To: 5.1.2e 5.1.2e 5.1.2e [5.1.2e @rivm.nl]; 5.1.2e 5.1.2e [5.1.2e @rivm.nl]; 5.1.2e 5.1.2e 5.1.2e [5.1.2e @rivm.nl]; 5.1.2e 5.1.2e [5.1.2e @rivm.nl]; 5.1.2e 5.1.2e 5.1.2e 5.1.2e [5.1.2e @rivm.nl]
From: 5.1.2e 5.1.2e 5.1.2e
Sent: Mon 12/21/2020 11:45:39 AM
Subject: RE: Strategy of COVID-19 second-dose deferral to maximize coverage of scarce vaccine during critical need
Received: Mon 12/21/2020 11:45:40 AM

Dat verwacht ik ook niet, maar ik stuurde het door zodat jullie weten dat deze discussie speelt.

Groet
5.1.2e

From: 5.1.2e 5.1.2e 5.1.2e < 5.1.2e @rivm.nl>
Sent: maandag 21 december 2020 11:48
To: 5.1.2e 5.1.2e 5.1.2e < 5.1.2e @rivm.nl>; 5.1.2e 5.1.2e < 5.1.2e @rivm.nl>; 5.1.2e 5.1.2e 5.1.2e < 5.1.2e @rivm.nl>; 5.1.2e 5.1.2e < 5.1.2e @rivm.nl>; 5.1.2e 5.1.2e 5.1.2e 5.1.2e < 5.1.2e @rivm.nl>
Subject: RE: Strategy of COVID-19 second-dose deferral to maximize coverage of scarce vaccine during critical need

Dank je 5.1.2e

Ik denk dat dit niet direct tot verandering van strategie leidt, maar bij eventuele tekorten binnen de strategie is dit bruikbaar. Overigens is het de vraag hoe lang die bescherming na 1 prik aanhoudt.

Met vriendelijke groet,

5.1.2e 5.1.2e 5.1.2e,
5.1.2e
Werkdagen: 5.1.2e
Kamer 5.1.2e

RIVM-Centrum Infectieziektebestrijding
Postbus 1 (interne postbak 5.1.2e
3720 BA Bilthoven

Telefoon (030) 5.1.2e
Telefoon mobiel: 06 5.1.2e
5.1.2e @rivm.nl
https://www.rivm.nl/coronavirus-covid-19/vaccins

Van: 5.1.2e 5.1.2e 5.1.2e < 5.1.2e @rivm.nl>
Verzonden: maandag 21 december 2020 09:51
Aan: 5.1.2e 5.1.2e < 5.1.2e @rivm.nl>; 5.1.2e 5.1.2e < 5.1.2e @rivm.nl>; 5.1.2e 5.1.2e < 5.1.2e @rivm.nl>; 5.1.2e 5.1.2e 5.1.2e < 5.1.2e @rivm.nl>; 5.1.2e 5.1.2e 5.1.2e 5.1.2e < 5.1.2e @rivm.nl>
Onderwerp: FW: Strategy of COVID-19 second-dose deferral to maximize coverage of scarce vaccine during critical need

Zie onderstaande mail gestuurd aan oa I-move deelnemers waarin een schatting gemaakt is van efficacy van het pfizer vaccin na 1 dosis. Moderna heeft dit ook gerapporteerd. Gezien de hoge efficacy zou uitstel van de 2e vaccinatie een mogelijkheid zijn om meer mensen een eerste vaccinatie te geven in geval van schaarste.

