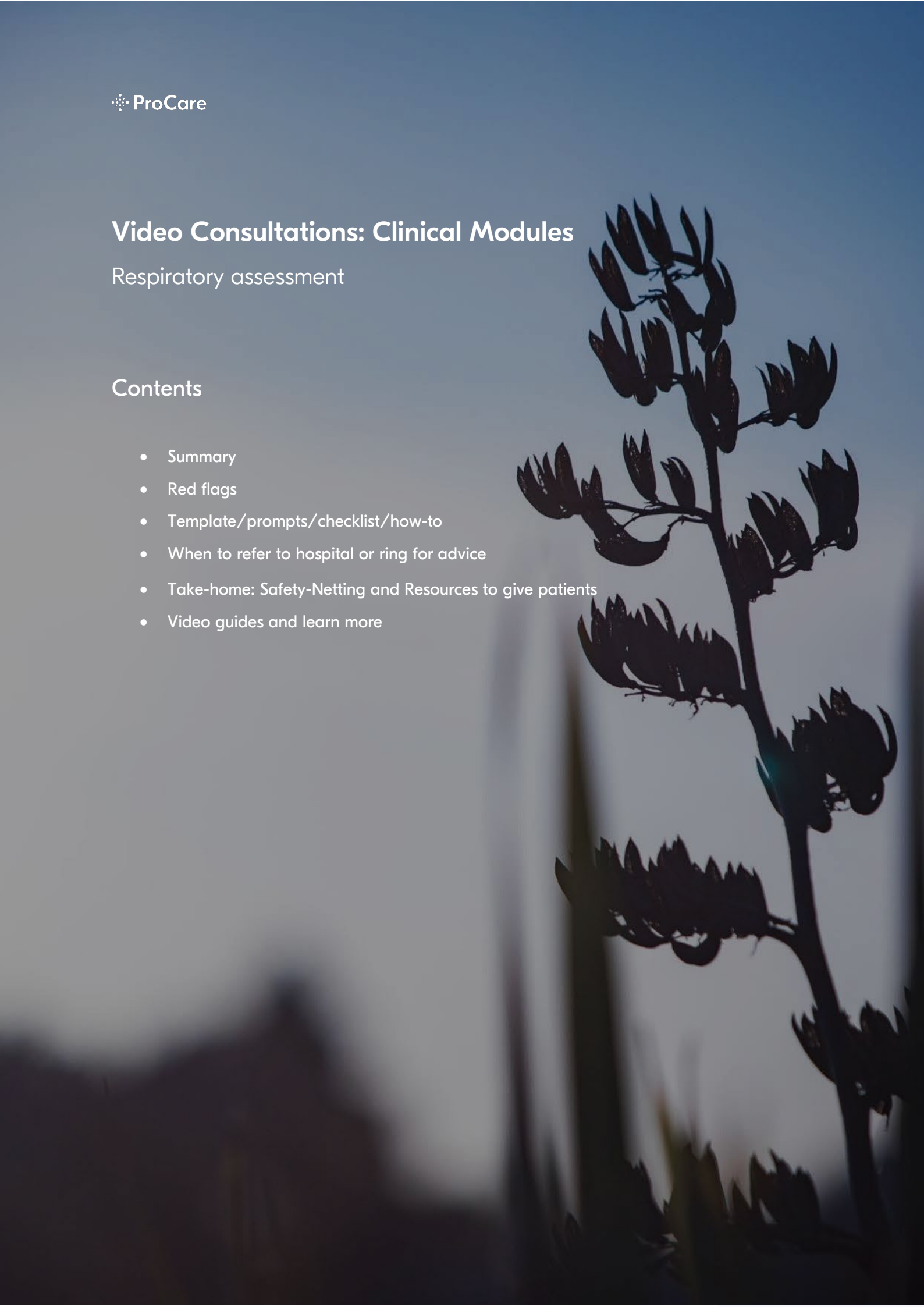
ProCare

Video Consultations: Clinical Modules

Respiratory assessment



Contents

Summary – Key Messages

- Respiratory status can be assessed remotely using history, function, and home-based pulse oximetry if available or able to be loaned to patients
- It is possible to measure the respiratory rate via a good video connection – video allows a more detailed assessment and may prevent the need for an in-person visit (BMJ)
- Don't forget cardiac causes of breathlessness
- Safety-netting advice is crucial.

