

COVID-19 Reflection session

My pandemic (a very abridged tale)

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LONDON
SCHOOL of
HYGIENE
& TROPICAL
MEDICINE



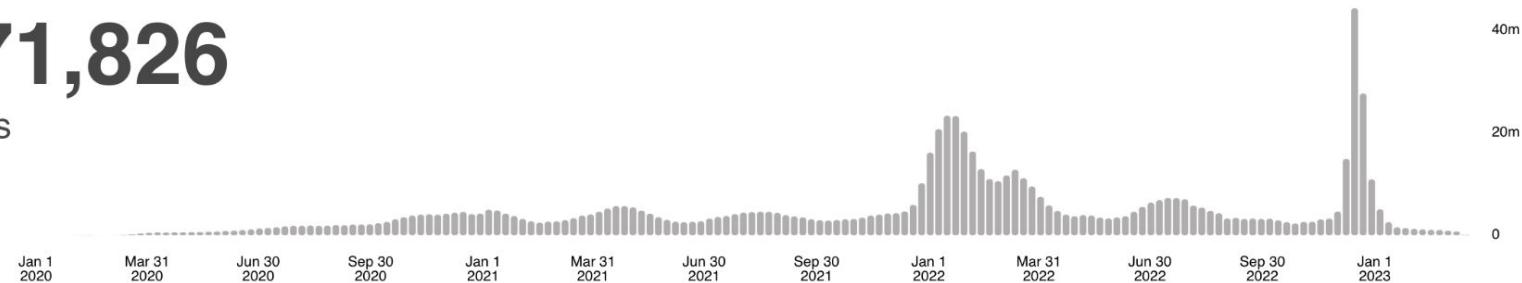
Globally, as of **6:06pm CET, 21 March 2023**, there have been **761,071,826 confirmed cases** of COVID-19, including **6,879,677 deaths**, reported to WHO. As of **21 March 2023**, a total of **13,260,401,200 vaccine doses** have been administered.

