis: A Qualitative Study

John F. P. Bridges · Victoria Federico Paly · Elizabeth Barker · Dolly Kervitsky

© Springer International Publishing Switzerland 2014

## Abstract

**Objective** Idiopathic pulmonary fibrosis (IPF) is a rare, progressive, and fatal disease, with very few therapeutic options. Given a paucity of qualitative research to the perspective of patients and other stakeholders in IPF, we sought to identify issues associated with the benefits and risks of emerging treatments and other issues relevant to design of a survey for assessing patient preferences for IPF treatments.

**Methods** Semi-structured key informant interviews were conducted, predominately via telephone, with a range of stakeholder perspectives identified through partnership with a national advocacy organization using a combination of purposive and snowball sampling. Stakeholders were asked guiding questions related to emerging trends impacting IPF patients, likely benefits and risks of emerging treatments, and the outcomes most relevant to patients. Detailed and de-identified field notes were analyzed using interpretive phenomenological analysis (IPA), and a taxonomy of key themes was developed.

**Results** A total of 20 interviews (participation rate 63%) were conducted with patients/advocates/caregivers ( $n = 7$ ), providers/researchers ( $n = 8$ ), and experts associated with policy/industry ( $n = 5$ ). All interviewees

expressed great hope with regards to emerging treatments. Three super-ordinate themes emerged: impact of emerging therapies (spanning the benefits, risks, and unintended consequences of emerging therapies); documenting the patient experience (spanning measuring patient-reported outcomes and quality of life and understanding the burden of disease); and coping with disease progression (including symptom mitigation, lung transplantation, and end-of-life considerations).

**Conclusions** In identifying issues associated with emerging IPF treatments, we demonstrate the value of qualitative research in understanding the views of diverse stakeholders and in providing a basis for future survey research. As such, qualitative methods should play an important role in understanding the benefits and risks of emerging therapies and in promoting patient-centered drug development.

## Key Points for Decision Makers

This paper provides important qualitative evidence on stakeholders' views as to important issues associated with emerging therapies for idiopathic pulmonary fibrosis.

Multiple issues were identified spanning the impact of emerging therapies, including the need to document the patient experience with treatment, and factors associated with disease progression.

We demonstrate the value of qualitative research both in understanding the benefits and risks of emerging therapies and in promoting patient-centered drug development.

J. F. P. Bridges (✉) · V. F. Paly  
Department of Health Policy and Management, Johns Hopkins  
Bloomberg School of Public Health, 624 North Broadway,  
Baltimore, MD 21205, USA  
e-mail: jbridge7@jhu.edu

J. F. P. Bridges  
Center for Medicine in the Public Interest, New York, NY, USA

E. Barker · D. Kervitsky  
Pulmonary Fibrosis Foundation, Chicago, IL, USA

## 1 Introduction

Idiopathic pulmonary fibrosis (IPF) is a rare and universally fatal condition associated with chronic cough, dyspnea, and scarring or thickening of the lung tissue without a known cause, making it progressively difficult for patients to breathe [1, 2]. The prevalence of IPF in the USA is estimated to range from 14.0 to 42.7 per 100,000, with higher prevalence and incidence rates among men and with increased age [1, 3]. Median survival rates have been estimated at 2–3 years, but the clinical course of the disease is highly variable and can include a protracted period of symptoms prior to diagnosis [2, 4–6].

Few therapeutic options are available to improve the outcomes of patients with IPF [7]. Medications such as corticosteroids and cytotoxic agents have been used in the past to reduce inflammation in some patients, but these come with serious risks [7]. Currently, there are no pharmacologic treatments approved in the USA for the treatment of IPF [8]. The only curative treatment is lung transplantation, which is not a viable option for most patients with IPF [8]. Promising therapies are being tested in IPF populations, including pirfenidone [9], nintedanib [10], *N*-acetylcysteine (NAC) [8], and thalidomide [11]. Pirfenidone has recently received regulatory approval to treat IPF in Europe, Canada, and Japan [7, 8]. Following positive results from a phase III trial, both pirfenidone and nintedanib are slated to undergo review at the US FDA later this year [12, 13].

