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Health  
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## INTERNAL MEMO

Date:	12 November 2020		
To:	<b>Minister ZL Mkhize, Honorable Minister of Health</b>	From:	<b>Ministerial Advisory Committee (MAC) on COVID-19</b>

### THERAPEUTIC BRONCHOSCOPY FOR MUCUS REMOVAL IN PATIENTS WITH COVID-19

#### Problem Statement

Management of patients with SARS-CoV-2 pneumonia on mechanical ventilation is often difficult. Strategies to improve outcomes in such patients need to be developed. One concern is the development of thick, viscid mucus that may further limit gas exchange in patients who are already hypoxaemic. Is therapeutic bronchoscopy an effective strategy to remove mucus and improve outcome, and should this intervention be routinely performed?

#### Evidence review

The exact role of increased respiratory secretions in Covid-19 pneumonia remains unclear. There is indirect evidence indicating increased presence of mucus and mucus impaction, and that the mucus is thick and viscid with possible mucus plugging.<sup>1, 2, 3</sup>

Bronchoscopy in Covid-19 patients is considered a high-risk procedure with risks to both the patient who is often critically hypoxaemic, as well as operators and attendant staff who are at risk of contracting SARS-CoV-2 especially as it would be performed in extremely ill patients with high lower respiratory tract viral loads. Consequently, extreme caution is needed with bronchoscopy in Covid-19 patients with recommendations that it be considered a relative

<sup>1</sup> Liu Qian W R, Qu Guoqiang, Wang Yunyun, et al. A report on the general observation of the necropsy of a newly developed coronavirus pneumonia. *Fa Yi Xue Za Zhi*. 2020. 1004-5619 (2020) 01-0. DOI:10.12116/j.issn.1004-5619.2020.01.00

<sup>2</sup> Lu W, Liu X, Wang T, et al. Elevated MUC1 and MUC5AC mucin protein levels in airway mucus of critical ill COVID-19 patients [published online ahead of print, 2020 Aug 10]. *J Med Virol*. 2020;10.1002/jmv.26406. doi:10.1002/jmv.26406

<sup>3</sup> Torrego A, Pajares V, Fernandez-Arias C, et al. Bronchoscopy in Patients with COVID-19 with Invasive Mechanical Ventilation: A Single-Center Experience. *Am J Resp Crit Care Med* 2020. 202(2); 284-287.

contraindication and performed only if absolutely necessary.<sup>4, 5, 6</sup> In resource poor settings single ICU rooms with negative pressure ventilation are scarce, and thus it may be challenging to safely undertake the procedure. Therapeutic bronchoscopy is generally indicated for patients with symptomatic tracheal or bronchial stenosis, symptomatic airway obstruction by mass or plug, foreign body aspiration, and massive haemoptysis.<sup>7</sup> The WHO does not recommend bronchoscopy for diagnostic purposes in patients with Covid-19.

The evidence for the utility of therapeutic bronchoscopy for mucus removal in patients with Covid-19 remains anecdotal. Bronchoscopies performed in an observational study on 101 intubated patients with Covid-19, revealed the presence of thick secretions in the airway in the majority of patients.<sup>3</sup> The indication for bronchoscopy was airway secretion management with/without atelectasis in 38/101 patients. No patient data are provided to evaluate the effectiveness of the procedure. A small, descriptive, recent South African exploratory series suggests mild improvement in oxygenation parameters post bronchoscopy to remove mucus.<sup>8</sup> No other evidence is noted in the literature.

### Recommendations

- Given the lack of evidence for therapeutic bronchoscopy, and that the procedure carries risks for patients and operators, the routine use of bronchoscopy for removal of mucus in patients with Covid-19 cannot be recommended at present.
- Therapeutic bronchoscopy for mucus removal in select patients with COVID-19 may be considered as an intervention to be performed only under strict conditions by experienced staff to minimize risks.

Thank you for consideration of this request.

Kind regards,



**PROFESSOR SALIM S. ABDOOL KARIM**

**CO-CHAIRPERSONS: MINISTERIAL ADVISORY COMMITTEE ON COVID-19**

**DATE: 12 November 2020**



**PROF MARIAN JACOBS**

### CC:

- » **Dr S Buthelezi (Director-General)**
- » **Dr T Pillay (Deputy Director-General)**
- » **Incident Management Team**

<sup>4</sup> Pritchett MA, Oberg CL, Belanger A, et al. Society for Advanced Bronchoscopy Consensus Statement and Guidelines for bronchoscopy and airway management amid the COVID-19 pandemic. *J Thorac Dis* 2020;12(5):1781-1798 <http://dx.doi.org/10.21037/jtd.2020.04.32>

<sup>5</sup> Luo F, Darwiche K, Singh S, et al. Performing Bronchoscopy in Times of the COVID-19 Pandemic: Practice Statement from an International Expert Panel. *Respiration* 2020;99:417–422. DOI: 10.1159/000507898

<sup>6</sup> Wahidi MM, Lamb C, Murgu S, et al. American Association for Bronchology and Interventional Pulmonology (AABIP) Statement on the Use of Bronchoscopy and Respiratory Specimen Collection in Patients With Suspected or Confirmed COVID-19 Infection. *J Bronchology Interv Pulmonol.* 2020, 27(4);e52-54. <http://dx.doi.org/10.1097/LBR.0000000000000681>.

<sup>7</sup> Vergnon J-M, Trosini-Desert V, Fournier C, et al. Bronchoscopy use in the COVID-19 era. *Respir. Med and Res* 78 (2020)100760. <https://doi.org/10.1016/j.resmer.2020.100760>

<sup>8</sup> Taban EM, Richards GA. Observational study of therapeutic bronchoscopy in critical hypoxaemic ventilated patients with COVID-19 at Mediclinic Midstream Private Hospital in Pretoria, South Africa. *Afr J Thoracic Crit Care Med* 2020;26(4): online 12 October 2020. <https://doi.org/10.7196/AJTCCM.2020.v26i4.119>