Red flags

Red flag symptoms which indicate that the patient needs urgent assessment (either in person or by a good video link, depending on the clinical circumstances) include:

- Signs of severe respiratory distress (such as inability to complete a sentence at rest or pausing between sentences to catch their breath, altered level of consciousness, severe breathlessness or difficulty breathing)
- Decreasing O_2 levels if using pulse oximetry
- Significant change for the worse (such as deterioration in breathing in past hour, new breathlessness at rest, newly unable to complete sentences)
- Pain, tightness or pressure in the chest; chest pain on breathing in
- Signs of low oxygen: blue lips or face (cyanosis), audible wheeze or stridor
- Symptoms suggestive of shock (such as cold and clammy peripheries, mottled or blue skin, new confusion, becoming difficult to rouse, drowsiness, or significantly reduced urine output)
- Symptoms suggestive of malignancy (such as weight loss and blood in the sputum)
- Beware of silent hypoxia which can be seen in people with COVID-19, sometimes in the second week
- For patients with COVID-19, phone for clinical advice or refer to hospital if either:
    - Oxygen saturation drops by 3% from baseline or with exercise
    - Unexplained heart rate greater than 100 beats per minute.
    - See HealthPathways for full list and details.

Template/prompts/checklist/how-to (making it easier!)

Remote assessment of breathlessness:

Before the history Marked breathlessness? Any chest pain? If NO, then, what do they want most from the appointment?	**Do a quick assessment of whether the patient is sick or not sick?** • Is the patient too breathless to talk? • Can you hear them gasping on the phone? • Can they speak a full sentence or only a word at a time? • Do they look very sick on the video (pale, cyanotic, gasping for breath, confused, agitated etc)? ➢ **If YES** then will need an in-person assessment. If dyspnoea is severe refer to ED immediately without examination. **Do they have chest pain/pressure or palpitations?** ➢ **If yes,** then will need an in-person examination and cardiovascular assessment. **Refer to ED if chest pain suggestive of severe COVID, myocarditis or ischaemia.*** **Note: COVID also commonly gives myalgia affecting chest wall which does not necessarily mean severe COVID** If the patient does not sound or appear SICK, clarify what they expect from the appointment. • Do they want a sick note, a referral, reassurance? • Do they want advice on self-isolation? • Do they want a clinical assessment – what was it that made them consult *now*? (may need to dissuade and reassure if not unwell)
History and functional assessment	• Ask the patient to describe their breathing in their own words, and assess how easily (and comfortably) they can speak – **"how is your breathing today?"** • Ask open-ended questions and listen to whether the patient can complete their sentences. • What is the patient doing now? (Lying down vs. able to do usual activities). • How much are they able to do in comparison with normal?

	• If speaking to a relative: **"How would you describe their breathing? Can I listen?"** • Interpret the breathlessness in the context of the wider history and physical signs. E.g. a new audible wheeze and report of blueness of the lips in a breathless patient are concerning.
Symptoms and severity	• **Are you so breathless that you are unable to speak more than a few words?** • **Are you breathing harder or faster than usual when doing nothing at all?** • **Are you so ill that you've stopped doing all your usual daily activities?** Is there evidence of deterioration? — focus on change • **Is your breathing faster, slower or the same as normal today?** • **What could you do yesterday that you cannot do today?** • **What makes you breathless now that did not yesterday?**
Speech	• Able to complete sentences? Speaking with ease?
Medication and co-morbidity	• **Any pre-existing conditions/comorbidities and/or long-term medicines** that may put them in a higher risk group, or explain any of the symptoms? • **Medications:** any medications that may increase their risk (e.g. immunosuppressants), or if they need temporary adjustment (e.g. if dehydration present). • **Reliever medications:** Frequency of use, and impact, in comparison with normal. • **Advice:** symptomatic relief
Observations/tests (Note change from previous)	**Self-monitoring:** some patients have instruments at home: BP machine, pulse oximeter, peak flow etc. If they do, make use of these. Serial measurement with the use of charts is preferable. Interpret self-monitoring results with caution in the context of your wider assessment. Also, be mindful of the quality of these devices. • **Respiratory rate:** try to count respirations over the phone or video screen. • **Assess their cough:** see cough assessment below.

