To: 5.1.2e [5.1.2e @rivm.nl]; 5.1.2e [5.1.2e @rivm.nl]; 5.1.2e 5.1.2e [5.1.2e @rivm.nl]
From: 5.1.2e
Sent: Thur 3/26/2020 1:54:54 PM
Subject: RE: [EXT] RE: fecal respiratory transmission paper
Received: Thur 3/26/2020 1:54:55 PM

Hoi 5.1.2e,

Dank voor het delen. Ik geloof dat 5.1.2e denkt dat wij onderstaand gemodelleerd hebben, maar dat is niet zo. We hebben gewoon observationele studies uit de literatuur bekeken.

The review of Gralton et al. (2011) states clearly : "Review of 26 studies reporting particle sizes generated from breathing, coughing, sneezing and talking showed healthy individuals generate particles between 0.01 and 500 µm, and individuals with infections produce particles between 0.05 and 500 µm. This indicates that expelled particles carrying pathogens do not exclusively disperse by airborne or droplet transmission but avail of both methods simultaneously and current dichotomous infection control precautions should be updated to include measures to contain both modes of aerosolised transmission."

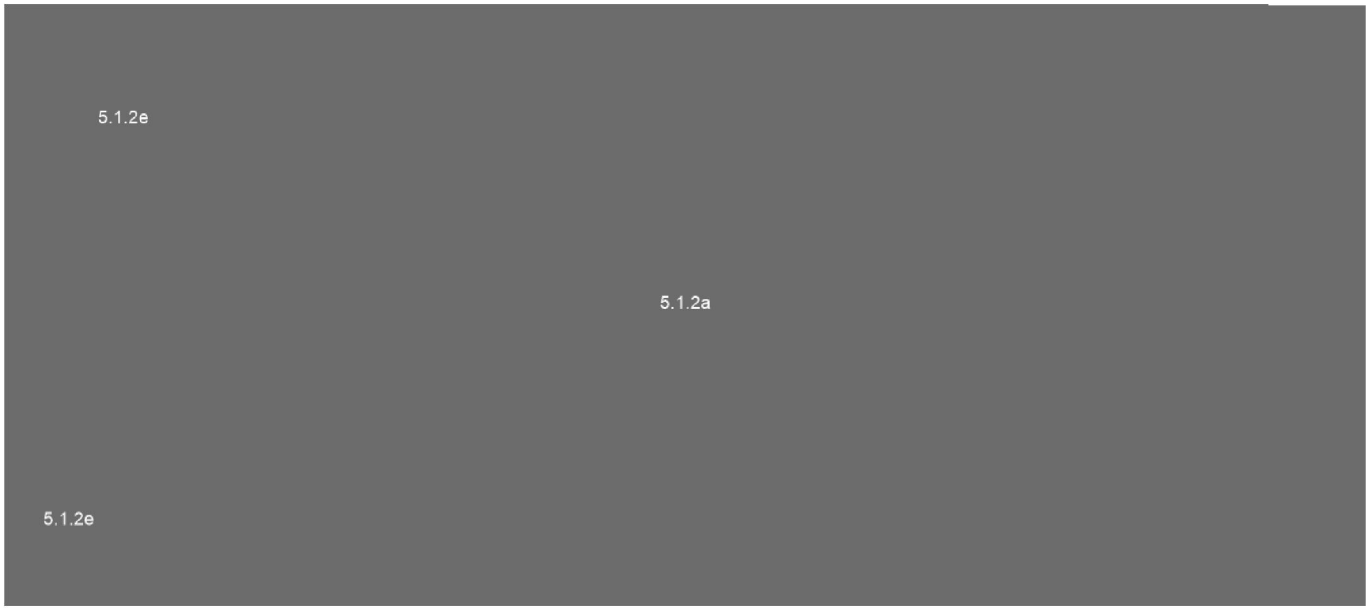
Groet,
5.1.2e

From: 5.1.2e <5.1.2e @rivm.nl>
Sent: donderdag 26 maart 2020 14:40
To: 5.1.2e <5.1.2e @rivm.nl>; 5.1.2e <5.1.2e @rivm.nl>; 5.1.2e <5.1.2e @rivm.nl>
Subject: FW: [EXT] RE: fecal respiratory transmission paper

