

Appendix A. Supplementary data

Qualitative interview topics and quantitative survey questionnaires (Patient version)

Qualitative interview topics A1: interview topics - patient version

Vignette 1

Mr Wang, 47 years old, with a smoking history of 1 pack per day for 20 years, presents with progressive shortness of breath, especially during physical activities. His symptoms began three days ago with rhinorrhea. He reports a chronic morning cough productive of white sputum, which has increased over the past two days. He has had similar episodes each winter for the past four years.

Vignette 2

Mr Li, 23 years old, presents with progressive shortness of breath and wheezing. He reports acute cough, a runny nose and itchy watery eyes when exposed to pollen in Spring. He has suffered trouble sleeping caused by shortness of breath and has been coughing for two days.

1. What would you say is going on with **Mr Wang** or **Mr Li**? And how would you call it?
(Probe: How would you call it? Local terminology is given to phenomenon)
2. What do you think is the cause of these symptoms (If the term has been mentioned, it can now be called 'the disease').
(Probe: It's the course of life, it's a health problem, mental problem If not mentioned, could tobacco/indoor pollution play a role/professional pollutant exposure)
3. Do you think he should do something about it? If so, what should **Mr Wang** or **Mr Li** do?
(Probe: Change working/living situation, exercise/ quit smoking?)
4. If the answer to 3 is yes: Who will you be able to provide help? What would you do?
(Probe: would you be able to treat it or cure it? Upon what does the success of treatment depend?) If the answer to 3 is No: Why?
 - ⊙ Belief and perception of exacerbation management
5. Have you ever noticed that you have similar symptoms as **Mr Wang** or **Mrs Li** has?
(coughing/breathlessness/fatigue/mucus for a long period or, when named during the interview apply local term)?
6. How did it go?
7. What happened during the episode?
(Probe: a detailed description of phenomenon/symptoms, severity, how it evolved, what was done, and how did it feel?)
8. Did the episode have any personal consequences?
(Probe: short and long-term consequences regarding (money costs, health, work, the feeling of trust, support)
9. Who would you seek help to treat these symptoms?
(Probe: What would he/she do?)
10. Did you get any medication for your symptoms?
(Probe: Which medication? Are you still using medication?)
11. When did you start to act on the symptoms?
(Probe: How do you like your action?)
12. What are the potential reasons for visiting or not visiting a healthcare worker?
(Probe: access to healthcare, money, communication, dislike treatment?)
 - ⊙ Expectations of optimizing exacerbation management

13. What do you think you could do in the future to recognize that your symptoms are getting worse?
14. How can other people/healthcare professionals help you to cope with the worsening of your disease?
15. What do you expect from the doctors about this disease?
16. What is already being done, or what has been done to help you manage exacerbation in time?

Quantitative survey questionnaires

Questionnaire A1: Brief Illness Perceptions Questionnaire - patient version

The following questions are about your opinion about your diseases. Please read the questions and encircle the number that best corresponds to your views.

1. How much does your illness affect your life?

0	1	2	3	4	5	6	7	8	9	10
No affect at all										Severely affects

2. How long do you think your illness will continue?

0	1	2	3	4	5	6	7	8	9	10
A very short time										Forever

3. How much control do you feel you have over your illness?

0	1	2	3	4	5	6	7	8	9	10
Absolutely no control										Extreme amount of control

4. How much do you think your treatment can help your illness?

0	1	2	3	4	5	6	7	8	9	10
Not at all										Extremely helpful

5. How much do you experience symptoms from your illness?

0	1	2	3	4	5	6	7	8	9	10
No symptoms at all										Many severe symptoms

6. How concerned are you about your illness?

0	1	2	3	4	5	6	7	8	9	10
Not at all concerned										Extremely concerned

7. How well do you feel you understand your illness?

0	1	2	3	4	5	6	7	8	9	10
Don't understand at all										Understand very clearly

8. How much does your illness affect you emotionally? (e.g. does it make you angry, scared, upset or depressed?)

0	1	2	3	4	5	6	7	8	9	10
Not at all affected emotionally										Extremely affected emotionally

Questionnaire A2: Cause of conditions - patient version

Below is a list of possible causes for the condition. Please indicate by ticking (☑) the appropriate box if you believe the factor could have caused the condition

Possible causes	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
Stress or worry	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
It runs in the family	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
A germ or virus	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Diet or eating habits	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Chance of bad luck	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Poor medical care	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Pollution in the house	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Someone's own behaviour	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Family problems or worries	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Overwork	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Someone's emotional state, e.g. feeling down, lonely, anxious	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Ageing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Alcohol	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Smoking	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Second hand smoke	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The weather	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Accident or injury	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
An Allergy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Please list in rank -order the three most important factors that you now believe caused the condition. You may use any of the items from the box above, or you may have additional ideas of your own.

