























Facilitator name:		Session Date:	
Assessor name:		Number of patients:	
Session title:	Session #12 Nutrition and lung health		

Content covered in the session:	1 –Not addressed	2	3- Incomplete or poorly explained	4	5- Mostly complete with minor omissions	6	7- All aspects covered clearly and in depth
1) <b>Chronic lung disease and a healthy diet:</b> Facilitator reviews the benefits of healthy eating for individuals with chronic lung disease.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2) <b>Barriers to healthy eating:</b> Facilitator discusses barriers to healthy eating in chronic lung disease (ex: breathlessness, fatigue, bloating, low appetite, difficulty with shopping or preparing meals) and strategies for overcoming these barriers.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3) <b>Balanced diet and a Healthy plate:</b> Facilitator discusses what constitutes a balanced diet and tips for healthy diet such as the concept of a "healthy plate", healthy snacks and the importance of hydration.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4) <b>Take home objectives:</b> Facilitator reviewed last weeks take home activity and introduced a new activity or goal for patients to attempt before the next education session.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
How the content was delivered (process):	1 – Not at all	2	3- Rarely or inconsistently	4	5- Regularly with a few exception	6	7- Consistently throughout session
1) <b>Open ended questions:</b> Facilitator engaged the group with open-ended questions and avoided closed questions	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2) <b>Active listening:</b> Facilitator used reflective listening to express empathy and encourage sharing of experiences.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3) <b>Group discussion:</b> Facilitator encouraged productive group discussion and asked patients for their input and feedback when appropriate.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

## Supplemental material – Surveys

### Survey questions for patients in the initial implementation phase (score from 1-10)

- How satisfied were you with the amount of practical information used in the education sessions (e.g. demonstrations and practice)?
- How satisfied were you with the content of the education sessions?

- How satisfied were you with the content of the written materials given?
- How approachable was/were the healthcare professional(s) who delivered the education sessions?
- How accessible was the location of the education sessions (e.g. distance to walk, car parking facilities)?

**Survey questions for HCP's in the initial implementation phase (score from 1-10)**

- How satisfied were you with the introduction of the program that you received?
- How satisfied were you with the content of the education sessions that you were asked to teach
- how satisfied were you with the facilitator notes and resources provided for the education sessions
- how satisfied were you with the time allotted for your education session(s)
- How likely would you be to recommend the education program (content, resources, structure) to another pulmonary rehabilitation programs?

## Surveys for patients in the sustainability phase

### Satisfaction

1. In general, how satisfied are you with the **pulmonary rehabilitation program** (including lectures, group discussions, individual meetings with health care professionals and exercise sessions)? If not, please describe which part you are not satisfied with and if possible, provide some concrete suggestions for change.

Very satisfied	Satisfied	Neutral	Not satisfied	Very unsatisfied

If not, please describe which part you are not satisfied with and if possible, provide some concrete suggestions for change.

What did you especially **like** about the **pulmonary rehabilitation program** (including lectures, group discussions, individual meetings with health care professionals and exercise sessions)? Was the program the right length for you?

Was there any part that you **disliked** about the **pulmonary rehabilitation program** (including lectures, group discussions, individual meetings with health care professionals and exercise sessions)?

2. How satisfied are you with the **group education sessions** of the program

Very satisfied	Satisfied	Neutral	Not satisfied	Very unsatisfied

If not, please describe which part you are not satisfied with and if possible, provide some concrete suggestions for change.

What did you especially like about the **group education sessions**? Were the sessions the right length?

Was there any part of the **group education sessions** that you did not like or that was not informative or helpful for you?

Did you feel encouraged by the professionals to take part in group conversations during the education sessions?

3. How satisfied were you with the individual education sessions of the program?

Very satisfied	Satisfied	Neutral	Not satisfied	Very unsatisfied

If not, please describe which part you are not satisfied with and if possible, provide some concrete suggestions for change.

4. How satisfied were you with the exercise sessions of the program?

Very satisfied	Satisfied	Neutral	Not satisfied	Very unsatisfied

If not, please describe which part you are not satisfied with and if possible, provide some concrete suggestions for change.