Groet
5.1.2e

From: 5.1.2e 5.1.2e < 5.1.2e @ecdc.europa.eu>
Sent: maandag 21 december 2020 08:30
To: 5.1.2e , 5.1.2e [BCCDC] < 5.1.2e @bccdc.ca>
Cc: 5.1.2e 5.1.2e < 5.1.2e @epiconcept.fr>; 5.1.2e , 5.1.2e < 5.1.2e @who.int>; 5.1.2e , 5.1.2e < 5.1.2e @who.int>; 5.1.2e 5.1.2e < 5.1.2e @ecdc.europa.eu>; 5.1.2e 5.1.2e 5.1.2e < 5.1.2e @ecdc.europa.eu>; 5.1.2e 5.1.2e < 5.1.2e @ecdc.europa.eu>; 5.1.2e 5.1.2e 5.1.2e < 5.1.2e @isciii.es>; 5.1.2e 5.1.2e < 5.1.2e @insa.min-saude.pt>; 5.1.2e 5.1.2e < 5.1.2e @insa.min-saude.pt>; 5.1.2e 5.1.2e < 5.1.2e @insa.min-saude.pt>; 5.1.2e 5.1.2e < 5.1.2e @insa.min-saude.pt>; 5.1.2e 5.1.2e < 5.1.2e @santepubliquefrance.fr>; 5.1.2e 5.1.2e < 5.1.2e @santepubliquefrance.fr>; 5.1.2e

5.1.2e <5.1.2e @rivm.nl>; 5.1.2e 5.1.2e <5.1.2e @rivm.nl>; 5.1.2e 5.1.2e 5.1.2e <5.1.2e @rivm.nl>; 5.1.2e <5.1.2e @rki.de>; 5.1.2e, 5.1.2e <5.1.2e @rki.de>; 5.1.2e, 5.1.2e <5.1.2e @rki.de>; 5.1.2e 5.1.2e <5.1.2e @phe.gov.uk>; 5.1.2e 5.1.2e (NHS National Services Scotland) <5.1.2e @nhs.net>; 5.1.2e <5.1.2e @hse.ie>; 5.1.2e 5.1.2e <5.1.2e @hse.ie>; 5.1.2e 5.1.2e <5.1.2e @yahoo.com>; 5.1.2e 5.1.2e <5.1.2e @gmail.com>; 5.1.2e 5.1.2e <5.1.2e @hzjz.hr>; 5.1.2e 5.1.2e 5.1.2e <5.1.2e @hzjz.hr>; 5.1.2e 5.1.2e <5.1.2e @hzjz.hr>; 5.1.2e 5.1.2e <5.1.2e @nivel.nl>; 5.1.2e 5.1.2e <5.1.2e @folkhalsomyndigheten.se>; 5.1.2e 5.1.2e <5.1.2e @folkhalsomyndigheten.se>; 5.1.2e 5.1.2e, 5.1.2e (ISP) <5.1.2e @navarra.es>; 5.1.2e (5.1.2e @inspq.qc.ca) <5.1.2e @inspq.qc.ca>; 5.1.2e, 5.1.2e <5.1.2e @influenzacentre.org>; 5.1.2e <5.1.2e @epiconcept.fr>; 5.1.2e 5.1.2e <5.1.2e @epiconcept.fr>; 5.1.2e 5.1.2e <5.1.2e @epiconcept.fr>; 5.1.2e 5.1.2e <5.1.2e @epiconcept.fr>

Subject: RE: Strategy of COVID-19 second-dose deferral to maximize coverage of scarce vaccine during critical need

Thank 5.1.2e for the clarification – I should have my morning coffee before responding to emails!

