PsyMaptic

PsyMaptic Dashboard User Guide

Version 1, Last updated: 04-02-2021

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1. ABOUT THIS GUIDE

This guide provides information about how to use the PsyMaptic dashboard and get the most from the features and services offered on our website, www.psymaptic.org.

For technical and scientific details about the tool, readers are referred elsewhere, including:

- ➞ Public summary: www.psymaptic.org/welcome/public-summary/
- ➞ Scientific summary: www.psymaptic.org/welcome/scientific-summary/
- ➞ Detailed methodology: www.psymaptic.org/welcome/methodology/
- ➞ Peer reviewed scientific paper: https://doi.org/10.31234/osf.io/bvcgu

2. CITING THE PSYMAPTIC TOOL

Please cite the PsyMaptic tool in any reports, publications or related works as follows

(McDonald et al., 2021)

McDonald, K., Ding, T., Ker, H., Dliwayo, R., Osborn, D. P. J., Wohland, P., French, P., Jones, P. B., Baio, G., & Kirkbride, J. B. (2021). Forecasting population need for mental health care: a Bayesian methodology applied to the epidemiology of psychotic disorders to inform Early Intervention in Psychosis service provision in England. *British Journal of Psychiatry*, *In press*. https://doi.org/10.31234/osf.io/bvcgu

3. OVERVIEW OF THE PSYMAPTIC TOOL

PsyMaptic-A (Psychiatric Mapping Translated into Innovations for Care-Advanced) is a population-level prediction model for first-episode psychosis (FEP) care in England, informed by the epidemiology of psychotic disorders.

Our prediction model takes into account variation in risk of psychotic disorder by age group, sex, ethnic group, area level deprivation, social fragmentation and cannabis use to forecast the expected number of new (incidence) cases of psychotic disorder in different parts of England up to 2025. In addition to expected new caseloads of FEP arising annually, our model also predicts the additional new caseloads:

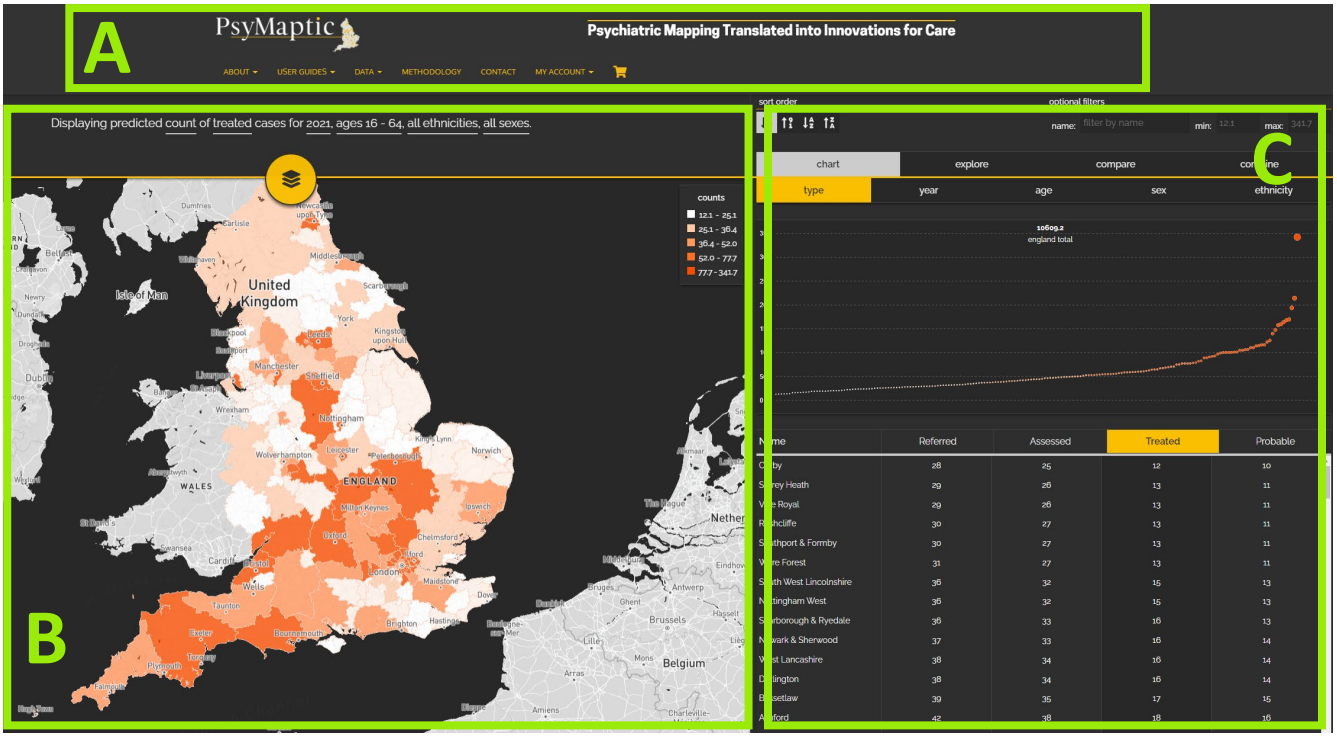
- ☑ Referred to EIP services for "suspected psychosis"
- ☑ Assessed by EIP services for potential acceptance onto the EIP caseload
- ☑ Treated in EIP services with a NICE-concordant package of care

