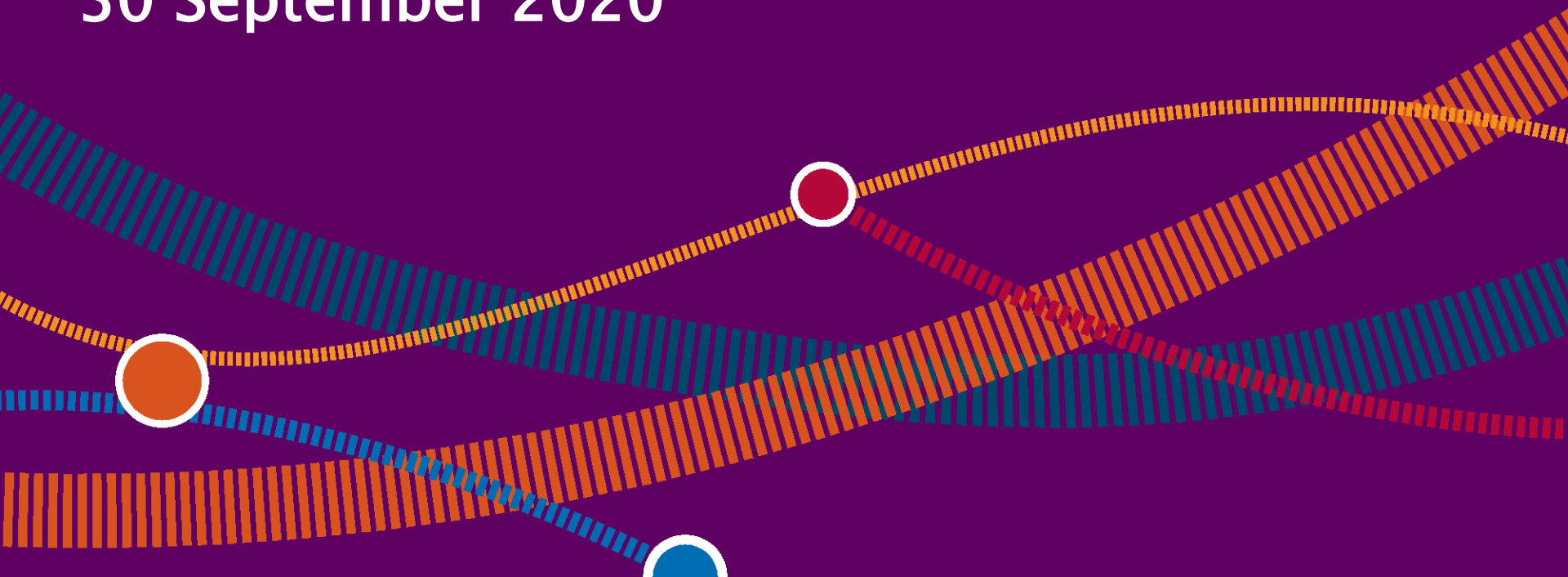
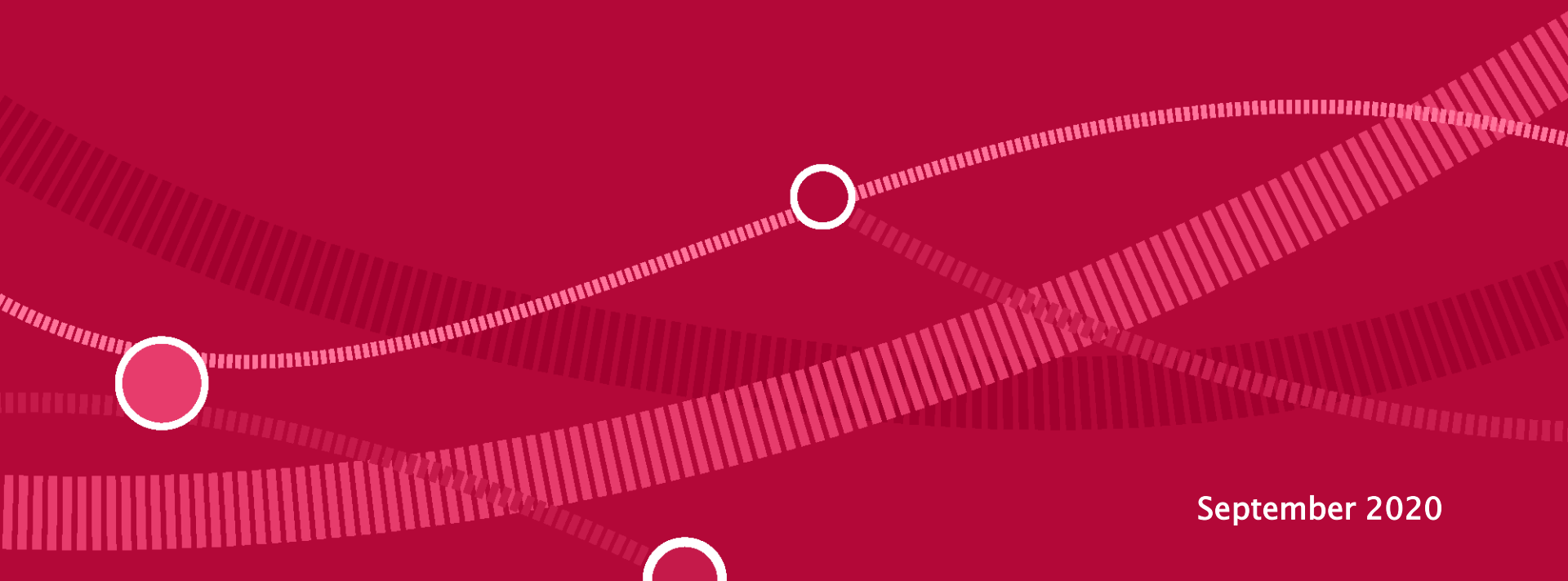
RSMG

