The University Of Sheffield.

The challenges and benefits of visualizing COVID-19 data

Colin Angus
School of Health & Related Research

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How Open Science (and Twitter) saved me from madness in 2020

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About me

Before the world fell apart

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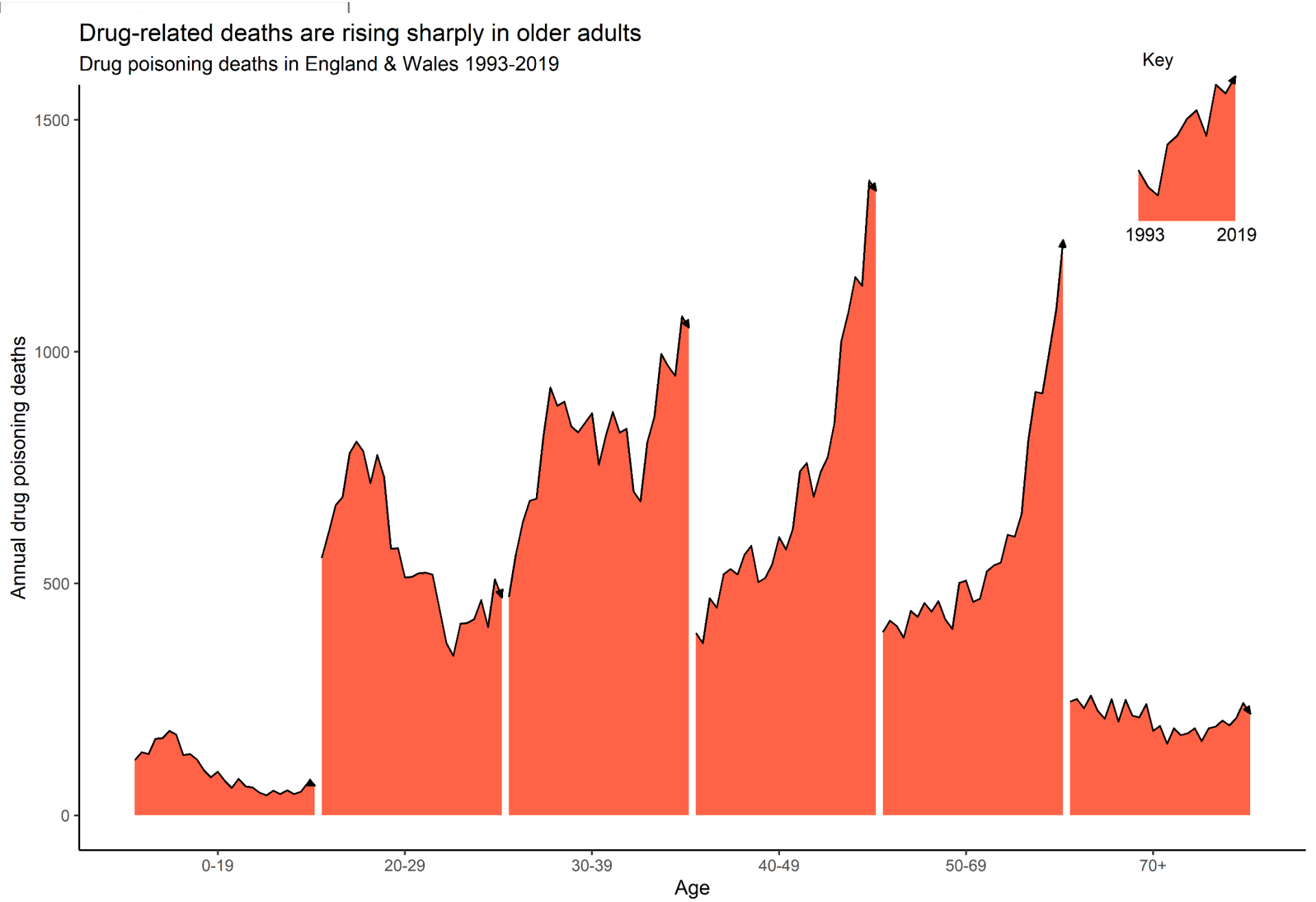
...but I also had a sideline in doing little bits of analysis and visualising data related to alcohol or inequality that I found interesting and posting these on Twitter.