5. How satisfied were you with the interaction with the professionals?

Very satisfied	Satisfied	Neutral	Not satisfied	Very unsatisfied

If not, please describe which part you are not satisfied with and if possible, provide some concrete suggestions for change.

6. Was it easy for you to attend all scheduled appointments? If not, please tell us why.

7. Do you think this program will continue to attract new patients in the years to come? Why do you think it will or will not?

Patient evaluation

1. How long did it take for you to complete the tests and questionnaires required prior to participation in the PR program?

2. How long did it take for you to complete the tests and questionnaires required after participation in the PR program?

3. Were the questionnaires and tests easy to perform?

4. Did you receive proper guidance on how to complete the questionnaires and tests?

5. Do you think that, in general, the way the professionals evaluate the patients, is feasible and relevant? If not, please tell us why.

Action plan and home exercise plan

1. Do you have an action plan?

Yes

No

2. Did any of the health care professionals during the program discuss with you what to do when you have an exacerbation?

Yes

No (please proceed to question 4)

3. Please give a brief description of what to do when you have an exacerbation:

4. Do you have a plan for exercising at home?

Yes

No

5. Did any of the health care professionals during the program discuss home exercises with you?

Yes

No (You may skip the last question)

6. Please give a brief description of your home exercise plan:

## Surveys for HCP's in the sustainability phase

### Professional qualifications and experience

What are your professional qualifications?

Did you have any additional relevant training? (adult education or other) If so, please specify.

How many years of work experience do you have in pulmonary rehabilitation?

### Feasibility of data collection

How long does it take for you to assess one patient in the Canadian PR program? (please give the approximate time you spend assessing one patient pre and post program).

Is this time different from the time you used to spend with the old program?

Do you think that the assessment package (tests and questionnaires) in the Canadian PR program is relevant and feasible to be administered?

Is there any particular test or questionnaire that you think is not relevant or feasible to be administered at the Montréal Chest Institute? If so, please specify if possible.

Did you face any barriers to administering the questionnaires and/or tests of the Canadian PR program?

Do you see any issues with continuing to administer these questionnaires/tests in a long term at the Montréal Chest Institute?

Do you think that the assessment package would be an issue in other centres? Why? Why not?

### Other barriers for maintaining the program

Did you at any point feel like or had to deviate from the Canadian PR program? If so, please explain why.

Did you face any other barriers in working with the Canadian PR program, besides the assessment package?

### Satisfaction

In general, are you satisfied with the new program?

Very satisfied	Satisfied	Neutral	Not satisfied	Very unsatisfied

If not, please describe which part you are not satisfied with and if possible, provide some concrete suggestions for change.

Supplemental Table 3. Domain Adoption: Characteristics of the HCPs.

Characteristics	Frequencies (%)
<b>Work experience in years, mean ± SD (range)</b>	16±10 (1-35)
<b>Disciplines</b>	
Nurse	3 (37.5%)
Physical therapist	1 (12.5%)
Social worker	1 (12.5%)
Nutritionist	1 (12.5%)

	<i>Occupational therapist</i>	1 (12.5%)
	<i>Respiratory therapist</i>	1 (12.5%)
<b>Education</b>		
	<i>Bachelor</i>	8 (100%)

<b>TDF Domain</b>	<b>Definition</b>	<b>Example of statement in the</b>	<b>Frequencies N (%)</b>
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	<i>Master</i>	1 (12.5%)
	<i>Attended relevant courses/ conferences</i>	4 (50%)
<i>These HCPs participated in both evaluation periods</i>		

*Abbreviations: SD=standard deviation*

Supplemental Table 6. Outcomes of the Determinants of Implementation Behaviour

Questionnaire (DIBQ) based on the Theoretical Domains Framework (TDF)