30 September 2020



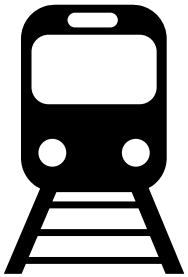
2019–20 Rail Safety statistics

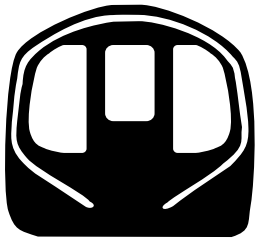
Lucy Charlton

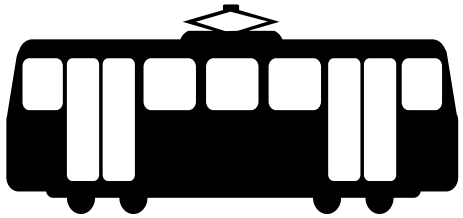


September 2020

What does the report cover?







It covers rail safety on:

- Mainline
- London Underground
- All others (trams, metro, light rail, minor and heritage)

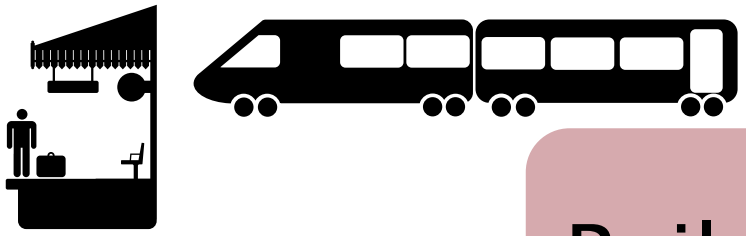
It covers April 2019 to March 2020. The Government advised against all unnecessary travel on 16 March, and guidance on staying at home on 23 March. These measures have had a minimal impact on safety data, but a big impact is expected in next year's report for 2020-21.

Link to report:

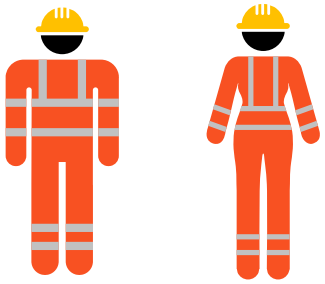
https://dataportal.orr.gov.uk/statistics/health-and-safety/rail-safety/

What does the report cover?

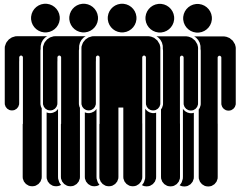
Passengers/people at stations or on trains



Workforce



Rail Safety



Members of the public

Level crossing users

What does the report cover?