IPF has been shown to have a significant impact on health-related quality of life (HRQoL) across several domains, including physical functioning, respiratory symptoms, and level of independence with activities of daily living [14, 15]. Furthermore, in a recent review of surveys of patients with IPF, Belkin and Swigris [16] found that there is substantial room for improvement in the patient experience with respect to the timeliness of diagnosis, expectations of treatment, educational resources, HRQoL, and access to specialty clinics, separate from any detriment to quality of life related to disease symptoms. Unfortunately, direct evidence on the preferences of patients with IPF with respect to treatment and their priorities in general are sparse.

In this study, we sought to qualitatively identify the priorities of patients with IPF from the perspective of multiple stakeholders, with a specific focus on the benefits and risks of emerging treatments in IPF. This study aimed to inform the development of a survey that will more systematically evaluate patient priorities and preferences for benefits and risks of treatment. It has become increasingly important that research be patient-centered, and stakeholder engagement is a requisite piece to ensuring

research priorities are set appropriately, particularly for rare diseases like IPF where the surrounding issues may not be as widely understood [17–20]. The goal of this paper was not to examine how interpretations of the emergence of new therapies vary across stakeholders, but rather to gain a more complete view of the potential impact of new therapies on the patient experience by engaging stakeholders with diverse perspectives. As these new therapies emerge, it is critical to pinpoint the issues most relevant to the patient experience so that the IPF community, clinicians, and regulatory agencies like the FDA can adequately evaluate the benefits and risks of new therapies and prioritize future research.

## 2 Methods

This study used a qualitative and interpretive methodology to engage stakeholders in the IPF community with diverse perspectives via semi-structured interviews. Qualitative data collection is an important step in the design of surveys eliciting patient preferences to avoid omission or misspecification of key issues and can involve a literature review, expert opinion, focus groups, or interviews [21]. Interviews with diverse stakeholders were utilized in this study because they provided an opportunity to have in-depth discussions with the participants, allowing for a richer understanding of the spectrum of concerns and priorities of patients with IPF than would have been feasible given the limited existing literature or via expert opinion. This approach to engagement and qualitative analysis has been shown to be well suited to soliciting respondents' experiences and impressions [18, 22–25].

### 2.1 Study Participants and Recruitment

Types of stakeholders included patients, advocates, and caregivers; providers/researchers; and experts associated with policy or industry. As no treatments for IPF are currently approved in the USA, insurers were not included as a stakeholder group. Stakeholder groups and potential participants within each group were identified through partnership with a national advocacy organization using a combination of purposive and snowball sampling to ensure diverse perspectives were included [18, 26]. Informants were required to be knowledgeable on the clinical, policy, and/or patient perspectives of emerging treatments in IPF. The purpose was to elicit their views on desired benefits and possible risks of novel IPF treatments as well as broader emerging issues related to IPF treatment and the patient experience.

Recruitment was conducted via e-mail and continued until it was determined by investigators that novel views or

themes were no longer being identified. Interviews were semi-structured and conducted by trained research staff via telephone (majority) or in person. Due to the time required to record and transcribe interviews over the telephone, interviews were not recorded. Detailed and de-identified field notes were taken by the interviewer, and participants were contacted for a follow-up interview if any clarification was necessary.

Prior to starting the interview, participants were asked to confirm whether they could speak to the clinical, policy, and/or patient perspectives of emerging therapies in IPF. Guiding questions used by the interviewer included the following:

- Can you briefly tell me about your background and experience in the treatment of IPF?
- What are some of the emerging trends that will impact the treatment of patients diagnosed with IPF?
- Considering the treatments that are likely to emerge over the next 5 years, what will be the likely outcomes (both benefits and risks) that patients will experience?
- In your experience, what outcomes do patients feel are the most important with respect to treatment?
- Are there other key informants that we should speak to that are knowledgeable about the clinical, policy, and/or patient perspectives as they pertain to the benefits and risks of emerging treatments?

Some questions were of more relevance to certain groups of stakeholders than others. For example, patients and caregivers were less knowledgeable about emerging trends in treatment and their likely outcomes than clinicians or policy experts, but spoke at length regarding outcomes most important to patients. Respondents were told that they could opt to not answer any questions if they did not feel they had sufficient knowledge or experience with the topic. While interviewers tried to focus the conversation on the potential benefits and risks of emerging treatments, participants were encouraged to discuss any other key patient concerns or priorities that they felt were important.