From: 5.1.2e . <5.1.2e @unc.edu>
Sent: woensdag 25 maart 2020 17:51
To: 5.1.2e <5.1.2e @who.int>; 5.1.2e <5.1.2e @rivm.nl>; 5.1.2e <5.1.2e @who.int>; 5.1.2e (MED - Staff) <5.1.2e @uea.ac.uk>
Subject: Re: [EXT] RE: fecal respiratory transmission paper

All:
I will be interested to know what 5.1.2e has to say about this modelling effort. He has led the writing of a letter to the editor of the NEJM that questions the applicability and relevance of the aerosol studies of this paper to actual respiratory emanations from patients as coughs, sneezes, etc. The contention of the response letter is that the aerosols generated in the experiment are not representative of what emanates as droplets and aerosols from COVID-19 patients. Furthermore, evidence from clinical studies so far indicates so appreciable evidence for aerosol transmission. Hence, current IPC precautions as recommended by WHO are appropriate and protective.
Modeling may predict one thing but data from actual field settings of patient rooms and other locations may show different conditions of airborne virus presence and observed clinical risk in real-world settings that is contrary to what the models predict.
I suspect that the IPC group of WHO and its advisers will certainly want to consider the modelling effort and consider its relevance to clinical/epidemiological experience in healthcare facilities with COVID-19 patients and others, including healthcare workers.
Best,
5.1.2e

5.1.2e 5.1.2e 5.1.2a
5.1.2e 5.1.2e 5.1.2e 5.1.2e 5.1.2e
5.1.2e 5.1.2e 5.1.2e



From: 5.1.2e <5.1.2e @rivm.nl>
Sent: Tuesday, March 24, 2020 9:06 PM
To: 5.1.2e <5.1.2e @who.int>; 5.1.2e <5.1.2e @who.int>; 5.1.2e (MED - Staff) <5.1.2e @uea.ac.uk>
Subject: RE: [EXT] RE: fecal respiratory transmission paper

Hi 5.1.2e ,

WIth our team of virologists and modelers @RIVM had a look at the aerosol paper, and we come to the following analysis to help interpret the results:

What the authors of the paper in question did: "Aerosols (<5 µm) containing SARS-CoV-2 ($10^{5.25}$ 50% tissue-culture infectious dose [$TCID_{50}$] per milliliter) or SARS-CoV-1 ($10^{6.75-7.00}$ $TCID_{50}$ per milliliter) were generated with the use of a three-jet Collison nebulizer and fed into a Goldberg drum to create an aerosolized environment. The inoculum resulted in cycle-threshold values between 20 and 22, similar to those observed in samples obtained from the upper and lower respiratory tract in humans."

First, the absolute starting concentration of virus in a survival experiment is not relevant, only the observed decay rates. The decay is independent from the starting concentration. However, the Ct values of 20 and 22 the authors use in their experiment are the average levels we find in respiratory samples, and a small but relevant number with Ct values of 15 and lower. Thus, the authors describe realistic virus concentrations.