Global Situation



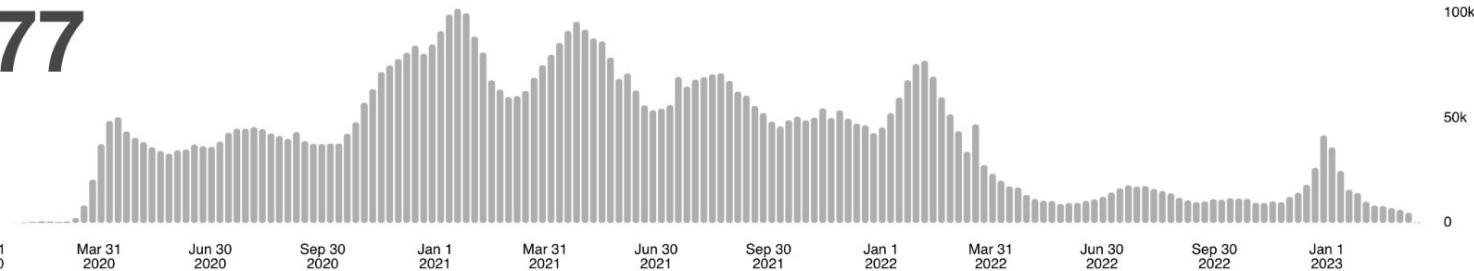
761,071,826

confirmed cases



6,879,677

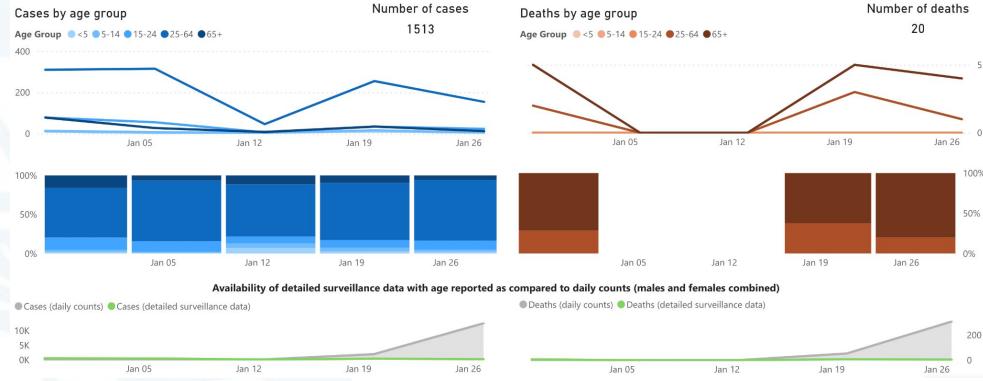
deaths



Source: World Health Organization

Data may be incomplete for the current day or week.

2020: January



- Jan 6th: Joined the school to work on real-time forecasting of infectious disease
- Jan 18th: First COVID-19 working group meeting -> Full-time on COVID-19.
- Jan 30th: Report: **Reporting delays and Rt in China** (led by Sebastian Funk)
- Jan 30th: Paper: **Size of spillover and reproduction number estimates**

Reporting delays and temporal variation in transmission in China during the 2019-nCoV outbreak

Status: In Progress | First online: 30-01-2020 | Last update: 30-01-2019

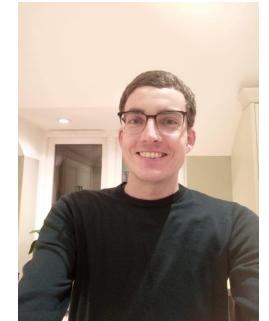
Authors: **Sebastian Funk***, Sam Abbott, Stefan Flasche & CMMID COVID-19 working group.

* corresponding author

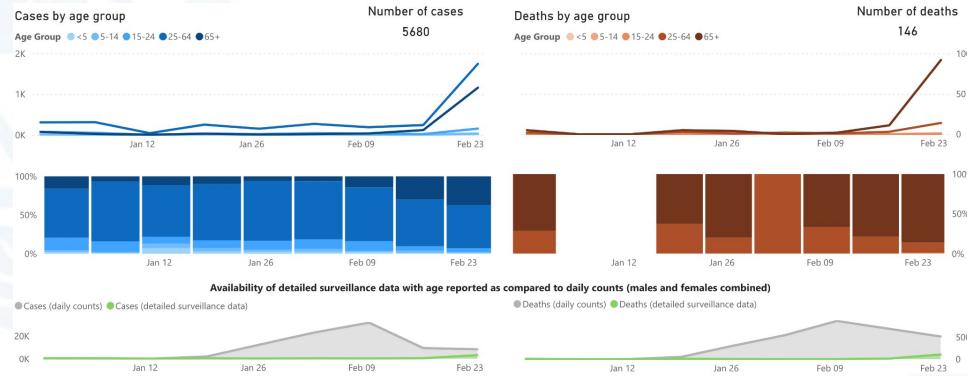
RESEARCH ARTICLE

The transmissibility of novel Coronavirus in the early stages of the 2019-20 outbreak in Wuhan: Exploring initial point-source exposure sizes and durations using scenario analysis [version 1; peer review: 2 approved]

Sam Abbott , , Joel Hellewell , James Munday , CMMID nCoV working group, Sebastian Funk



2020: February



- Feb 5th: Presented PhD work to the JVCI BCG meeting (first Dr Abbott plaque)
- Feb 7th: Feasibility of contact tracing (led by Joel Hellewell)
- Feb 19th: In person PhD graduation @Bristol
- Feb: 1st/20+ reports to SPI-M-O (???)