5.1.2e

From: 5.1.2e, 5.1.2e [BCCDC] <5.1.2e @bccdc.ca>
Sent: 21 December 2020 07:47
To: 5.1.2e 5.1.2e <5.1.2e @ecdc.europa.eu>
Cc: 5.1.2e 5.1.2e <5.1.2e @epiconcept.fr>; 5.1.2e, 5.1.2e <5.1.2e @who.int>; 5.1.2e, 5.1.2e <5.1.2e @who.int>; 5.1.2e 5.1.2e <5.1.2e @ecdc.europa.eu>; 5.1.2e 5.1.2e 5.1.2e <5.1.2e @ecdc.europa.eu>; 5.1.2e 5.1.2e <5.1.2e @ecdc.europa.eu>; 5.1.2e 5.1.2e 5.1.2e <5.1.2e @isciii.es>; 5.1.2e 5.1.2e <5.1.2e @insa.min-saude.pt>; 5.1.2e 5.1.2e <5.1.2e @insa.min-saude.pt>; 5.1.2e 5.1.2e <5.1.2e @insa.min-saude.pt>; 5.1.2e 5.1.2e <5.1.2e @insa.min-saude.pt>; 5.1.2e 5.1.2e <5.1.2e @santepubliquefrance.fr>; 5.1.2e 5.1.2e <5.1.2e @santepubliquefrance.fr>; 5.1.2e 5.1.2e <5.1.2e @rivm.nl>; 5.1.2e 5.1.2e <5.1.2e @rivm.nl>; 5.1.2e 5.1.2e 5.1.2e <5.1.2e @rivm.nl>; 5.1.2e, 5.1.2e <5.1.2e @rki.de>; 5.1.2e, 5.1.2e <5.1.2e @rki.de>; 5.1.2e, 5.1.2e <5.1.2e @rki.de>; 5.1.2e 5.1.2e <5.1.2e @phe.gov.uk>; 5.1.2e 5.1.2e (NHS National Services Scotland) <5.1.2e @nhs.net>; 5.1.2e <5.1.2e @hse.ie>; 5.1.2e 5.1.2e <5.1.2e @hse.ie>; 5.1.2e 5.1.2e <5.1.2e @yahoo.com>; 5.1.2e 5.1.2e <5.1.2e @gmail.com>; 5.1.2e 5.1.2e <5.1.2e @hzjz.hr>; 5.1.2e 5.1.2e 5.1.2e <5.1.2e @hzjz.hr>; 5.1.2e 5.1.2e <5.1.2e @hzjz.hr>; 5.1.2e 5.1.2e <5.1.2e @nivel.nl>; 5.1.2e 5.1.2e <5.1.2e @folkhalsomyndigheten.se>; 5.1.2e 5.1.2e <5.1.2e @folkhalsomyndigheten.se>; 5.1.2e 5.1.2e, 5.1.2e (ISP) <5.1.2e @navarra.es>; 5.1.2e (5.1.2e @inspq.qc.ca) <5.1.2e @inspq.qc.ca>; 5.1.2e, 5.1.2e <5.1.2e @influenzacentre.org>; 5.1.2e <5.1.2e @epiconcept.fr>; 5.1.2e 5.1.2e <5.1.2e @epiconcept.fr>; 5.1.2e 5.1.2e <5.1.2e @epiconcept.fr>; 5.1.2e 5.1.2e <5.1.2e @epiconcept.fr>

Subject: Re: Strategy of COVID-19 second-dose deferral to maximize coverage of scarce vaccine during critical need

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Hi 5.1.2e,

Please note that the message that 5.1.2e and I sent included the one dose estimates of VE for the Pfizer product that Pfizer did not explicitly report themselves directly but could be derived from the data on page 58 of their FDA submission. I have provided the link to their publicly available FDA submission.

Please everyone do review the derivations we provided in our table based on the data displayed immediately below their Figure 13 because it shows that the one dose efficacy starting from 14 days after Dose 1 and before Dose 2 is 92.6% for the Pfizer vaccine which is remarkably and reassuringly consistent with that which Moderna did directly report in their FDA submission of 92.1% (I have also provided the link to that document).

There are thus two independently conducted RCTs showing swift and substantial mRNA vaccine protection with a single dose on the short term which is critically important to consider while the pandemic is spiking in many countries and vaccine supply is short.

If we can help in any way to clarify, please let us know. And we are eager to hear your own deliberations also.

Best wishes,
5.1.2e

On Dec 20, 2020, at 10:30 PM, 5.1.2e 5.1.2e < 5.1.2e @ecdc.europa.eu> wrote:

EXTERNAL SENDER. If you suspect this message is malicious, please forward to 5.1.2e @phsa.ca and **do not** open attachments or click on links.