## 2.2 Analysis

Interpretive phenomenological analysis (IPA) was conducted to identify and extract themes from the key informant interviews [24, 25, 27]. IPA is a well established qualitative research methodology used to create a thematic narrative from a series of interviews or focus groups [24, 25, 27]. Field notes from each interview were reviewed and annotated with summarizing comments. These comments were aggregated while interviews were ongoing, and were evaluated for common threads and concepts by independent reviewers. From the reviews of the first 15 interviews,

a preliminary taxonomy consisting of common themes and dimensions was developed. The remaining interviews were reviewed in a similar manner but were also evaluated against the preliminary taxonomy to determine whether any new or divergent themes had appeared or if saturation had been achieved. In accordance with the IPA methodology, representative quotes were extracted to illustrate each theme and dimension [22–25]. The RATS qualitative research guidelines, which emphasize the Relevance of the study question, the Appropriateness of the qualitative method, Transparency of procedures, and the Soundness of the interpretive approach, were used to ensure that all relevant information was provided in this manuscript [28].

## 2.3 Ethics

All participants were informed about the purpose of the study, its potential risks and benefits, and that the views they expressed during the interview would remain anonymous but could be used in the dissemination of findings. Participation in the study was voluntary, and respondents were not reimbursed for participation. The study was deemed exempt from human subject's consideration from the Johns Hopkins Bloomberg School of Public Health Institutional Review Board (IRB00005377).

## 3 Results

Of 32 invitees, 20 semi-structured interviews were conducted (Fig. 1). Four invitations and follow-up emails went unanswered. Potential participants who did not respond to the invitation were caregivers and provider/researchers. Five potential participants declined to participate. Among those who declined to participate, reasons for declining included: not feeling that they had sufficient knowledge to contribute (advocate), feeling as though it would be a conflict of interest as an active member of a regulatory agency or national research institution (policy experts), and too busy to participate (researcher). A caregiver also declined to participate as it was determined that her spouse did not have pulmonary fibrosis that was idiopathic in nature. Three invitees agreed to participate, but saturation was reached prior to scheduling interviews. Respondents included seven patients, family caregivers (spouses or adult children), and advocates (from three separate advocacy groups); eight providers and clinical researchers associated with interstitial lung disease clinics at major hospital centers; and five experts associated with policy (regulatory and legislative) or industry (pharmaceutical company). Interviews lasted an average of 45 minutes.

Interviewers informed respondents of the general aims of the interview and their role in the development of a

survey focused on patient priorities and preferences for the benefits and risks of treatments. In general, respondents were encouraging of this research and enthusiastic about their participation. Many felt that this type of stakeholder engagement was previously missing from the field and would help the voices of IPF patients be heard.

*I am really supportive of these efforts. There is a big hole for this type of data. We don't have the resources to look into these types of issues.—Patient advocate*

*It is really important to involve patient perspectives in policy decisions because patients with a rare disease know their disease best.—Policy expert*

From these interviews, we identified three super-ordinate, yet over-lapping themes using interpretive analysis: the impact of emerging therapies, documenting the patient experience, and coping with disease progression. These concepts are presented in Fig. 2.

Across all interviews there was a strong emphasis on an increased awareness of the disease and hope from new treatments, in addition to perceptions of meaningful benefits of emerging therapies and the risk tolerance of patients with IPF. We categorized these three dimensions under a super-ordinate theme that encompassed the impact of emerging therapies. Respondents discussed the challenges of capturing the impact of new therapies not only on pulmonary function but also on the patient experience. Quality of life, functioning, and the overall burden of disease were

