



Prise en charge globale du patient dans la Fibrose interstitielle diffuse
Comprehensive care for patients with pulmonary fibrosis

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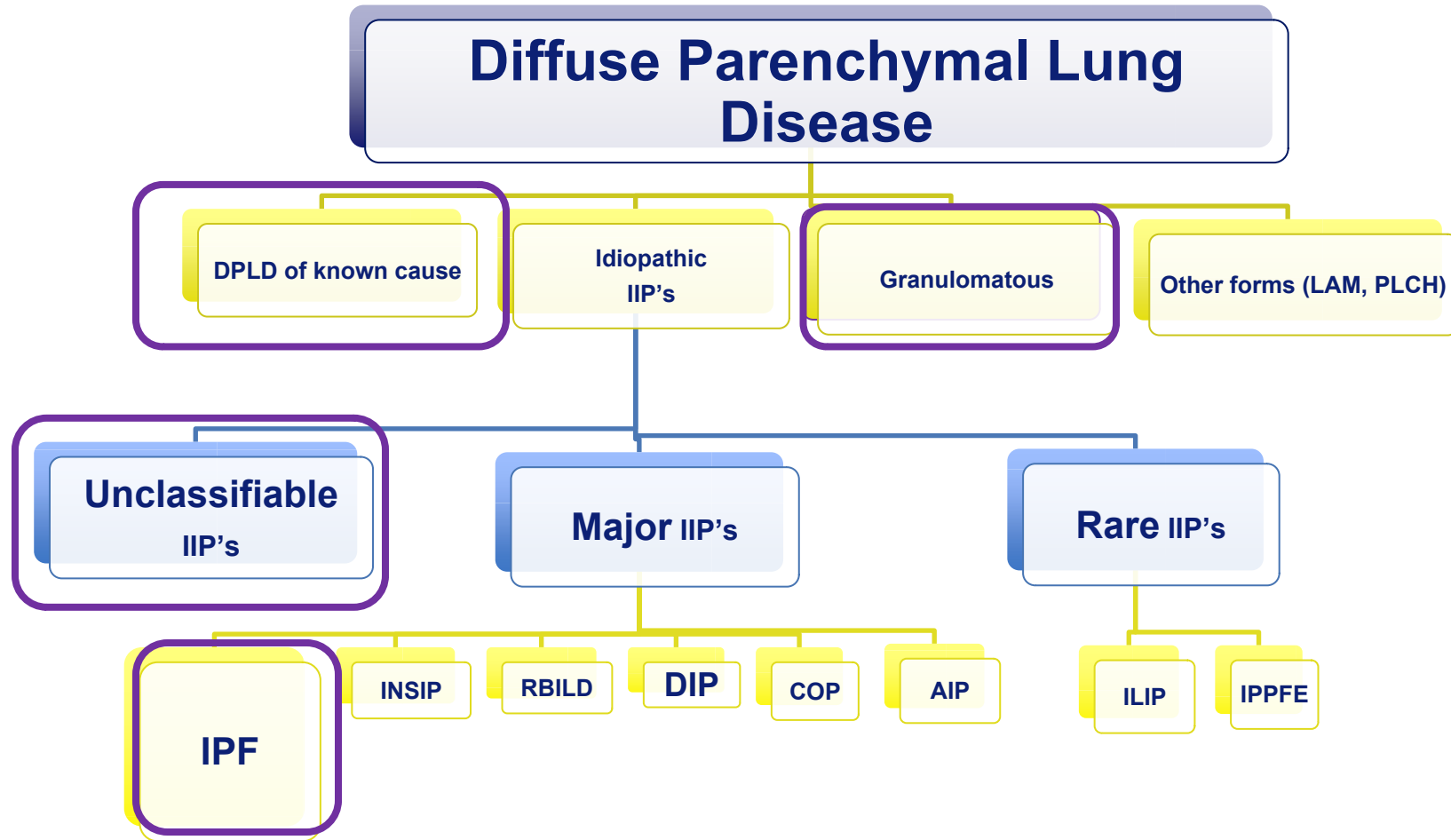
Disclosures

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- All fees were paid to my institution

- **The impact of disease: patient and partner's needs**
- **Therapeutic needs and palliative care go hand in hand**
- **Holistic approach to ILD care: ABCDE of ILD care**



Many Interstitial Lung Diseases show fibrosis

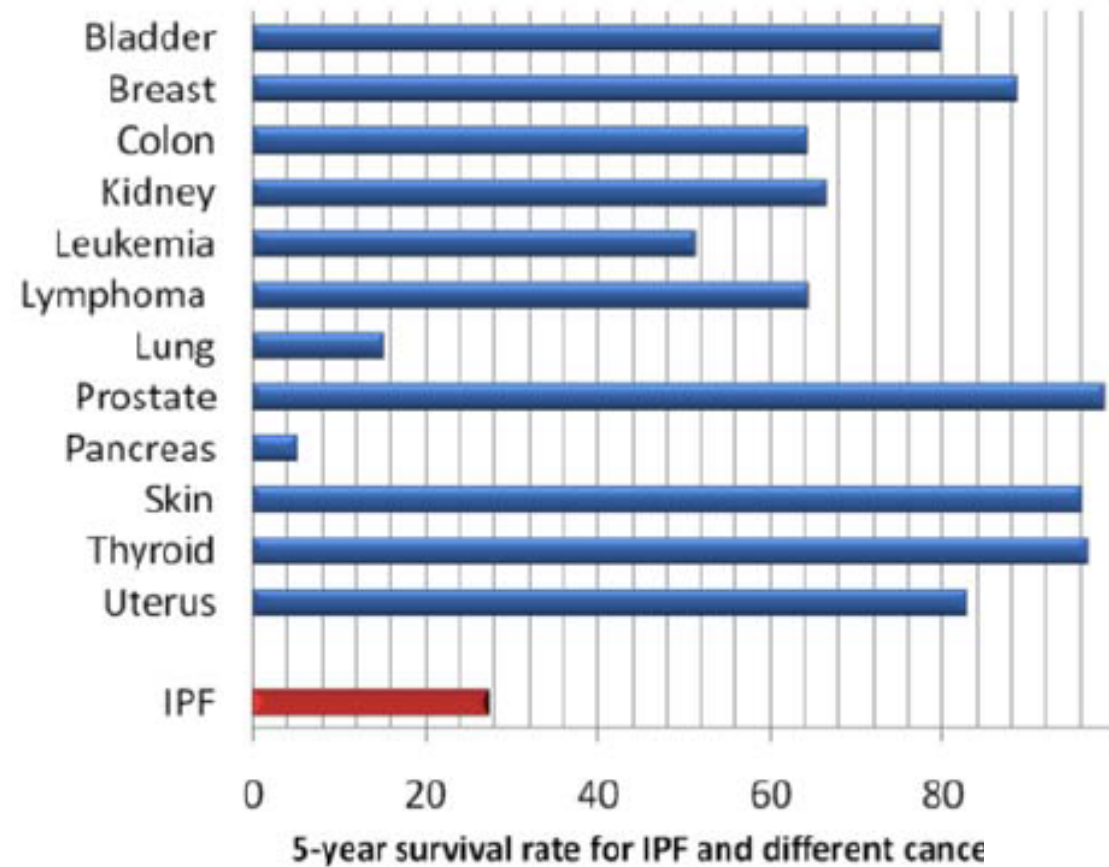


IPF IS A CHRONIC PROGRESSIVE AND DEADLY DISEASE

Increasing symptoms

- Shortness of breath
- Fatigue
- Cough

More lethal than many cancers

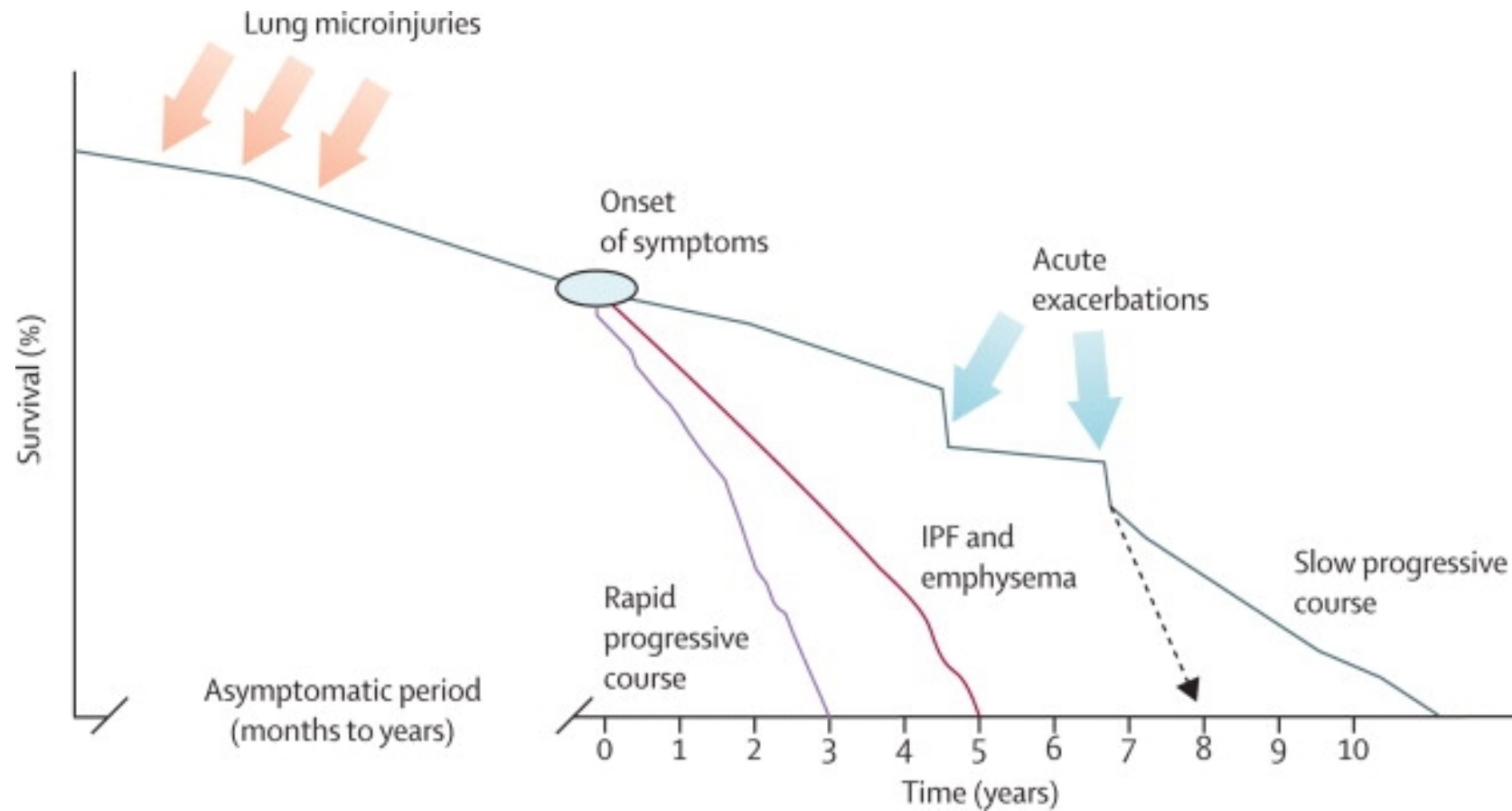


The Voice of the Patient

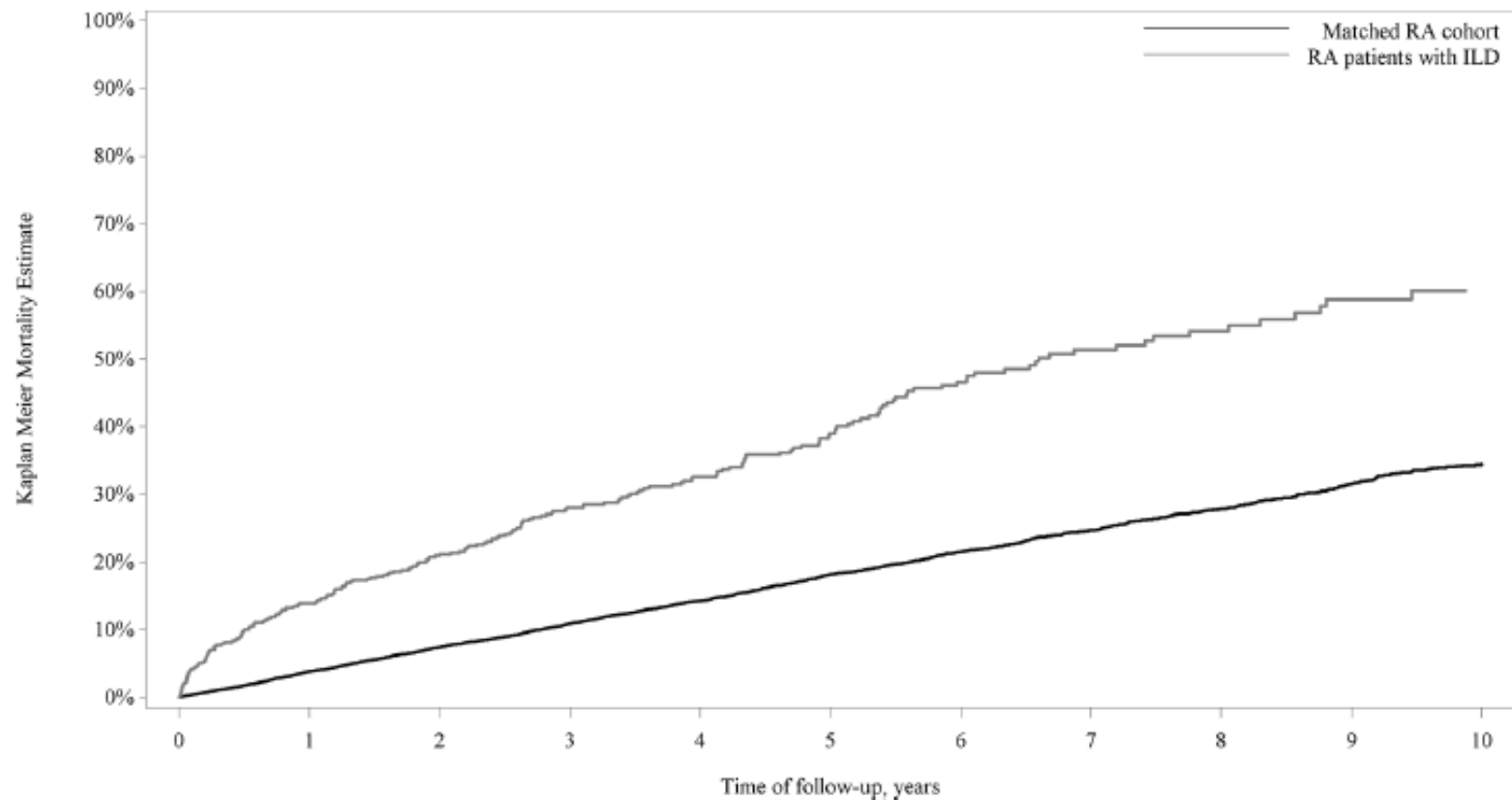
A series of reports from the U.S. Food and Drug Administration's (FDA's) Patient-Focused Drug Development Initiative

Idiopathic Pulmonary Fibrosis

DISEASE DIFFERS FROM PATIENT TO PATIENT



Many other ILD's show a similar progressing fibrotic phenotype and also impaired survival



Participants Among patients with RA diagnosed between 2004 and 2016, 679 patients with RA-ILD were matched for birth year, gender and age at RA diagnosis with 11 722 patients with RA but without ILD.