Feasibility of controlling COVID-19 outbreaks by isolation of cases and contacts

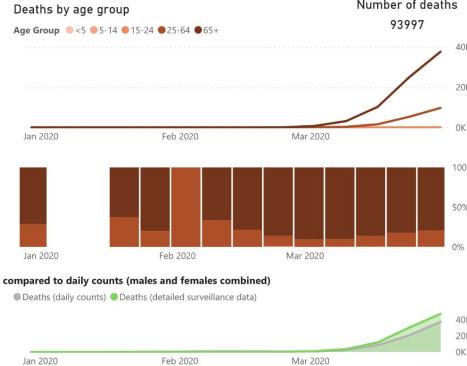
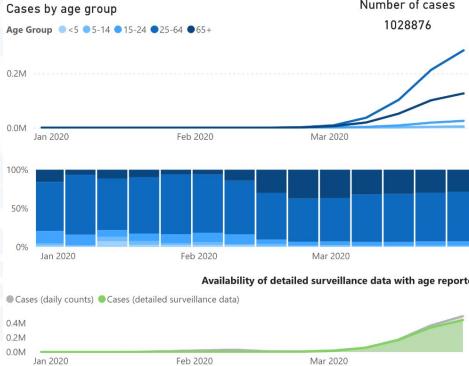
Joel Hellewell, PhD • Sam Abbott, PhD * • Amy Gimma, MSc * • Nikos I Bosse, BSc • Christopher I Jarvis, PhD •

Timothy W Russell, PhD • et al. Show all authors • Show footnotes

Open Access • Published: February 28, 2020 •

DOI: [https://doi.org/10.1016/S2214-109X\(20\)30074-7](https://doi.org/10.1016/S2214-109X(20)30074-7)

2020: March



- March 2nd: Temporal variation in transmission (R_t) + release of EpiNow
- March 10th: In person teaching (first and last @LSHTM)
- March 10th: Pointing at graphs as an intro to John's newscast interview



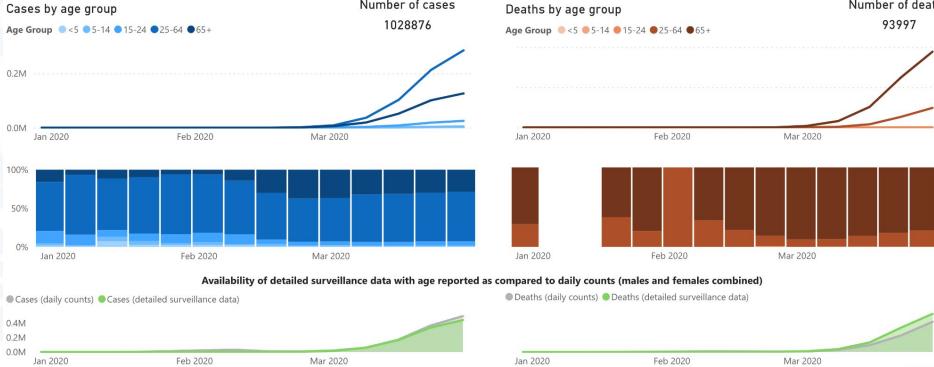
Temporal variation in transmission during the COVID-19 outbreak

Status: In Progress | First online: 02-03-2020 | Last update: 04-04-2020

Authors: Sam Abbott*, Joel Hellewell, James D Munday, June Young Chun, Robin N. Thompson, Nikos I Bosse, Yung-Wai Desmond Chan, Timothy W Russell, Christopher J Jarvis, CMMID COVID-19 working group, Stefan Flasche, Adam J Kucharski, Rosalind M Eggo & Sebastian Funk.

* corresponding author

2020: March



RESEARCH ARTICLE

UPDATE Estimating the time-varying reproduction number of SARS-CoV-2 using national and subnational case counts [version 2; peer review: 1 approved, 1 approved with reservations]

Sam Abbott * , Joel Hellewell * , Robin N. Thompson, Katharine Sherratt , Hamish P. Gibbs, Nikos I. Bosse ,

James D. Munday , Sophie Meakin , Emma L. Doughty, June Young Chun , Yung-Wai Desmond Chan, Flavio Finger ,

Paul Campbell , Akira Endo , Carl A. B. Pearson , Amy Gimma , Tim Russell , CMMID COVID modelling group,