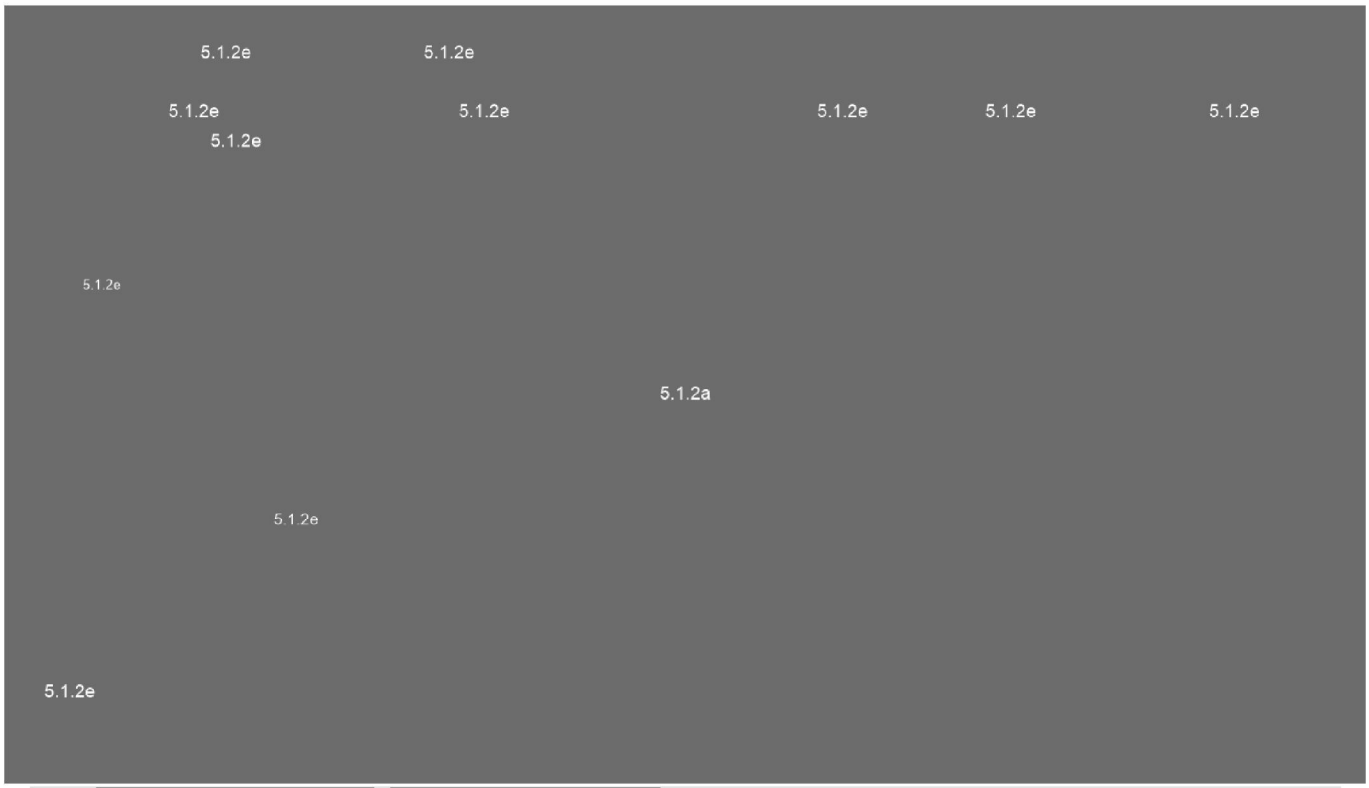
Second, we believe the jet propulsion speed in itself also does not really matter. But rather the question is, whether the generated aerosols (the authors describe size <5µm) are also generated in coughs. Aerosol size determines the settling speed and the penetration depth in the lungs. In general, smaller aerosols stay airborne longer. Aerosols of <5µm can stay airborne long and penetrate into the lower lung regions. The literature shows that the size range of droplets formed during coughing and sneezing is large, but that aerosols of this size (~5 µm) are definitely also formed (see for example Bourouiba 2014 fig. 17 and 18, Han 2013 fig. 5 and 6). This conclusion is also supported by the review of Gralton et al. (2011) who state: "Review of 26 studies reporting particle sizes generated from breathing, coughing, sneezing and talking showed healthy individuals generate particles between 0.01 and

500 µm, and individuals with infections produce particles between 0.05 and 500 µm. This indicates that expelled particles carrying pathogens do not exclusively disperse by airborne or droplet transmission but avail of both methods simultaneously and current dichotomous infection control precautions should be updated to include measures to contain both modes of aerosolised transmission."

