



The following information resources have been selected by the National Health Library and Knowledge Service Evidence Virtual Team in response to your question. The resources are listed in our estimated order of relevance to practicing healthcare professionals confronted with this scenario in an Irish context. In respect of the evolving global situation and rapidly changing evidence base, it is advised to use hyperlinked sources in this document to ensure that the information you are disseminating to the public or applying in clinical practice is the most current, valid and accurate.

YOUR QUESTION

Is respiratory/chest physiotherapy treatment an aerosol generating (agp) procedure?

What does the World Health Organization say?

Initially, the World Health Organization Guidance did not consider chest physiotherapy to be an aerosol generating procedure.

[World Health Organization \(2007\). Infection prevention and control of epidemic and pandemic prone acute respiratory infections¹](#)

However, this advice has recently changed, influenced by a systematic review by Tran and colleagues.

[Tran et al. \(2012\) Aerosol generating procedures and risk of transmission of acute respiratory diseases: a systematic review²](#)

2014 WHO guidance noted that induction of sputum typically involves the administration of nebulised saline to moisten and loosen respiratory secretions. This may be accompanied by CHEST PHYSIOTHERAPY [percussion and vibration] to induce forceful coughing. This may create conditions for aerosol generation.

[World Health Organization \(2014\). Infection prevention and control of epidemic and pandemic prone acute respiratory infections in health care³](#)

¹ World Health Organization. https://www.who.int/csr/resources/publications/WHO_CD_EPR_2007_6/en/. [Accessed 30 March 2020].

² Tran et al. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3338532/>. [Accessed 30 March 2020].

³ World Health Organization. https://apps.who.int/iris/bitstream/handle/10665/112656/9789241507134_eng.pdf?sequence=1. [Accessed 30 March 2020].



Further evidence of the new position may be evidenced in a 2020 document which specifically includes chest physiotherapy as an agp.

[World Health Organization \(2020\). Surface sampling of corona virus disease⁴](#)

What does the Health Protection Surveillance Centre (Ireland) say?

The HPSC has consistently followed World Health Organization guidance with regard to this issue.

What does the European Centre for Disease Prevention and Control say?

[Infection Prevention and Control for the Care of Patients with 2019-nCoV in Healthcare Settings⁵](#)

This broadening of the definition of when chest physiotherapy might potentially be considered an agp has led to a change in a number – though not all – of the official Public Health bodies altering their advice. An example of this can be seen in the ECDC recommendation that certain chest physiotherapy “should occur in a single room and with the minimum of staff present and using airborne precautions.”

Incorporation of these measures into official guidance is an acknowledgement of a degree of at least low level risk that as an agp certain chest physiotherapy practices potentially carry in relation to COVID-19.

Guidance from Physiotherapy experts internationally

The evidence compiled so far in relation to the COVID-19 virus appears to confirm droplet transmission as the main channel of transmission. Droplets do not travel more than about 2 metres and do not linger in the air. This fact has formed the basis for social distancing dimensions employed in most countries globally. In relation to chest physiotherapy whilst it has been found to increase droplet production these particles are predominantly >10um in size and precipitate within 1m of the patient.

[Simonds \(2010\). Evaluation of droplet dispersion during non-invasive ventilation⁶](#)

⁴ World Health Organization. https://apps.who.int/iris/bitstream/handle/10665/331058/WHO-2019-nCoV-Environment_protocol-2020.1-eng.pdf?sequence=1&isAllowed=y. [Accessed 30 March 2020].

⁵ European Centre for Infection Prevention and Control. <https://www.ecdc.europa.eu/sites/default/files/documents/nove-coronavirus-infection-prevention-control-patients-healthcare-settings.pdf>. [Accessed 30 March 2020].

⁶ Simonds. <https://www.ncbi.nlm.nih.gov/pubmed/20923611>. [Accessed 30 March 2020].



Since 2007, the WHO has employed a 5µm threshold to delineate between airborne (<5µm) and droplet based (>5µm) transmission. Under these criteria therefore the particles created during chest physiotherapy should not be included as an agp.