Stefan Flasche , Adam J. Kucharski, Rosalind M. Eggo , Sebastian Funk

- March 20th: Partner flew back from Postdoc in the US



- March 23rd: London -> Bristol

- March 31st: epiforecasts.io/covid

- Rt + short-term forecasts
- Daily for 2+ years
- Initially manually
- 2000+ locations

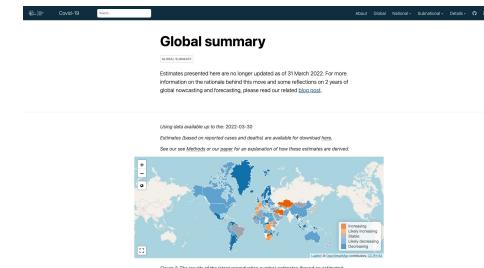
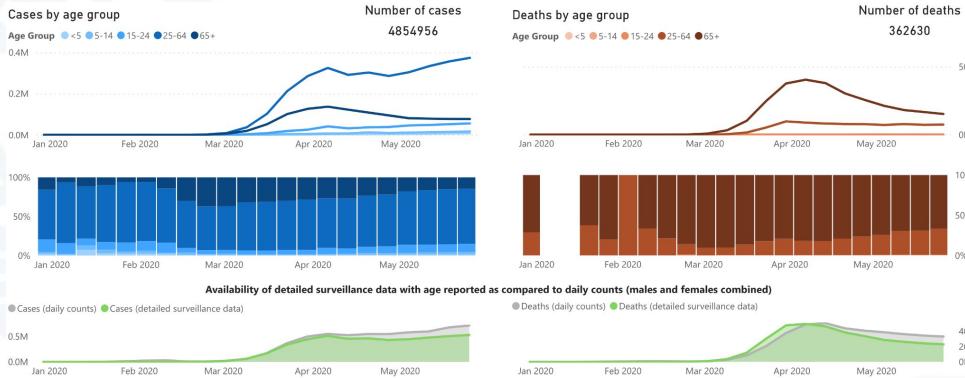


Figure 1. The results of the basic reproduction number estimates based on estimated confirmed cases with a date of infection on the 2020-03-10 can be summarized by whether confirmed cases are increasing or decreasing. This represents the strength of the evidence that the epidemic has peaked. The legend indicates the $R_t < 1$ for low values and $R_t > 1$ for high values. Estimated R_t values are available for download for use in other software packages and for further modelled predictions.

2020: April - May



- April 1st: Start of 3 times a week short-term forecasts and Rt estimates for SPI-M-O
- April: More reports (5+(?)) for SPI-M-O
- April: Became effectively non-verbal outside of work.
- May: Forecasts -> Weekly

Estimates of nosocomial and community transmission of COVID-19 in the England

Authors: Sam Abbott, Joel Hellewell, Jonathan Read, Nikos I Bosse, Kath Sherratt, James D Munday, and Sebastian Funk on behalf of the LSHTM COVID-19 Modelling Team

Date: 2020-04-12

Aim

To identify changes in the reproduction number, rate of spread, and doubling time during the course of the COVID-19 outbreak in nosocomial and community populations whilst accounting for potential biases due to delays in case reporting.

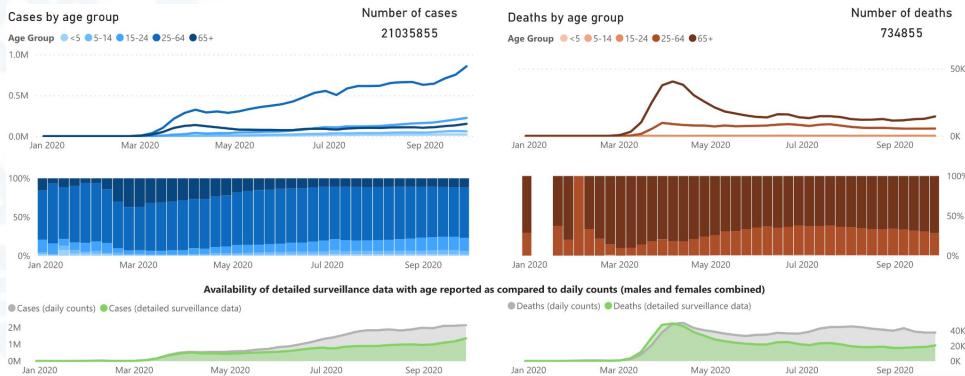
Short-term forecasts to inform the response to the Covid-19 epidemic in the UK