One-year mortality was 13.9% (95% CI, 11.4% to 16.7%) in RA-ILD and 3.8% (95% CI, 3.5% to 4.2%) in non-ILD RA,

Hylgaard C, et al. *Ann Rheum Dis* 2017;76:1700-6.

Assayag D, et al. *Radiology* 2014;270:583-8.

Winstone TA, et al. *Chest* 2014;146:422-36.

Patterson KC, Strek ME. *Ann Am Thorac Soc* 2013;10:362-70.

Salisbury ML, et al. *Am J Respir Crit Care Med* 2017;196:690-699.

Many other ILD's show a similar progressing fibrotic phenotype and also impaired survival and quality of life

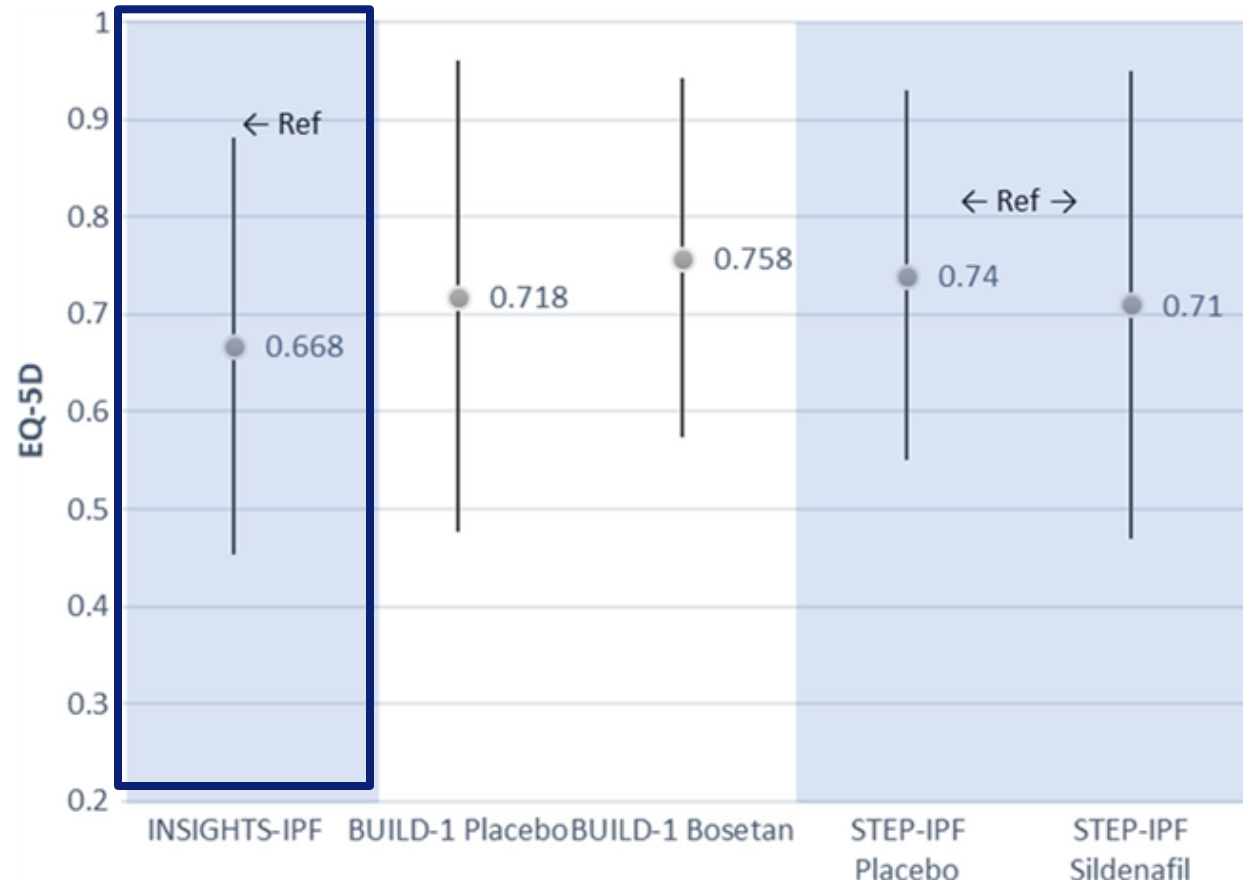
Quality of life in IPF and in other ILD

	IPF (n=108) Mean (SD) N(%)	ILD, non IPF (n=68) Mean (SD) N(%)
K-BILD Total [0-100]	51.9 (22.2)	58.7(21.81)
SGRQ Total [0-100]	48.9 (20.9)	41.7 (20.8)
EQ-5D-5L Index value[-0.329-1.00]	0.66 (0.23)	0.74 (0.19)
Lung function		
FVC % predicted n= 163	72.5 (16.8)	79.1 (20.2)
FEV1 %predicted n=162	75.8 (17.6)	72.9 (19.6)
TLC % predicted n=125	62.3 (13.3)	72.3 (18.0)
TLCOc % predicted n=139	47.1 (15.2)	59.5 (19.2)

IPF has considerable impact on HRQOL relative to general population levels

Our cohort ILD 0.74
Our cohort IPF 0.66

EuroQol 5-level questionnaire (EQ-5D) in patients with IPF compared with the general population (reference). The lowest and highest of the available intervals are shown in the figure



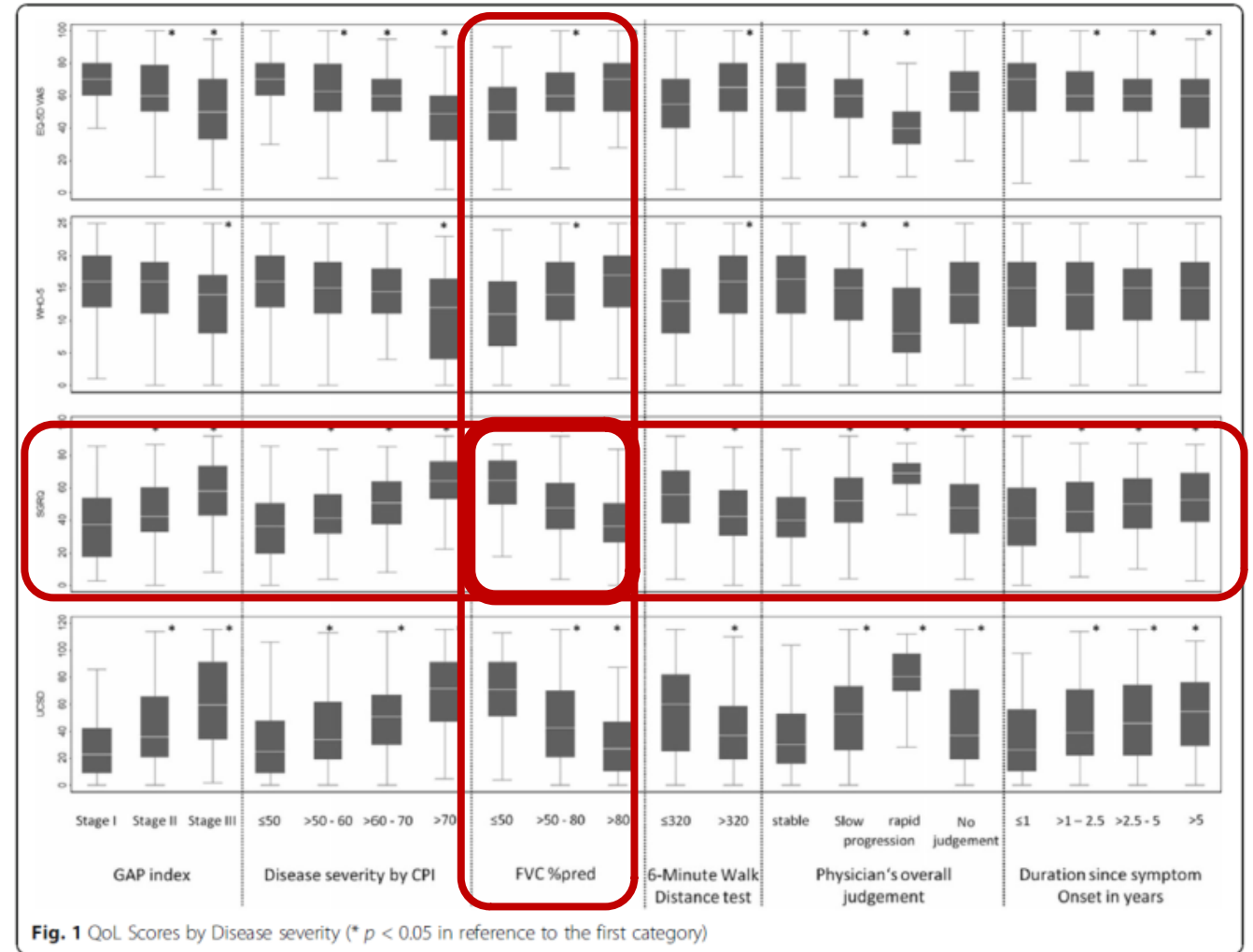
Quality of life in IPF in clinical practice

German registry
623 Patient with IPF

More severely impaired HRQOL

Mean SGRQ score 48.3
(INPULSIS 39.4 /39.8)

Mean USCD score 47.8
(ASCEND 34.0-36.6)



HRQOL, health related quality of life. SGRQ: St George Respiratory Questionnaire. UCSD: University of California Shortness of breath scale. EQ-5d Euroqol 5-level questionnaire

Kreuter M et al. HRQOL in patients with idiopathic pulmonary fibrosis in clinical practice. *Respir Res* 2017; 18(1): 139.

Categorical relationship between QoL and physiological parameters

Physiological outcomes do not correlate well with patient reported outcome measures

Correlation K-BILD and lung function tests

K-BILD	Lung function		
	FEV ₁ %	FVC%	TLco%
Psychological	0.46	0.38	0.45
Breathlessness and activity	0.55	0.51	0.52
Chest symptoms	0.48	0.45	0.42
Total	0.53	0.47	0.50

Correlation SGRQ and SGRQ-I and pulmonary physiology

	Symptoms		Activity		Impacts		Total	
	SGRQ	SGRQ-I	SGRQ	SGRQ-I	SGRQ	SGRQ-I	SGRQ	SGRQ-I
FVC%	-0.27*	-0.25 [†]	-0.31 [†]	-0.30 [†]	-0.30 [†]	-0.31 [†]	-0.34 [†]	-0.33 [†]
TLco%	-0.23*	-0.25 [†]	-0.34 [†]	-0.33 [†]	-0.38 [†]	-0.36 [†]	-0.38 [†]	-0.37 [†]
6MWD	-0.14	-0.12	-0.32 [†]	-0.30 [†]	-0.24*	-0.26 [†]	-0.28*	-0.28*

Besides lungfunction, dyspnea, cough and depression are major drivers of quality of life

Australian registry shows that there is a strong association between dyspnea, cough, depression and health related quality of life

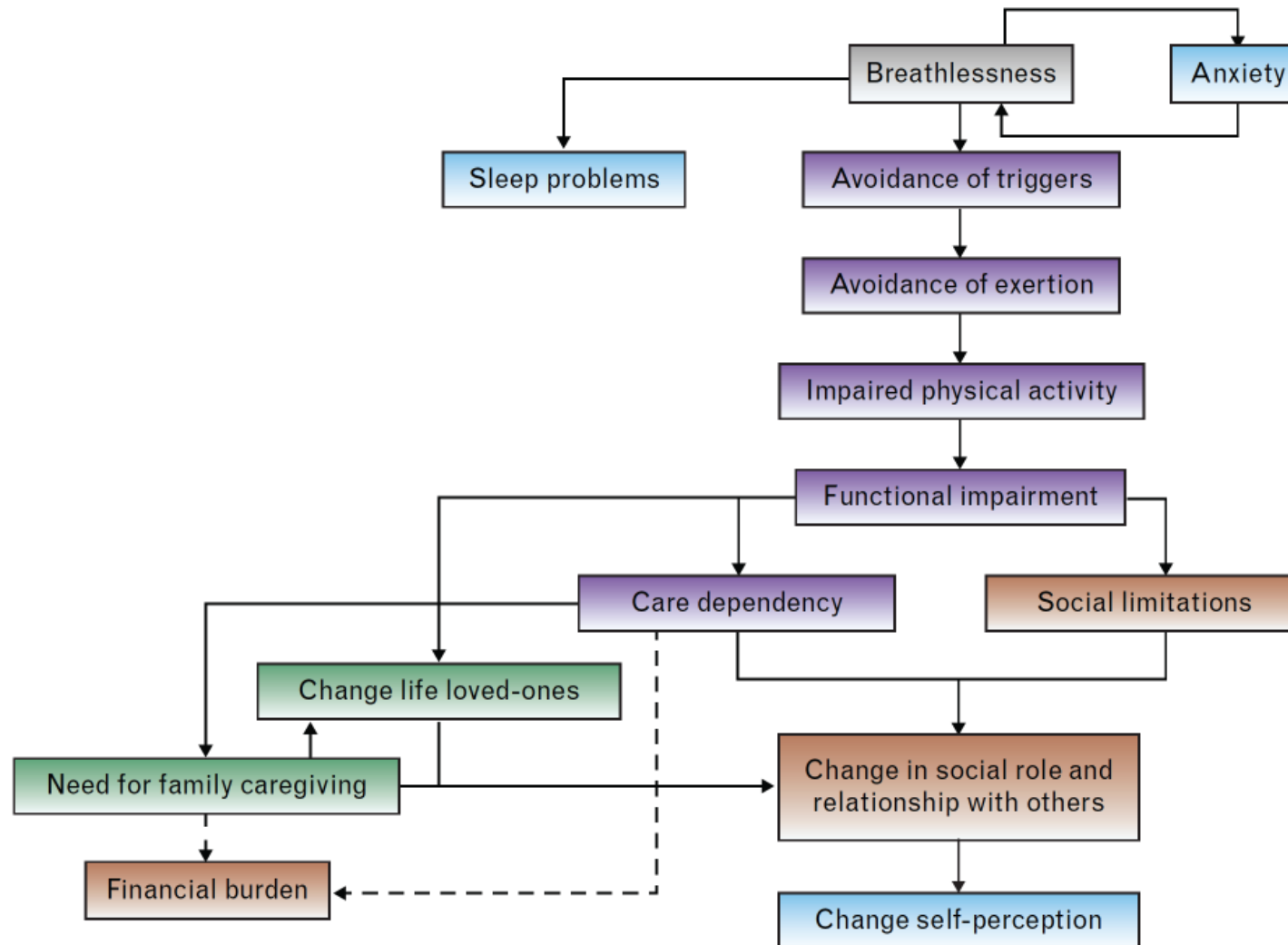
Table 4 Multivariate predictors of health-related quality of life

Variable	Regression coefficient	Standard error	P-value	Partial R ²	Model R ²
UCSD-SOBQ	0.431	0.043	<0.0001	0.709	0.709
Cough VAS	0.202	0.045	<0.0001	0.057	0.766
HADS-D	1.427	0.332	<0.0001	0.035	0.802

HADS, Hospital Anxiety and Depression Scale; UCSD-SOBQ, University of California San Diego Shortness of Breathlessness Questionnaire; VAS, visual analogue scale.