Data covers:

- Fatalities, major and minor injuries to passengers/people at stations or on trains
- Fatalities, major and minor injuries to members of public (trespassers, suicide or attempted suicide, other members of public)
- Workforce safety (fatalities, major and minor injuries, shock and trauma)
- Train accidents including Potentially High Risk Train Accidents (PHRTAs) by different categories and if passenger train involved
- Level crossing incidents such as fatalities, misuse and near misses
- Passenger and public assaults

What's new for 2019-20?

- The release is longer than previous years (expanded from 9 to **25** pages)
- It previously focused on key data only, and a lot of data in accompanying tables wasn't mentioned.
- Now more data in included upfront along with definitions, saves people searching for data in tables or quality report.
- Has links to other safety data sources: RSSB, Transport for London, British Transport Police, Health and Safety Executive, ORR report in July
- The structure of report also needed to change due to **new accessibility guidance** which came into place September 2020. Very difficult to be accessible with lots of text boxes and contrasting colours.

Accessibility Guidance

Public sector websites launched on or after 23 September 2018 must meet accessibility standards (including publishing an accessibility statement).

Website deadline: 23 September 2020

Mobile applications deadline: 23 June 2021

https://www.gov.uk/guidance/publishing-accessible-documents

Common problems:

- Websites that are not easy to use on a mobile or cannot be navigated using a keyboard
- Inaccessible PDF forms that cannot be read out on screen readers
- Poor colour contrast that makes text or charts difficult to read
- No text description for graphs- needed for screen readers
- Text too small or inconsistent spacing

ORR Data Portal: User engagement survey

Implementation plan

Aruna Ramyead

September 2020

User engagement survey

A user engagement survey was conducted to gather feedback on the Office of Rail and Road's (ORR) new Data Portal. The findings were published on our User engagement page in July 2020.
Based on the comments received and other feedback/requirements we have implemented the following changes:

- Updated the data portal and all its contents (all pdfs and tables) to comply with new Web Content Accessibility Guidelines (WCAG).
- Rebranded, reformatted and made other changes to the style and content of our statistical releases, including adding key definitions as a list in the annex.
- Launched an improvement plan to review the content of all our statistical releases, factsheets, and quality and methodology reports.
- Simplified the table titles and aligned them with the new themes. This has also included renumbering (a look up of old to new number is published).
- Improved the usability of the data tables, e.g. removal of merged cells. We have started publishing all data tables in OpenDocument Spreadsheet (.ods) format rather than Excel. Other formats are available on request.

Implementation phase

We are now working on the longer term comments received in our user survey, alongside the recommendations from the Office for Statistics Regulation's compliance check. By the end of 2020, we aim to:

- Improve consistency across our statistical outputs – this includes reviewing our visuals (e.g. charts, PowerBI) and their suitability to ensure they are the most effective way of aiding users' interpretation of key messages and trends.
- Highlight to users in our statistical releases the impact of any data quality issues and/or key limitations so they better understand how the statistics should be used and interpreted. This will be supplemented with in-depth information in the associated quality & methodology report.
- Further improve the content of our quality & methodology reports by including more information on data governance arrangements and on our internal quality assurance processes.
- Investigate the use of HTML for publishing our outputs.
- Explore options for users to download the data from the PowerBI visuals.

Implementation phase

Other specific feedback we received included:

- *Publish a comparison of national and TOC performance on specific routes:* Part of this data is available in our Passenger rail performance statistical release, and in our periodic data tables, which is by region.
- *Make it easier to find related materials or reports and improve navigation:* There is already an external links page on the data portal and we will add to the list to make it easier for users to find other rail data, reports, etc. We can also signpost to open data feeds. In addition, we are adding an 'other related statistics' section to all our statistical releases.
- Following requests to publish more/new data we are investigating other data sources, however we may need to gain permissions from the data owners to publish, e.g. more detailed Origin/ Destination rail usage data, and sub-operator level data.

We have a separate improvement plan published for our Estimates of Station Usage statistics.

If you have any questions or would like to provide further feedback please email us at: rail.stats@orr.gov.uk

Assessing the risk of Covid-19 transmission on trains

Presented by Matt Hunt
19 November 2020

Infection spread modelling

Risk of infection per average passenger journey

=

Risk of infection per 'person contact'

Values derived from academic research papers

X

'Person contacts' per average passenger journey

Crowd simulation of train journeys

- Station layouts
- Platform depths
- Train types

Understanding of journey profiles

- Start/end
- Calling points
- Passenger numbers and fluctuation

X

Mitigating factors

Values derived from academic research papers

Values from new research on HVAC effectiveness

Risk of infection per person contact

Infection risk per contact

$$infection\ risk\ per\ contact = s\ \times \beta \times I \times (\sigma + (1-\sigma) \times \delta + (1-\sigma) \times (1-\delta) \times \mu)$$

s = The proportion of the population susceptible to Covid-19.