These additional layers of prediction allow users to understand the likely additional need for assessment and treatment by people referred to EIP services with "suspected psychosis" each year, but who are likely not to meet International Classification of Diseases (10th revision) [ICD-10] criteria for a first episode psychotic disorder [F20-33]. Since these referrals will require triage, assessment and onward signposting to appropriate health services, prediction data at these levels allows service providers, planners and commissioners with indicative data of the extra resourcing required within EIP services, beyond a strict caseload definition of people treated for FEP.

Prediction data are made freely available on www.psymaptic.org under a Creative Commons CC-BY-SA licence, based on 2019 Clinical Commissioning Group boundaries. Prediction data are released on our website at CCG and national (England) levels by broad age group (16-64, 16-35, 36-64), sex and major ethnic group.

4. DASHBOARD INTRODUCTION

The interactive dashboard on www.psymaptic.org is organised into three main sections as displayed below, (A) the menu bar; (B) the map window; (C) the data window:

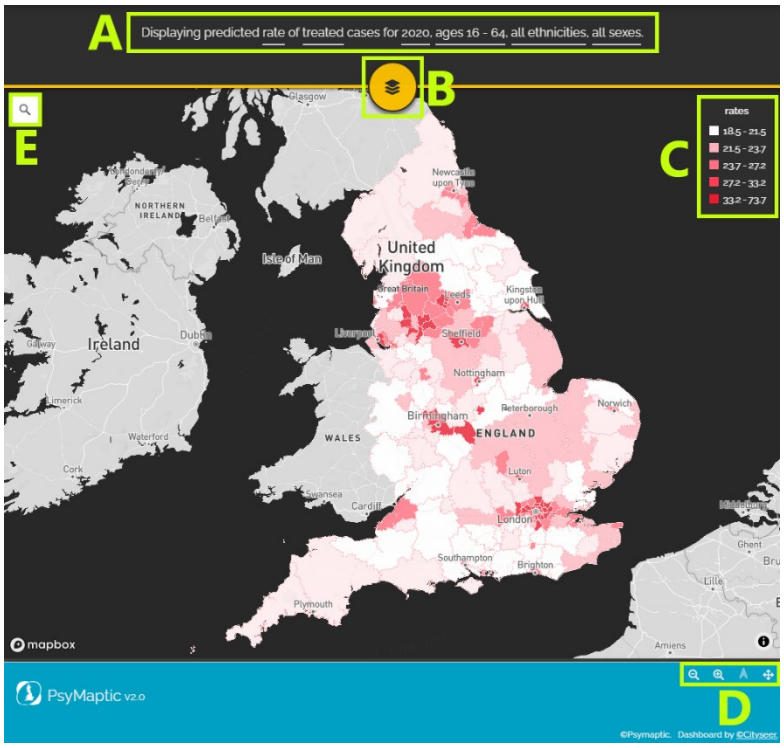


In the menu bar you will find links and navigation around the website. The map window provides an interactive map of the prediction data (see next section). The data window provides further interactive visuals of the prediction data. Further details of how to use each section are provided in this guide.

5. MAP WINDOW

The map window provides a cartographic visualisation of the prediction data.

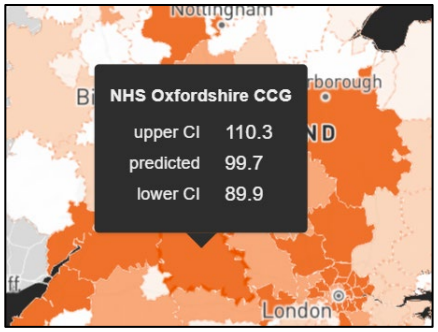
The **heading (A)** summarises the prediction data that is currently visualised. The default selection on the dashboard is predicted counts of new treated cases aged 16-64 for all sexes and ethnic groups for the current calendar year. You can click on the underlined words to change the current selection displayed on the map. This will bring up the same layers menu as you can find by toggling the **yellow layers button (B)** (see below).



A Labels for variables currently visualised. B Legend. C Button to view variable selection options. D Zoom and pan tools. E Search tool.

The interactive map displays the data selected. Hovering over any area (i.e. any given CCG displayed) will bring up a tooltip providing an overview of the selected prediction data for that CCG. It displays the estimate for that data ("predicted") and the statistical uncertainty around this estimate, expressed as a 95% confidence interval ("lower CI" and "upper CI").