S Funk, S Abbott, BD Atkins, M Baguelin, JK Baillie, P Birrell, J Blake, NI Bosse, J Burton, J Carruthers, NG Davies, D De Angelis, L Dyson, WJ Edmunds, RM Eggo, NM Ferguson, K Gaythorpe, E Gorsich, G Guyver-Fletcher, J Hellewell, EM Hill, A Holmes, TA House, C Jewell, M Jit, T Jombart, I Joshi, MJ Keeling, E Kendall, ES Knock, AJ Kucharski, KA Lythgoe, SR Meakin, JD Munday, PJM Openshaw, CE Overton, F Pagani, J Pearson, PN Perez-Guzman, L Pellis, F Scarabel, MG Semple, K Sherratt, M Tang, MJ Tildesley, E Van Leeuwen, LK Whittle, CMMID COVID-19 Working Group, Imperial College COVID-19 Response Team, ISARIC4C Investigators

doi: <https://doi.org/10.1101/2020.11.11.20220962>

This article is a preprint and has not been peer-reviewed [what does this mean?]. It reports new medical research that has yet to be evaluated and so should not be used to guide clinical practice.

2020: June - September



Practical considerations for measuring the effective reproductive number, R_t

Katelyn M. Gostic , Lauren McGough, Edward B. Baskerville, Sam Abbott, Keya Joshi, Christine Tedijanto, Rebecca Kahn, Rene Niehus, James A. Hay, Pablo M. De Salazar, Joel Hellewell, Sophie Meakin, James D. Munday, [...], Sarah Cobey
[view all]

Published: December 10, 2020 • <https://doi.org/10.1371/journal.pcbi.1008409>

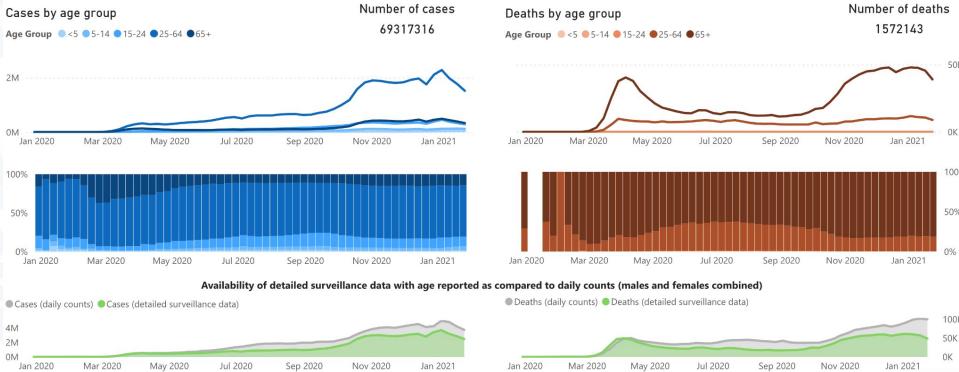
EpiNow2: Estimate real-time case counts and time-varying epidemiological parameters

lifecycle maturing R-CMD-check passing codecov 75% downloads 21K

License MIT contributors 13 r-universe 1.3.4 commits since v1.3.4 16 DOI 10.5281/zenodo.7611804

- June: Stopped forecasts and started projections for SPI-M-O
- June: Started speaking outside of work again.
- June: Email from Katie Gostic -> Rt method is flawed
- June: Start forecasting weekly for the CDC forecast hub
- July 23rd: First stable EpiNow2 release
- Sept 31st: Moved in with parents in Cornwall to try and deal with panic attacks