β = The chance of infection per contact given that one person in the contact has the disease

I = The proportion of people in the population infected with Covid-19 (ONS Data)

σ = Proportion of cases that are asymptomatic

δ = Proportion of time that an infection is pre-symptomatic

μ = Proportion of persons with symptoms not self-isolating

What is a contact?

Combination of time and distance. Using 1m distance bands and any contact length

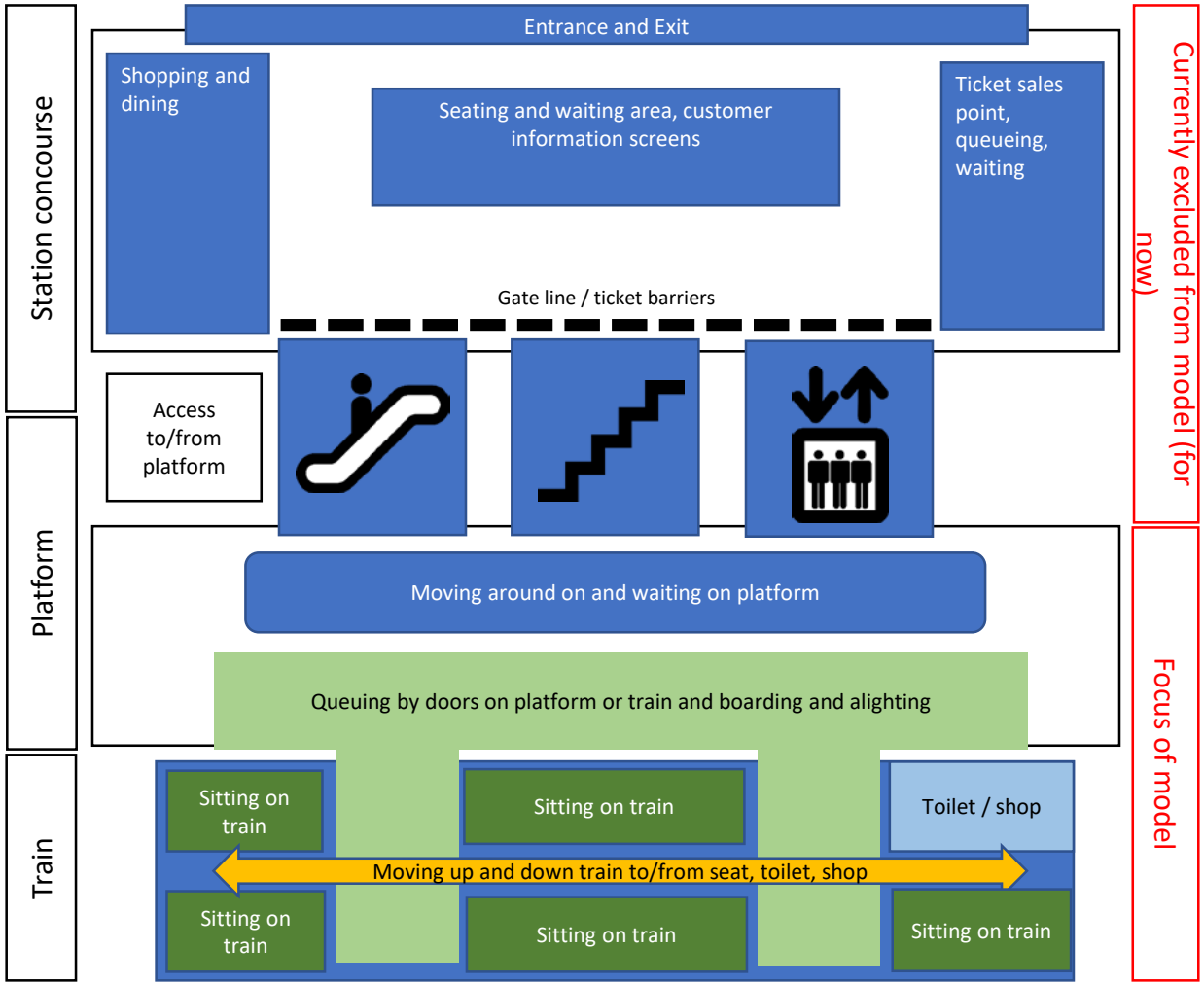
Infection risk per contact

Probability that a person is infected

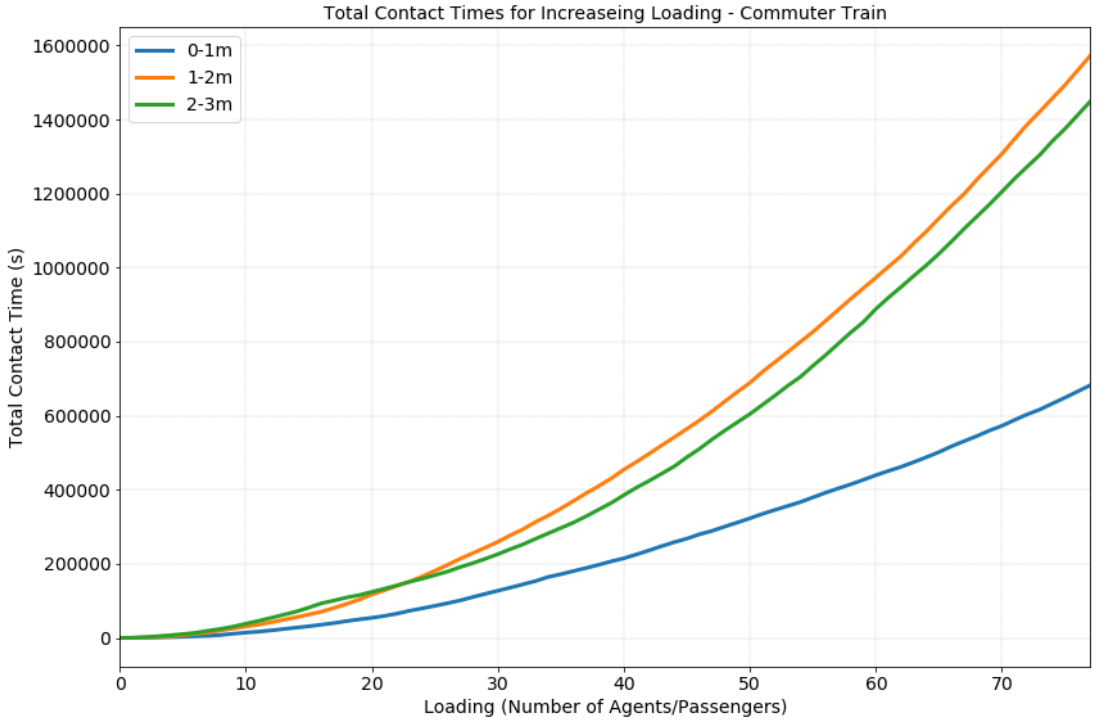
Probability that an infected person is travelling

