To: (10)(2e) [(10)(2e)]@uchicago.edu]; (10)(2e)@hsph.harvard.edu[(10)(2e)@hsph.harvard.edu]; (10)(2e) (10)(2e) [(10)(2e) @lshtm.ac.uk]; (10)(2e) [(10)(2e)@hsph.harvard.edu]; (10)(2e) (10)(2e)@hsph.harvard.edu]; (10)(2e) Kahn[(10)(2e)@mail.harvard.edu]; (10)(2e) [(10)(2e) @g.harvard.edu]; (10)(2e) Munoz[(10)(2e)@hsph.harvard.edu]; (10)(2e) [(10)(2e) @lshtm.ac.uk]; (10)(2e) [(10)(2e) @lshtm.ac.uk]; (10)(2e) Sherratt[(10)(2e) @lshtm.ac.uk]; (10)(2e) [(10)(2e) @lshtm.ac.uk]; (10)(2e) [(10)(2e) @lshtm.ac.uk]; (10)(2e) [(10)(2e) @lshtm.ac.uk]; (10)(2e) (10)(2e) @gmail.com]; (10)(2e) (10)(2e) [(10)(2e) @uchicago.edu]; (10)(2e) [(10)(2e) @uchicago.edu]; (10)(2e) F[(10)(2e)@bu.edu]; (10)(2e) @bsse.ethz.ch[(10)(2e) @bsse.ethz.ch]; (10)(2e)@env.ethz.ch[(10)(2e)@env.ethz.ch]; (10)(2e) Jana[(10)(2e) @env.ethz.ch]; (10)(2e) (10)(2e) @bsse.ethz.ch]; (10)(2e) (10)(2e) @g.harvard.edu]; (10)(2e) (10)(2e) [(10)(2e) @rivm.nl]
From: (10)(2e)
Sent: Wed 6/17/2020 5:40:59 AM
Subject: Re: Rt best practices - new draft - please respond by Thrusday
Received: Wed 6/17/2020 5:41:29 AM
Rt_best_practices_v4.pdf

Hi Everyone,

We had a few final comments and made a few more last-minute changes. We'd like to give everyone until the end of the day to look over these changes before posting. **Unless anyone sends me an email objecting to these edits by the end of the day tomorrow (5pm Central US time, Wednesday June 17th), we're going to post this draft to medrxiv.**

The edits are highlighted in the attached draft for ease of review. To summarize:

- We added a few new conceptual points in our discussion of the difference between the case and instantaneous reproductive number
- We added the true case reproductive number to a few of the figures for comparison to the WT estimates.
- We added an appendix figure that compares the smoothed case and instantaneous reproductive number estimates.
- We added a few more details about why certain estimates are inaccurate at the beginning or end of a truncated, unadjusted time series.

No response is needed if you still approve of the draft, but please let me know as soon as possible if you have any objections! Thanks again for all your input so far. Looking forward to getting this out.

Best,

(10)(2e)

From: (10)(2e)
Sent: Tuesday, June 9, 2020 8:59 PM
To: (10)(2e) <(10)(2e)@uchicago.edu>; (10)(2e)@hsph.harvard.edu <(10)(2e)@hsph.harvard.edu>; (10)(2e) <(10)(2e) @lshtm.ac.uk>; (10)(2e) <(10)(2e)@hsph.harvard.edu>; (10)(2e) <(10)(2e)@hsph.harvard.edu>; (10)(2e) <(10)(2e)@mail.harvard.edu>; (10)(2e) <(10)(2e) @g.harvard.edu>; (10)(2e) <(10)(2e)@hsph.harvard.edu>; (10)(2e) <(10)(2e) @lshtm.ac.uk>; (10)(2e) <(10)(2e) @lshtm.ac.uk>; (10)(2e) <(10)(2e) @lshtm.ac.uk>; (10)(2e) <(10)(2e) @lshtm.ac.uk>; (10)(2e) <(10)(2e) @lshtm.ac.uk>; (10)(2e) <(10)(2e) @lshtm.ac.uk>; (10)(2e) <(10)(2e) @gmail.com>; (10)(2e) <(10)(2e) @uchicago.edu>; (10)(2e) <(10)(2e) @uchicago.edu>; (10)(2e) <(10)(2e)@bu.edu>; (10)(2e) @bsse.ethz.ch <(10)(2e) @bsse.ethz.ch>; (10)(2e)@env.ethz.ch <(10)(2e)@env.ethz.ch> (10)(2e) <(10)(2e) @env.ethz.ch>; (10)(2e) <(10)(2e) @bsse.ethz.ch>; (10)(2e) (10)(2e) @g.harvard.edu>
Subject: Rt best practices - new draft - please respond by Thrusday

Hi All,

Thanks for providing great comments on the last draft. We've done our best to integrate everyone's feedback into this revision. We think it's improved and just about ready to go.

We plan to post to medrxiv this coming Friday June 12th

- If you think there are any last conceptual issues to be addressed, please send me your comments ASAP, and no later than Thursday.
- If you're comfortable with the draft as-is, please send me an email affirming that you approve submission of the preprint.
- We'll post in parallel on github, where others in the field can leave comments or look at our code.

Revisions to figures

- Fig. 1 - diagram of conceptual differences between the instantaneous and case reproductive number, is new.
- Added inset time series to Fig. 2 and 5.
- In Fig. 2 added fits to a synthetic time series of symptom onset events, observed at the E->I transition, using the WT method.
- Re-made Fig. 5 (smoothing windows) using a stochastic simulation.

Major revisions to text

- Short new **Synthetic data** section to provides some extra detail about how the data were generated, including
  - a clear explanation that to mimic real-time estimation, the time series is truncated to end in the middle of the epidemic in all the analyses
  - an explanation of why we used deterministic vs. stochastic data in specific analyses
- **Comparison of common methods** section.
  - Now better organized, and edited for clarity
  - More clearly explains when it is/is not appropriate to use the Wallinga and Teunis method.
  - Revised this section, and in the introduction/abstract, to distinguish problematic structural assumptions specific to the Bettencourt and Ribeiro method from compartment modeling approaches in general.
- **Adjusting for delays** section - revisions clarify that the best approach remains to be determined if the delay distribution is highly uncertain.
- **Specifying the generation interval** - added some new references and moved some things out of the appendix to emphasize that (1) substitution of the serial interval for the generation interval can lead to bias (2) for COVID-19, the possibility of negative serial intervals should not be overlooked.
- Added a **Conclusion**.

Authorship and to dos

- Please remember to check your name, affiliation and acknowledge your funders if you haven't already done so, or if changes were needed in the last round of revision.

--The text below was in the last email, but I'm repeating it for those who have recently joined the team.--

Given how many people are working on these issues in parallel, we'd like to acknowledge everyones contribution. Everyone copied here is currently listed as an author.

- If you'd like to remain in the authorship list, please check your name and affiliation, and send me any funding you'd like to acknowledge.

- If you'd be more comfortable being listed in the acknowledgements...
- or if you have any concerns about authorship order, please don't hesitate to get in touch with me!

Thanks again for all your helpful feedback and for everyone's willingness to keep up with the accelerated timeline for revisions. We are excited to get this posted!

Best,

(10)(2e)