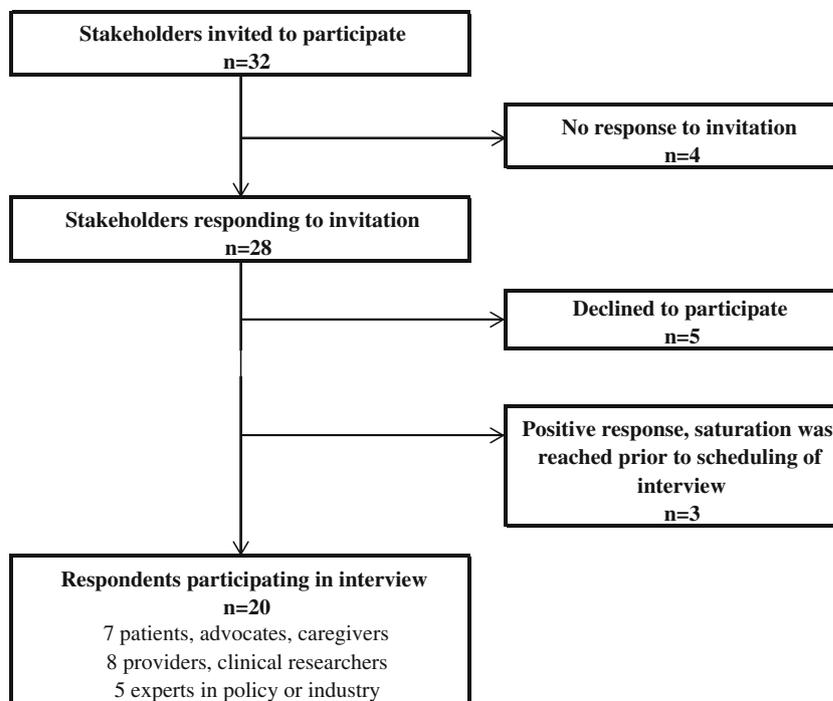
frequently cited concerns, both generally and in the context of new therapies. We interpreted these concepts as falling under a theme of documenting the patient experience. While the focus of the interviews was on emerging therapies, other concerns related to current care were raised, including the necessary focus on symptom mitigation in the absence of effective treatment options, lung transplant considerations, and end-of-life care, which we grouped together as coping with disease progression. Each theme and dimension is discussed in more detail below. Representative quotations for each theme and dimension are provided in Table 1.

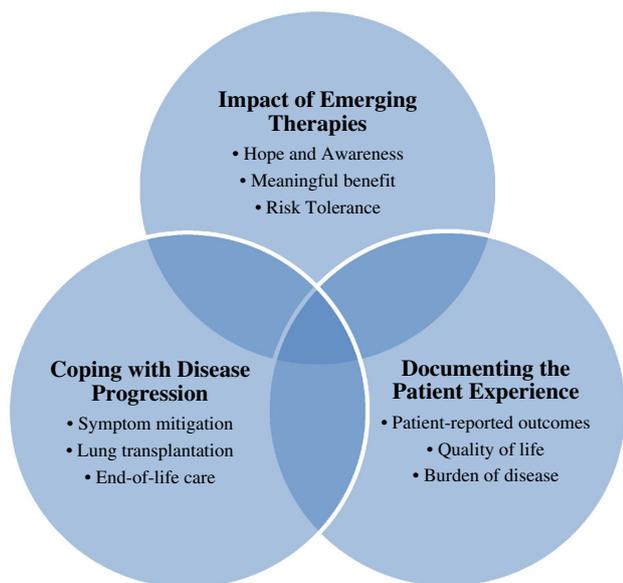
### 3.1 Impact of Emerging Therapies

Respondents almost universally felt that emerging therapies brought a previously nonexistent sense of hope to patients with IPF and an increased level of awareness of the disease (Table 1). Finally shining a light on what one policy expert referred to as a “forgotten illness” seemed to be one of the most important benefits of emerging therapies cited by respondents. Frustration with the current lack of awareness among both the clinical community and the general population was voiced by all types of stakeholders. Many felt increased awareness would bring earlier and better diagnoses, allowing patients to get to specialty clinics earlier.

A greater sense of hope from emerging treatments was also reported by respondents. When asked about the source

**Fig. 1** Recruitment flow chart





**Fig. 2** Key themes and dimensions

of that hope, one participant responded that it “comes from doing anything to address their progressive disease ... they hope they can stay in the game long enough until something else comes down the road.” Respondents did frequently caution that the first therapies to come to market would likely only have marginal benefit in slowing the progression of IPF, highlighting that the currently emerging treatments are not cures. Providers and researchers felt that the first few new treatments to market would pave the way for the real “game-changers” with multi-agent and combination therapies.

Despite the small potential benefit, many respondents indicated that the tolerance for side effects of therapy would be high. The majority of respondents felt that given the paucity of current treatment options and the hopelessness of the disease, patients would be willing to try any treatment regardless of the potential risk, although several acknowledged that risk tolerance would vary from person to person and some patients may place a higher priority on maintaining quality of life. Many felt that patients would be willing to try risky new treatments as a way to “be a part of lessening other people’s burdens”.