Dear 5.1.2e and all,

This is an extremely important point, which I am sure EMA with EUMS regulators will be considering as they debate the authorisation for the Moderna vaccine on 6 January. It would be useful to have similar data available for the Pfizer vaccine as well, at least I have not come across this yet. EMA is considering the Pfizer vaccine tonight. Thank you for highlighting the topic.

5.1.2e will surely comment on the NITAG collaboration agenda, and whether the dosing has been or will be discussed on their frequent webinar schedule.

Kind regards

5.1.2e

From: 5.1.2e 5.1.2e < 5.1.2e @epiconcept.fr>
Sent: 21 December 2020 07:19
To: 5.1.2e , 5.1.2e < 5.1.2e @who.int>; 5.1.2e , 5.1.2e < 5.1.2e @who.int>; 5.1.2e 5.1.2e < 5.1.2e @ecdc.europa.eu>; 5.1.2e 5.1.2e 5.1.2e < 5.1.2e @ecdc.europa.eu>; 5.1.2e 5.1.2e < 5.1.2e @ecdc.europa.eu>; 5.1.2e 5.1.2e < 5.1.2e @ecdc.europa.eu>; 5.1.2e 5.1.2e 5.1.2e < 5.1.2e @isciii.es>; 5.1.2e 5.1.2e < 5.1.2e @insa.min-saude.pt>; 5.1.2e 5.1.2e < 5.1.2e @insa.min-saude.pt>; 5.1.2e 5.1.2e < 5.1.2e @insa.min-saude.pt>; 5.1.2e 5.1.2e < 5.1.2e @insa.min-saude.pt>; 5.1.2e 5.1.2e < 5.1.2e @santepubliquefrance.fr>; 5.1.2e 5.1.2e 5.1.2e < 5.1.2e @santepubliquefrance.fr>; 5.1.2e 5.1.2e < 5.1.2e @rivm.nl>; 5.1.2e 5.1.2e < 5.1.2e @rivm.nl>; 5.1.2e 5.1.2e 5.1.2e < 5.1.2e @rivm.nl>; 5.1.2e, 5.1.2e < 5.1.2e @rki.de>; 5.1.2e , 5.1.2e < 5.1.2e @rki.de>; 5.1.2e , 5.1.2e < 5.1.2e @rki.de>; 5.1.2e 5.1.2e < 5.1.2e @phe.gov.uk>; 5.1.2e 5.1.2e (NHS National Services Scotland) < 5.1.2e @nhs.net>; 5.1.2e < 5.1.2e @hse.ie>; 5.1.2e 5.1.2e < 5.1.2e @hse.ie>; 5.1.2e 5.1.2e < 5.1.2e @yahoo.com>; 5.1.2e 5.1.2e < 5.1.2e @gmail.com>; 5.1.2e 5.1.2e < 5.1.2e @hzjz.hr>; 5.1.2e 5.1.2e 5.1.2e < 5.1.2e @hzjz.hr>; 5.1.2e 5.1.2e < 5.1.2e @hzjz.hr>; 5.1.2e 5.1.2e < 5.1.2e @nivel.nl>; 5.1.2e 5.1.2e < 5.1.2e @folkhalsomyndigheten.se>; 5.1.2e 5.1.2e < 5.1.2e @folkhalsomyndigheten.se>; 5.1.2e 5.1.2e 5.1.2e (ISP) < 5.1.2e @navarra.es>
Cc: 5.1.2e , 5.1.2e < 5.1.2e @bccdc.ca>; 5.1.2e 5.1.2e @inspq.qc.ca) < 5.1.2e @inspq.qc.ca>; 5.1.2e , 5.1.2e < 5.1.2e @influenzacentre.org>; Esther < 5.1.2e @epiconcept.fr>; 5.1.2e 5.1.2e < 5.1.2e @epiconcept.fr>; 5.1.2e 5.1.2e < 5.1.2e @epiconcept.fr>; 5.1.2e 5.1.2e < 5.1.2e @epiconcept.fr>
Subject: Fwd: Strategy of COVID-19 second-dose deferral to maximize coverage of scarce vaccine during critical need

EXTERNAL EMAIL - Do not click on any links, open attachments or reply, unless you recognise the sender's email address (5.1.2e **@epiconcept.fr**') and believe the content is safe.