	• **Physical assessment:** patient's demeanour (lying in bed or up and about), skin features and colour (such as flushing, pallor, cyanosis), hydration status, mental status, view of the oropharynx Note what you can and cannot see. *Oxygen Saturation*[i] Home-based pulse oximetry is a helpful tool to indicate disease severity when available, especially if available at beginning and can monitor change. What is the O_2 saturation trend? • If no known respiratory disease or previously recorded normal O_2 saturation — a persisting O_2 saturation < 92% is a red flag • If O_2 saturation is consistently dropping >3-4%[2], even if > 92%, this is also a red flag and worth discussing with a specialist • If underlying lung disease with documented low normal O_2 saturation at baseline — a new reading of < 90% is a red flag • If patient on home oxygen normally and their O_2 requirements increase with COVID illness — this is also a red flag. • If low pulse oximetry doesn't seem to reflect overall clinical picture. Consider retrying on different digit and check with patient is being done appropriately.
Cough assessment	• **Wet cough** Most wet coughs are caused by an infection: a common cold, the flu, bronchitis, or pneumonia. • **Chronic Wet Coughs:** These have many possible causes. - **Postnasal drip —** this is caused by mucus draining down the throat, the result of allergies, irritants in the air, a cold, or a sinus infection. Mucus drips onto the voice box. This stimulates coughing, to keep the mucus from travelling down into the lungs. - **Chronic obstructive pulmonary disease (COPD) —** the hallmarks of COPD are productive cough, shortness of

	breath, and wheezing, frequent respiratory infections, fatigue, or excess phlegm. - **Bronchiectasis —** in this disease, mucus pools in small balloon-like pouches and can't be fully cleared from the lungs. • **Dry cough** A dry cough (no sputum) is typically a reaction to something irritating your throat, such as a pollutant in the air. Dry coughs may be either temporary or chronic. Chronic dry coughs may be caused by any of the following: - **Gastroesophageal reflux disease (GERD) —** this occurs when the circular muscle between the oesophagus and the stomach fails to tighten properly, allowing acidic digestive juices to squirt back up from the stomach, irritating the lining of the oesophagus and structures in the throat. This triggers coughing. - **Asthma —** the coughing is most often accompanied by wheezing, chest tightness, and shortness of breath that waxes and wanes in severity. Sometimes asthma causes only a dry, bothersome cough, particularly with exercise or on suddenly breathing cold air. - **Nerve sensitivity —** nerves that trigger coughing may be overly sensitive because of damage from neurological disease, surgery, or injury. - **Medication side effects —** some medications cause chronic cough as a side effect. For example, ACE inhibitors, such as enalapril (Vasotec) and lisinopril (Prinivil, Zestril), cause a persistent cough in 20% of people who use them. - **Heart failure —** this condition is marked by a build-up of fluid in the lungs that typically also causes breathlessness. • **Barky cough** This cough sounds like a seal's bark. Often croup but other upper respiratory illness can create it, and it happens when a virus causes the airways to swell. - **Whooping cough (pertussis) —** kids with pertussis typically run out of breath after coughing hard. When they then take in a large breath, it causes a characteristic "whooping" sound. Adults with pertussis may simply have a bad cough that seems to hang on.

When to refer to hospital or ring for acute advice

Refer to your local HealthPathways for guidance.

Factors to consider include:

- Heart rate >100
- Reducing O_2 saturation, or consistently ≤ 92%, or >3-4% less than usual[2] (see guidance under Examination/Assessing Vital Signs on this page)
- Respiratory rate >24 {Auckland Regional HealthPathways list respiratory rate >20 as a sign of respiratory compromise}
- Severe shortness of breath at rest (e.g. Breathlessness, respiratory rate >30 despite normal O_2 saturation)
- Difficulty in breathing (work of breathing)
- Pain or pressure in chest
- Decreased oral intake or urine output (dehydrated, needing IV fluids)
- Cold, clammy or pale mottled skin
- New onset of confusion, becoming drowsy, difficult to rouse, syncope
- Blue lips or face
- Coughing up blood
- Markedly increased fatigue if O_2 saturation is not available.