*Health related quality of life was assessed with the St George Respiratory Questionnaire

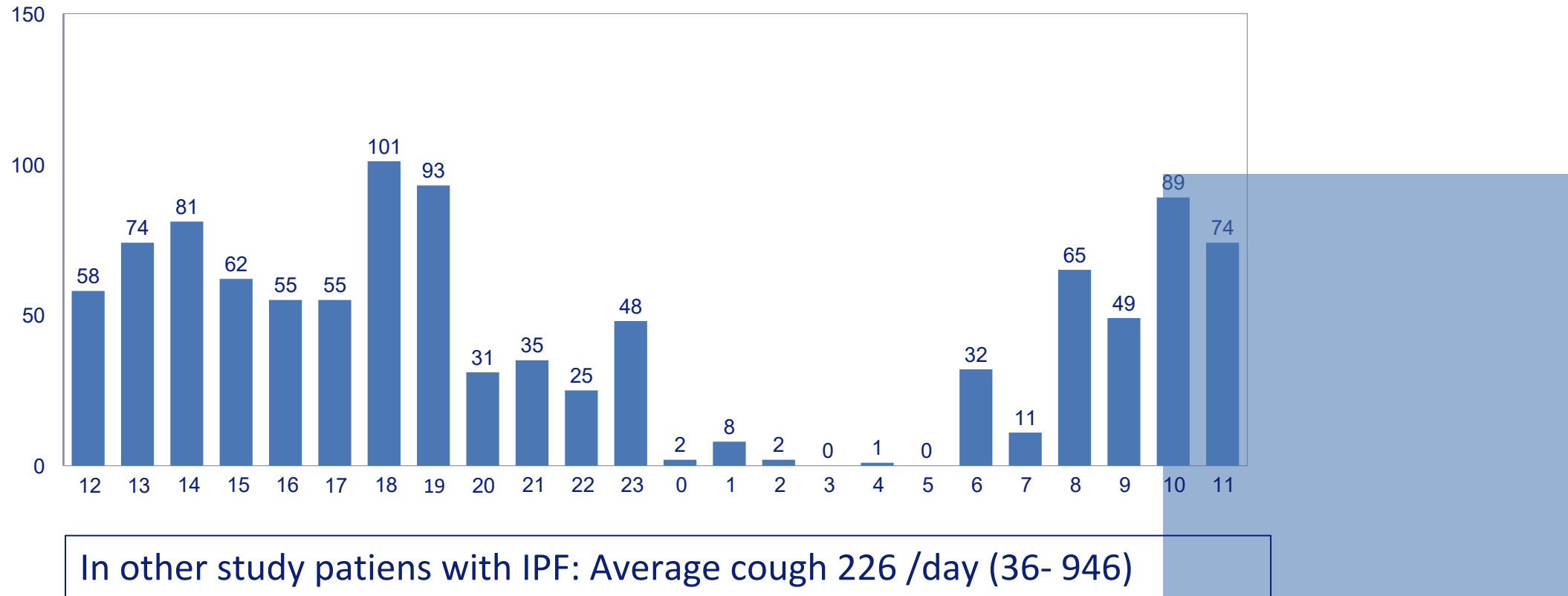
Breathlessness may have major behavioural, psychological and social consequences



Cough in IPF

Cough measurements

Median 24-hour cough-count 520 (91-3394)

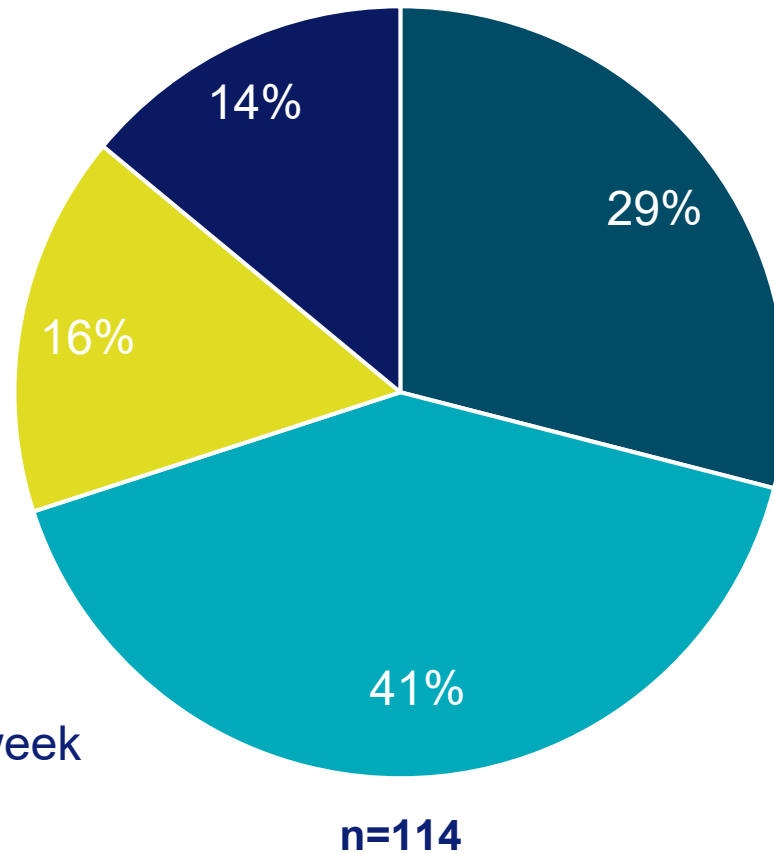


In other study patients with IPF: Average cough 226 /day (36- 946)

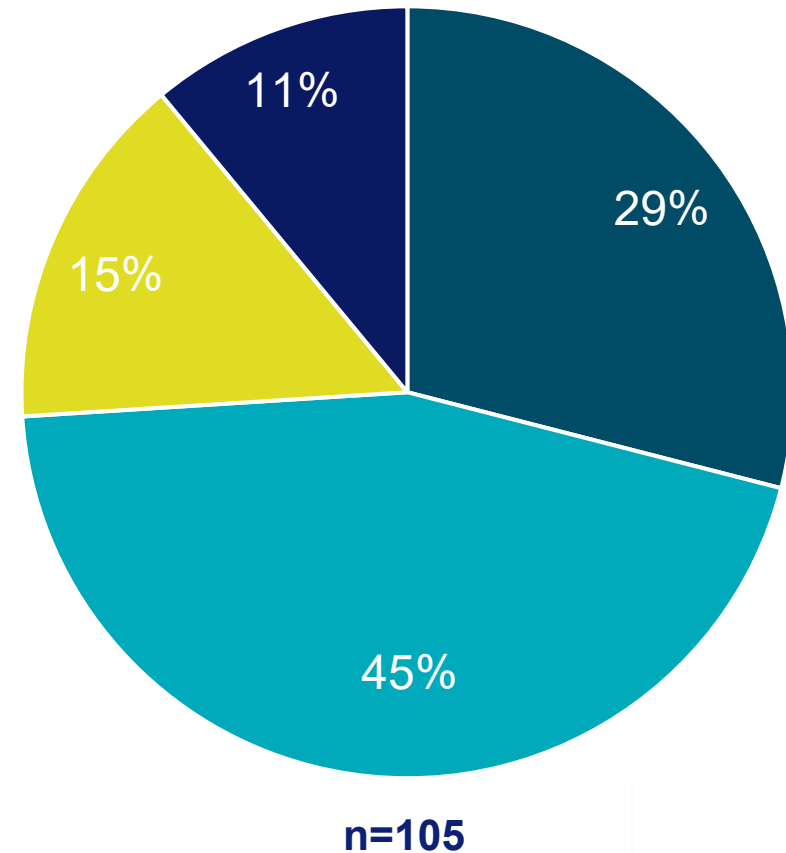
Cough independent predictor of disease progression

General Anxiety and Distress Score (GAD-1) in patient with IPF and their partners

How often have you been able to relax in the last 2 weeks (patient) ?



How often have you been able to relax in the last 2 weeks (partners) ?



- Not at all
- Several days
- More than half of the week
- Almost every day

Fatigue, no good studies on prevalence

In Nintedanib trials Fatigue in < 10% of patients placebo arm and treatment arm

Table 2
Adverse events: Pooled data from the TOMORROW and INPULSIS® trials.

N (%)	Nintedanib 150 mg bid (n = 723)	Placebo (n = 456)
Any adverse event(s)	689 (95.3)	456 (89.8)
Most frequent adverse events*		
Diarrhoea	445 (61.5)	91 (17.9)
Nausea	176 (24.3)	36 (7.1)
Nasopharyngitis	93 (12.9)	79 (15.6)
Cough	93 (12.9)	75 (14.8)
Vomiting	85 (11.8)	15 (3.0)
Decreased appetite	81 (11.2)	24 (4.7)
Bronchitis	76 (10.5)	56 (11.0)
Progression of IPF ^b	68 (9.4)	72 (14.2)
Upper respiratory tract infection	65 (9.0)	55 (10.8)
Dyspnoea	55 (7.6)	59 (11.6)
Severe adverse event(s)	193 (26.7)	119 (23.4)
Serious adverse event(s)	217 (30.0)	153 (30.1)
Fatal adverse event(s)	38 (5.3)	43 (8.5)
Adverse event(s) leading to treatment discontinuation ^c	149 (20.6)	76 (15.0)
Diarrhoea	38 (5.3)	1 (0.2)
Nausea	17 (2.4)	0 (0.0)
Progression of IPF ^b	15 (2.1)	27 (5.3)
Decreased appetite	11 (1.5)	1 (0.2)
Weight decreased	8 (1.1)	1 (0.2)
Abdominal pain	7 (1.0)	1 (0.2)
Vomiting	7 (1.0)	1 (0.2)
Pneumonia	6 (0.8)	5 (1.0)

Treated set (patients treated with ≥1 dose of trial drug).

* Adverse events reported by >10% of patients in either treatment group.

^b Corresponds to the MedDRA term 'IPF', which included disease worsening and IPF exacerbations.

^c Adverse events leading to treatment discontinuation in ≥1% of patients in either treatment group by MedDRA preferred term.

In Pirfenidone trials Fatigue in 19% of patients placebo arm and 26% treatment arm

Table 3 Treatment-emergent adverse events*

	Integrated population (N=1299)†	Phase 3 multinational trials‡	
		Pirfenidone (N=623)	Placebo (N=624)
Duration of exposure, median (range), years	1.7 (>0, 9.9)	1.0 (>0, 2.3)	1.0 (>0, 2.3)
Treatment-emergent adverse event, %			
Nausea	37.6	36.1	15.5
Cough	35.1	27.8	29.2
Dyspnoea	30.9	16.9	20.2
Upper respiratory tract infection	30.6	26.8	25.3
Idiopathic pulmonary fibrosis	29.3	13.0	19.9
Fatigue	28.2	26.0	19.1
Diarrhoea	28.1	25.8	20.1
Rash	25.0	30.3	10.3
Bronchitis	23.8	14.1	15.4
Headache	21.6	22.0	19.2
Nasopharyngitis	21.3	16.7	17.9
Dizziness	21.2	18.0	11.4
Dyspepsia	18.4	18.5	6.9
Vomiting	15.9	13.3	6.3
Weight decreased	15.6	10.1	5.4
Back pain	15.4	10.4	10.4
Anorexia	15.2	13.0	5.0

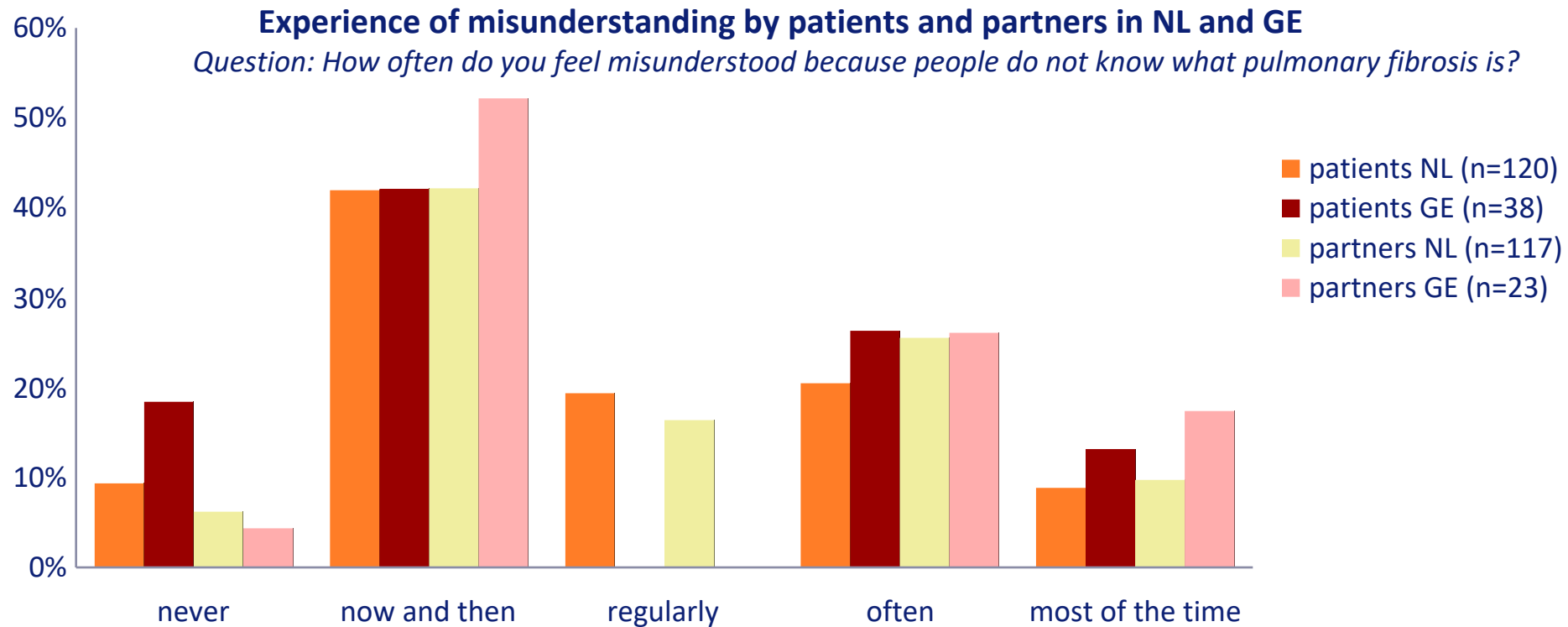
*Occurring in ≥15% of patients in the cumulative clinical database.