Probability of becoming infected following contact

Person contacts per average passenger journey

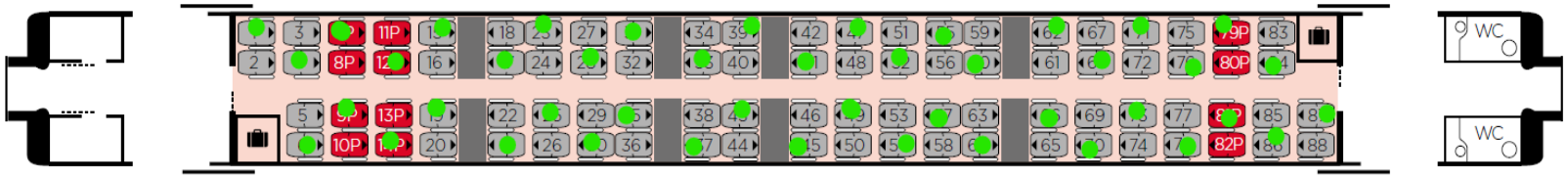

Station concourse
Platform
Train
Entrance and Exit
Shopping and dining
Seating and waiting area, customer information screens
Ticket sales point, queueing, waiting
Gate line / ticket barriers
Access to/from platform
Moving around on and waiting on platform
Queuing by doors on platform or train and boarding and alighting
Sitting on train
Sitting on train
Toilet / shop
Moving up and down train to/from seat, toilet, shop
Sitting on train
Sitting on train
Sitting on train
Currently excluded from model (for now)
Focus of model