The patients risk factors for more severe illness should be considered in making the decision to refer to ED:

- Age (>65, or over 55 years for Māori and Pacific patients)
- Comorbidities (including BMI >30, asthma, COPD, pregnancy, current smoker, cardiovascular disease, poorly controlled diabetes)
- Immunocompromised (diabetes, chronic kidney disease, steroids or immunosuppressant use)
- Higher frailty score
- Cognitive impairment

In addition, if infectious condition (such as COVID once community management is agreed), inability to self-isolate or lack of support at home may be other reasons to consider ED referral.

Watch for 'silent hypoxia'
COVID patients can present asymptomatically with low O_2 saturation, often alongside normal respiratory rate, heart rate, and temperature.[1] Lower oxygen saturations have been found to be associated with poorer outcomes.[3]

COVID-19 Case Management in Adults

Take-home — safety netting and resources to give patients

Safety Netting

Provide clear safety netting advice, and check patient understanding, on the signs of deterioration and what to do if it happens, including:

- Arranged follow up
- If living alone, there someone to check on them
- Patients can maintain fluid intake (6-8 glasses a day), medication compliance and self-care
- Patients know where and how to seek immediate medical help if their symptoms deteriorate, new symptoms emerge or for red flag symptoms.

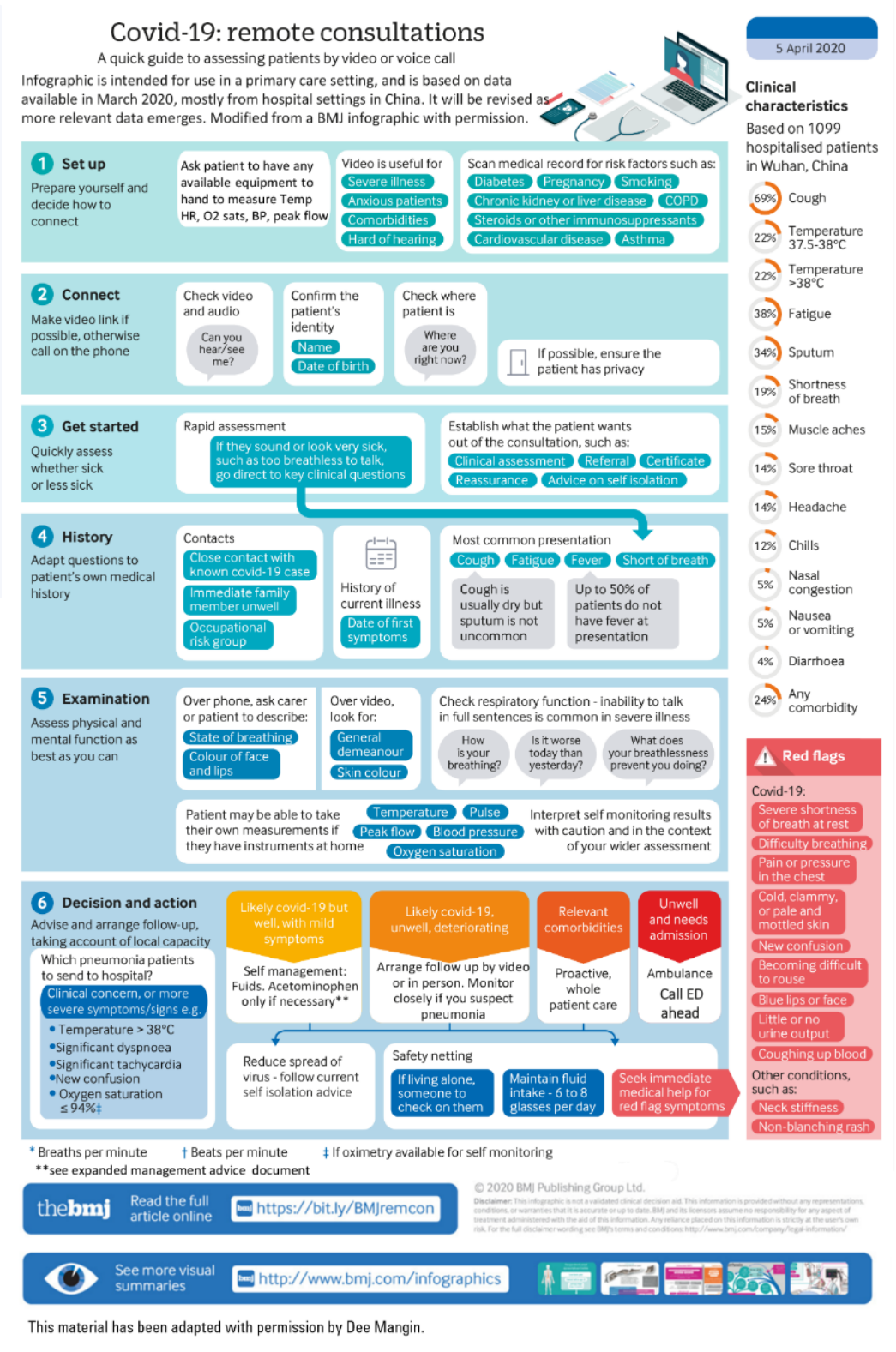
Patient Resources

- Health Navigator: Respiratory tract infection topics
- Health Navigator: Respiratory conditions
- Health Navigator: COVID-19 Positive — Care at Home
- Health Navigator: Pulse oximeters — How to use
- Health Navigator: How to assess breathing rate
- Health Navigator: COVID positive: Symptom diaries and pulse oximeter diaries
- Royal Australian College of General Practitioners — Homecare During COVID-19: Looking After Patients with Mild to Moderate Disease and their Carers During the Recovery Period
- Health Navigator: Breathlessness