†Includes two patients in study 002 with a diagnosis of 'pulmonary fibrosis.'

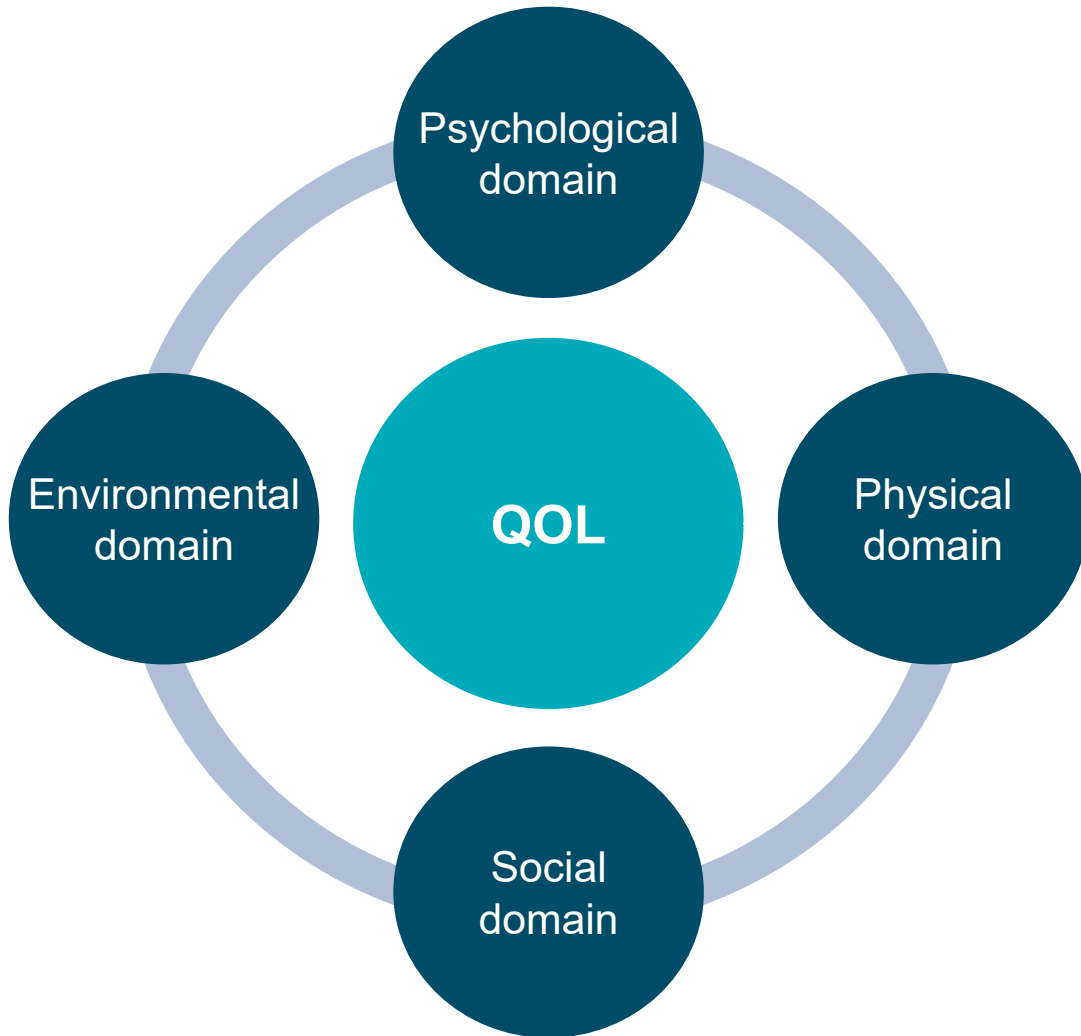
‡CAPACITY (studies 004 and 006) and ASCEND (study 016).

Fatigue TEAEs tended to be more frequent yet shorter in duration in patients with IPF who received pirfenidone vs. placebo

IPF is rare and unknown; patients and partners feel misunderstood



Determinants of quality of life are multiple and personal

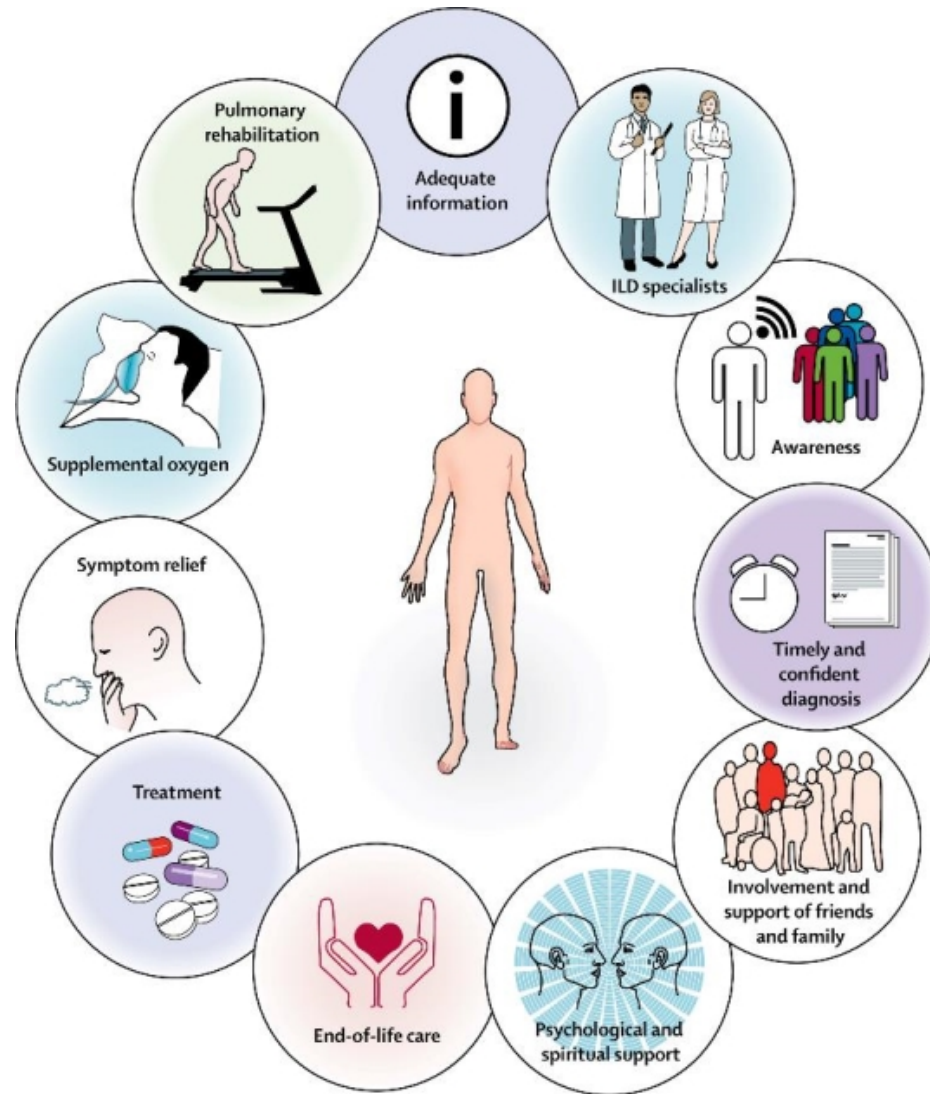


Symptoms, reactions and perceptions interact



Is it possible to improve QoL in a progressive fibrosing ILD's ?

Needs for patients



In addition to disease-modifying treatment, complementary approaches are required to improve QoL or slow down deterioration in QoL

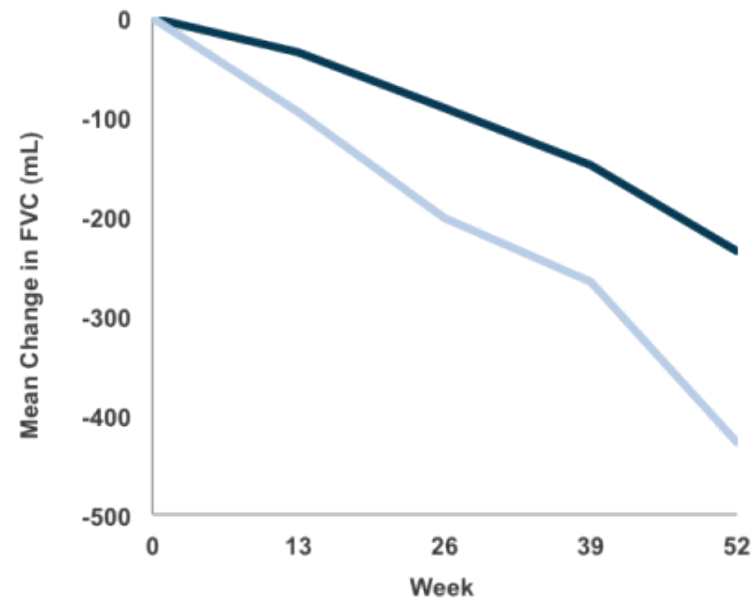
- **The impact of disease:** patient and partner's needs
- **Therapeutic needs and palliative care go hand in hand**
- **Holistic approach to ILD care:** ABCDE of ILD care

*In a fatal progressive diseases,
prolonging life at an acceptable quality
is what most people strive for*

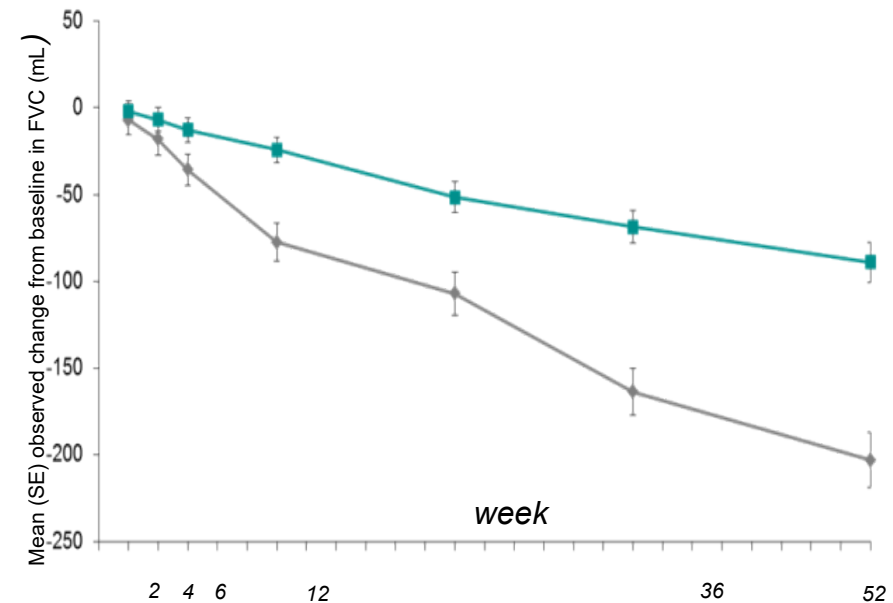


SINCE 2014 TWO DRUGS THAT SLOW DOWN DISEASE DECLINE AND IMPROVE SURVIVAL

Pirfenidone : Mean Change in FVC Volume (mL)



Nintedanib: Mean Change in FVC Volume (mL)



A disease-centered model assumes that treating the disease treats the patient and thus improves quality and quantity of life

No convincing effect of treatment on health related quality of life in the positive IPF trials

Trial	Treatment	PRO	Outcome
CAPACITY 1&2 (Noble 2011)	Pirfenidone	UCSD SGRQ WHO-QOL	ns ns ns
BIBF-1120 (Richeldi 2011)	Nintedanib	SGRQ	150 mg bid p<0.01
ASCEND (King 2014)	Pirfenidone	UCSD	ns
INPULSIS (Richeldi 2014)	Nintedanib	SGRQ	ns, INPULSIS 2 p=0.02

However, in pirfenidone and nintedanib trials there was a positive effect on respectively UCSD-SOB and SGRQ in more severe groups

Noble PW et al. Pirfenidone for idiopathic pulmonary fibrosis: analysis of pooled data from three multinational phase 3 trials. Eur Respir J 2016;47:243-53

Richeldi et al. Efficacy of a tyrosine kinase inhibitor in idiopathic pulmonary fibrosis. N Engl J Med 2011; 365(12): 1079-87

King TE et al. A phase 3 trial of pirfenidone in patients with idiopathic pulmonary fibrosis. N Engl J Med 2014; 370(22): 2083-92.

Richeldi et al. Efficacy and safety of nintedanib in idiopathic pulmonary fibrosis. N Engl J Med 2014; 370(22): 2071-82.