				<i>Agree*</i>	<i>Neutral*</i>	<i>Disagree*</i>
<b>Negative emotions</b>	A complex negative reaction pattern, involving experiential, behavioral, and physiological elements, by which the individual attempts to deal with a personally significant matter or event.	When I work with Pulmonary Rehabilitation I feel nervous.	6 (85.7%)	0 (0%)	1 (14.3%)	
<b>Knowledge</b>	An awareness of the existence of something.	I know how to deliver Pulmonary Rehabilitation following the standards of the Enhanced PR program.	7 (100%)	0 (0%)	0 (0%)	
<b>Skills</b>	An ability or proficiency acquired through practice.	I have been trained in delivering Pulmonary Rehabilitation following the standards of the Enhanced PR program.	6 (85.7%)	1 (14.3%)	0 (0%)	
<b>Social/professional role &amp; identity</b>	A coherent set of behaviors and displayed personal qualities of an individual in a social or work setting.	As a health care professional in the PEP program, it is my job to deliver Pulmonary Rehabilitation following the standards of the Enhanced PR program.	7 (100%)	0 (0%)	0 (0%)	
<b>Beliefs about capabilities</b>	Acceptance of the truth, reality, or validity about an ability, talent, or facility that a person can put to constructive use.	I am confident that I can deliver Pulmonary Rehabilitation following the standards of the Enhanced PR program.	6 (85.7%)	1 (14.3%)	0 (0%)	
<b>Optimism</b>	The confidence that things will happen for the best or that desired goals will be attained.	In my work as a health care professional in the PEP program, in uncertain times, I usually expect the best.	7 (100%)	0 (0%)	0 (0%)	
<b>Beliefs about consequences</b>	Acceptance of the truth, reality, or validity about outcomes of a behavior in a given situation.	For me, delivering Pulmonary Rehabilitation following the standards of the Enhanced PR program is. (Very worthwhile – not worthwhile at all)	7 (100%)	0 (0%)	0 (0%)	
<b>Intentions</b>	A conscious decision to perform a behavior or a resolve to act in a certain way.	I intend to continue delivering Pulmonary Rehabilitation following the standards of the Enhanced PR program in the future.	7 (100%)	0 (0%)	0 (0%)	
<b>Goals</b>	Mental representations of outcomes or end states that an individual wants to achieve.	How often is working on something else on your agenda a higher priority than delivering Pulmonary Rehabilitation following the standards of the Enhanced PR program? (Always – never)	2 (28.6%)	1 (14.3%)	4 (57.1%)	
<b>Innovation</b>	Any characteristics of the innovation that discourages or encourages the development of skills and abilities, independence, social competence, and adaptive behavior.	Pulmonary Rehabilitation is compatible with daily practice.	5 (71.4%)	2 (28.6%)	0 (0%)	
<b>Socio-political context</b>	Any characteristics of the socio-political context that discourages or encourages the development of skills and abilities, independence, social competence, and adaptive behavior.	Government and local authorities provide sufficient support to interventions such as Pulmonary Rehabilitation.	1 (20%)	2 (40%)	2 (40%)	
<b>Organization</b>	Any characteristics of the organization that discourages or encourages the development of skills and abilities, independence, social competence, and adaptive behavior.	In the organization I work, all necessary resources are available to deliver Pulmonary Rehabilitation.	6 (85.7%)	1 (14.3%)	0 (0%)	
<b>Patient</b>	Any characteristics of the patient that discourages or encourages the development of skills and abilities, independence, social competence, and adaptive behavior.	Participants of Pulmonary Rehabilitation are positive about Pulmonary Rehabilitation.	5 (71.4%)	2 (28.6%)	0 (0%)	
<b>Innovation strategies</b>	Any characteristics of the innovation strategy that discourages or encourages the development of skills and abilities, independence, social competence, and adaptive behavior.	The Montréal Chest Institute provides sufficient intervention materials.	5 (71.4%)	2 (28.6%)	0 (0%)	
<b>Social influences</b>	Those interpersonal processes that can cause individuals to change their thoughts, feelings, or behaviors.	Most people who are important to me think that I should deliver Pulmonary Rehabilitation following the standards of the Enhanced PR program.	7 (100%)	0 (0%)	0 (0%)	
<b>Positive emotions</b>	A complex positive reaction pattern, involving experiential, behavioral, and physiological elements, by which the individual attempts to deal with a personally significant matter or event.	When I work with Pulmonary Rehabilitation, I feel optimistic.	7 (100%)	0 (0%)	0 (0%)	