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- I started drawing a few graphs of COVID-related things, largely just to help me get my own head around what was going on
- These included maps of potential COVID risk, analysis of case numbers and estimates of excess mortality
- Wherever possible, this was broken down by age, sex, deprivation and/or local area

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- I made sure to link every plot to the R code that generated it on GitHub
- I posted Twitter threads discussing what I thought the graphs might show and what they might not show
- With the help of the lovely RDM folks, I archived the latest versions of all of my COVID-related plots on Figshare

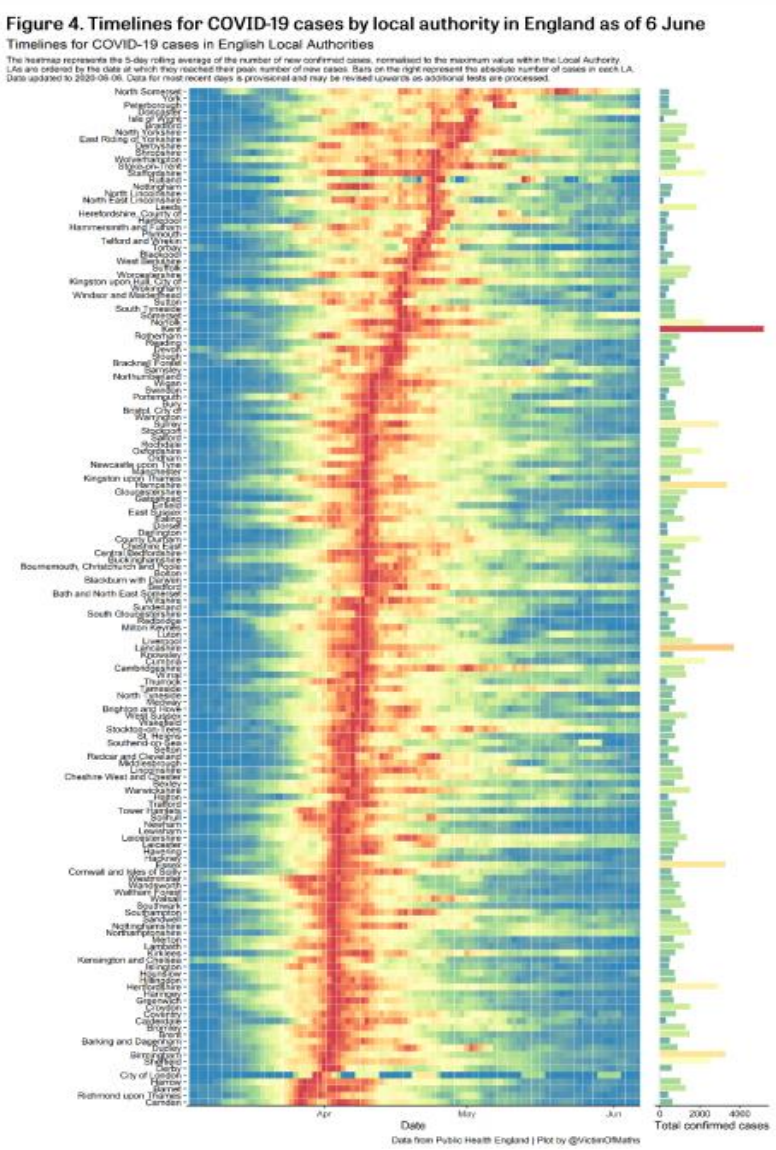
What this looked like…

So what happened?

The good

- One of my graphs was used in a report by the IFS

The good



Source: Angus, 2020.