Open for any questions and discussions, as always,

With kindest regards,

5.1.2e



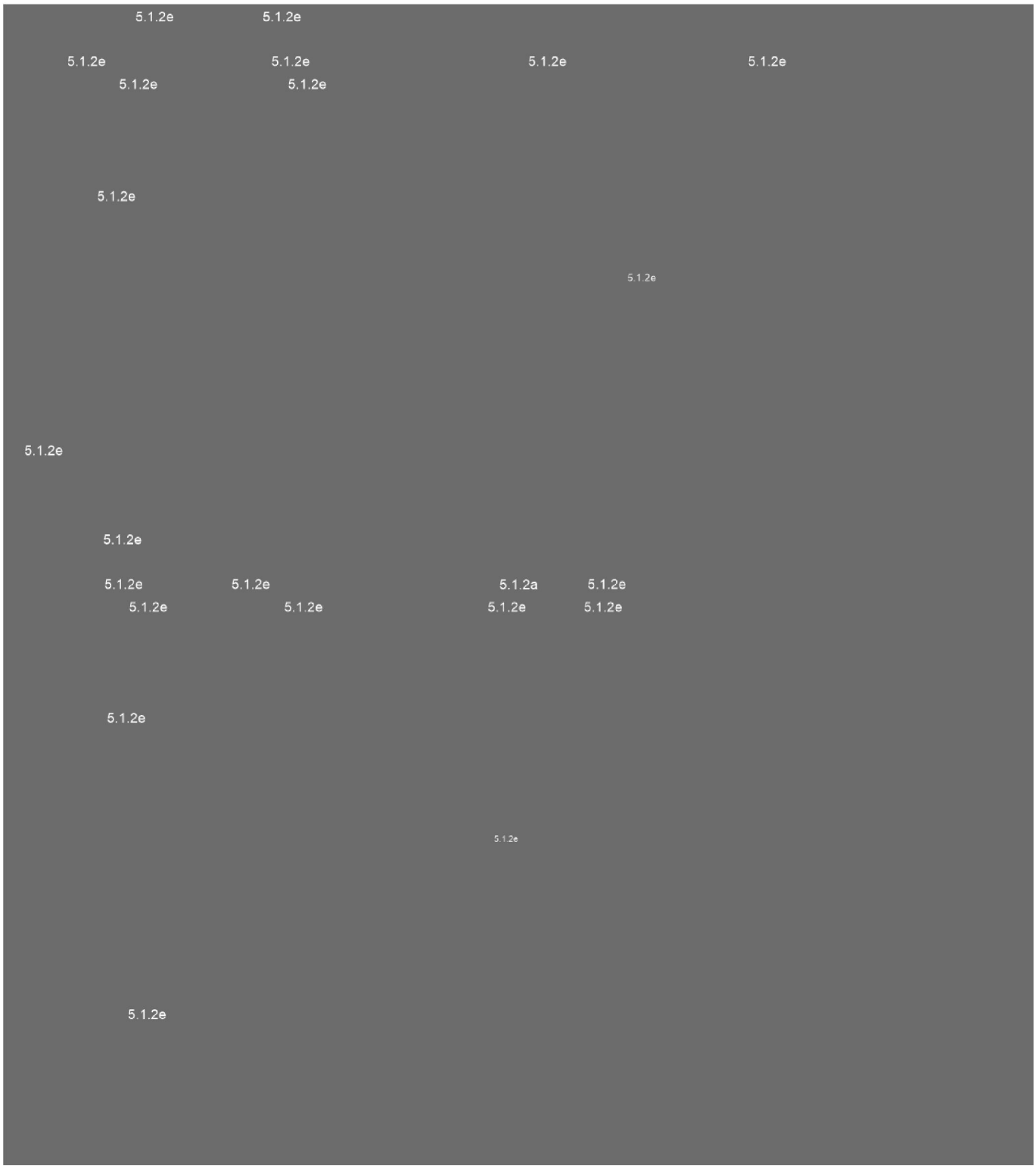
From: 5.1.2e <5.1.2e @rivm.nl>
Sent: Monday, March 23, 2020 8:08 PM
To: 5.1.2e <5.1.2e @who.int>; 5.1.2e (MED - Staff) <5.1.2e @uea.ac.uk>
Cc: 5.1.2e <5.1.2e @who.int>
Subject: RE: [EXT] RE: fecal respiratory transmission paper