<b>Behavioral regulation</b>	Anything aimed at managing or changing objectively observed or measured actions.	I have a clear plan of how I will deliver Pulmonary Rehabilitation following the standards of the Enhanced PR program.	5 (71.4%)	2 (28.6%)	0 (0%)
<b>Nature of the behaviors</b>	The nature of the aggregate of all responses made by an individual in any situation.	Delivering Pulmonary Rehabilitation following the standards of the Enhanced PR program is something I do automatically.	5 (71.4%)	2 (28.6%)	0 (0%)

\* disagree= 1-3.5; neutral= 3.5-4.5; agree =4.5-6.

Supplemental Table 2. Domain Effectiveness: Patient outcomes from first and second evaluation periods.

Outcome	Measurement instrument	Clinical important difference	Improved n (%) <sup>*</sup>	Not improved N (%) <sup>**</sup>	Missing n (%)	Mean difference (SD)	Total n	First evaluation period					Second evaluation period				
								Improved n (%) <sup>*</sup>	Not improved n (%) <sup>**</sup>	Missing n (%)	Mean difference (SD)	Total n	Improved n (%) <sup>*</sup>	Not improved n (%) <sup>**</sup>	Missing n (%)	Mean difference (SD)	Total n
<b>Functional exercise capacity</b>	6MWT	≥33m ↑	7 (64)	2 (18)	2 (18)	77.7 (46.4)	11	4 (44)	4 (44)	1 (11)	30.9 (39.7)	9					
<b>Knowledge</b>	LINQ	≥1 point ↓	7 (64)	3 (27)	1 (9)	-2.4 (4.3)	11	3 (33)	2 (22)	4 (44)	-1.0 (3.7)	9					
	BCKQ, %correct	≥ 3% ↑						1 (11)	4 (44)	4 (44)	2 (10.5)	9					
<b>Functional status</b>	CAT-score	≥ 2 points ↓	4 (36)	5 (46)	2 (18)	-1 (3.5)	11	5 (56)	2 (22)	2 (22)	-5.4 (6.6)	9					
<b>Self-reported functional performance</b>	FPI-SF Body care	≥ 0.5 points ↑	0 (0)	10 (91)	1 (9)	-0.05 (0.17)	11	0 (0)	5 (56)	4 (44)	0.12 (0.18)	9					
	FPI-SF Household	≥ 0.5 points ↑	0 (0)	10 (91)	1 (9)	-0.08 (0.22)	11	1 (11)	4 (44)	4 (44)	0.23 (0.23)	9					
	FPI-SF Physical exercise	≥ 0.5 points ↑	2 (18)	8 (73)	1 (9)	-0.33 (0.26)	11	1 (11)	4 (44)	4 (44)	0.25 (0.41)	9					
	FPI-SF Recreation	≥ 0.5 points ↑	1 (9)	9 (82)	1 (9)	-0.12 (0.19)	11	0 (0)	5 (56)	4 (44)	-0.12 (0.30)	9					
	FPI-SF Spiritual	≥ 0.5 points ↑	1 (9)	9 (82)	1 (9)	-0.23 (0.99)	11	0 (0)	2 (22)	7 (78)	0 (0.25)	9					
	FPI-SF Social	≥ 0.5 points ↑	0 (0)	10 (91)	1 (9)	0.05 (0.24)	11	2 (22)	3 (33)	4 (44)	0.18 (0.23)	9					
	FPI-SF Total	≥ 0.5 points ↑	0 (0)	10 (91)	1 (9)	-0.08 (0.14)	11	0 (0)	5 (56)	4 (44)	0.12 (0.20)	9					
<b>Self-efficacy</b>	MSEES total mean		3 (27)	6 (55)	2 (18)	13.2 (24.7)	11	3 (33)	2 (22)	4 (44)	12.1 (14.0)	9					
	<i>Task SE</i>		2 (18)	4 (36)	5 (46)	1.4 (17.5)	11	1 (11)	4 (44)	4 (44)	0.7 (10.6)	9					
	<i>Exercise coping</i>		1 (9)	5 (46)	5 (46)	-2.5 (13.9)	11	3 (33)	2 (22)	4 (44)	16.7 (23.3)	9					
	<i>Scheduling SE</i>	≥ 10% ↑	1 (9)	4 (36)	6 (55)	4.0 (12.3)	11	3 (33)	2 (22)	4 (44)	21.7 (23.0)	9					
	<i>Breathing coping</i>		4 (36)	2 (18)	5 (46)	11.1 (24.0)	11	2 (22)	3 (33)	4 (44)	9.3 (17.5)	9					
	SEWS total mean	≥ 10% ↑	4 (36)	6 (55)	1 (9)	11.3 (13.0)	11	5 (56)	0 (0)	4 (44)	41.1 (21.3)	9					
SEAMS total mean	≥ 10% ↑	1 (9)	8 (73)	2 (18)	3.3 (16.6)	11	0 (0)	5 (56)	4 (44)	-4.0 (4.2)	9						