### 3.2 Documenting the Patient Experience

Providers, researchers, and policy experts emphasized the challenges of measuring outcomes that are most relevant to the patient (Table 1). Pulmonary function has predominantly been used as the primary endpoint in clinical studies. Respondents reported a need for an endpoint that better captures the impact of a new therapy on the patient, particularly given that pulmonary function does not

necessarily correlate with physical functioning. Many stakeholders discussed the need for a validated patient-reported outcome (PRO) instrument, but they also lamented the hurdles of developing one within the current regulatory environment. Stakeholders highlighted the challenge is determining a clinically important difference within a PRO, given that emerging treatments, at best, are only slowing the rate of progression.

Shortness of breath and cough were the most commonly cited symptoms reported as having a high burden on patients with IPF, impacting their ability to perform activities of daily living. Many respondents felt patients would place a high priority on improving or mitigating these symptoms. One caregiver stated that for her and her mother when considering therapy, “it’s really about what’s going to improve the quality versus the length of your life.” However, clinicians and researchers noted that emerging treatments are more targeted on slowing the deterioration of pulmonary function than mitigating the impact of these symptoms.

Patients, advocates, and caregivers cited the loss of independence and the resulting burden on their families as an important concern for patients with IPF. In addition to the burden from loss of independence, several cited the fear of potentially having a familial form of disease that would be an additional burden to their families. A feeling of embarrassment from being visibly ill was also discussed, particularly how shortness of breath and the need for supplemental oxygen “shows the world that you are sick”.

### 3.3 Coping with Disease Progression

All respondents voiced concern about the lack of effective treatments currently available in the USA, and many responses to questions regarding issues with emerging treatments were qualified by this fact (Table 1). Stakeholders highlighted that previous regimens focused on immunosuppression with steroid therapies and that as more data were gathered and analyzed over time, such strategies have been shown to be ineffective and potentially unsafe. Providers attributed their current focus on symptom mitigation to this paucity of effective treatment options.

Despite the risks and expense, stakeholders stressed that transplant remains the only option for a true cure. Given the small magnitude of improvement offered by emerging treatments, most respondents felt that new treatments would not replace transplant as an option. However, there was no consensus as to whether the availability of treatments would improve or worsen a patient’s chances for receiving a transplant.

With respect to the end of life, the fear of suffocating was a frequent concern voiced by respondents. Many felt that most patients, given their terminal diagnosis, wanted to

**Table 1** Representative quotations

Theme	Dimension	Sample quotations
Impact of emerging therapies	Hope and awareness	<i>There is a new sense of hope with new treatments ... They know this is just the beginning but that this has provided new interest in the field.—Clinical Researcher</i> <i>There will be improvement in awareness of disease [from emerging treatments] so patients can get to a specialty center, get a proper diagnosis, and get referred to research studies.—Provider</i>
	Meaningful benefits	<i>The magnitude of the effect of emerging treatments is not really disease altering.—Clinical Researcher</i> <i>Real changes will come from multi-agent/combination therapies.—Policy Expert</i>
	Risk tolerance	<i>Patients are suffering, desperate, and scared and are looking for any help in a drug or therapy. Their first thought is the potential benefit. Tolerability is a secondary consideration.—Advocate</i> <i>Risk tolerance will differ based on the number of available options. With no options, patients are willing to accept a lot of risk because the alternative is quite certain.—Policy Expert</i>
Documenting the patient experience	Patient-reported outcomes	<i>It is important to distinguish between lung function and physical function. Improvements in one may not necessarily mean improvements in the other.—Provider</i> <i>The holy grail is longer life, but patients would be thrilled if they could just function better.—Policy Expert</i>
	Quality of life	<i>Symptom improvement is a priority if you can't increase longevity. Their activity level is important to patients.—Clinical Researcher</i> <i>The challenge with IPF is that it is a relentlessly progressive disease. New treatments slow the diminution of quality of life, which is difficult measure.—Policy Expert</i>
	Burden of disease	<i>Losing their independence and becoming a burden to their family is a big concern.—Clinical Researcher</i> <i>With the oxygen tank, you are de facto weak. People look at you like you're crippled.—Patient</i>
Coping with disease progression	Symptom mitigation	<i>Right now the focus is on quality of life not quantity. There is not a lot that can be done right now to change the trajectory of the disease. We're just trying to make the best of a bad situation.—Provider</i> <i>We had to focus on quality of life because it was the only thing we could do ... make him as comfortable as possible.—Caregiver</i>
	Lung transplant	<i>Transplant is very expensive. And on average the improvement in survival is not that great.—Policy Expert</i> <i>It's possible that more drugs will allow patients to be eligible [for transplant] longer ... [but] it could go the other way—transplants are not worth the risk anymore given the new treatments available.—Policy Expert</i>
	End of life	<i>Patients want to know what the end is like. They are afraid of suffocating in their own bodies.—Advocate</i> <i>If there was a plan, if we knew what was going on, then we could make decisions .... There are no standard procedures for end-of-life decision makers.—Advocate</i>

