

## IDI COVID-19 Science Summary Compiled by Dr Andrew Mujugira (9<sup>th</sup> May to 15<sup>th</sup> May 2020)

9<sup>th</sup> May 2020

*"A big goat does not sneeze without a reason"* - Kenyan Proverb

The US Food and Drug Administration has cleared a novel COVID-19 vaccine called mRNA-1273 to begin phase 2 trials with 600 participants.

The vaccine started human phase 1 trials in March 2020 and was tested for six weeks in 45 healthy adults ages 18-55 years.

The mRNA-1273 vaccine was produced at record speed - only 42 days after sequence identification - as part of the extraordinary scientific response to COVID-19.

Ref: ClinicalTrials.gov NCT04283461

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10<sup>th</sup> May 2020

*"Don't fight a lion with a stick"* - Maasai Proverb

The US Food and Drug Administration has authorized the first antigen test for rapid detection of SARS-CoV-2

The Sofia 2 SARS Antigen FIA test is intended for qualitative detection of SARS-CoV-2 nucleocapsid protein antigen in nasopharyngeal and nasal swab specimens

Antigen tests can rapidly be scaled up and have a faster turnaround time than PCR-based tests. This should facilitate rapid mass testing for COVID-19.

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11<sup>th</sup> May 2020

*"When the sky is pregnant, it delivers rain"*

### **COVID-19 and Pregnancy**

- Are pregnant women more susceptible to COVID-19?

No. Pregnancy and childbirth do not appear to increase the risk of getting COVID-19. It is not known if the normal immunologic changes of pregnancy influence COVID-19 infection [Liu, AJR Am J Roentgenol. 2020]

- Does COVID-19 increase risk of pregnancy complications?

Yes. Pregnant women with viral pneumonia appear to have increased frequency of pre-term delivery (before 37 weeks of gestation). Pneumonia causes fever and hypoxaemia which may increase risk of pre-term labour, pre-labour rupture of membranes and abnormal foetal heart rate patterns. It is not clear whether severe maternal respiratory disease improves after elective caesarean delivery [Elshafeey, Int J Gynaecol Obstet. 2020].

- Does SARS-CoV-2 cross the placenta?

There is no definite evidence that the virus crosses the placenta and infects the foetus. No cases of intrauterine transmission have been documented. Maternal viremia appears to be rare - 1% in one study. However, there is a case report of placental infection [Qiancheng, Int J Infect Dis. 2020; Wang, JAMA 2020 Mar 11; Baud, JAMA 2020 Apr 3].

Source: UpToDate 2020

'Asymptomatic transmission of SARS-CoV-2 is the Achilles' heel of current public health strategies to control COVID-19'.

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12<sup>th</sup> May 2020

*"If a stepchild doesn't wash his hands, he is called dirty; if he does, he is wasting water"* - Malagasy Proverb

### **New Zealand Eliminates COVID-19**

In New Zealand, new COVID-19 cases have decreased to near zero since a strict lockdown began on 23rd March. In Epidemiology, elimination means bringing cases down to zero or near zero in a geographical location. Eradication is termination of all transmission of infection by exterminating the infectious agent, e.g. smallpox.

Closure of schools and non-essential workplaces, a ban on social gatherings, and severe travel restrictions—enabled the country to effectively manage borders, and do contact tracing, testing, and surveillance. Since 22nd January, >150,000 people have been tested in a country of 5 million. Testing is being scaled up.

The elimination strategy was guided by science, strong leadership, and careful messaging - unite against COVID-19 and do not stigmatise - because talking about war puts people in a negative and fearful frame of mind.

Source: Cousins S, The Lancet, Vol. 395, No. 10235

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13<sup>th</sup> May 2020

*"Look for a black goat while it is still daytime"* - Nigerian proverb

### **Early triple antiviral therapy superior to lopinavir/ritonavir for mild, moderate COVID-19**

Triple antiviral therapy (lopinavir 400 mg/ritonavir 100 mg + ribavirin 400 mg + 3 doses of interferon beta) x 14 days was safe and superior to lopinavir/ritonavir alone for: a) alleviating symptoms, b) shortening duration of viral shedding, and c) decreasing hospital stay in patients with mild to moderate COVID-19.

Median time from treatment start to negative nasopharyngeal swab was shorter in the triple therapy group: 7 days vs. 12 days, (hazard ratio [HR] = 4.37; 95% CI: 1.86-10.24; P = 0.0010).

Median hospital stay was also shorter: 9 days vs. 14.5 days, (HR = 2.72; 95% CI: 1.2-6.13; P = 0.016).

Ref: Hung, The Lancet. May 8, 2020

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14<sup>th</sup> May 2020

*"An elephant can trip over a creeping plant"*

## COVID-19 in the United States

*"Birds sing not because they have answers but because they have songs"* - African Proverb

On 10th March 2020, 61 persons attended a 2.5-hour choir practice in Washington State, USA. One was a symptomatic index patient. Fifty-two (87%) took ill: 32 confirmed and 20 probable secondary COVID-19 cases (attack rate = 53.3%-86.7%); 3 patients were hospitalized, and 2 died.

Droplet and fomite transmission was facilitated by emission of aerosols during singing and close proximity of choir members. Super emitters, who release more aerosol particles during vocalization, might have contributed to this COVID-19 super spreading event.

Super spreader events underscore the importance of physical distancing, avoiding group gatherings and crowded places, wearing cloth face coverings in public, hand washing, covering coughs and sneezes, staying home when ill, and frequently cleaning and disinfecting high-touch surfaces to control spread of COVID-19.

MMWR Morb Mortal Wkly Rep. ePub: 12 May 2020

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15<sup>th</sup> May 2020

*"Those with tattered skirts should avoid dancing too close to the fire"* - Zimbabwean proverb

## SARS-CoV-2 in Semen of COVID-19 Patients?

SARS-CoV-2, the virus that causes COVID-19, may be present in the semen of patients with COVID-19. SARS-CoV-2 was detected in semen from 6 (16%) of 38 COVID-19 patients tested [JAMA Netw Open. 2020;3(5): e208292].

At least 27 viruses, including Ebola, Hepatitis B and C, HIV, HSV-2 and Zika, have been detected in human semen. However, detection of viral fragments in semen does not prove that infectious virus is present [N Engl J Med. 2018 Apr 12;378(15):1440-1441].

Other studies have found no evidence of SARS-CoV-2 in semen or the testes [Fertility and sterility. 2020 Apr 17; Biol Reprod. 2020 Apr 16]. More research is needed to establish whether COVID-19 is sexually transmitted.

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