Dear ECDC, WHO-Europe, I-MOVE colleagues

Please find below a very interesting message from 5.1.2e addressed to 5.1.2e and reflecting the current discussions in Canada. The question raised is extremely relevant. Our Canadian colleagues would like to know if such an important discussion is taking place in Europe (and Australia, 5.1.2e copied).

As always, thank you very much 5.1.2e for sharing with us key public health issues.

With best wishes,
5.1.2e

<image38bf24.PNG>

<image248c38.GIF>

5.1.2e 5.1.2e 5.1.2e
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5.1.2e
Air-Borne, Blood-Borne and Sexually Transmitted Infections, DPR
Phone +46 5.1.2e
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European Centre for Disease Prevention and Control (ECDC)
Gustav III:s boulevard 40, 169 73 Solna, Sweden
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www.ecdc.europa.eu

Follow ECDC on: <image06d42f.PNG><image71bdca.PNG><image8a1fde.PNG><image0bafda.PNG>

---------- Forwarded message ---------
From: 5.1.2e, 5.1.2e **[BCCDC]** <5.1.2e @bccdc.ca>
Date: Sun, Dec 20, 2020 at 10:52 AM
Subject: Fwd: Strategy of COVID-19 second-dose deferral to maximize coverage of scarce vaccine during critical need
To: 5.1.2e 5.1.2e <5.1.2e @epiconcept.fr>, 5.1.2e 5.1.2e <5.1.2e @epiconcept.fr>
Cc: 5.1.2e <5.1.2e @inspq.qc.ca>

Hi 5.1.2e -

I realize the message below is a bit long but it is important.

Can you bear with me and read it to the the end?

And then can you let us know your thoughts and whether there has been any such discussion also among your European partners?

With thanks -

Best wishes,
5.1.2e
5.1.2e
BC Centre for Disease Control
Ph: 5.1.2e
Begin forwarded message:

From: "5.1.2e, 5.1.2e [BCCDC]" <5.1.2e @bccdc.ca>
Date: December 18, 2020 at 3:03:57 PM PST
To: "5.1.2e @nih.gov" <5.1.2e @nih.gov>
Cc: "5.1.2e @niaid.nih.gov" <5.1.2e @niaid.nih.gov>, "5.1.2e (5.1.2e @inspq.qc.ca)" <5.1.2e @inspq.qc.ca>
Subject: Strategy of COVID-19 second-dose deferral to maximize coverage of scarce vaccine during critical need

Dear 5.1.2e –

RE: Strategy of COVID-19 second-dose deferral to extend coverage of priority groups during the critical period of heightened COVID-19 risk and limited vaccine availability

An Opinion piece in the New York Times today cited a vaccine efficacy of 92.1% for the Moderna vaccine beginning at two weeks after the initial dose, and before the second dose (scheduled at day 28).

Indeed, Moderna directly reported that estimate in Table 15 on page 28 of their submission to the December 17 meeting of the Vaccine and Related Biological Products Advisory Committee (VRBAC), available here: https://www.fda.gov/media/144434/download

We would like to point out that, although Pfizer did not directly report an estimate, it is also possible to similarly quantify the one dose efficacy for the Pfizer product starting at two weeks after Dose 1, and before Dose 2 using the data that were included in their earlier VRBAC submission on December 10, available here: https://www.fda.gov/media/144246/download.

In particular, the necessary data are displayed in the table immediately beneath their Figure 13 on page 58 of that briefing document wherein they show the number of events/number at risk at specified days after Dose 1.

To explicate that, we share those derivations below (and attached in case the display is better), including in black bold font the estimates provided by Pfizer and in blue font the additional derivations that are possible from the displayed data. We highlight in red bold font the comparable efficacy estimate starting at two weeks after Dose 1 and before Dose 2.

