Pandemic preparedness in Brazil

The role of statisticians and our models

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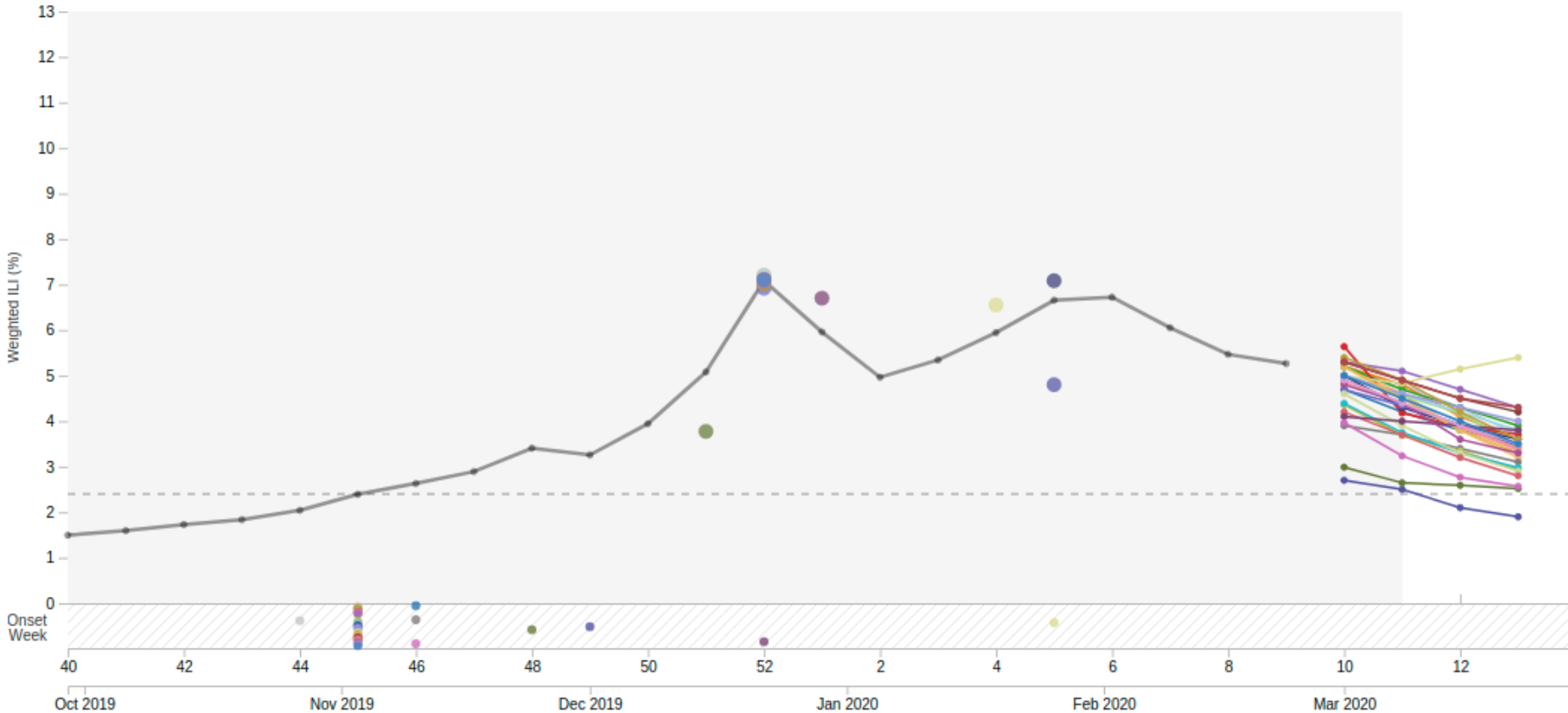
We were **not** prepared

Despite numerous warnings, we were ill-prepared for the COVID-19 emergency.

- Surveillance systems were not sufficiently flexible or fast to accommodate a new disease;
- Our models were poor and inflexible (see the Ioannidis vs Taleb discussion);
- Importantly, we failed unify and leverage the myriad of modelling efforts that cropped up during the pandemic.

Can we do better?

I think we can.



Combining forecasts: desiderata

- Using proper scoring rules for fair, consistent and coherent comparison of predictive models (Raftery & Gneiting , 2007)
- Appropriate and (semi-) automatic incorporation of geographical and populational **heterogeneity**;
- Easily deployable framework that can be used for different epidemiological contexts with minimal tweaking, *a la* NextStrain;
- Akin to the Forecast Hub;
- Focus should be on producing actionable **short-term** metrics for decision makers.

