

COVID-19 Rapid Review

Tuesday, 14 April 2020
Review 4

Compiled by Dr Lauren Lai King and Dr Luke Bush

The purpose of this regular review, is to present COVID-19 related questions in Emergency Medicine

We accept that available literature on the topics covered in these reviews may be scarce, but shared discussion of novel front line strategies may be a tool to augment our clinical practice and develop future policy

Topics:

Nebulisation

Physiotherapy

Breathing Exercises

Rapid Review for the EC

Covid-19

World Statistics

Coronavirus Cases:

1,946,386

view by country

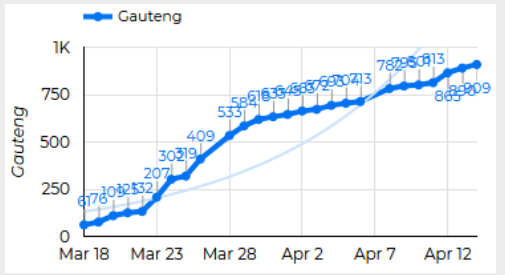
Deaths:

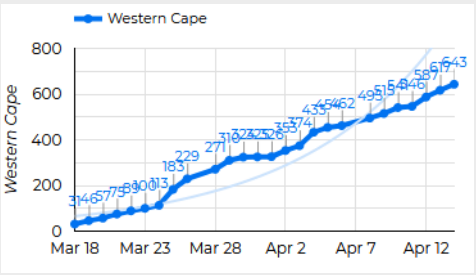
121,704

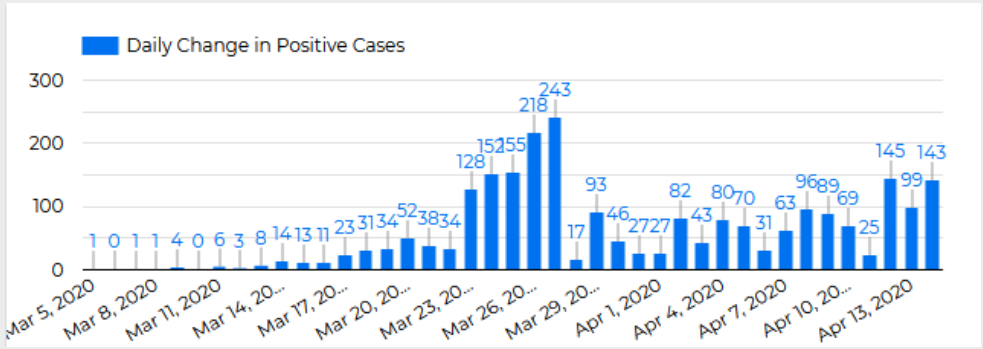
Recovered:

460,111

South Africa Statistics







COVID 19 ZA South Africa Dashboard

For official information about Corona virus from DoH go to http://sacoronavirus.co.za

Positive Cases	Recovered	Deaths	ICU	Cumulative Tests
2,415	410	27	10	87,022

Average Age	Median Age	Min Age	Max Age
41.8	40.0	2.0	85.0

Link to this dashboard https://bitly.com/covid19za-dash

Maintained by the
Data Science for Social Impact Research Group
@ University of Pretoria
[repo https://github.com/dsfsi/covid19za]

Blog post about the dashboard.

Last Updated
13/04/2020 8:00 PM

We are currently waiting for updated individual data from NICD

Data Science for Social Impact

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References, resources & comments via QR code

Rapid Review for the EC

Covid-19

Advice

Nebulisation in the EC

Further studies are needed to determine whether it is possible to detect COVID-19 virus in air samples from patient rooms where no procedures or support treatments that generate aerosols are ongoing.

The absence of 100% certainty as to whether nebulisation treatments pose a risk for airborne transmission, creates a low probability high impact scenario.

Pending more robust evidence, it is prudent to proceed with caution when considering administration of nebulised treatments, particularly in densely populated clinical settings with variable air circulation.

Is Nebulisation considered an AGP?

COVID-19 epidemiology indicates that SARS-CoV-2 spreads primarily by **droplet spread**.

Airborne transmission is different from droplet transmission as it refers to the presence of microbes within droplet nuclei, which can remain in the air for long periods of time and be transmitted over distances greater than 1m.
Airborne transmission is possible in specific circumstances as is the case with aerosol-generating procedures (AGPs)

The various lists of what might be an AGP vary by organisation and is not always consistent within a single organisation's guidance. Neither the WHO, CDC or NICD include nebulised medications in this list.

The NEW ENGLAND JOURNAL of MEDICINE

A recent publication in the NEJM evaluated virus persistence of the SARS-CoV-2 virus under experimental conditions. Aerosols were induced using a three-jet Collison nebuliser and fed into a high-powered machine under strictly controlled conditions.

The WHO cautions that the finding of COVID-19 virus in aerosol particles for up to 3 hours in this study does not convincingly reproduce a clinical setting in which aerosol-generating procedures are performed.