- British Lung Foundation: How to manage breathlessness (recommended by Auckland HealthPathways)
- See HealthPathways for more resources as these will be updated regularly.

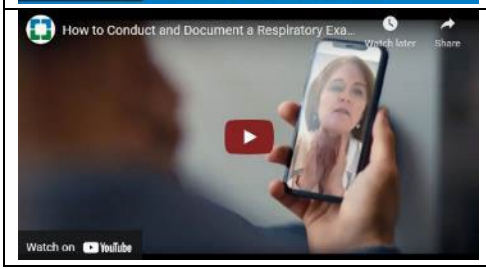
	
VIDEO: How to use a pulse oximeter at home (eGPlearning; January 2021)	VIDEO: Count your respiratory rate quickly (eGPlearning; August 2021)

Video guides and learn more

Guide and Infographic: Adapted BMJ Infographic (NB. Adapted to remove UK references) - [COVID-19: a remote assessment in primary care](#) (March 2020, BMJ 10 min clinical guide)



This material has been adapted with permission by Dee Mangin.

	**Podcast:** Management of post-acute covid-19 in primary care (BMJ August 2020)
	**VIDEO:** Respiratory exam by video consultation (eGPlearning, April 2020)
	**WEBINAR:** Canterbury PRG — COVID-19 Management of Mild to Moderate COVID in the Community — Learnings from Canada, Dee Mangin, August 2021 — and presentation slides.
	**WEBINAR:** Goodfellow Unit: Covid in the home — what primary care needs to know, with resources, 28 October 2021
	**VIDEO:** How to conduct and document a respiratory exam via telehealth (Cleveland Clinic, April 2020)

Reference

Auckland Regional HealthPathways: Respiratory

Auckland Regional HealthPathways: Respiratory Requests

Auckland Regional HealthPathways Telehealth consultations

Auckland Regional HealthPathways COVID-19 Ongoing Assessment and Management

Auckland Regional HealthPathways Post-COVID-19 Conditions

[1]Hamilton Family Medicine: Assessment, Monitoring and Management of COVID (Canada)

[2] NHS: Remote monitoring in primary care — pulse oximetry to detect early deterioration of patients with COVID-19 in primary and community care settings, January 2021 (England)

[3]JAMA April 2020. Presenting Characteristics, Comorbidities, and Outcomes Among 5700 Patients Hospitalized With COVID-19 in the New York City Area. Richardson et al. JAMA 2020;323(20):2052-2059. doi:10.1001/jama.2020.6775

Roth Score: no longer recommended. The Centre of Evidence Based Medicine.