2020-2021: October - January



- Oct 22nd: Grandma's funeral (10 people)
- Oct 22nd: Worked overnight implementing susceptibility for SPI-M-O projections.
- Oct: Sisters wedding (14 people)
- Nov-Jan: Worked with Met office to productionise our Rt estimates
- Jan 1st: Moved to partner's parent's house to start our own house hunt
- Jan 8th: Local area Rt and S-gene target failure



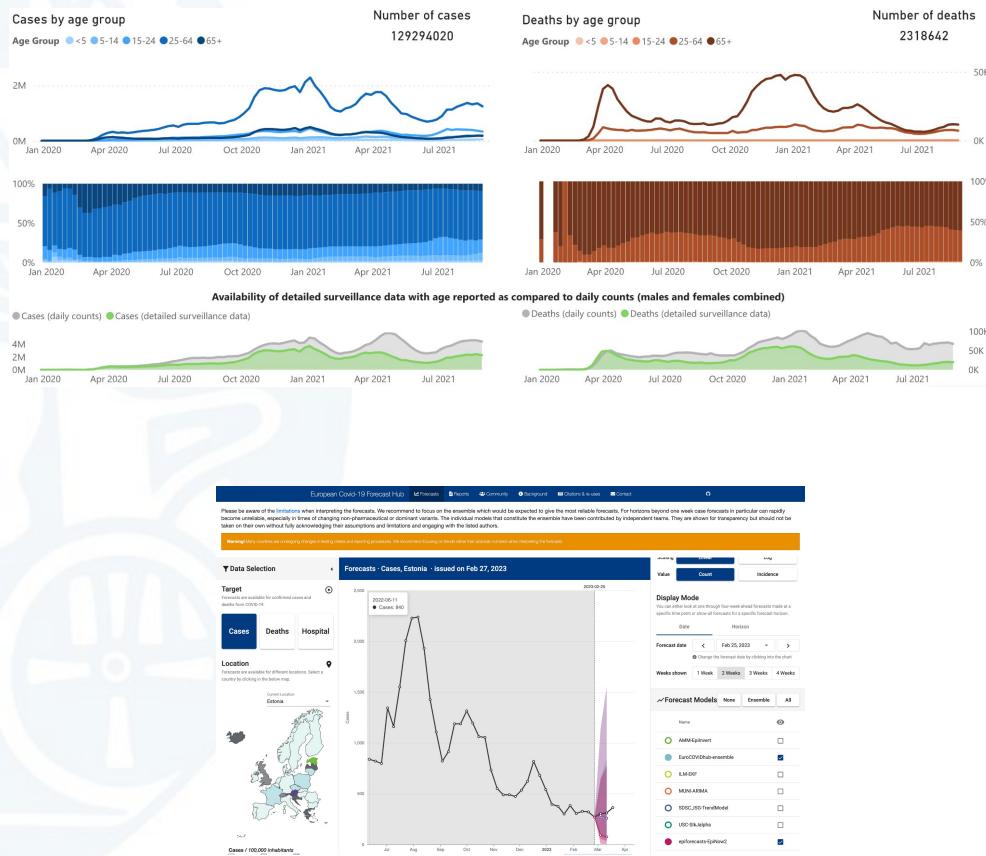
Local area reproduction numbers and S-gene target failure

Status: Real time report | First online: 08-01-2021 | Last update: 08-01-2021

Authors: Sam Abbott, Sebastian Funk* and CMMID COVID-19 working group.