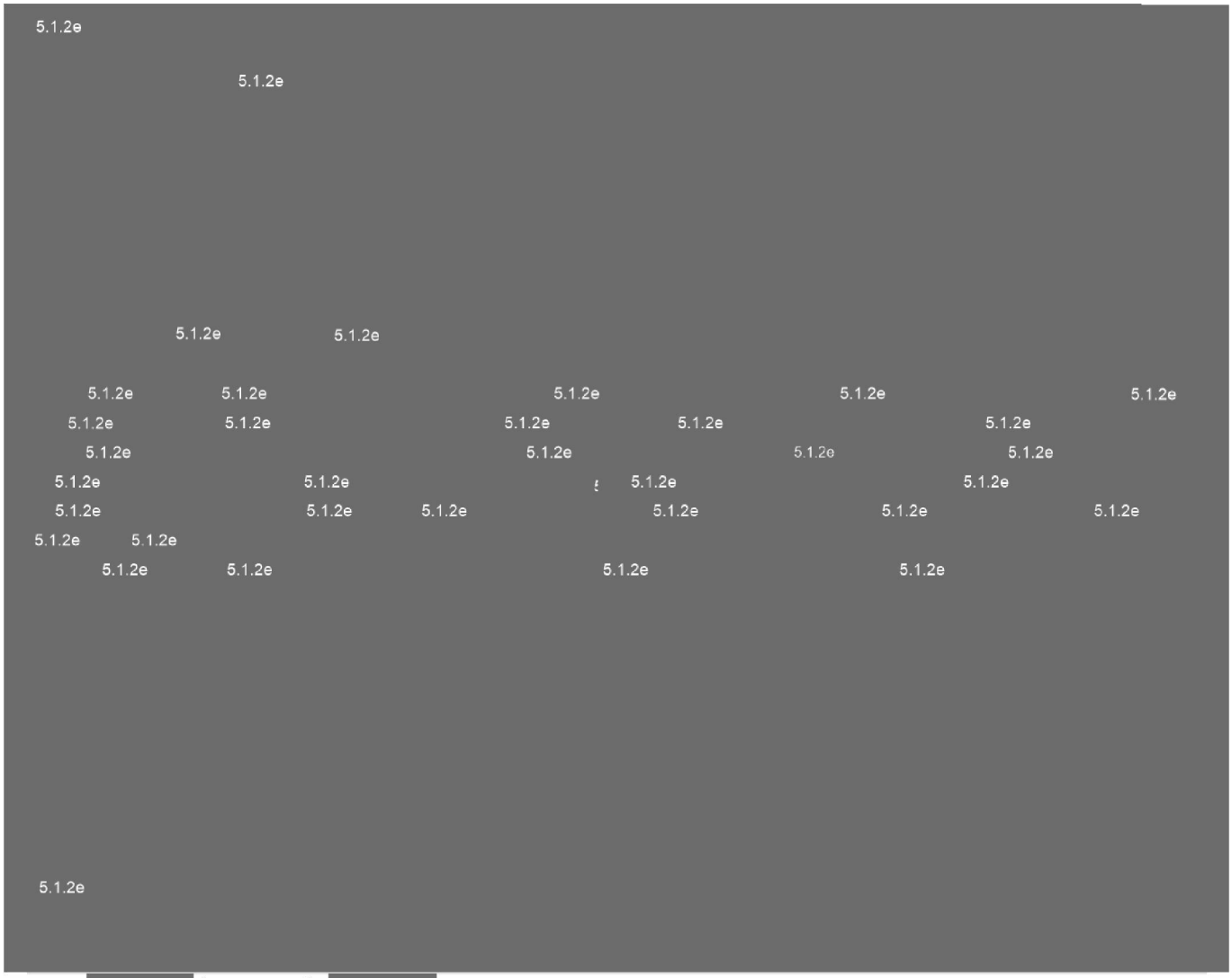
Hi 5.1.2e,

Sorry for the late response, but please find our suggestions included. Perhaps consult 5.1.2e as well.

Bye for now,

5.1.2e





From: (MED - Staff) <@uea.ac.uk>
Sent: 23 March 2020 00:04
To: <@rivm.nl>; <@who.int>; . <@unc.edu>;) <@sa.gov.au>; <@cdc.gov>; <@unicef.org>; @brussels.msf.org' <@brussels.msf.org>; <@unicef.org>; <@unicef.org>; @gsu.edu' <@gsu.edu>; <@niph.go.jp>
Cc: <@who.int>; <@who.int>; <@who.int>
Subject: [EXT] RE: fecal respiratory transmission paper

I am always hesitant to disagree with but single studies can get it wrong for a number of reasons. As a general rule I never believe anything until it has been repeated by a second group.