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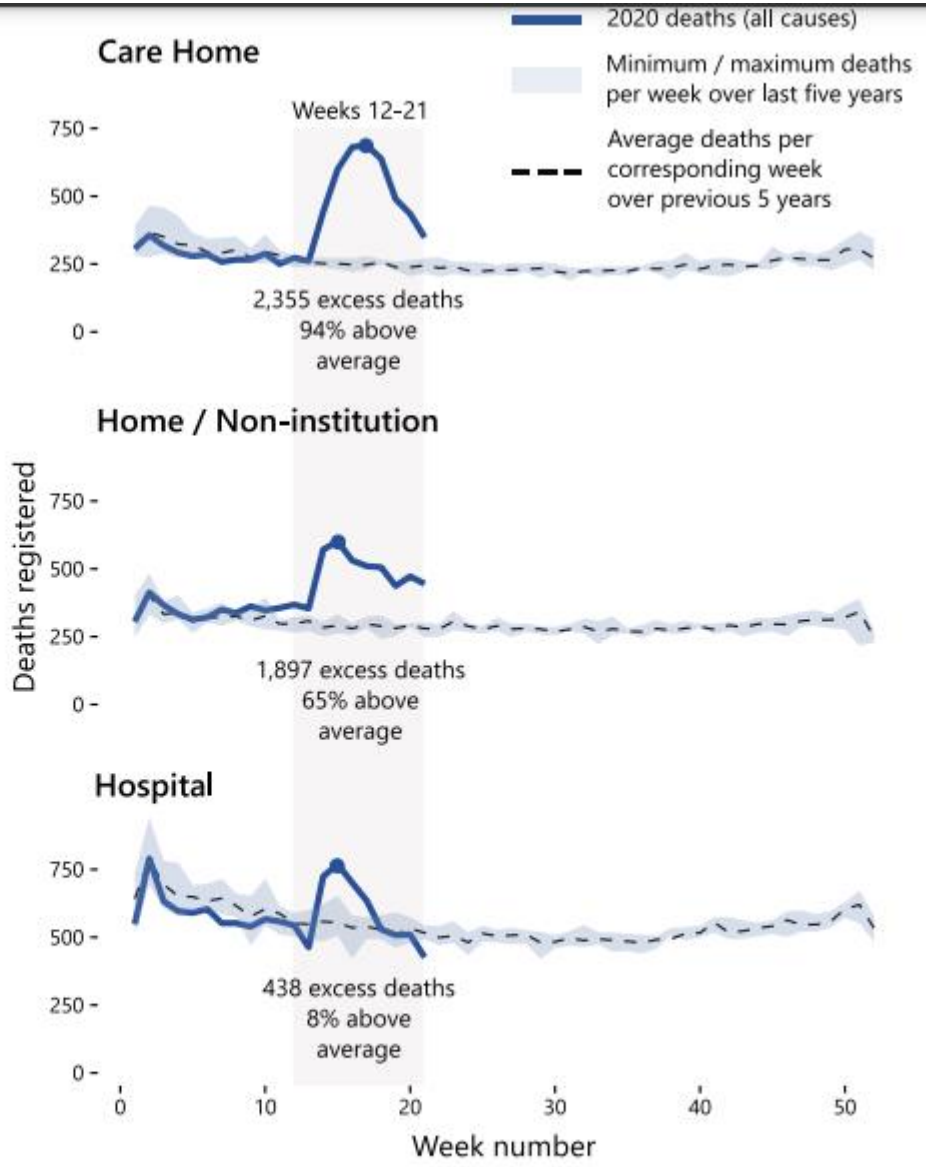
have occurred in care homes

Between weeks 12 and 21 (16 March to 24 May) there were 2,355 (94%) more deaths in care homes than average. Excess deaths peaked in week 17 and have been falling ever since, but deaths are still higher than average for this time of year.

In the same period, there were 1,897 excess deaths which took place at home or in a non-institutional setting (65% above average).

Excess deaths in hospitals peaked in week 15 and have now fallen to below average levels. The total excess over weeks 12 to 21 is 8% above average.



www.nrscotland.gov.uk
Source: Deaths involving coronavirus (COVID-19) in Scotland, week 21 (18 to 24 May 2020)