* corresponding author

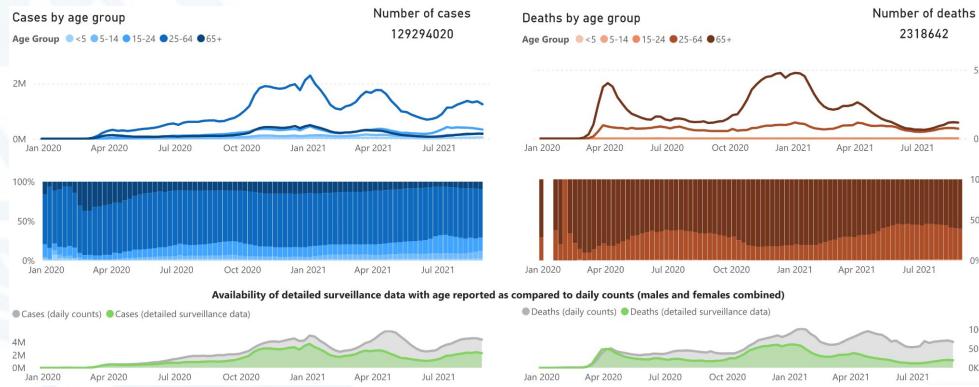
2021: February - August



- Feb: Started forecasting weekly for the European forecasting Hub
- March 1st: Start on EpiNow2 v2 dev
- March 18th: Moved out of and sold Bristol flat
- 20th April: Gave up on house buying -> Cornwall



2021: February - August



- April: Started being able to talk to people in shops etc. again
- April 21st: Grandad's funeral (30 people)
- May: Burned out on EpiNow2 dev
- May - August: Short-term forecasts of variant dynamics + cases

forecast.vocs 0.6.8.7000 Reference Articles ▾ Changelog

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Citation
[Citing forecast.vocs](#)

Developers
[Sam Abbott](#) Author, maintainer [More about authors](#)

Dev status
 [R-CMD-check](#) [GitHub](#)

Forecast case and sequence notifications using variant of concern strain dynamics

Installation
Installing the package
Install the stable development version of the package with:

```
install.packages("forecast.vocs", repos = "https://epiforecasts.r-universe.dev")
```

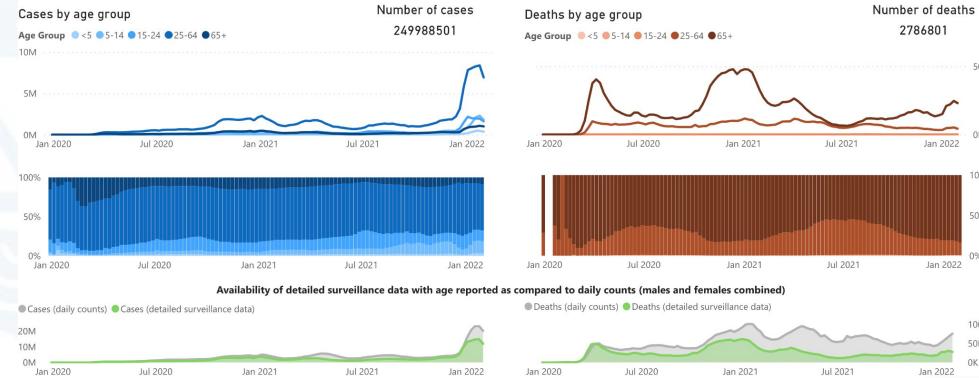
Install the unstable development from GitHub using the following:

```
remotes::install_github("epiforecasts/forecast.vocs", dependencies = TRUE)
```

Installing CmdStan
If you don't already have CmdStan installed, it is recommended to install `CmdStan`. It is also necessary to install `stan` using `cmdstanr::install_stan()` (functions to update model fitting in `forecast.vocs`). A suitable `rstan` version is also required. Instructions are provided in the [Getting started with CmdStan](#) vignette. See the [CmdStan documentation](#) for further details and support.

Quick start

2021-2022: September - January



- Sept 1st: Cornwall -> Bristol (staff flat). House buying round 2
 - Oct 1st: Dev on epinowcast.org begins
 - Nov: Niece born + 1st day @office
 - Nov 21st: Daily nowcasting of hospitalisations in Germany
 - Dec 22nd: Daily Omicron short-term forecasts
 - Jan 1st: Had 1st round of COVID-19
 - Jan 7th: Estimate of Omicron's generation time (last SPI-M-O report)
- 

Estimation of the test to test distribution as a proxy for generation interval distribution for the Omicron variant in England

