

Digital Breathing Assessment Supporting notes

This document is designed to assist you in your assessment and treatment planning for patients with a presumed Breathing Pattern Disorder (BPD). It is by no means exhaustive. It is designed to be used in conjunction with the BPD assessment form. It is assumed that the user will have a good basic understanding of Respiratory Conditions, and of what is meant by 'Normal Breathing'. We have tried to include Covid 19 pointers.

Symptom questionnaires to help with the diagnosis of BPD- consider sending these before the assessment or they can be used as part of an assessment. It is not essential to use them all with each patient. They can be used as outcome measures. SEBQ maybe too long for digital assessment.

Nijmegen Score – this tends to be positive for those with HVS/biochemical causes of BPD- score >23 is considered a positive score

BPD Dyspnoea 12 – questions 1-7 (mechanical) 8-12 (psychological)

SEBQ – Assesses the patient's perception of their breathing difficulties and gives an insight into the effort of breathing and the feeling of air hunger. A score of 11 or over is indicative of a BPD.

BPAT- Breathing Pattern Assessment Tool: a score of >4 is indicative of a BPD. Consider using as part of an objective assessment or it may be of use in clinics as point of referral for further physiotherapy input. (Permission to use may be needed).

HPC – This can be lengthy, give it plenty of time. Start with an open question about symptoms. Actively listen and be patient. Reaffirm their symptoms on how they are feeling. *With COVID try to establish whether they had any pre-existing conditions that may have influenced their breathing.*

Body chart – head to toe symptoms. Write down everything and encourage them to tell you everything. *With COVID- red flag questions for SOB (see COVID guidelines) Further investigations maybe required.*

Onset – when did the symptoms start – be prepared to go back years. *COVID or non COVID, what were they like pre COVID?*

Investigations – aim is to eliminate organic disease – Respiratory/heart/neuro. *Post COVID be aware of post viral issues e.g pericarditis/vascular (DVT/PE/stroke)/fatigue (early ME symptoms).*

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What Eases/Aggravates: What has helped them so far? Yoga/Pilates - may help some with relaxation but may also be a hinder if they over breathe or fix with diaphragm to gain core stability. Aerobic exercise may make it better (HVS/psychological) or make it worse (biomechanical)

Respiratory Symptoms (Cough/Phlegm/Pain/SOB/Ex tolerance)

Nose: can they breathe through the nose easily, any history of sinus infections, past or present, any throat sensations (e.g. tickly throat, lump in the throat)?

Cough: establish the type of cough. Is it dry or productive? If it is an irritable tickle, consider post-nasal drip. If productive: do they cough more when they lie down? Is it due to phlegm or reflux/ hiatus hernia? Early hours of the am - asthma (PEFR diary required) Or habitual HVS? Any Pelvic floor weakness making cough difficult?

Childhood illness -eliminate organic disease e.g. Bronchiectasis/Asthma – both can coexist with BPD

Vocal cord/speech: Strained voice? Is a mouth/ upper chest gasp obvious? Think ILO or EILO (see table below)

PMH – both physical and psychological PMH may need to be prompted. Any history of anxiety/depression/PTSD/eating disorders etc (these may be revealed later in assessment). Allergies – are they controlled?

DH- any medications that have side effect of irritable cough? (Think ACE inhibitors for blood pressure- Lisinopril, Enalapril etc)

SH –Take time to gain a good insight into their lifestyle, you are looking to find any trigger or something that may prevent the breathing from returning to a normal pattern.

Daily routine: establish any triggers or habitual aggravators (also helps to understand how to set their HEP e.g. positions and frequency)

Work: sedentary, stressful(over-stimulated) v under-stress(under-stimulated), financial concerns, work atmosphere – cold or high temp, long hours, shift work, enjoyable, fulfilling, management of pressures.

Exercise: type/intensity/how do they feel – better/worse? Any symptoms with exercise:

Consider -Exercise Induced Laryngeal obstruction (EILO), Exercise Induced Bronchoconstriction (EIB)– see table for differential diagnosis.

Sleep: how much do they normally need? Essential for their recovery. Do they have nightmares. Post ICU delirium?

Diet: do they go for long periods of time without food? Fluctuating sugar levels? Any intolerances?