Modelling contacts per journey



Example & next steps

Sample results – long distance journey



Contact time from demo journey

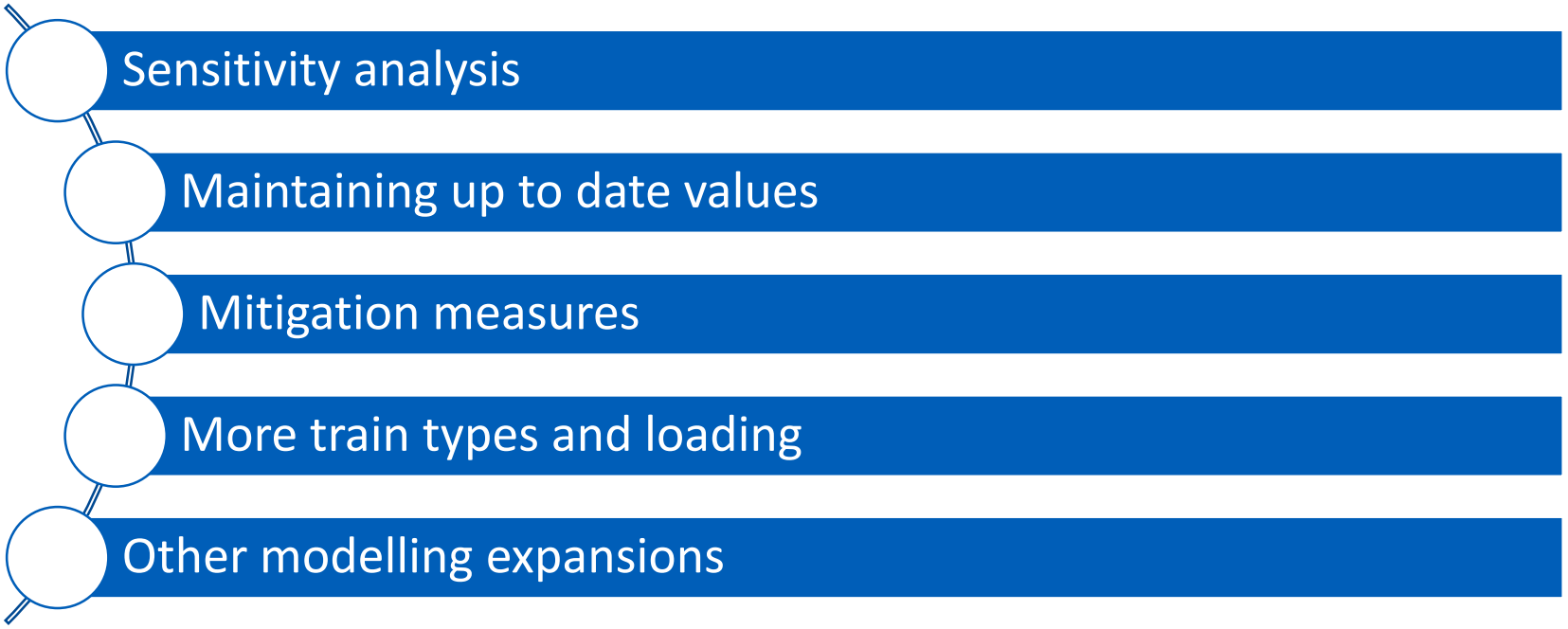
Distance range	0-1m	1-2m	2-3m
Time within distance range with any other person (minutes)	49.62	227.18	251.70

Infection risk per passenger

	Risk of infection per average passenger journey (based on demo model)	1 infection per # journeys
Without masks	9.03E-05	11068
With masks	5.06E-05	19765

Results are based on infection levels in GB in August 2020

Next steps


Sensitivity analysis
Maintaining up to date values
Mitigation measures
More train types and loading
Other modelling expansions

Where to find out more

https://www.rssb.co.uk/what-we-do/the-coronavirus-pandemic-how-we-can-help-you/infection-risks

Thank you

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