NERVTAG, a UK Department of Health advisory group state that "*during nebulisation, the aerosol derives from a non-patient source (the fluid in the nebuliser chamber) and does not carry patient-derived viral particles. If a particle in the aerosol coalesces with a contaminated mucous membrane, it will cease to be airborne and therefore will not be part of an aerosol*".

Cochrane Library

The results of a 2013 Cochrane review are valuable in remodeling a therapeutic approach to bronchospasm in the COVID-19 environment.

"*Nebuliser delivery produced outcomes that were not significantly better than metered-dose inhalers delivered by spacer in adults or children, in trials where treatments were repeated and titrated to the response of the participant.*"

Please see full articles by clicking on the image hyperlinks

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Rapid Review for the EC

Physiotherapy

Covid-19

Advice

Many physiotherapy procedures should be regarded as AGPs requiring the same level of PPE as for any AGP.

These AGP's are a significant risk to both physiotherapists and other HCW's in the same environment, particularly in the absence of negative pressure rooms.

'Chest' physiotherapy is not recommended for mild to moderate or even severe disease unless there is co-existing respiratory or neuromuscular comorbidity with difficulty clearing secretions independently.

Sputum collection is not recommended

Bubble-PEEP is not recommended

Physiotherapy

Physiotherapists are involved in the management and rehabilitation of many respiratory and non-respiratory illnesses.

Typical physiotherapy led respiratory interventions are:

- Airway clearance techniques
- Techniques to facilitate secretion clearance
- Exercise prescription and mobilisation

Many physiotherapy procedures are AGPs requiring the same level of PPE as for any AGP.

Covid-19 necessitates a review of physiotherapy management so as to limit unnecessary exposure of physiotherapists and other HCWs to infection, whilst still ensuring good patient outcomes.

Physiotherapy Management for COVID-19 in the Acute Hospital Setting: Recommendations to guide clinical practice Version 1.0 23 March 2020. Endorsed by:

World Confederation for Physical Therapy · ACPRC · ICCrPT · Australian Physiotherapy Association · Canadian Physiotherapy Association · aIR Associazione Riabilitatori dell'Insufficienza Respiratoria

INPATIENT PHYSIOTHERAPY PRINCIPLES	
Minimise staff who come in contact with Covid-19 patients	Where possible provide guidance and advice to non-physiotherapy staff involved with patient care
Positioning: advice and assistance re. postural drainage and proning	Avoid use of NIV and inhalations due to potential aerosolisation
Use of aids/equipment is encouraged but to be aware of infection control concerns - single use if possible	Ensure adequate security of ventilation equipment in intubated patients to prevent inadvertent disconnection
Encourage early mobilisation and rehabilitation	Provision of adequate PPE

For the full principles, recommendations and further details please see the full guidance by clicking on the hyperlink.
Please also review local recommendations as and when they are disseminated.

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Covid-19

Advice

For patients at home or in hospital, simple breathing exercises are unlikely to change their disease trajectory or be of significant respiratory benefit.

Giving patients something to do as part of their recovery process is empowering and this may have non-respiratory benefits.

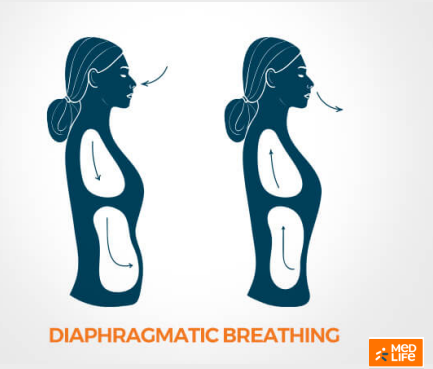
It is important to emphasise that there is potential for harm, as attempts at breathing exercises may delay people seeking help, in the false belief that the exercises will improve their condition.

two deep breaths

Breathing Exercises

There is no evidence to suggest that breathing exercises alter the trajectory of disease or meaningfully improve COVID-19 related hypoxaemia.

For patients with mild illness recovering at home, or in post COVID-19 respiratory rehabilitation, there may be some short term benefit from breathing exercises that optimise respiratory recovery.



How may breathing exercises help?

There is evidence that breathing exercises have an impact on mental health and some of the subjective clinical benefit noted in the popular press may be as a result of this.
Giving patients something to do as part of their recovery process is empowering and this may have non-respiratory benefits and have a longer term impact*.

Can breathing exercises be harmful?

Breathing exercises are unlikely to cause harm unless they delay patients presenting to healthcare services.
Clinical deterioration can be rapid in COVID-19 and delaying necessary care can have significant consequences.

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* ***THOUGHTS:*** Following SARS, **2/3 of patients had evidence of mental health impacts** – depression, anxiety and post-traumatic stress being the most common.

Considering that mental health may be a long term consequence for those who recover from COVID-19, particularly in the event of the loss of close contacts/family members, mitigating some of this impact is necessary.

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