Table 1. Efficacy of the Pfizer vaccine by interval from specified dose (all-available efficacy population)

Interval	Number (n) of cases by group		Vaccine efficacy	95% CI
	Vaccine (N=21,669)	Placebo (N=21,686)		
From Dose 1 (as per manufacturer)	**50**	**275**	**82.0%**	**75.6 to 86.9%**
Between Dose 1 and Dose 2[a] (as per manufacturer)	**39**	**82**	**52.4%**	**29.5 to 68.4%**
Beginning from 7 days after Dose 1 up to Dose 2 (derived)[b]	**18[c]**	**57[d]**	**68.4%[e]**	**46.3 to 81.4%**
Beginning from 14 days after Dose 1 up to Dose 2 (derived)[b]	**2[f]**	**27[g]**	**92.6%[h]**	**68.9 to 98.2%**
For up to 7 days after Dose 2[a] (as per manufacturer)	**2**	**21**	**90.5%**	**61.0 to 98.9%**
Beginning from 7 days after Dose 1 up to 7 days after Dose 2 (derived)	**20**	**78**	**74.4%**	**58.1 to 84.3%**
Beginning from 14 days after Dose 1 up to 7 days after Dose 2 (derived)	**4**	**48**	**91.7%**	**76.9 to 97.0%**
From Dose 2	**11**	**193**	**94.3%**	**89.6 to 96.9%**

From 7 or more days after Dose 2[a] (as per manufacturer)	**9**	**172**	**94.8%**	**89.8 to 97.6%**
From 7 days after Dose 1 up to end of follow up (derived)	**29**	**250**	**88.4%**	**82.9 to 92.1%**
From 14 days after Dose 1 up to end of follow up (derived)	**23**	**220**	**89.6%**	**83.9 to 93.2%**

a. As reported by the manufacturer, see Table 11, page 57: https://www.fda.gov/media/144246/download
b. As derived from data reported by the manufacturer. Vaccine efficacy derived as: 1 - ($Risk_{vaccinated}$/$Risk_{unvaccinated}$)
c. There were 21 cases that accrued before day 7 in the vaccine group; accordingly, the number of cases from 7 days after Dose 1 to Dose 2 is 39-21.
d. There were 25 cases that accrued before day 7 in the placebo group; accordingly, the number of cases from 7 days after Dose 1 to Dose 2 is 82-25.
e. Derived as: 1 - (18/21,648 ÷ 57/21,661) [denominators are those remaining at risk, subtracting cases that accrued before day 7]
f. There were 37 cases that accrued before day 14 in the vaccine group; accordingly, the number of cases from 14 days after Dose 1 to Dose 2 is 39-37.
g. There were 55 cases that accrued before day 14 in the placebo group; accordingly, the number of cases from 14 days after Dose 1 to Dose 2 is 82-55.
h. Derived as: 1 - (2/21,632 ÷ 27/21,631) [denominators are those remaining at risk, subtracting cases that accrued before day 14]

From the above quantifications, you can see that the estimate for Pfizer vaccine efficacy starting at two weeks after Dose 1 and before Dose 2 (scheduled at day 21) is remarkably and reassuringly consistent with that directly reported by Moderna (92.6% and 92.1%, respectively), meaning that two independently conducted randomized controlled trials show similar and important short-term protection >90%.

In the immediate context of heightened COVID-19 risk but severely short vaccine supply, deferring the second dose could maximize vaccine benefit during this critical period of need by extending coverage to twice as many members of the highest priority groups. Such strategy would require close, real-time and continuous monitoring of vaccine effectiveness to assess if/when the second dose should be given. While there may be uncertainties with respect to the duration of protection (with one or two doses), what is certain is that failure to defer the second dose now would leave twice as many people completely unprotected, resulting in thousands of hospitalizations and deaths in the US.

We have been pondering these issues also here and are available at your convenience if you would like to discuss.

Best wishes,

5.1.2e
5.1.2e University of British Columbia
Ph: 5.1.2e (mobile)

And

5.1.2e
5.1.2e Laval University