IPF idiopathic pulmonary fibrosis

know what the end would be like, while others did not want to discuss it. Some respondents also expressed concern with the inconsistent availability of end-of-life counseling and resources for patients with IPF.

#### 4 Discussion

Diverse patient and stakeholder engagement is increasingly important as regulatory agencies and other decision makers aim to be more inclusive of patient perspectives and more transparent in assessing the benefits and risks of therapy [20, 29]. The issues identified in this study will inform the development of more formal assessment

of patient preferences and priorities, which will enable the issues most relevant to the patient experience to be taken into account by clinicians, researchers, and policy makers.

The issues identified through these interviews are supported by sentiments reported in previous studies. Respondents almost universally indicated that a sense of hopelessness plagued patients with IPF but that emerging therapies would bring increased awareness and hope despite a limited expectation of benefit. Similar feelings of hopelessness and lack of awareness were identified in the recent review of studies evaluating the patient experience by Belkin and Swigris [16]. Protracted time to diagnosis of IPF was a primary concern among patients, and was

attributed, in part, to low levels of awareness of IPF as a potential diagnosis [4, 6, 16, 30].

Many respondents felt that the tolerance for treatment side effects would be high among patients with IPF given the lack of viable treatment options and that there would be a willingness to try novel and potentially risky therapies. However, there was also an emphasis on the importance of quality of life, which respondents indicated certain patients may weigh more heavily than increased longevity. Similarly, through focus groups and interviews with IPF patients, Swigris et al. [31] found that patients felt the side effects of the treatments that were common at the time (e.g., corticosteroids, cytotoxic agents) to be worse than the symptoms of IPF, but that almost all patients expressed a willingness to try experimental therapies in development.

It is important to acknowledge the limitations of this study. First, respondents were predominantly speaking to the experience of patients in the US setting, and the taxonomy developed here may not be applicable to other countries. Some researchers did discuss the experience in the EU since the approval of pirfenidone, and, based on this limited feedback, the concepts and issues facing patients seemed comparable across the pre-approval environment in the USA and the post-approval environment in EU. Second, despite the clinical expertise of some of the researchers or clinicians interviewed, emerging therapies are still under investigation, and therefore the true benefits and risks associated with those therapies remain unknown. Furthermore, the views of our respondents on the benefits and risks of new therapies and their impact on the patient experience may change once those therapies come to market. It is also important to note that, given the nature of the interviews, participants spoke from the entirety of their experience with IPF, both personally and professionally, and their views may not necessarily have been limited to the perspective of the stakeholder group with which they are labeled. We caution readers not to make inferences about differences in perspectives across stakeholder groups.

Finally, the qualitative approach employed in this study to identify the benefits and risk of emerging therapies and other priorities does not provide insight into the preferences of patients with IPF in the way that a more in-depth qualitative analysis or quantitative approach could [32, 33]. The goal of this study was to provide a foundation for the development of a survey that will more systematically capture patient priorities and preferences. Increasingly, more stated-preference methods are being employed to measure patient preferences in regulatory benefit–risk assessments as they provide quantitative measurement of patients' maximum acceptable risk and minimum acceptable benefits [32, 34]. This study provides an important basis for future research, both qualitative and quantitative,

on patient preferences for the benefits and risks of treatment for IPF [17, 35].