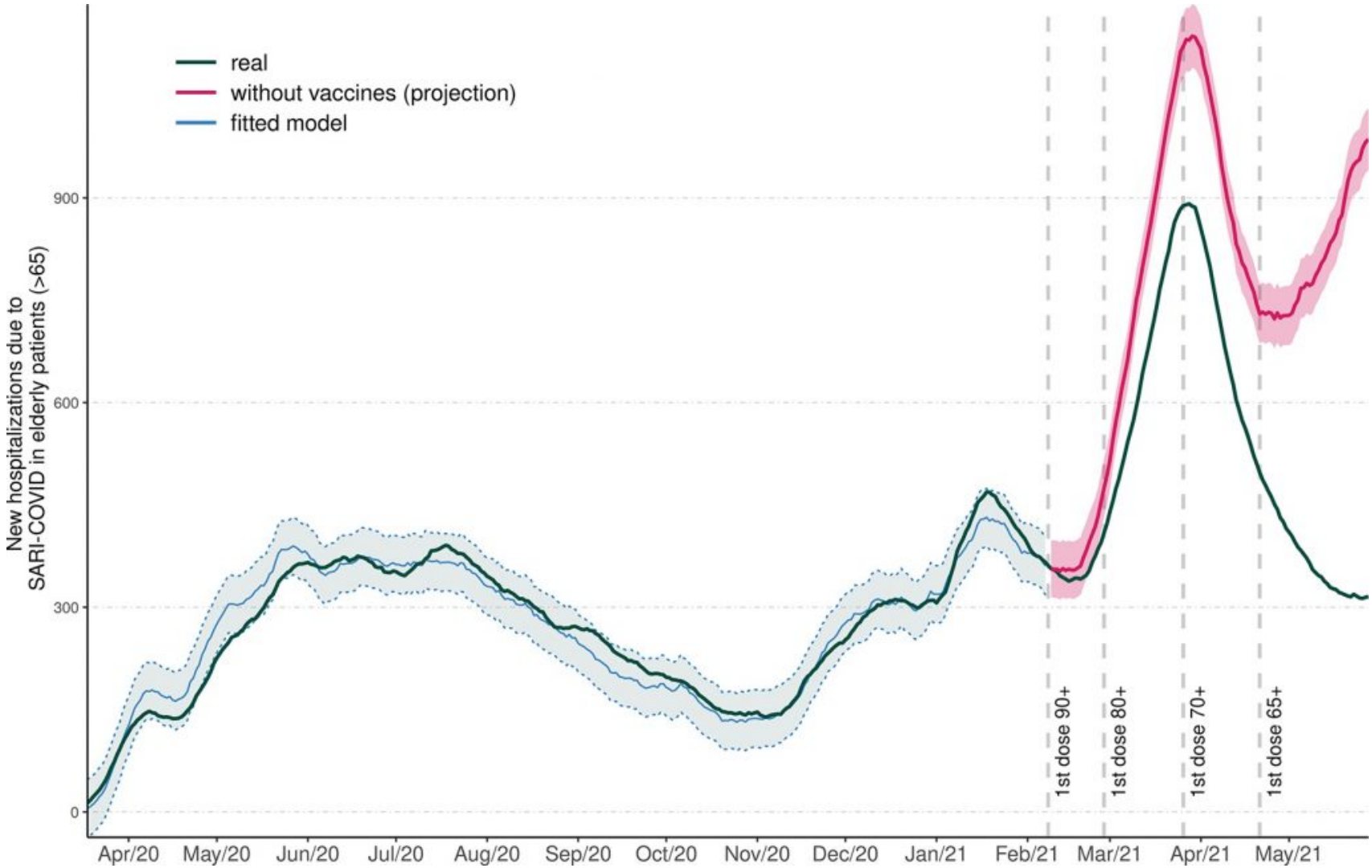
Indyosincrasies of the data and their consequences

- Inconsistent criteria;
- Reporting delays;
- Underreporting;
- Completeness.

Harmonise targets and formats

Deaths, hospitalisations or cases? Point predictions, intervals or full distributions?

What else can models do?



Concrete proposals

Focus on short-term forecasts

Most useful to decision-makers

Custom scoring rules

Think long and hard about appropriate scoring rules

Strengthen surveillance systems

Data collection is key; garbage-in-garbage-out!

THE END