Palliative care should be explained to patients

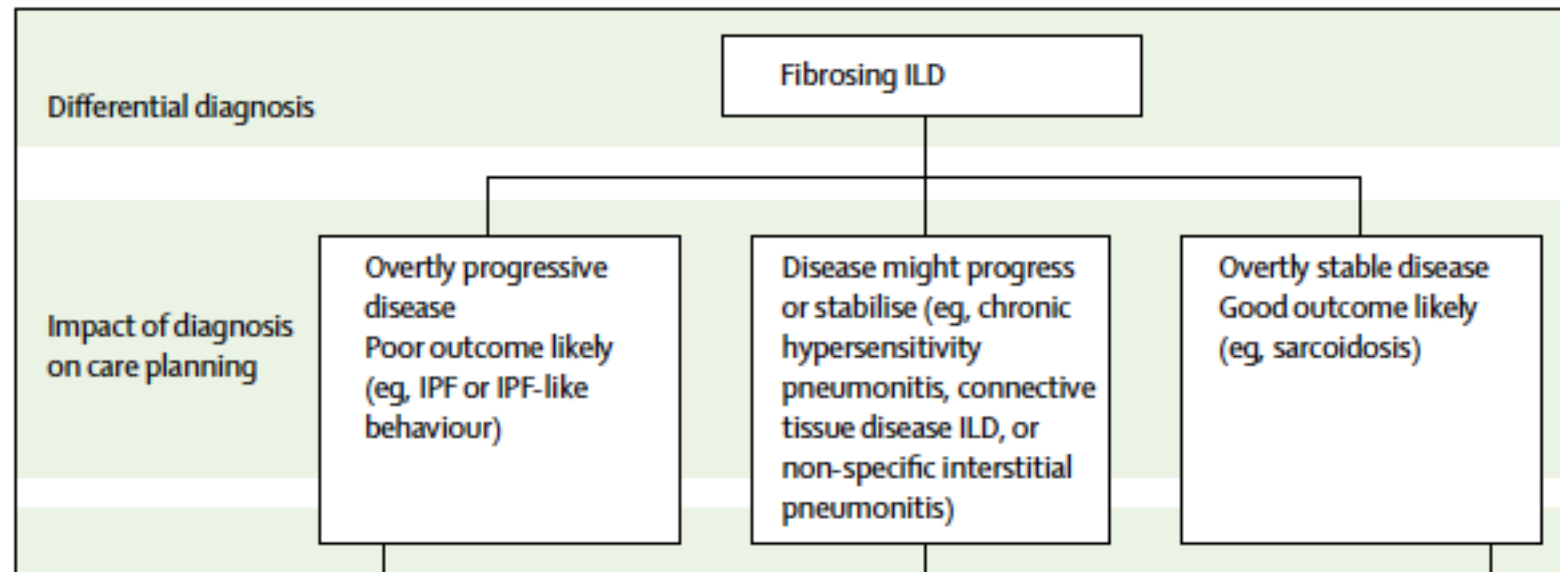
Patients were asked "What does palliative care mean to you?"

- "...I fear it to some extent because I don't know exactly what it means..."
- "It's a bit scary—having someone explain might help"
- "...I would appreciate if somebody would talk to me about it..."
- "...Is palliative care not solely a euphemism for dying soon..."
- "...Before I was sent to the palliative care ward I was frightened to be demoted for dying but at the same time frightened to suffocate. Palliative care took away my breathlessness and my fears..."
- "...My main goal of therapy for my chronic disease is to maintain quality of life at the best achievable level for the time I have left..."
- "...I did not know that palliative care is reimbursed, many people think they have to pay for it themselves..."
- "...I do not want to be labelled as a doomed man - that's why I do not like to be sent to palliative care..."
- "...Professional carers that understand the needs of patients with fibrosis and administer help that make patients feel better..."
- "...I would not like it but if I need it, I would take it..."
- "...Dignity, pain free and of great benefit to patients and families..."
- "Palliative care always meant end of life to me but if it helps my quality of life for whatever time I have left, I would be happy to look into it"

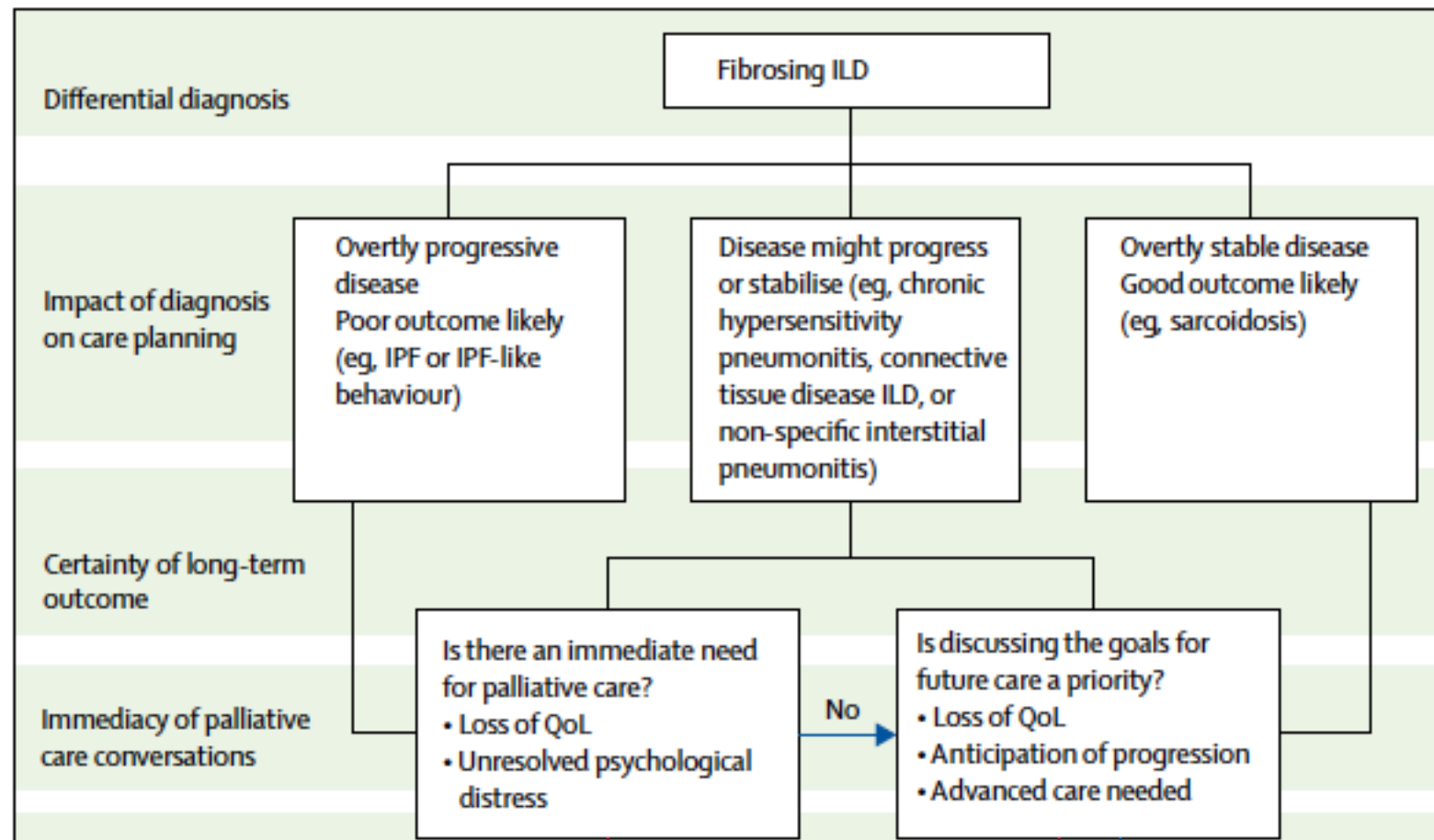
ATS definition of the goal of palliative care:

‘to prevent and relieve suffering by controlling symptoms and to provide other support to patients and families in order to maintain and improve their quality of living’

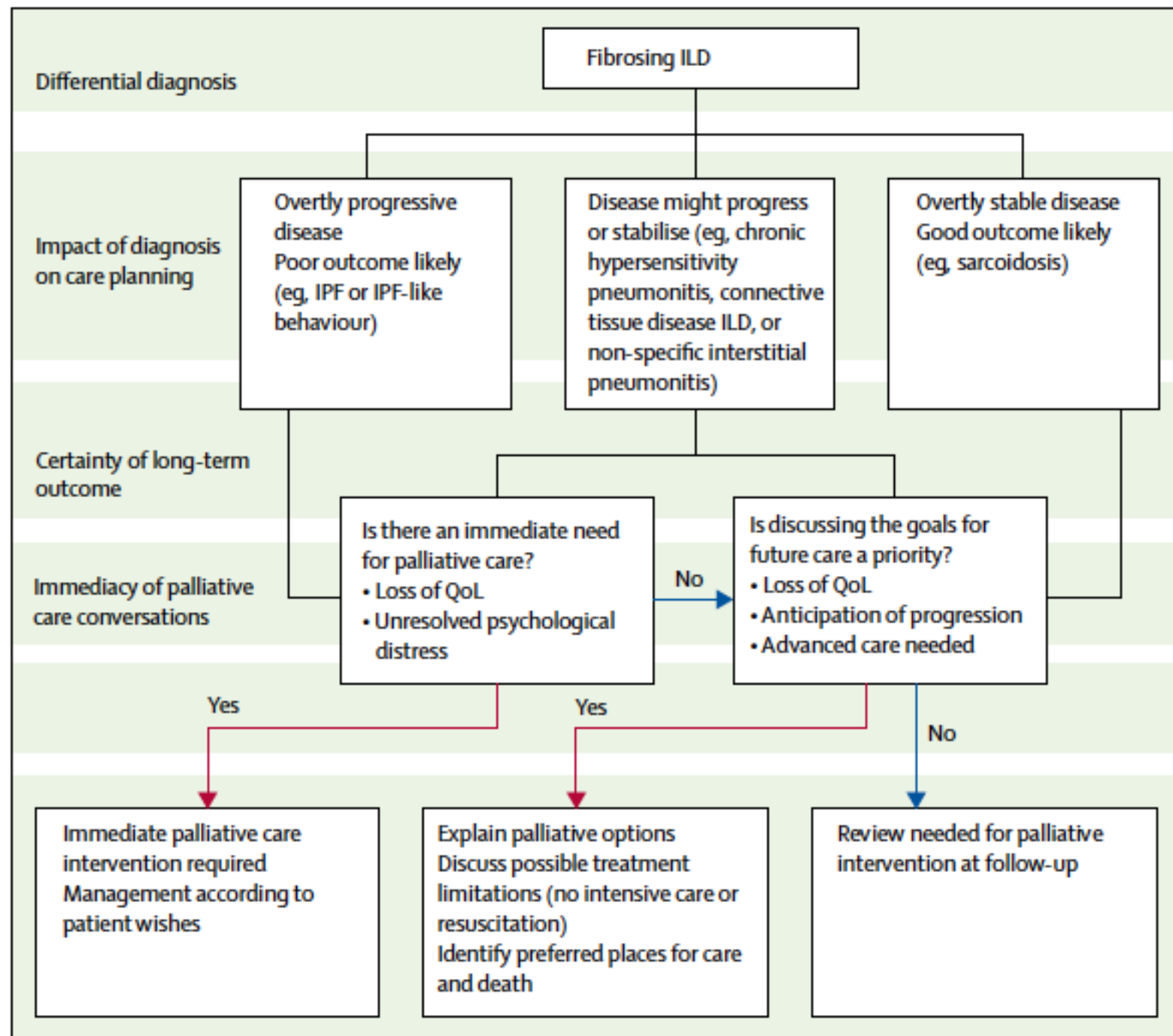
Not all fibrosing ILD's are equal
timing and tailoring are key



Not all fibrosing ILD's are equal timing and tailoring are key



**Not all fibrosing ILD's are equal
timing and tailoring are key**



Management of dyspnea

- Treat, when possible, co-morbidities that contribute to dyspnea
- Supplemental oxygen : small studies suggesting benefit
- Hand held fan
- Opioids
- Benzodiazepines
- Sildenafil?



Mc Donald . Exercise desaturation and oxygen therapy in ILD and COPD: Similarities, differences and therapeutic relevance. *Respirology* 2018 [Epub ahead of print].

Visca et al. AmbOx: A Randomised Controlled, Crossover Trial Evaluating the Effects of Ambulatory Oxygen on Health Status in Patients with Fibrotic Interstitial Lung Disease. [Abstract]. *Am J Respir Crit Care Med* 2017; 195: A7603.

Morisset J et al. Oxygen Prescription in Interstitial Lung Disease: 2.5 Billion Years in the Making. *Ann Am Thorac Soc* 2017; 14(12): 1755-6.

Johansson KA et al. Supplemental Oxygen in Interstitial Lung Disease: An Art in Need of Science. *Ann Am Thorac Soc* 2017; 14(9): 1373-7.

Jacobs et al. Patient Perceptions of the Adequacy of Supplemental Oxygen Therapy. Results of the American Thoracic Society Nursing Assembly Oxygen Working Group Survey. *Ann Am Thorac Soc* 2018; 15(1): 24-32.

Bell EC et al. Supplemental oxygen and dyspnoea in interstitial lung disease: absence of evidence is not evidence of absence. *Eur Respir Rev* 2017; 26(145).

Schaeffer MR et al. Supplemental oxygen and dyspnoea in interstitial lung disease: absence of evidence is not evidence of absence. *Eur Respir Rev* 2017; 26(145).

Graney BA et al. Looking ahead and behind at supplemental oxygen: A qualitative study of patients with pulmonary fibrosis. *Heart Lung* 2017; 46(5): 387-93.

Johnson MJ et al. A Mixed-Methods, Randomized, Controlled Feasibility Trial to Inform the Design of a Phase III Trial to Test the Effect of the Handheld Fan on Patients With Refractory Breathlessness. *J Pain Symptom Manage* 2016; 51(5): 807-15.

Sharp C et al. Ambulatory and short-burst oxygen for interstitial lung disease. *Cochrane Database Syst Rev* 2016; 7: CD011716.