National Records of Scotland

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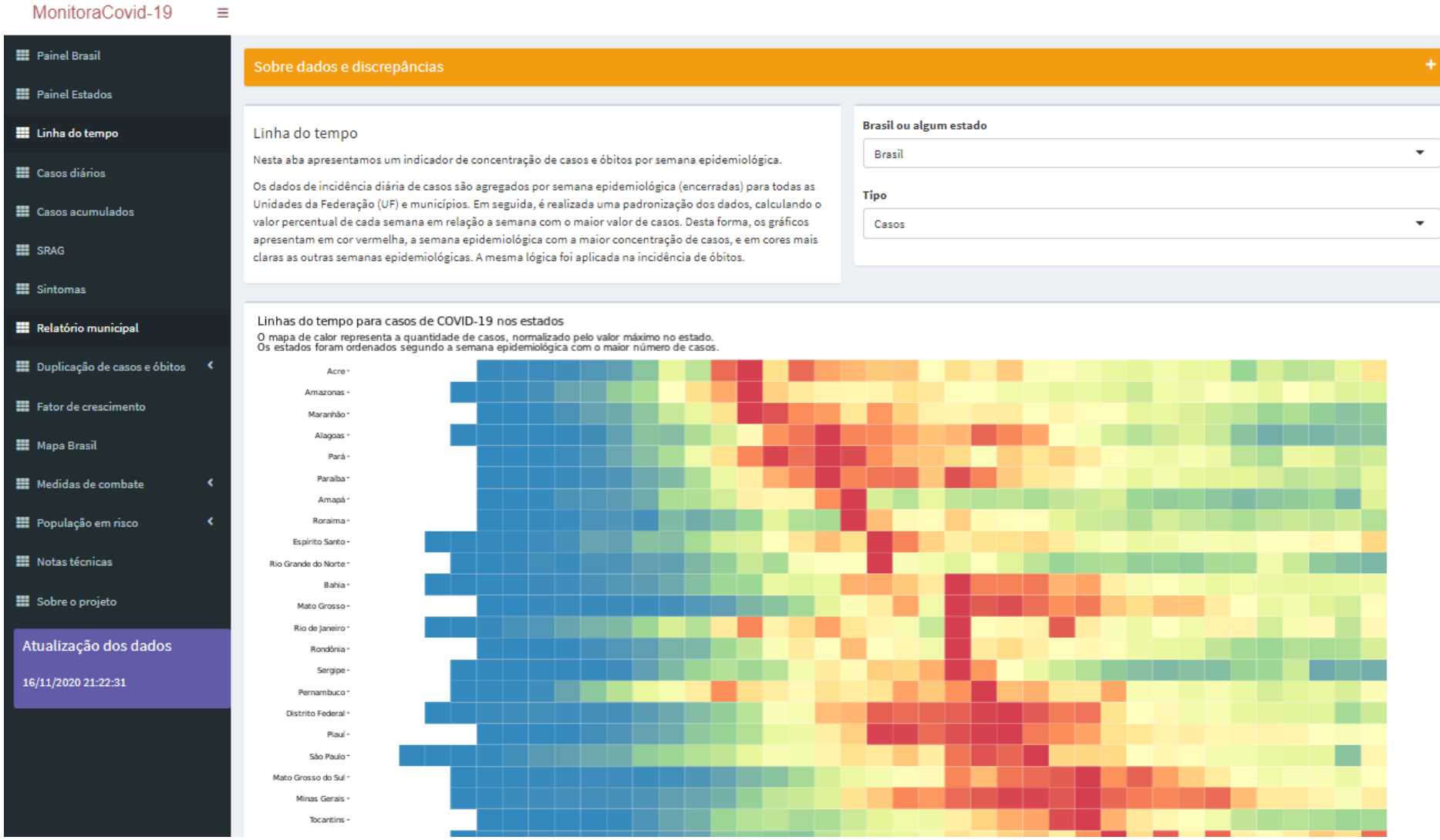