## 5 Conclusions

Given a paucity of research documenting the perspectives of patients and other stakeholders associated with IPF, this paper makes an important contribution by highlighting the value of qualitative research. By engaging diverse stakeholders associated with the disease, we have made an important first step in documenting the variety of issues associated with the benefits and risks of emerging therapies, but we have also demonstrated the value of qualitative research in promoting patient-centered drug development. Furthermore, this research lays an important foundation for the development of future surveys to document patient preferences. Using the qualitative research as a foundation, future stated-preference research will help shed light on the patients' perspective. Such data will play an important role in regulatory benefit–risk analysis in that it will help to define meaningful benefits, risk tolerance, treatment preferences, and other priorities that patients might have.

**Acknowledgments** The authors would like to thank the respondents for their participation. This study was funded by the Center for Medicine in the Public Interest (CMPI) thanks to the support of InterMune. Barker and Kervitsky are employees of the Pulmonary Fibrosis Foundation (PFF), a non-profit organization whose mission is to act as the trusted resource for all who are affected by this disease. Bridges has also received funding for speaking engagements and travel from InterMune. All authors contributed to the design of this study and writing of the manuscript. Bridges and Paly conducted and analyzed the data from the study.

## References

1. Olson AL, Swigris JJ. Idiopathic pulmonary fibrosis: diagnosis and epidemiology. *Clin Chest Med.* 2012;33(1):41–50.
2. Raghu G, Collard HR, Egan JJ, Martinez FJ, Behr J, Brown KK, et al. An official ATS/ERS/JRS/ALAT statement: idiopathic pulmonary fibrosis: evidence-based guidelines for diagnosis and management. *Am J Respir Crit Care Med.* 2011;183(6):788–824.
3. Raghu G, Weycker D, Edelsberg J, Bradford WZ, Oster G. Incidence and prevalence of idiopathic pulmonary fibrosis. *Am J Respir Crit Care Med.* 2006;174(7):810–6.
4. Collard HR, Tino G, Noble PW, Shreve MA, Michaels M, Carlson B, et al. Patient experiences with pulmonary fibrosis. *Respir Med.* 2007;101(6):1350–4.
5. Ley B, Collard HR, King TE Jr. Clinical course and prediction of survival in idiopathic pulmonary fibrosis. *Am J Respir Crit Care Med.* 2011;183(4):431–40.
6. Schoenheit G, Becattelli I, Cohen AH. Living with idiopathic pulmonary fibrosis: an in-depth qualitative survey of European patients. *Chron Respir Dis.* 2011;8(4):225–31.
7. Cottin V. Changing the idiopathic pulmonary fibrosis treatment approach and improving patient outcomes. *Eur Respir Rev.* 2012;21(124):161–7.