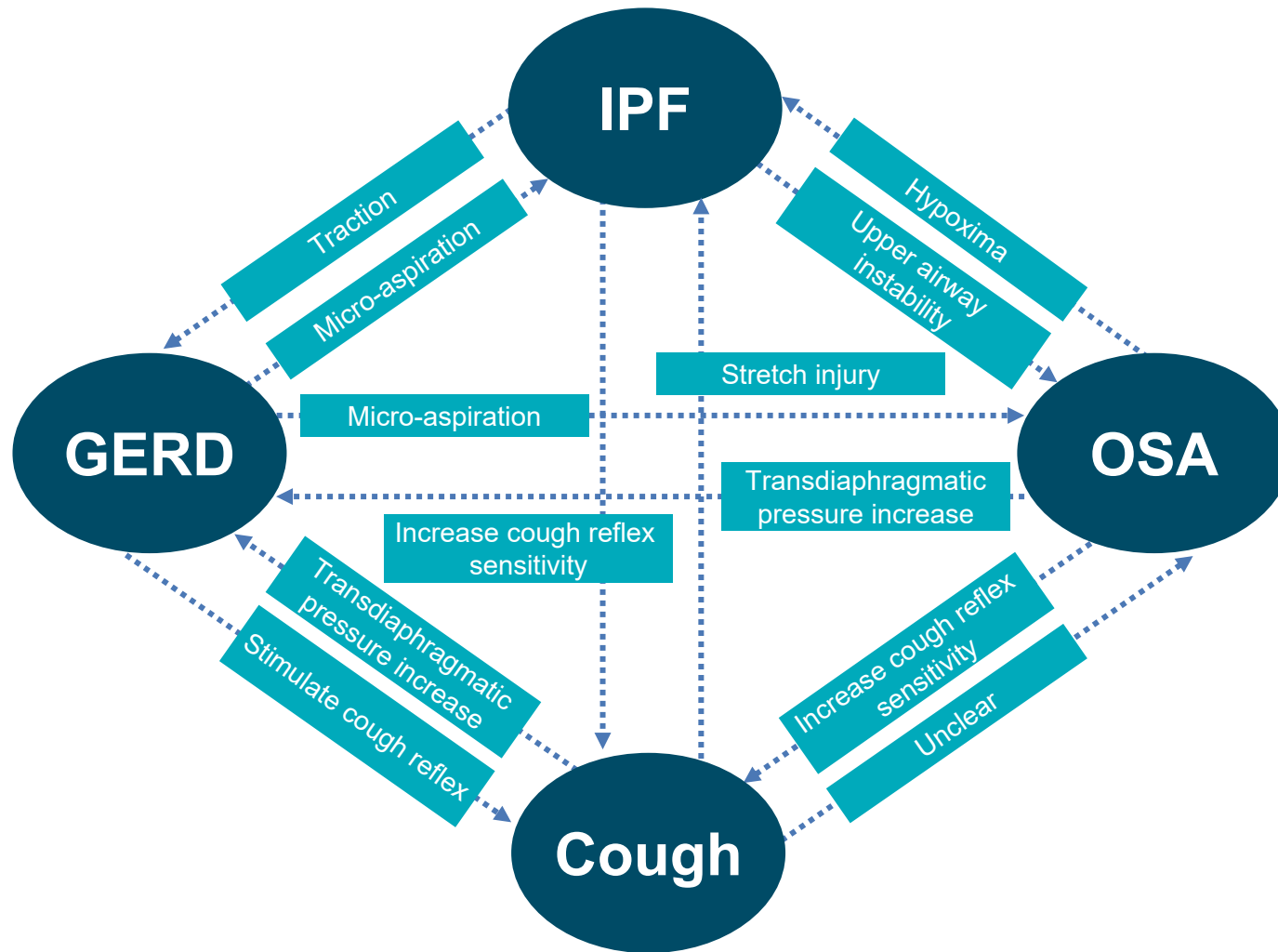
Allen S et al. Low dose diamorphine reduces breathlessness without causing a fall in oxygen saturation in elderly patients with end-stage idiopathic pulmonary fibrosis. *Palliat Med* 2005; 19(2): 128-30.

Boyden JY et al. Nebulized medications for the treatment of dyspnea: a literature review. *J Aerosol Med Pulm Drug Deliv* 2015; 28(1): 1-19.

Simon ST et al. Benzodiazepines for the relief of breathlessness in advanced malignant and non-malignant diseases in adults. *Cochrane Database Syst Rev* 2016; 10: CD007354.

Zisman DA et al. A controlled trial of sildenafil in advanced idiopathic pulmonary fibrosis. *N Engl J Med* 2010; 363(7): 620-8.

Cough : Complex interplay



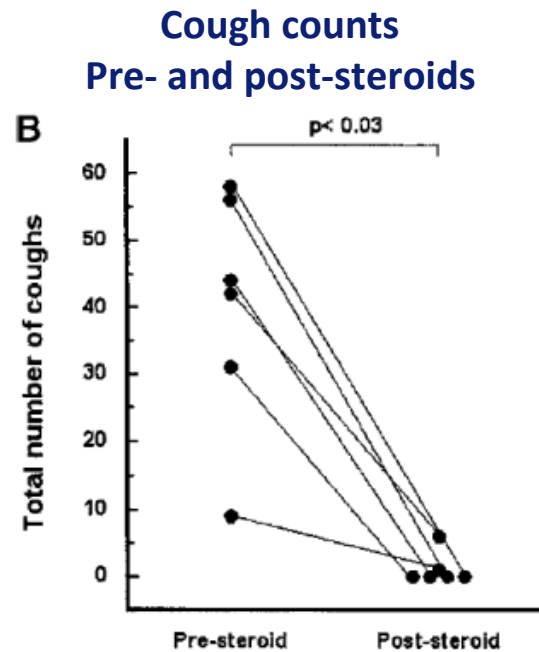
First look at other causes for cough

Most common ones being

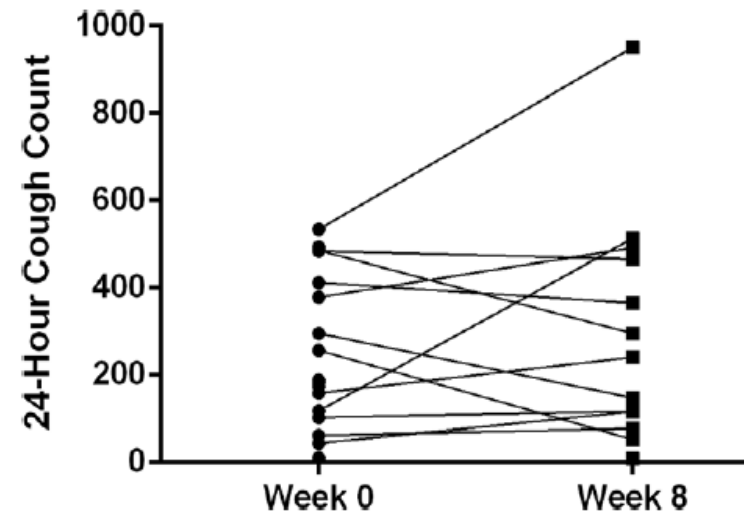
- GERD
- OSA
- Emphysema
- Ace inhibitor use
- Chronic sinusitis
- Lung Cancer
- Infection

Often tried in daily practice but only anecdotal evidence in IPF-cough

- Opioids
- Different over-the-counter cough suppressants
- Codeine
- Steroids
- Acid suppression therapy



24-hour cough count before and after treatment with acid suppressant medication; $p=0.70$



Saunders P et al. Cough in fibrotic lung disease: An unresolved challenge. *Respirology* 2017; 22(8): 1491-2.

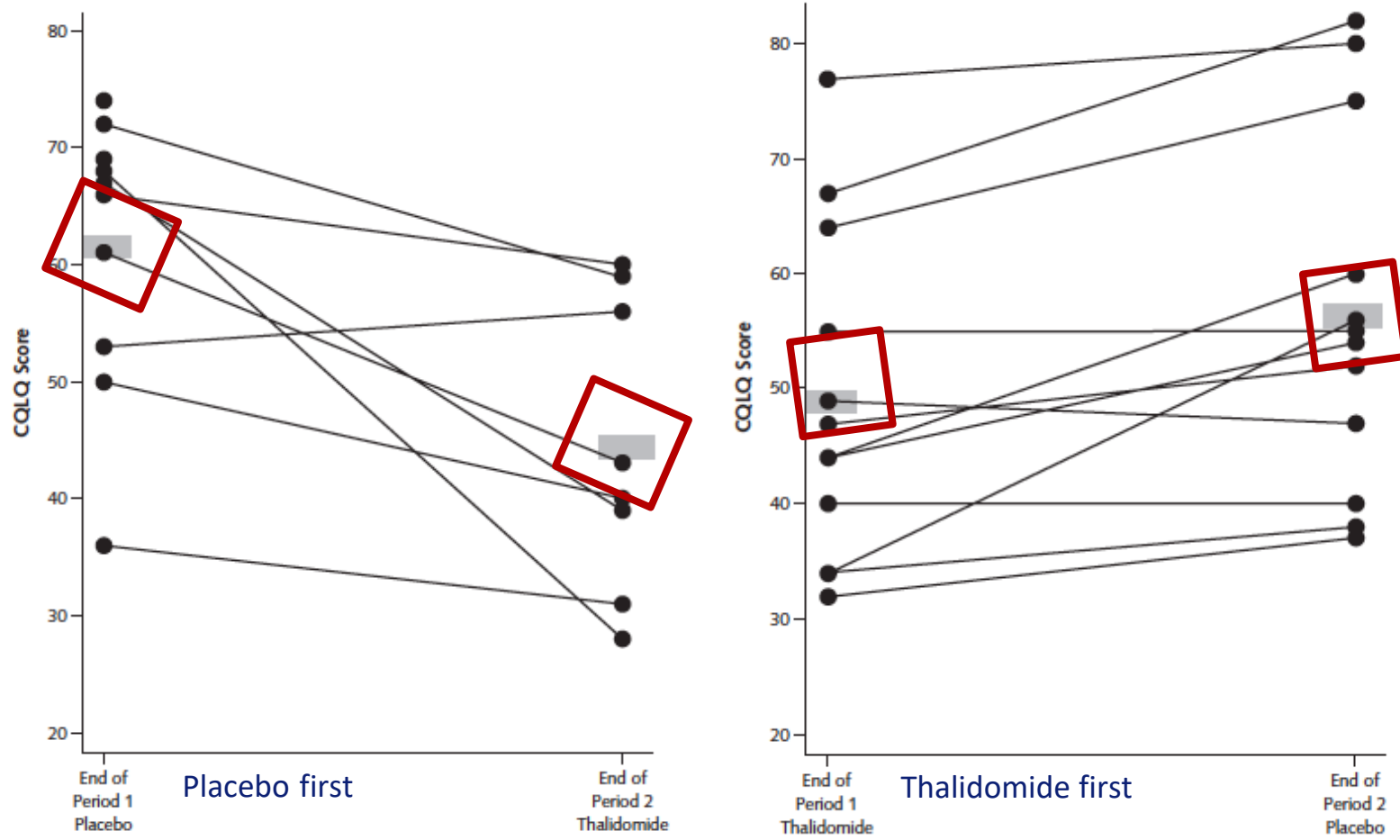
Vigeland CL et al. Etiology and treatment of cough in idiopathic pulmonary fibrosis. *Respir Med* 2017; 123: 98-104.

Hope-Gill BD et al. A study of the cough reflex in idiopathic pulmonary fibrosis. *Am J Respir Crit Care Med* 2003; 168(8): 995-1002.

Kilduff CE et al. Effect of acid suppression therapy on gastroesophageal reflux and cough in idiopathic pulmonary fibrosis: an intervention study. *Cough* 2014; 10: 4.

Thalidomide for cough in IPF

Thalidomide decreased Cough Quality of Life Questionnaire (CQLQ) score



Caution :

20 patients (98 screened)

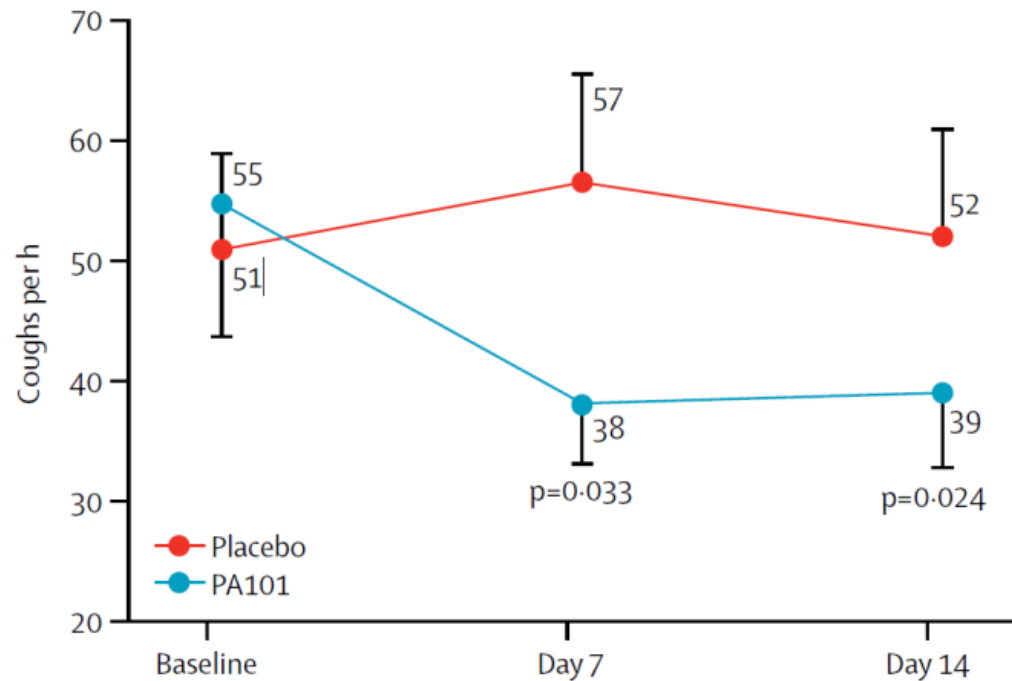
77% side effects

Thalidomide might ↑ risk for thromboemboli

Significant improvement in refractory chronic cough with inhaled PA101 in patients with IPF

Phase II trial results

- Well tolerated, adverse events comparable with placebo
- Statistically significant 31% reduction in daytime cough frequency at Day 14 vs baseline
- QoL and cough severity scores improved with PA101