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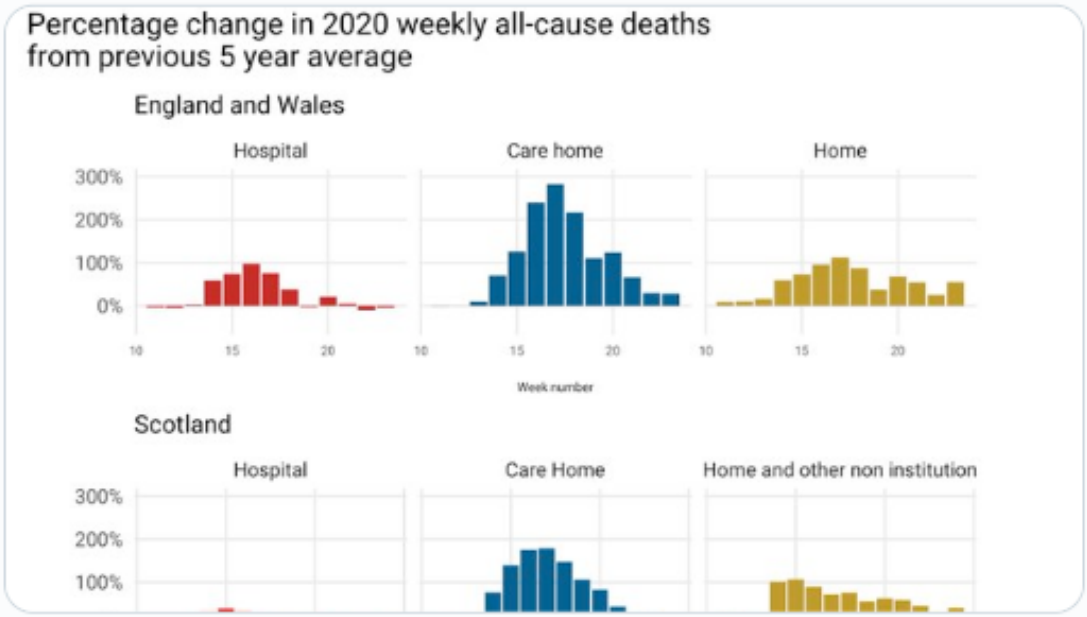
- My code has been adapted and used by:
  - Public Health teams in the UK
  - Official statistical agencies
  - International public health organisations
  - Other academics

David Henderson @_davidhen · 19h

For forthcoming @LTCcovid UK and international reports. A look at excess deaths by location of death and % change in each week compared to average of last 5 years across UK countries where available. Excess deaths at home still high in recent weeks.



1 10 8

David Henderson
@_davidhen

Big shout to @VictimOfMaths for code to wangle (very messy) E & W data....

1:26 PM · Jun 22, 2020 · Twitter for Mac

More good

- I've been invited to write blog posts and journal articles about my COVID work
- I've forced myself to learn and adopt *loads* of new skills and better coding and open science practices
- I've made *loads* of useful new contacts
- I've learned more about the vagaries of UK mortality data than anybody ever needs to know

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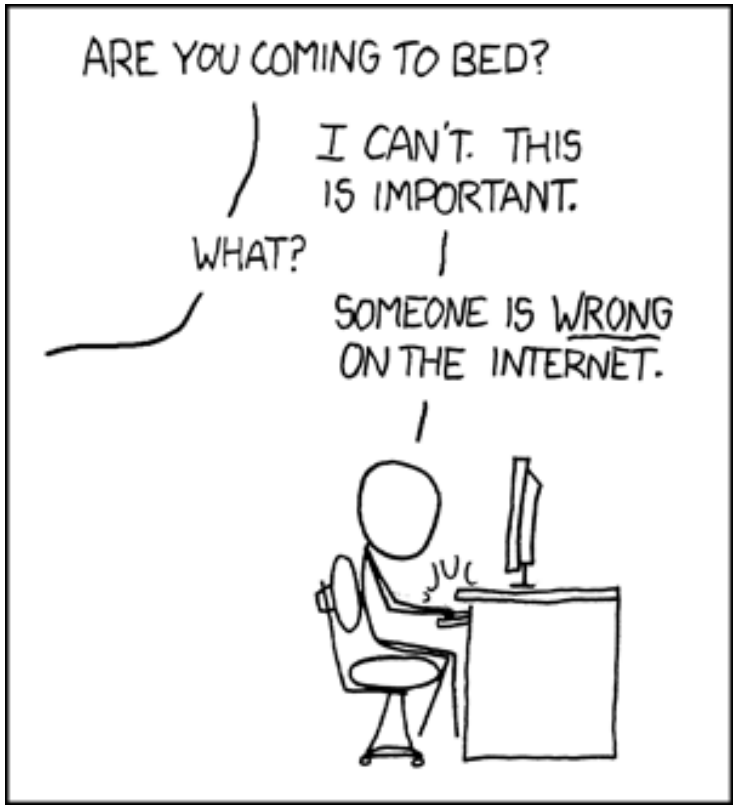
- The data landscape is always changing, so you constantly have to revisit and update things to keep them working
- The internet is full of lovely, helpful, creative people, but also plenty of strange ones with strange opinions