8. Jones MG, Fletcher S, Richeldi L. Idiopathic pulmonary fibrosis: recent trials and current drug therapy. *Respiration*. 2013;86(5):353–63.
9. Noble PW, Albera C, Bradford WZ, Costabel U, Glassberg MK, Kardatzke D, et al. Pirfenidone in patients with idiopathic pulmonary fibrosis (CAPACITY): two randomised trials. *Lancet*. 2011;377(9779):1760–9.
10. Richeldi L, Costabel U, Selman M, Kim DS, Hansell DM, Nicholson AG, et al. Efficacy and safety of tyrosine kinase inhibitor in idiopathic pulmonary fibrosis. *N Engl J Med*. 2011;365(12):1079–87.
11. Horton MR, Santopietro V, Mathew L, Horton KM, Polito AJ, Liu MC, et al. Thalidomide for the treatment of cough in idiopathic pulmonary fibrosis: a randomized trial. *Ann Intern Med*. 2012;157(6):398–406.
12. King TE, Bradford WZ, Castro-Bernardini S, Fagan EA, Glasspole I, Glassberg MK, et al. A phase 3 trial of pirfenidone in patients with idiopathic pulmonary fibrosis. *N Engl J Med*. 2014;370(22):2083–92.
13. Richeldi L, du Bois RM, Raghu G, Azuma A, Brown KK, Costabel U, et al. Efficacy and safety of nintedanib in idiopathic pulmonary fibrosis. *N Engl J Med*. 2014;370(22):2071–82.
14. Swigris JJ, Kuschner WG, Jacobs SS, Wilson SR, Gould MK. Health-related quality of life in patients with idiopathic pulmonary fibrosis: a systematic review. *Thorax*. 2005;60(7):588–94.
15. De Vries J, Kessels BL, Drent M. Quality of life of idiopathic pulmonary fibrosis patients. *Eur Respir J*. 2001;17(5):954–61.
16. Belkin A, Swigris JJ. Patient expectations and experiences in idiopathic pulmonary fibrosis: implications of patient surveys for improved care. *Expert Rev Respir Med*. 2014;8(2):173–8.
17. Gooberman-Hill R. Qualitative approaches to understanding patient preferences. *Patient*. 2012;5(4):215–23.
18. O'Haire C, McPheeters M, Nakamoto E, LaBrant L, Most C, Lee K, et al. Methods for engaging stakeholders to identify and prioritize future research needs. *Methods Future Research Needs Report No. 4*. June 2011, AHRQ Publication No. 11-EHC044-EF.
19. Fleurence R, Selby JV, Odom-Walker K, Hunt G, Meltzer D, Slutsky JR, et al. How the Patient-Centered Outcomes Research Institute is engaging patients and others in shaping its research agenda. *Health Aff (Millwood)*. 2013;32(2):393–400.
20. Mullard A. Patient-focused drug development programme takes first steps. *Nat Rev Drug Discov*. 2013;12(9):651–2.
21. Coast J, Al-Janabi H, Sutton EJ, Horrocks SA, Vosper AJ, Swancutt DR, et al. Using qualitative methods for attribute development for discrete choice experiments: issues and recommendations. *Health Econ*. 2012;21(6):730–41.
22. Bridges JF, Gallego G, Blauvelt BM. Controlling liver cancer internationally: A qualitative study of clinicians' perceptions of current public policy needs. *Health Res Policy Syst*. 2011;9:32–4505.
23. Bridges JF, Anderson BO, Buzaid AC, Jazieh AR, Niessen LW, Blauvelt BM, et al. Identifying important breast cancer control strategies in Asia, Latin America and the Middle East/North Africa. *BMC Health Serv Res*. 2011;11:227–6963.
24. Smith JA, Osborn M. *Qualitative psychology: a practical guide to research methods*. London: Sage Publications; 2008.
25. Smith JA, Flowers P, Larkin M. *Interpretive phenomenological analysis: theory, method, and research*. London: Sage Publications; 2009.
26. Malterud K. Qualitative research: standards, challenges, and guidelines. *Lancet*. 2001;358(9280):483–8.
27. Larkin M, Watts S, Clifton E. Giving voice and making sense in interpretative phenomenological analysis. *Qual Res Psychol*. 2006;3(2):102–20.
28. BioMed Central. *Qualitative research review guidelines - RATS*. Available at: <http://www.biomedcentral.com/authors/rats>. Accessed 3 Mar 2014.
29. Food and Drug Administration. *Enhancing benefit-risk assessment in regulatory decision-making*. 2014; Available at: <http://www.fda.gov/ForIndustry/UserFees/PrescriptionDrugUserFee/ucm326192.htm>. Accessed 01 Feb 2014.
30. Flaherty KR, King TE Jr, Raghu G, Lynch JP 3rd, Colby TV, Travis WD, et al. Idiopathic interstitial pneumonia: what is the effect of a multidisciplinary approach to diagnosis? *Am J Respir Crit Care Med*. 2004;170(8):904–10.
31. Swigris JJ, Stewart AL, Gould MK, Wilson SR. Patients' perspectives on how idiopathic pulmonary fibrosis affects the quality of their lives. *Health Qual Life Outcomes*. 2005;7(3):61.
32. Hauber BA, Fairchild AO, Johnson RF. Quantifying benefit-risk preferences for medical interventions: an overview of a growing empirical literature. *Appl Health Econ Health Policy*. 2013;11(4):319–29.
33. Bridges JF, Kinter ET, Kidane L, Heinzen RR, McCormick C. Things are looking up since we started listening to patients: trends in the application of conjoint analysis in health 1982–2007. *Patient*. 2008;1(4):273–82.
34. Facey K, Boivin A, Gracia J, Hansen HP, Lo Scalzo A, Mossman J, et al. Patients' perspectives in health technology assessment: a route to robust evidence and fair deliberation. *Int J Technol Assess Health Care*. 2010;26(3):334–40.
35. Peay H, Hollin I, Fischer R, Bridges J. A community-engaged approach to quantifying caregiver preferences for the benefits and risks of emerging therapies for Duchenne muscular dystrophy. *Clin Ther*. 2014;36(5):624–37.