Aerosols and SARS-CoV-2

• Aerosols are more important than ever
• Information is overwhelming and poorly coordinated

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SARS-CoV-2 Aerosol Web Portal
https://www.aerosol-cdt.ac.uk/covid-19/

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Rapid Assistance in Modelling the Pandemic: RAMP
https://royalsociety.org/topics-policy/Health%20and%20wellbeing/ramp/
Objectives of SARS-CoV-2 Web Portal

• Define mechanisms of SARS-CoV-2 and aerosols/droplets
• Identify high confidence knowledge
• Frame low confidence knowledge to prompt research
• Target an audience of those skilled in the area of aerosols, disease transmission, immunology, air quality, physicians and fluid dynamics
• Provide a literature database with common key words and summaries
• Keep the database and website current as new studies are produced
• Engage with international bodies to ensure relevant data is being disseminated
Mechanisms Aerosol SARS-CoV-2 Web Portal

**Aerosol/Droplet Expiration**
Concentration, Size and Viral Load

**Aerosol/Droplet Transformation**
- Evaporation
- Hygroscopic Growth

**Aerosol/Droplet Loss**
- Deposition

**Airborne Exposure**
- Physical Transport (droplets)

**Aerosol Generating Procedures**

**Aerosol/Droplet Transport**
- Advection and Turbulent Mixing
- Diffusion

**Airborne Viral Transformation**
- Viral Denaturing

**Aerosol Inhalation**
Structure Aerosol SARS-CoV-2 Web Portal

The layer structure of the Web Portal:

1) Landing page where SARS-CoV-2 aerosol mechanisms are identified as the organizing structure

2) A subpage where KNOWNs and UNKNOWNs are identified for each mechanism

3) A database of studies where articles are identified by standardized keywords with short summaries.

A useful resource for researchers and practitioners.
Please Contribute!
Aerosols and SARS-CoV-2

Co-Editors for each mechanism
• Assess and assign relevant papers
• Assess relevant mechanism “Knowns” and “Unknowns”

Reviewers
• Provide 100 word summaries of relevant publications
• Critically review assessment of “Knowns” and “Unknown”

Please indicate your interest to contribute to SARS-CoV-2 Aerosols here: https://docs.google.com/forms/d/e/1FAIpQLSfpaWY4DZxEl1sqrvSlbAoJP5r1EcB7h8vlaDRbkltUDQx36w/viewform
Database of publications

What is the efficacy of standard face masks compared to respirator masks in preventing COVID-type respiratory illnesses in primary care staff?.

Short review attempting to summarise evidence for increased risk to medical staff if wearing surgical masks rather than respirator masks. Standard surgical masks are as effective as respirator masks (e.g. N95, FFP2, FFP3) for preventing infection of healthcare workers in outbreaks of viral respiratory illnesses such as influenza. No head to head trial of these masks in COVID-19 has yet been published, and neither type of mask prevents all infection. Both types of mask need to be used in combination with other PPE measures. Respirator masks are recommended for protection during aerosol generating procedures (AGPs). Rapid reviews on wider PPE measures, and what counts as an AGP, are ongoing.


Is the coronavirus airborne? Experts can't agree. Lewis, D. *Nature*.


Is the coronavirus airborne? Experts can't agree. Lewis, D. *Nature*.

Editors sort papers for their mechanism 1 day/week
Email: AerosolCovid@outlook.com

Mechanisms:

- Mechanism 1
- Mechanism 2
- …
- Mechanism 7

Reviewers and Co-Editors may establish how they sort the reviews within their respective mechanism. Editors are responsible for weekly assignments from Researcher App and convening website review.

Reviewers also provide feedback to co-editors on whether “High Confidence” and “Low Confidence” knowledge should be updated. This can be done with a shared document (e.g., Word) for each Mechanism that is linked to the Mendeley citations.

Co-Editors meet monthly to review evidence and update “high” and “low” confidence knowledge.

Searchable Database
Mendeley Group: SARS-CoV-2 Aerosol Mechanisms

Database of papers online
“Keywords” field contains homogenised keywords.

“Abstract” field contains 100 word summaries.

Updated weekly by each editor
No PDFs to be transferred

Private facing
Public facing

Universe of Publications

WEBSITE: SARS-CoV-2 Aerosol

https://www.aerosol-cdt.ac.uk/covid-19/