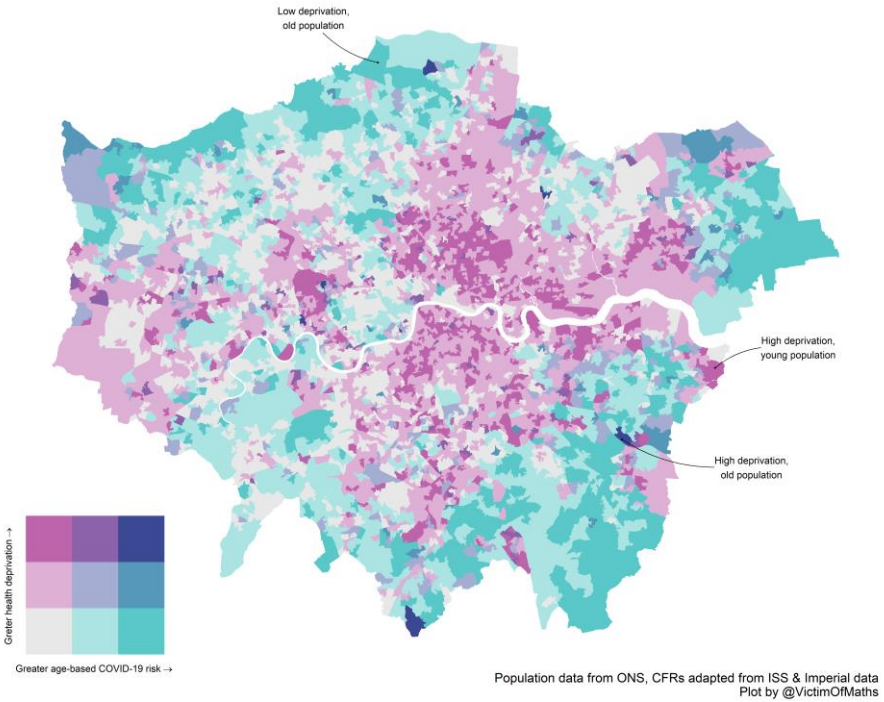
The bad



And the weird

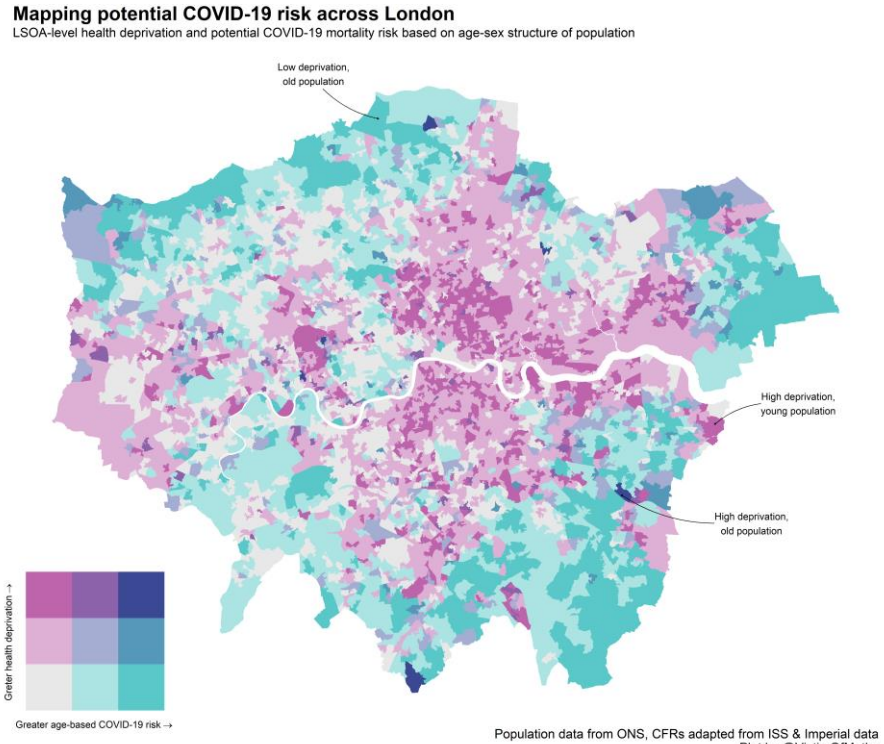
Mapping potential COVID-19 risk across London