Best Wishes

5.1.2e

The Norwich School of Medicine

University of East Anglia

Norwich NR4 7TJ

England

Telephone + 44 5.1.2e

Fax + 44 5.1.2e

email 5.1.2e @uea.ac.uk

http://www.med.uea.ac.uk

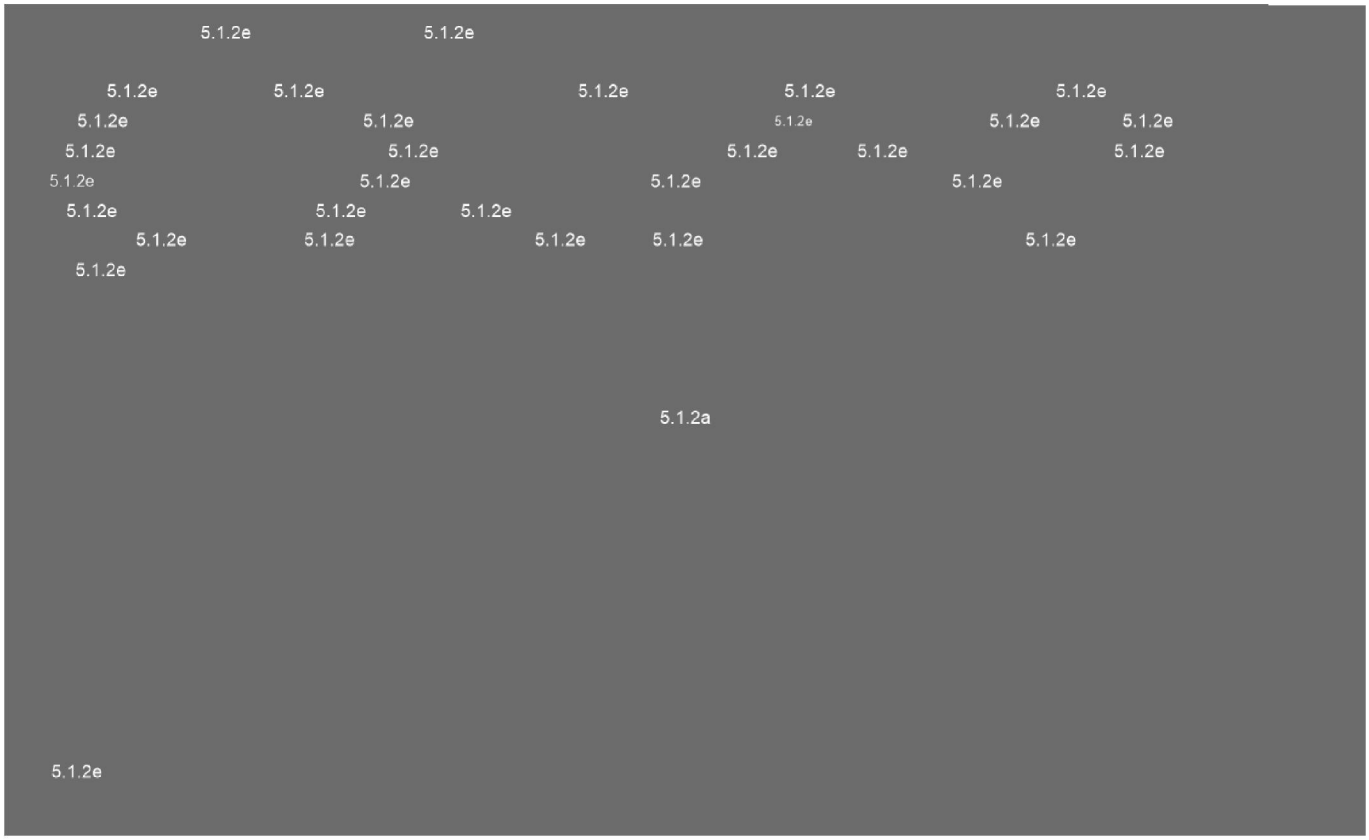
From: 5.1.2e < 5.1.2e @rivm.nl>
Sent: 22 March 2020 08:43
To: 5.1.2e < 5.1.2e @who.int>; 5.1.2e . < 5.1.2e @unc.edu>; 5.1.2e) < 5.1.2e @sa.gov.au>; 5.1.2e (MED - Staff) < 5.1.2e @uea.ac.uk>; 5.1.2e (CDC/DDPHSIS/CGH/DGHP) <5.1.2e @cdc.gov>; 5.1.2e < 5.1.2e @unicef.org>; 5.1.2e @brussels.msf.org' < 5.1.2e @brussels.msf.org>; 5.1.2e 5.1.2e < 5.1.2e @unicef.org>; 5.1.2e <5.1.2e @unicef.org>; 5.1.2e @gsu.edu' < 5.1.2e @gsu.edu>; 5.1.2e < 5.1.2e @niph.go.jp>
Cc: 5.1.2e < 5.1.2e @who.int>; 5.1.2e < 5.1.2e @who.int>; 5.1.2e < 5.1.2e @who.int>
Subject: RE: fecal respiratory transmission paper

Hi 5.1.2e

Seems like a well-designed, extensive and trustworthy study. Again stresses that sewage workers should protect themselves. Your way forward is sound on drains etc. But I would also again like to stress that it only takes one study culturing the virus from feces to prove viruses may be infectious in feces. And very common among coronaviruses that they can. It shows enteric replication of SARS-CoV-2 which is unnecessary to replicate. A very time-consuming specialized study that you can not afford to do often in these times on which we are also working and will send results when we have them. Moreover, we now confirmed the presence of SARS-CoV-2 RNA in wastewater which was accepted for publication in Lancet Gastroenterology and Hepatology only yesterday. We will send suggestions for update of technical brief that I promised Friday later today.