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Hobbies: are they still able to do them? How do they unwind? (do they have a good balance between the parasympathetic and sympathetic systems)

Family: relationships/concerns/worries. Bereavements. History of chronic disease e.g. asthma

Stimulants: smoker, recreational drugs, alcohol, caffeine: encourage them to be honest and be non-judgemental

Observation: Body Posture: forward chin protraction, shoulders forward: look at standing posture if appropriate. Tension: general – Trapezius muscle overactivity, jaw tension. Speech: fast / upper chest / gasps

Summary of EILO and EIB symptoms

	EILO	Exercise Induced Bronchoconstriction
Onset	Rapid (within seconds) during peak exercise	Rapid (within minutes) shortly following the termination of exercise
Duration	Regresses within minutes of rest	Resolves typically within 30 minutes
Inhaled Drug Therapy	Largely ineffective, inhaled anti-cholinergic may reduce symptoms	Beta-2 agonists usually effective
Breathing Characteristics	Monophonic inspiratory wheeze, Prolonged inspiratory phase	Monophonic expiratory wheeze Prolonged expiratory phase
Regional limitations	Upper airways, neck	Lower airways, chest
Symptoms	Dyspnoea, wheeze, stridor, cough, throat/chest tightness, dysphonia	Dyspnoea, wheeze, cough, chest tightness
Precipitating Factors	Exercise, emotional stress, cold air, strong odours	Exercise, infections, cold air, allergens

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Objective Assessment of Breathing: Record position – sitting/lying.

Nose: are they able to sustain for 3 mins comfortably? any mouth breathing at rest ?

Thoracic movement Observe- as able - may need patient to self-assess or place their relaxed hands on abdomen and upper chest to allow your observation

Lower rib cage/Diaphragm: hand on tummy, excursion, over-active abdominals (hard to tell on video) lower rib movement– hands on waist

Upper rib cage: hand on upper chest, accessory muscles active? excessive shoulder movement?

MARM (manual assessment of respiratory motion) - not able to do on digital platform

Minute volume = normally 5-6L (e.g. 10 breaths per min x 500mls TV) Audible sound to breathing? Listen and ask them to listen, more challenging on video call but try and observe and estimate volume of breathing. If audible usually too large. Look for 'breath- stacking' or fixed upper chest – indicating raised functional residual capacity.

Rate: breaths per minute- normal is 8-12

Erratic/smooth: smooth I:E ratio, differs a lot/individual, any pauses between breaths?

Breath hold: Can choose either expiration or inspiration, whichever is easiest to see and explain to patient. Exp > 30 sec (advantage for treatment sessions and reference) Insp > 30 sec: Note which and instructions given and if retesting ensure that you do the same.

Analysis Self-assessment skill: are they able to self-assess or do they need more input?

Triggers identified:

Physiological (Nijmegen- HVS +ve)	Biomechanical (D-12/SEBQ)	Psychological (HAD/GAD7/PHQ9)
Asthma Exaggerated response to low CO2 Caffeine Aspirin Hormonal (progesterone) Speech/laughter Fever Altitude Diet	Postural Adaptations Chronic Mouth Breathing Upper limb dysfunction MSK problems Braced Posture Pain Abdominal Cylinder dysfunction EILO/ EIB	Anxiety Stress, Panic Personality Traits Obsessive Suppressed emotion Depression Phobias Fear of ill health Fear of poor performance

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Treatment Summary (see treatment document)

Explanation and reassurance: explain what good/normal breathing is.

Help them to understand how it can be due to either a habit which is changeable, a resetting of their respiratory centre, their lifestyle – all changeable.

Give them hope and desire to change breathing pattern as it will take time and dedication. They must believe in it.

Which bit of breathing do you start with?

Priority is the nose, then diaphragm, then minute volume.

You may need to look at alternate ways to help them e.g. relaxation.

HEP: structured v not structured. Help them to decide how they can practice during the day.

See further Treatment document for more detailed information and resources.

Thank you on behalf of the BPD committee group.

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Physiotherapy For Breathing Pattern Disorders

Reference

A Multi-Dimensional Model of Dysfunctional Breathing and Integrative Breathing Therapy- Commentary on the Functions of Breathing and Its Dysfunctions and Their Relationship to Breathing Therapy

Rosalba Courtney.