1. _____

2. _____

3. _____

Questionnaire A3: Patients' smoking behaviours

1. Do you currently smoke any tobacco products, such as cigarettes, cigars or pipes?	Yes No	<input type="checkbox"/> (go to question 4) <input type="checkbox"/> (go to question 2)
2. In the past, did you ever smoke any tobacco products?	Yes No	<input type="checkbox"/> (go to question 3) <input type="checkbox"/> (end of the questionnaire)
3. How many years did you smoke?	..... years	(end of the questionnaire)
4. Do you currently smoke tobacco products daily?	Yes No	<input type="checkbox"/> <input type="checkbox"/>
5. At what age did you start to smoke?	..... years old	
6. On average, how much do you smoke? Please indicate per product.	Daily	Weekly
Manufactured cigarettes	.....	.....
Hand-rolled cigarettes	.....	.....
Pipes full of tobacco	.....	.....
Cigars, Cheroots, Cigarillos	.....	.....
Number of shisha sessions	.....	.....
Other: .....	.....	.....
7. To what extent do you think smoking has damaged your health? <i>Please check one.</i>	Not at all A little Somewhat Very Strongly	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
8. How many times have you try to quit smoking? <i>Please check one.</i>	Never One Two Three Four Five Six or more	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
9. What is the longest period of time you have gone without smoking since you first started smoking regularly? <i>Please check one</i>	1 week or less 1 week - 1 month >1 month - 6 months >6 months - 1 year longer than 1 year	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
10. How interested are you in stopping smoking? <i>Please check one</i>	Not at all A little Somewhat Very Strongly	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
11. If you decide to quit smoking completely, during the next two weeks, how confident are you that you will succeed? <i>Please check one</i>	Not at all A little Somewhat Very	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>

Below is a list of possible smoking behaviours. Please indicate by ticking (☑) the appropriate box if you believe the behaviour is suitable for your condition.

Qualitative interview topics and quantitative survey questionnaires

(Healthcare professional [HCP] version)

Qualitative interview topic B1 - HCP version

Vignette 1

Mr Wang, 47 years old, with a smoking history of 1 pack per day for 20 years, presents with progressive shortness of breath, especially during physical activities. He reports a chronic morning cough productive of white sputum, which has increased over the past two days. He has had similar episodes each winter for the past four years. Lung examination reveals a barrel chest and auscultation reveals diminished vesicular lung sounds with expiratory wheezing and rhonchi, with moderate inspiratory and expiratory wheezing. Heart and abdominal examination are within normal limits.

Vignette 2

Mr Li, 23 years old, presents with progressive shortness of breath and wheezing. He reports acute cough, a runny nose and itchy watery eyes when exposed to pollen in Spring. He has suffered trouble sleeping caused by shortness of breath and has been coughing for two days. Auscultation reveals the lungs' high pitch like the flute with prolonged exhalation time and shortened inhalation time in Spring. He has suffered trouble sleeping caused by shortness of breath and coughing for two days.

1. Do you ever have people visiting you for the same problems as **Mr Wang** or **Mr Li** has?
2. Could you tell me what kind of disease you expect this patient has (differential diagnosis?)
3. Is this a disease you see frequently? Follow up question: Could you indicate how many patients you treat with this disease?
4. If you expect this is the disease you mentioned, how would you diagnose it?
5. If you think this is the disease you mentioned, how would you treat it?
6. **If providers mention they prescribe prednisone in question 5:** You mentioned that you prescribe prednisone treatment to certain patients. At what symptom severity level would prescribe it? For how long?
7. **If providers mention they prescribe inhalation treatment in question 5:** You mentioned that you prescribe inhalation treatment to certain patients. At what symptom severity level would prescribe it? For how long? (Probe: Any guidelines about it?)
8. Are there other ways to treat this disease that we have not discussed yet, but you (often) prescribe or suggest to the patients?
9. Are there any guidelines that you can use for the treatment of his problems? If so, which one? Do you use this guideline? Why (not?)
(Probe: Lack of access to guidelines, guidelines are not suitable for the local situation, don't believe in the guidelines)
- ✿ Personal Belief and perception of exacerbation/ exacerbation management
10. How could you identify the severity of the symptoms?
11. According to your experience, when do patients feel their symptoms worsen/start to pay attention to their symptoms? (Probe: Any exceptions?)
12. What could happen to the patients if they don't recognize the early symptoms?
(Probe: What problems may it bring to Wang, and the family? etc.)