However, a number of studies point to environmental factors as meaning it is difficult to accurately be sure of the potential range of airborne infections.

[Zhu et al. \(2006\). Study of transport characteristics of saliva droplets produced by coughing in a calm indoor environment⁷](#)

[Nicas et al. \(2005\). Towards understanding the risk of secondary airborne infection: emission of respirable pathogens⁸](#)

[Jones et al. \(2015\). Aerosol transmission of infectious disease⁹](#)

With specific reference to COVID-19 there are some reports that SARS –COV2 remained viable in aerosols under experimental conditions under experimental conditions for at least 3 hours.

[Van Doremalen et al. \(2020\). Aerosol and surface stability of SARS cov2 as compared with SARS cov1¹⁰](#)

Physiotherapy Guidelines

A number of the physiotherapy societies globally have collaborated to produce key recommendations with regard to the management of COVID-19. A key document is the recommendation is entitled:

[APTA \(23/03/2020\). Physiotherapy Management for COVID-19 in the acute setting: recommendations to guide clinical practice¹¹](#)

This builds on the work of other key guidelines in relation to intensive care in the COVID-19 pandemic from NICE, ANZICS, WHO and SSCM. As many respiratory interventions are potentially aerosol-generating procedures,

⁷ Zhu et al. <https://www.sciencedirect.com/science/article/abs/pii/S0360132305002726>. [Accessed 30 March 2020].

⁸ Nicas et al. <https://www.ncbi.nlm.nih.gov/pubmed/15764538>. [Accessed 30 March 2020].

⁹ Jones et al. <https://www.ncbi.nlm.nih.gov/pubmed/25816216>. [Accessed 30 March 2020].

¹⁰ Van Doremalen et al. <https://www.ncbi.nlm.nih.gov/pubmed/32182409>. [Accessed 30 March 2020].

¹¹ APTA.

http://www.apta.org/uploadedFiles/APTAorg/News_and_Publications/Latest_News/News_Items/2020/Physiotherapy_Guideline_COVID-19.pdf. [Accessed 30 March 2020].



they have built a strong evidence base to be consulted in relation to chest physiotherapy.

CONCLUSION

There has been a move to include chest physiotherapy as an agp in certain circumstances and in conjunction with other techniques and treatments. This has been captured in many of the official global Public Health bodies—most notably, the WHO. Currently, despite anecdotal evidence there is a low level of evidence relating to transmission of airborne viruses. Also currently, chest physiotherapy does not meet the criteria for inclusion as an agp.



Produced by the members of the National Health Library and Knowledge Service Evidence Team.† Current as at [27 March 2020]. This evidence summary collates the best available evidence at the time of writing. Emerging literature or subsequent developments in respect of COVID-19 may require amendment to the information or sources listed in the document. Although all reasonable care has been taken in the compilation of content, the National Health Library and Knowledge Service Evidence Team makes no representations or warranties expressed or implied as to the accuracy or suitability of the information or sources listed in the document. This evidence summary is the property of the National Health Library and Knowledge Service and subsequent re-use or distribution in whole or in part should include acknowledgement of the service.

The following PICO(T) was used as a basis for the evidence summary:

	COVID-19 PATIENT
	CHEST PHYSIOTHERAPY PULMONARY PHYSIOTHERAPY
	AEROSOL GENERATING PROCEDURE

The following search strategy was used:

[ABBREVIATED] ((coronavirus OR COVID-19 OR (Wuhan ADJ3 virus) OR 2019-nCoV OR SARS-COV-2)) AND
 Keywords: respiratory exercise OR pulmonary rehabilitation OR chest physiotherapy OR physical therapy OR
 physiotherapy OR physical medicine OR exercise therapy
 Emtree (EMBASE): exp physiotherapy practice/ or exp physiotherapy/ or exp rehabilitation/
 Medline (MeSH): (MM rehabilitation+ OR MM physical therapy modalities+ OR MM physical therapy speciality+)

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