Bye for now,

5.1.2e



From: [redacted] <[redacted]@unc.edu>
Sent: Thursday, March 19, 2020 5:09 PM
To: [redacted]) <[redacted]@sa.gov.au>; [redacted] <[redacted]@who.int>; [redacted] (MED - Staff)' <[redacted]@uea.ac.uk>; [redacted] (CDC/DDPHSIS/CGH/DGHP) <[redacted]@cdc.gov>; [redacted] <[redacted]@unicef.org>; [redacted]@brussels.msf.org' <[redacted]@brussels.msf.org>; [redacted] <[redacted]@unicef.org>; [redacted] <[redacted]@unicef.org>; [redacted] <[redacted]@rivm.nl>; [redacted]@gsu.edu' <[redacted]@gsu.edu>
Cc: [redacted] <[redacted]@who.int>
Subject: Re: update of technical brief and question on use of H202 for ABHR

[redacted] and All:

I reviewed the latest draft and made some additional changes on the version that [redacted] provided. There were two substantive points I addressed.

One is that there is a new paper on COVID-19 virus survival on surfaces that was published in the New England Journal of Medicine. See: https://www.nejm.org/doi/10.1056/NEJMc2004973

It reports that survival of COVID-19 virus is similar to SARS-1. I modified the text and included the relevant reference.

The other change I suggest concerns the concentration of bleach (free chlorine) for household cleaning where there is a COVID-19 case or suspected case. The recommended 1:10 dilution of commercial/household bleach (5000 mg/L concentration) is higher than the concentration of bleach recommended by the WHO-IPC group, which is a 1:50 dilution (1000 mg/L). (See: https://www.who.int/publications-detail/home-care-for-patients-with-suspected-novel-coronavirus-(ncov)-infection-presenting-with-mild-symptoms-and-management-of-contacts. This inconsistency needs to be resolved

between the two documents. I think use of a 1:10 dilution of bleach (5,000 mg/L) is unnecessarily high and that a 1:50 dilution is sufficient for surface and related cleaning, is safer to use and requires the kind of PPE that householders can readily get from local sources.

Home care for patients with suspected novel coronavirus (nCoV) infection presenting with mild symptoms and management of contacts

WHO has developed this rapid advice note to meet the need for recommendations on the safe home care for patients with suspected novel coronavirus (2019-nCoV) infection presenting with mild symptoms and public health measures
www.who.int

Also, I agree with 5.1.2e that H2O2 is not needed in alcohol based hand rubs to attain effective hand hygiene for this virus and many other pathogens.

Keep well and stay safe!

Best,

5.1.2e

From: 5.1.2e) < 5.1.2e @sa.gov.au>
Sent: Thursday, March 19, 2020 3:31 AM
To: 5.1.2e < 5.1.2e @who.int>; 5.1.2e . < 5.1.2e @unc.edu>; 5.1.2e (MED - Staff)' < 5.1.2e @uea.ac.uk>; 5.1.2e (CDC/DDPHSIS/CGH/DGHP)' < 5.1.2e @cdc.gov>; 5.1.2e < 5.1.2e @unicef.org>; 5.1.2e @brussels.msf.org' < 5.1.2e @brussels.msf.org>; 5.1.2e < 5.1.2e @unicef.org>; 5.1.2e < 5.1.2e @unicef.org>; 5.1.2e < 5.1.2e @rivm.nl>; 5.1.2e @gsu.edu' < 5.1.2e @gsu.edu>
Cc: 5.1.2e < 5.1.2e @who.int>
Subject: RE: update of technical brief and question on use of H202 for ABHR

Hi 5.1.2e

I added a few small comments to the document.

I am not sure of the value/need for the H_2O_2. As noted in the source document it is included to kill contaminating spores in the solution and is not an active substance for hand antisepsis. I have seen other recipes without H_2O_2 and the commercial products we are using (only 2-3 products) don't list it in the ingredients.

Best Regards

5.1.2e

Health Regulation and Protection
SA Health
5.1.2e @sa.gov.au
5.1.2e

5.1.2e 5.1.2e

5.1.2e 5.1.2e 5.1.2e 5.1.2e 5.1.2e
5.1.2e 5.1.2e 5.1.2e 5.1.2e 5.1.2e 5.1.2e
5.1.2e

5.1.2a

5.1.2e


5.1.2a