Error bars show standard error of the mean

Please note that PA101 has not been approved for the treatment of IPF

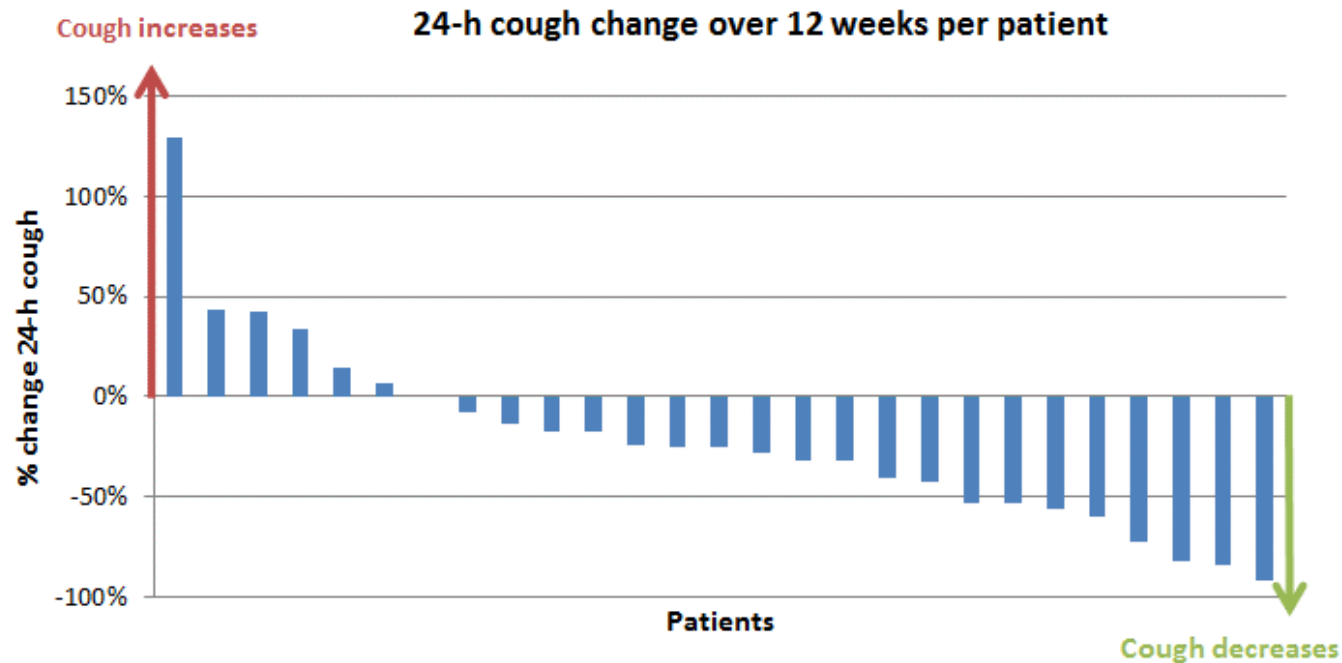
Day 14 between-group comparison (PA101-placebo)

Total score	2.2 (-0.76 to 5.19, p=0.11)	..
Psychological	3.9 (0.37 to 7.40, p=0.032)	..
Breathlessness and activities	0.5 (-7.24 to 8.21, p=0.87)	..
Chest symptoms	8.7 (1.38 to 15.99, p=0.027)	..

Data are mean (SD) or least-squares mean difference (95% CI, p value).
K-BILD=King's Brief Interstitial Lung Disease Questionnaire. IPF=idiopathic pulmonary fibrosis.

SD, standard deviation

Observational study on effect of pirfenidone on cough in IPF showed a decrease in cough



Effect of 12 weeks' pirfenidone treatment on cough measures, linear mixed model analysis

	Change in cough [#] (95% CI)	P-value [#]
24-hour cough, %	-34% (-48, -15)	0.002
LCQ, points	2.0 (1.0, 3.0)*	<0.001
VAS cough, mm	-19 (-28, -10)	<0.0001
VAS urge to cough, mm	18 (-26, -10)	<0.0001

[#]Analysed using a linear mixed model, change in %, points or mm

*Minimal clinical important difference for chronic cough is 1.3

LCQ, Leicester Cough Questionnaire

Fatigue treatment

- Treatment of co-morbidities
 - sleep disorders
 - anxiety / depression
 - Side effect of medication
- No evidence for pharmacological treatment
- No research done (yet) in F-ILD

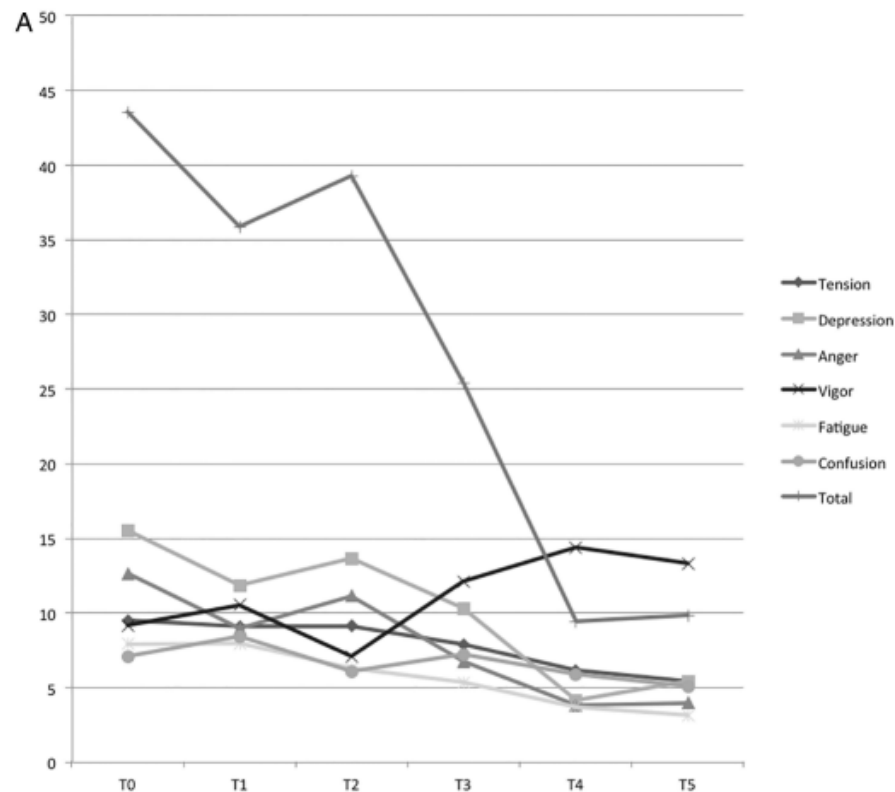
Pulmonary rehabilitation

- Safe for people with ILD
- Improves short-term exercise capacity, dyspnoea, quality of life
- Little evidence available regarding long-term benefits



Relieving anxiety and distress in IPF; pilot data

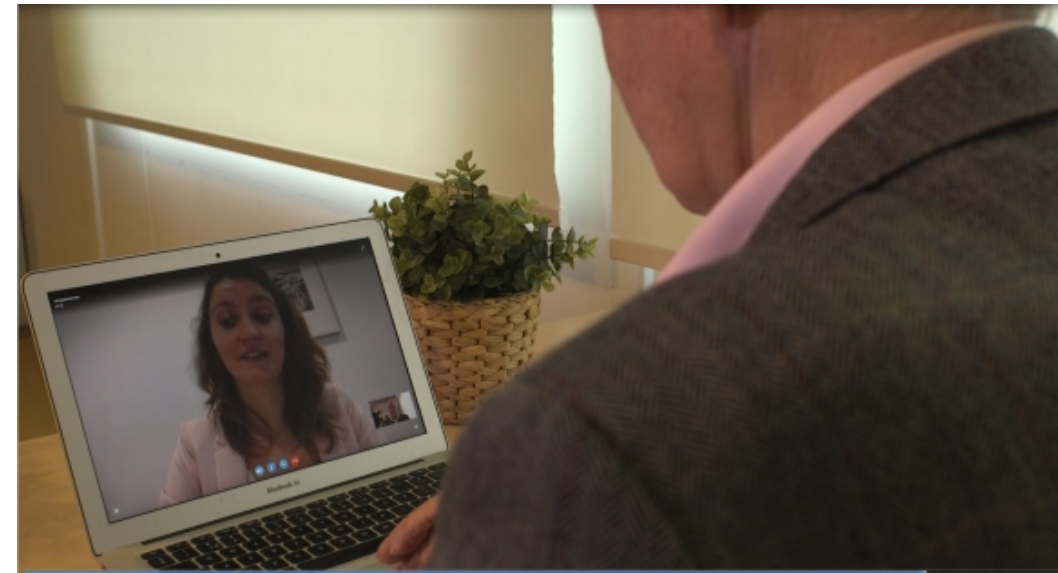
Mindfulness improved mood in 17 patients with ILD



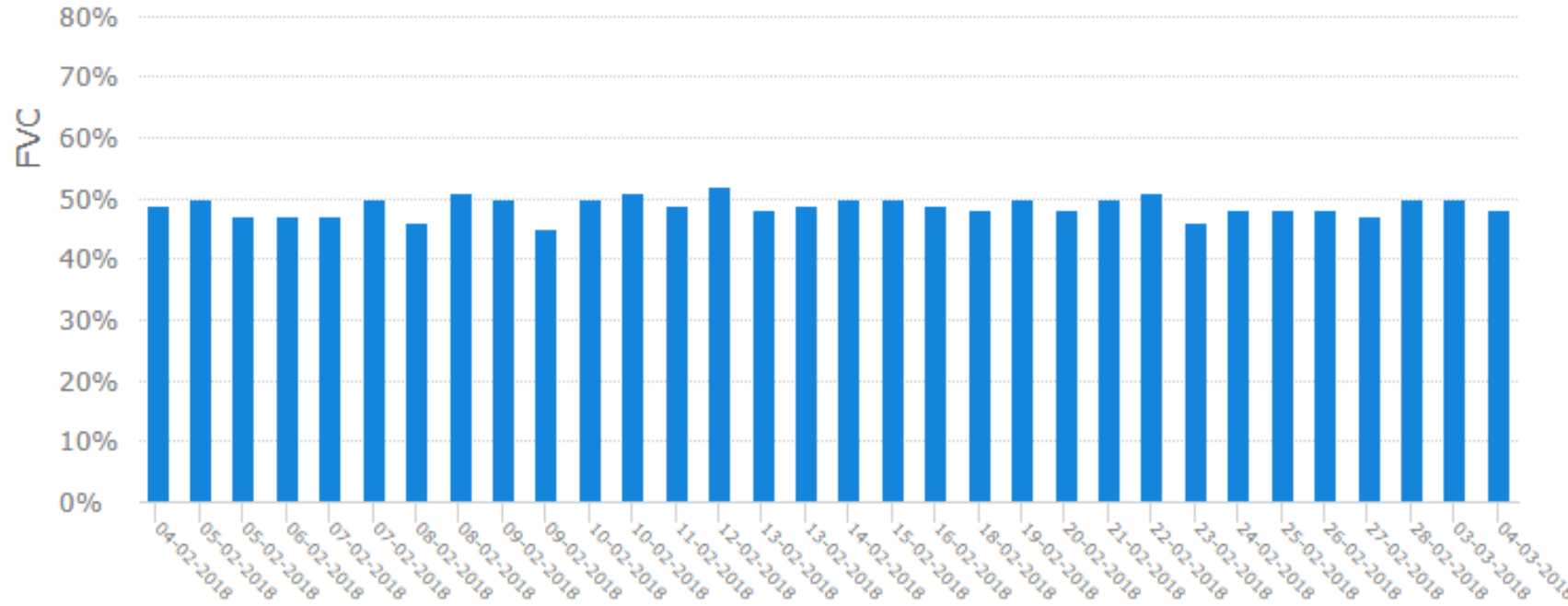
Patient and Partner Empowerment Program resulted in improvement of anxiety and distress



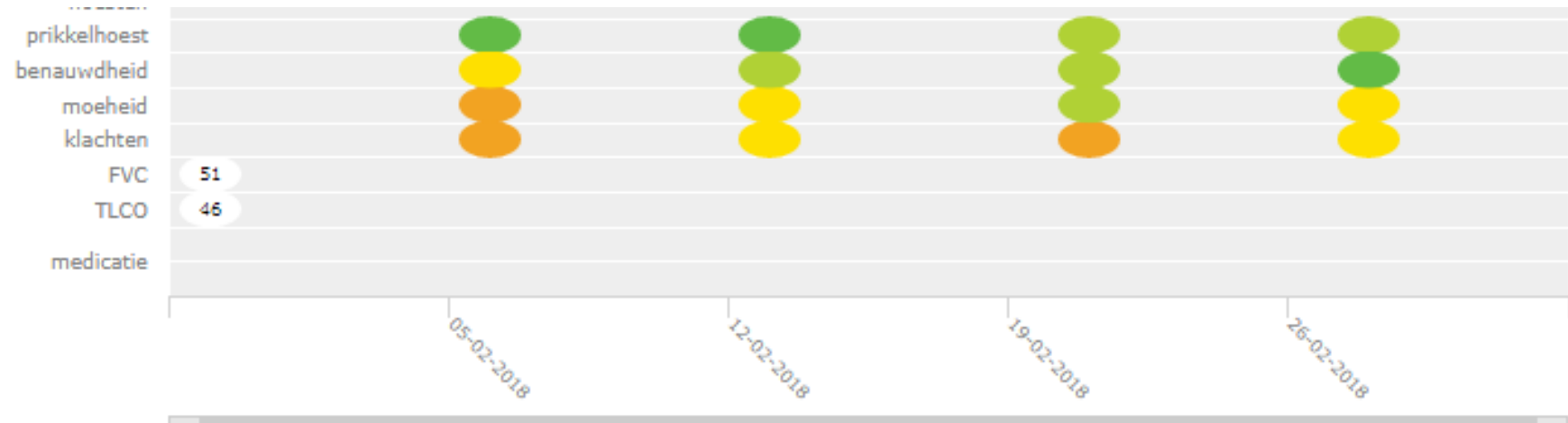
Improving quality of life is also being there for patients and families with your team; in realtime, but nowadays also online



Patient as partner in care



Daily
homespirometry,
Real time sent to
hospital



Weekly symptom and
AE scores
Real time sent to
hospital

- **The impact of disease:** patient and partner's needs
- **Therapeutic needs and palliative care go hand in hand**
- **Holistic approach to ILD care: ABCDE of ILD care**