LSOA-level health deprivation and potential COVID-19 mortality risk based on age-sex structure of population



Population data from ONS, CFRs adapted from ISS & Imperial data
Plot by @VictimOfMaths

And the weird



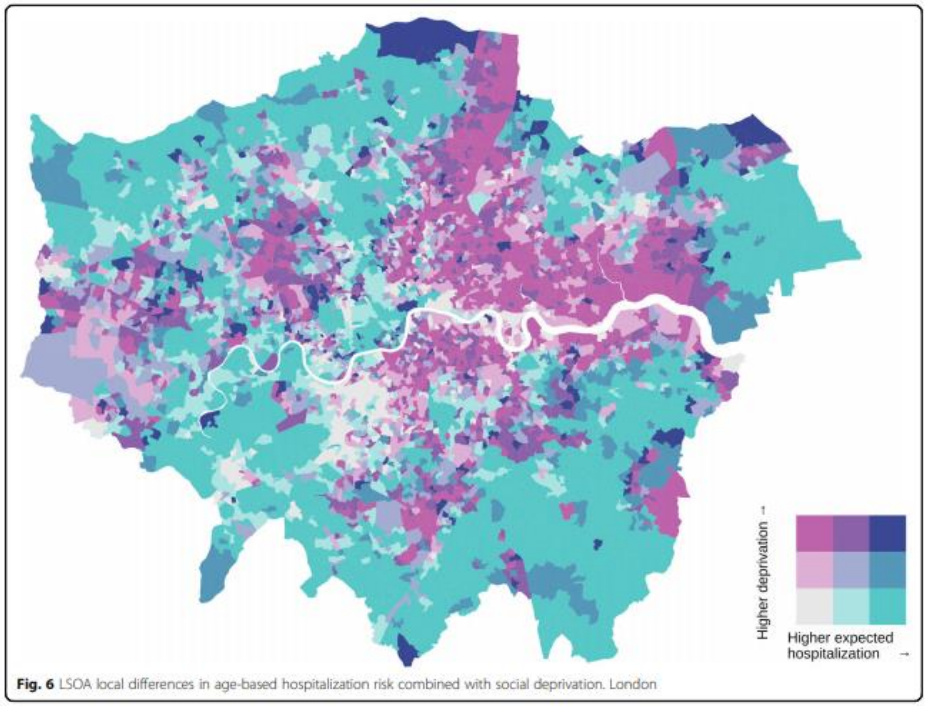


Fig. 6 LSOA local differences in age-based hospitalization risk combined with social deprivation. London

Verhagen *et al. BMC Medicine* (2020) 18:203
https://doi.org/10.1186/s12916-020-01646-2

BMC Medicine

RESEARCH ARTICLE Open Access

Forecasting spatial, socioeconomic and demographic variation in COVID-19 health care demand in England and Wales

Mark D. Verhagen[1*], David M. Brazel[1], Jennifer Beam Dowd[1], Ilya Kashnitsky[2,3] and Melinda C. Mills[1*]

What I've learned

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- …including chasing down bugs you'd missed…
- …and solving the ones you hadn't…
- …*and* do their own cool things that build on your work

What I've learned

- Archiving things on Figshare means that people can cite your work *and you can find out about it*
- Regular archiving of evolving work means you have a historic record of past versions

tl;dr

Open science can be a faff sometimes, but it's pretty great and we should all do more of it.

The University Of Sheffield.

Thanks for listening

c.r.angus@sheffield.ac.uk

@VictimOfMaths

VictimOfMaths