2022-2023: Feb - Now

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Global Situation

761,071,826

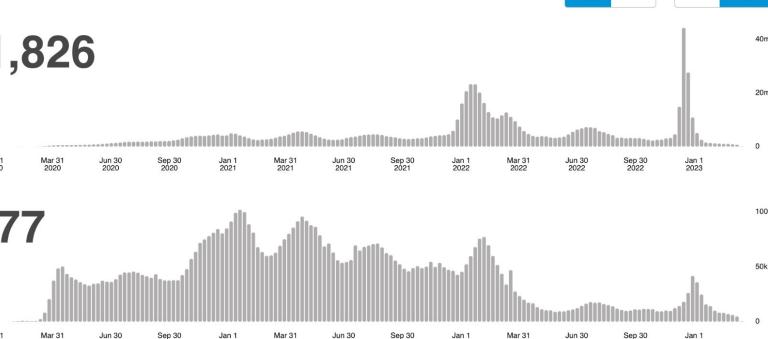
confirmed cases



6,879,677

deaths

Source: World Health Organization
Data may be incomplete for the current day or week.



Sam Abbott Posts Notes Research Ideas Circle Papers Folia About ▾

Reflections on two years estimating effective reproduction numbers

Over the last two years we have estimated reproduction numbers daily for several thousand locations, presented these estimates as a curated data set and visualised them at epiforecasts.ai/covid. In this post we reflect on this project, summarising its utility, its integration with other projects, unanticipated challenges, and finally whether we would do it again.

Author: Sam Abbott
Published: March 25, 2023

This post was originally posted to [epiforecasts.ai](#) and has been reposted here with consent of the author.

An attempt to design a useful resource for situational awareness
31 March, is just under a weeks time, will mark the last day we are producing global national and regional Reproduction Number (R_t) estimates. This is a good opportunity to reflect on what we have learned from this, what went well and what went wrong, and what we would aim to do better next time.

An attempt to design a useful resource for
situational awareness

- March 10th: First successful house offer (note 1st...)

- March 17th: Had COVID round 2

- March 25th: Turned off Rt pipeline after 2 years

- 500k unique users
- 1.2 million page views
- Was it worth it?



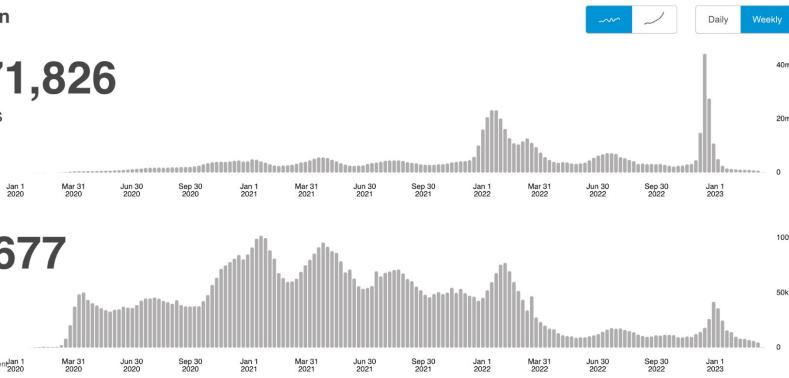
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confirmed cases



6,879,677

deaths

(in the sense of nearly now and in the sense of right truncated count correction)

Epinowcast: Flexible hierarchical nowcasting

Forecasting infectious disease incidence for public health

w/ Adrian Lison, Sang Woo Park, Felix Gunther, Kelly Charniga, Johannes Bracher, Carl Pearson, Hannah Choi, Michael DeWitt, Sebastian Funk and many more

Sam Abbott
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samabbott.co.uk
Slides: samabbott.co.uk/presentations/2023/royal-society-epinowcast.pdf



- First Christmas not working in 3 years
- Sept 2022: House (yay!)
- Working on
 - Estimating delay distributions during outbreaks
 - Flexible methods for situational awareness during outbreaks (epinowcast.org)
- Start at CDC-CFA as a consultant on 1st April (ish (?)) -> July 31st
- August 1st: ???

What was your pandemic like?