The ABCDE of ILD care

Assess

Patients' needs
and values

Patients as partners
in care

Include caregivers

The ABCDE of ILD care

Assess

Patients' needs
and values

Patients as partners
in care

Include caregivers

Backing

Education

Self-management

- Dietary support

Support groups

Patient advocacy groups

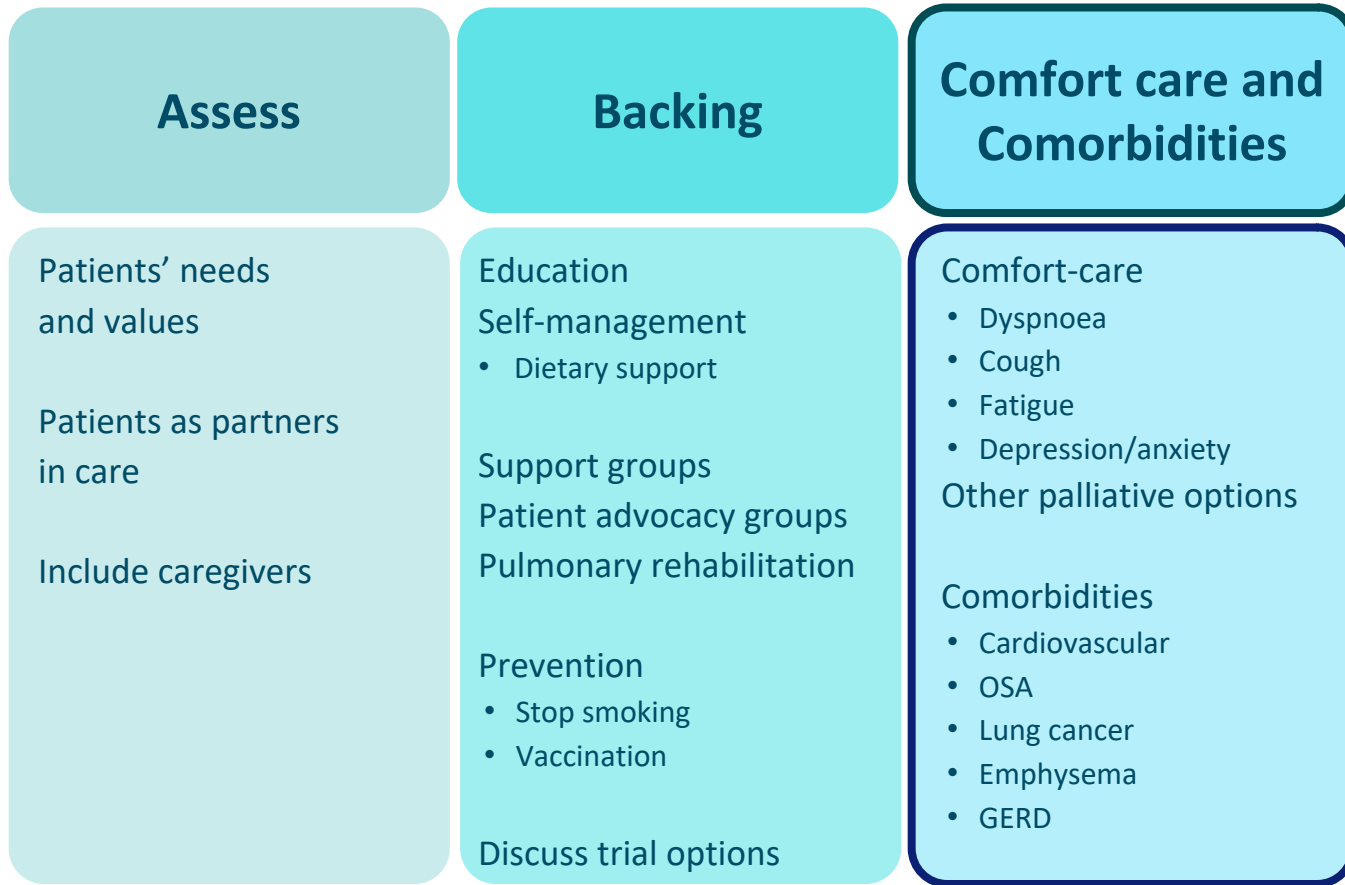
Pulmonary rehabilitation

Prevention

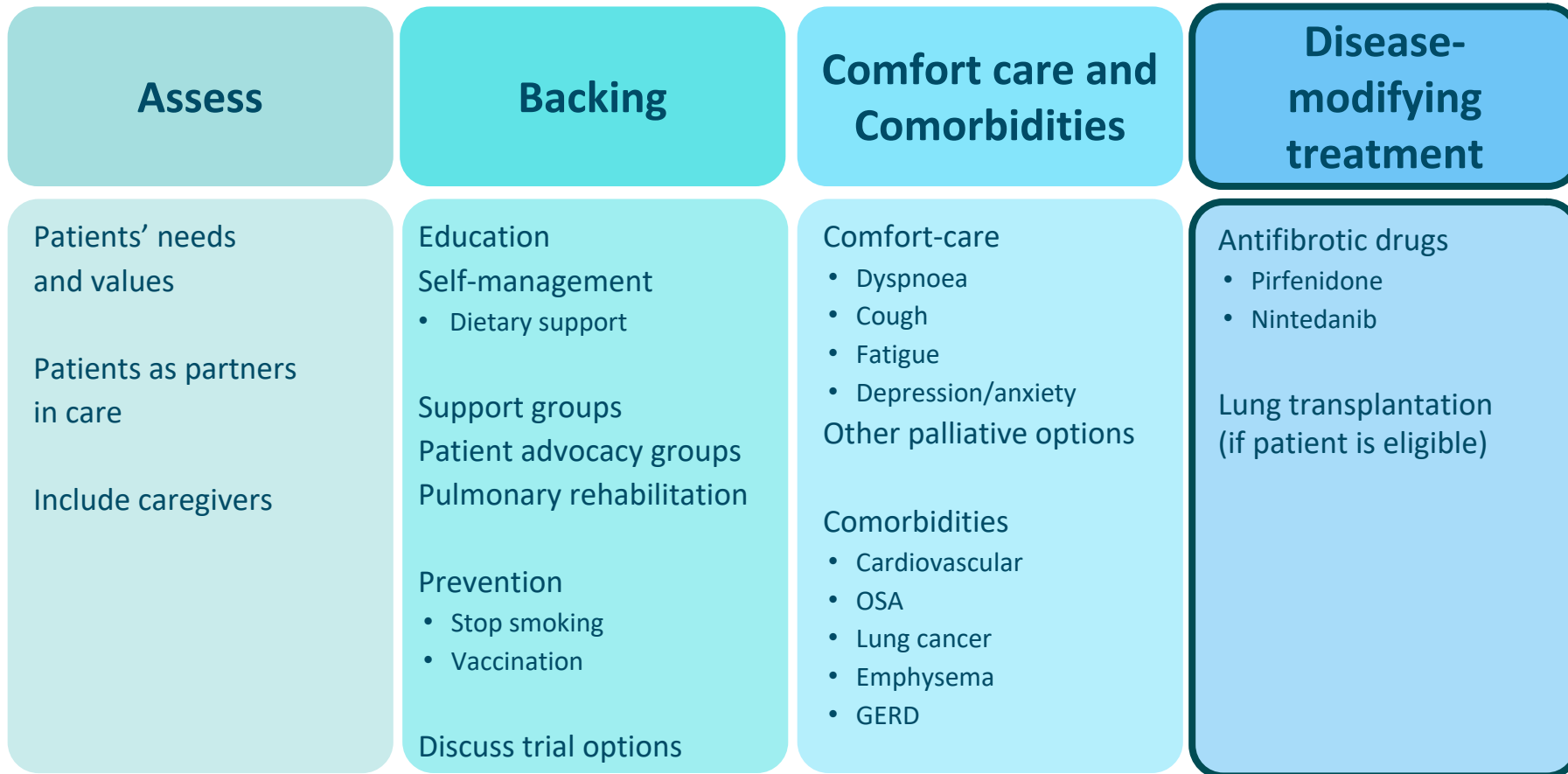
- Stop smoking
- Vaccination

Discuss trial options

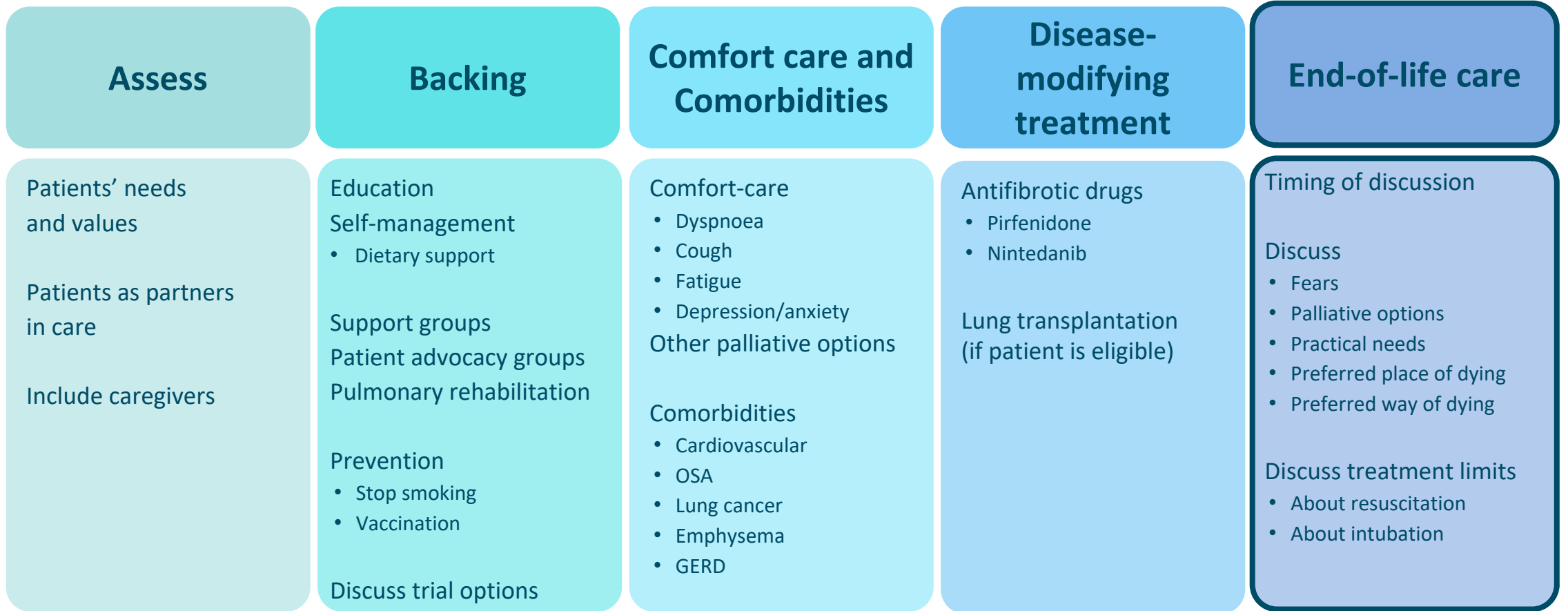
The ABCDE of ILD care



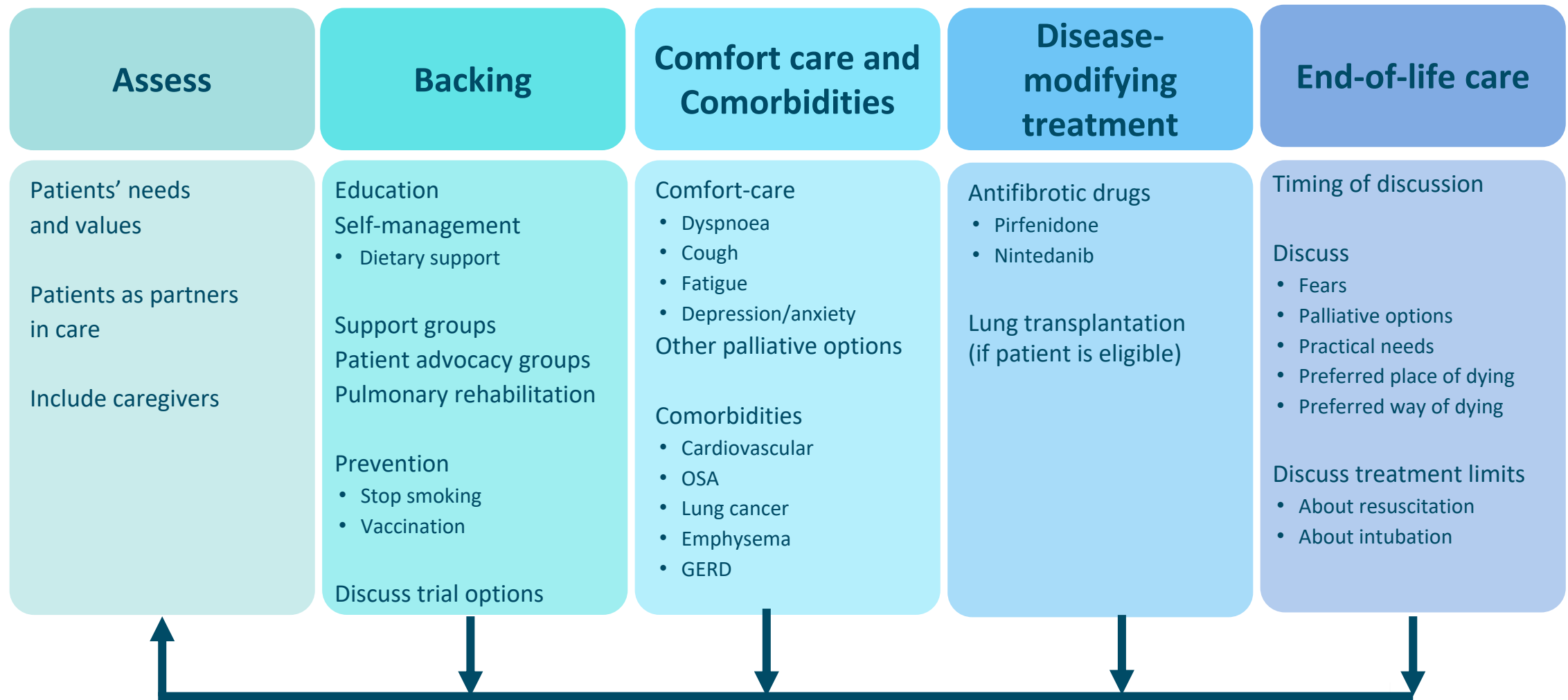
The ABCDE of ILD care



The ABCDE of ILD care



A process of constant re-assessment of disease as well as patient needs and wishes



Comprehensive care for patients with pulmonary fibrosis

- IPF, but also other progressive fibrotic diseases, have a major impact on patient's and partner's lives
- Palliative care is about relieving symptoms and providing support, this requires complementary strategies besides disease-centered management
- Care in ILD is a process of constant re-assessment of disease as well as patient's needs and wishes
- There is a great lack of good studies into treatment of symptoms and improving quality of life in IPF/ILD