13. When do you think patients should go to the doctor/ hospital? When do patients go to doctors/hospital? (**Probe:** Any exceptions?)
14. What are the potential reasons people like Mr Wang or Mr Li not visit a healthcare worker?
15. We know that patients sometimes wait very long before they go to see a doctor. Does that affect the treatment and medication they need? (**Probe:** What problems may it bring to Wang, and the family? In terms of health, money, or socially)
 - ⊙ Expectations of optimizing exacerbation management
16. How likely is it that patient could learn to recognize their symptoms early? (**Probe:** What could be potential problems?)
17. What do you think could help patients act on their symptoms on time?
18. What is already being done to make patients go to the doctor/hospital in time?
If the answer is yes, Why does it (not)work? If the answer is no, what needs to be improved in the future? (Probe: Why? What is the determination?)

Quantitative survey questionnaires

Questionnaire B1: Brief Illness Perceptions Questionnaire - HCP version

The following questions are about your opinion about chronic lung diseases (CLDs). Please read the questions and encircle the number that best corresponds to you views

1. How much do you think the condition affects the life of CLD patients?

0	1	2	3	4	5	6	7	8	9	10
										Severely affects his life

No affect at all

2. How long do you think the condition of CLD patients will continue?

0	1	2	3	4	5	6	7	8	9	10
										Forever

A very short time

3. How much control do you think CLD patients has over the condition?

0	1	2	3	4	5	6	7	8	9	10
										Extreme amount of control

Absolutely no control

4. How much do you think a treatment from you can help CLD patient condition?

0	1	2	3	4	5	6	7	8	9	10
										Extremely helpful

Not at all

5. How much do you think CLD patients experiences symptoms from his condition?

0	1	2	3	4	5	6	7	8	9	10
										Many severe symptoms

No symptoms at all

6. How concerned are you about CLD patient condition?

0	1	2	3	4	5	6	7	8	9	10
										Extremely concerned

Not at all concerned

7. How well do you feel you understand the condition of CLD patients?

0	1	2	3	4	5	6	7	8	9	10
Don't understand at all										Understand very clearly

8. How much does CLD patients condition affect you emotionally? (e.g. does it make you angry, scared, upset, depressed)

0	1	2	3	4	5	6	7	8	9	10
Not at all affected emotionally										Extremely affected emotionally

Questionnaire B2: Cause of conditions - HCP version

Below is a list of possible causes for the condition. Please indicate by ticking (☑) the appropriate box if you believe the factor could have caused the condition

Possible causes	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
Stress or worry	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
It runs in the family	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
A germ or virus	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Diet or eating habits	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Chance of bad luck	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Poor medical care	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Pollution in the house	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Someone's own behaviour	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Family problems or worries	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Overwork	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Someone's emotional state, e.g. feeling down, lonely, anxious	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Ageing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Alcohol	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Smoking	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Second-hand smoke	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The weather	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Accident or injury	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
An Allergy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Please list in rank-order the three most important factors that you now believe caused the condition.

1. _____
2. _____
3. _____

Questionnaire B3: HCP's perceptions of guidelines

The following statements are about how often you perform certain activities in your routine clinical practice when encountering a chronic lung disease patient. Please indicate by ticking (☐) the appropriate box how much it applies to you.

In my daily clinical practice, when I see a patient with the chronic lung disease condition, I:

	1 Never	2 Rarely	3 Sometimes	4 Often	5 Always
Adhere to the CLD protocol or guideline(s)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Order or perform a spirometry test when suspecting CLD?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Recommend using an inhaled long-acting bronchodilator daily for patients with CLD?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Identify and record the smoking status of the patient	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Give brief advice on tobacco cessation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

In your daily routine, how confident are you that you are able to:

	1 Not at all	2 Little	3 Somewhat	4 Very	5 Extremely
Choose pulmonary function test for CLD	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Interpret data on FEV and FVC	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

To recommend an optimal
therapeutic regimen

☐☐☐☐☐

To determine response to
pharmacotherapy

☐☐☐☐☐