\* Number of patients that improved exceeding the clinical important difference.

\*\* Number of patients that did not improve or had an improvement that did not exceed the clinical important difference.

↑ an increase of clinical important difference is a positive outcome.

↓ a decrease of clinical important difference is a positive outcome.

Abbreviations: 6MWT=6 Minute Walk Test, LINQ= Lung Information Needs Questionnaire, BCKQ=Bristol COPD Knowledge Questionnaire, CAT=COPD Assessment Test, FPI-SF=Functional Performance Inventory-Short Form, MSEES=Multidimensional Self-Efficacy for Exercise Scale, SE=Self-Efficacy, SEWS=Self-Efficacy for Walking Scale, SEAMS= Self-Efficacy for Appropriate Medication Use Scale

Supplemental Table 4. Maintenance on patient level: Patient outcomes at 3 months follow-up vs. baseline / post-program.

Outcome	Measurement instrument	Clinical important difference	follow up vs. baseline			follow up vs. post-program			Total N
			Improved N (%) <sup>*</sup>	Not improved N (%) <sup>**</sup>	Missing N (%)	Improved N (%) <sup>*</sup>	Not improved N (%) <sup>**</sup>	Missing N (%)	
<b>Knowledge</b>	LINQ	≥1 point ↓	8 (73)	3 (27)	0 (0)	6 (55)	4 (36)	1 (9)	11
<b>Self-reported functional performance</b>	FPI-SF Body care	≥ 0.5 points ↑	2 (18)	9 (82)	0 (0)	0 (0)	10 (91)	1 (9)	11
	FPI-SF Household	≥ 0.5 points ↑	2 (18)	9 (82)	0 (0)	0 (0)	10 (91)	1 (9)	11
	FPI-SF Physical exercise	≥ 0.5 points ↑	0 (0)	11 (100)	0 (0)	2 (18)	8 (73)	1 (9)	11
	FPI-SF Recreation	≥ 0.5 points ↑	1 (9)	10 (91)	0 (0)	0 (0)	10 (91)	1 (9)	11
	FPI-SF Spiritual	≥ 0.5 points ↑	5 (46)	6 (55)	0 (0)	0 (0)	10 (91)	1 (9)	11
	FPI-SF Social	≥ 0.5 points ↑	2 (18)	9 (82)	0 (0)	0 (0)	10 (91)	1 (9)	11
	FPI-SF Total	≥ 0.5 points ↑	1 (9)	10 (91)	0 (0)	0 (0)	10 (91)	1 (9)	11
<b>Self-efficacy</b>	MSEES total mean		6 (55)	3 (27)	2 (18)	1 (9)	8 (73)	2 (18)	11
	Task SE		2 (18)	3 (27)	6 (55)	2 (18)	6 (55)	3 (27)	11
	Exercise coping	≥ 10% ↑	3 (27)	3 (27)	5 (46)	5 (46)	3 (27)	3 (27)	11
	Scheduling SE		3 (27)	3 (27)	5 (46)	1 (9)	6 (55)	4 (36)	11
	Breathing coping		5 (46)	1 (9)	5 (46)	1 (9)	5 (46)	5 (46)	11
	SEWS total mean	≥ 10% ↑	5 (46)	4 (36)	2 (18)	0 (0)	8 (73)	3 (27)	11
	SEAMS total mean	≥ 10% ↑	1 (9)	8 (73)	2 (18)	0 (0)	8 (73)	3 (27)	11

*This data was only obtained in the first evaluation period of the study.*

\* Number of patients that improved exceeding the clinical important difference.

\*\* Number of patients that did not improve or had an improvement that did not exceed the clinical important difference.

↑ an increase of clinical important difference is a positive outcome.

↓ a decrease of clinical important difference is a positive outcome.

Abbreviations: 6MWT=6 Minute Walk Test, LINQ= Lung Information Needs Questionnaire, BCKQ=Bristol COPD Knowledge Questionnaire, CAT=COPD Assessment Test, FPI-SF=Functional Performance Inventory-Short Form,

MSEES=Multidimensional Self-Efficacy for Exercise Scale, SE=Self-Efficacy, SEWS=Self-Efficacy for Walking Scale,  
SEAMS= Self-Efficacy for Appropriate Medication Use Scale

### Supplemental tables 5: Data from surveys for HCPs and patients

Table 5A. Results of the survey for the patients during first evaluation period

Questions	Mean ± 95% CI	SD
1. How satisfied were you with the amount of practical information used in the education sessions?	9.9 ± 0.2	0.3
2. How satisfied were you with the content of the education sessions?	10.0 ± 0.0	0.0
3. How satisfied were you with the content of the written materials given?	9.0 ± 2.1	3.2
4. How approachable was/were the healthcare professional(s) who delivered the education sessions?	10.0 ± 0.0	0.0
5. How accessible was the location of the education sessions	8.9 ± 2.0	2.9
<b>Total mean</b>	9.5	0.9

Abbreviations: CI=confidence interval, SD=standard deviation

Table 5B. Results of survey for patients during second evaluation period

Items*	Satisfaction <sup>+</sup>					
	Very satisfied	Satisfied	Neutral	Not satisfied	Very unsatisfied	Not applicable
1. Overall satisfaction with program	5/6 (83)	-	1/6 (17)	-	-	-
2. Satisfaction with group education sessions	3/6 (50)	1/6 (17)	1/6 (17)	-	-	-
3. Satisfaction with individual education sessions	3/6 (50)	-	2/6 (67)	-	-	1/6 (17)
4. Satisfaction with exercise sessions	6/6 (100)	-	-	-	-	-
5. Satisfaction with interaction with HCP's from the program	4/6 (67)	2/6 (33)	-	-	-	-
<b>Total</b>	21/30 (67%)	3/12 (25%)	4/18 (20%)			

\*item number of the survey as portrayed in Additional file 3.

<sup>+</sup>Proportion of N (%)

Table 5C. Results of the survey for health care professionals during first evaluation period

Questions	Mean + 95% CI	SD
1. How satisfied were you with the introduction of the program that you received?	6.7 ± 2.2	2.8
2. How satisfied were you with the content of the education sessions that you were asked to teach	8.7 ± 1.0	1.4
3. How satisfied were you with the facilitator notes and resources provided for the education sessions	6.4 ± 2.7	3.4
4. How satisfied were you with the time allotted for your education session(s)	9.3 ± 0.6	1.0
5. How likely would you be to recommend the education program (content, resources, structure) to another pulmonary rehabilitation programs?	9.4 ± 0.5	0.8

<b>Total mean</b>	8.1	1.4
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*Abbreviations: CI=confidence interval, SD=standard deviation*