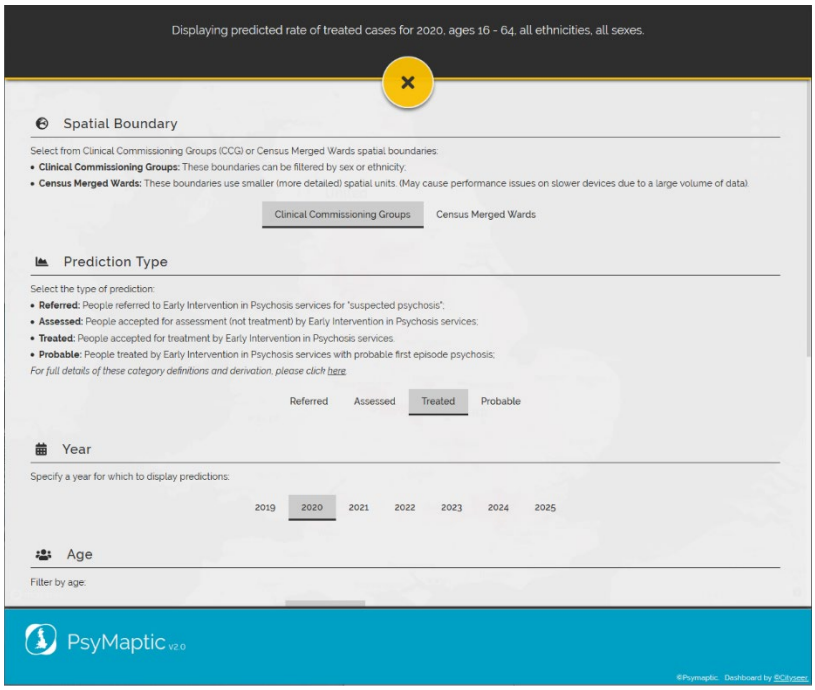
For example:



In the figure to the left, our model estimates that 99.7 new treated cases will occur within the population of the NHS Oxfordshire CCG for the default selection (all sexes, ethnic groups, aged 16-64 for the current calendar year; here, 2021). The confidence interval around this prediction is 89.9 to 110.3.

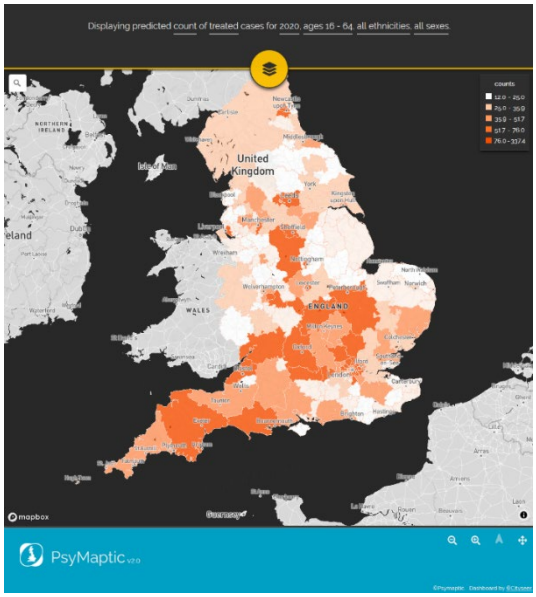
Clicking any area on the map will highlight more data for that selected area in the Data Window (see Section X for more information about the data window).

Selecting the **yellow layers button (B)** will open a window with more details about the available options to display in the map window (see the second figure in this section, below). It also includes definitions of key terms. Use this window to select the data that is visualised on the map. See Section 4 of this document for an overview of the different ways that the predictions data can be displayed.

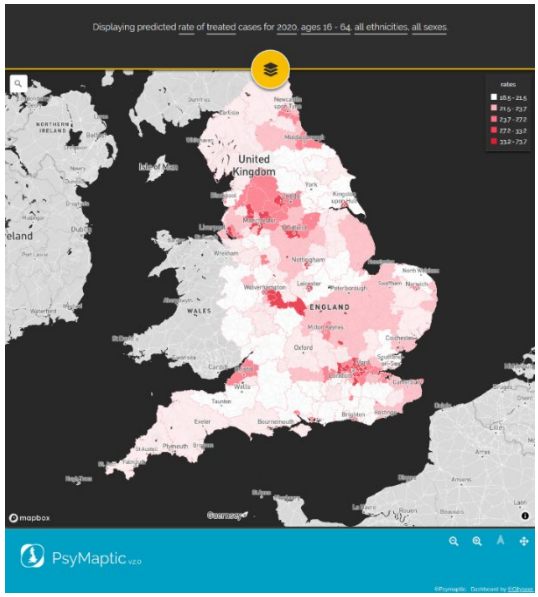


Variable selection window

Tip: the map colour scheme reflects the unit that has been selected; orange colours on the map indicate counts of new cases (i.e. raw caseload sizes for the selected data), and red colours indicate incidence rates (i.e. new caseload sizes per 100,000 people at risk for the selected data).



Visualising count data



Visualising rate data

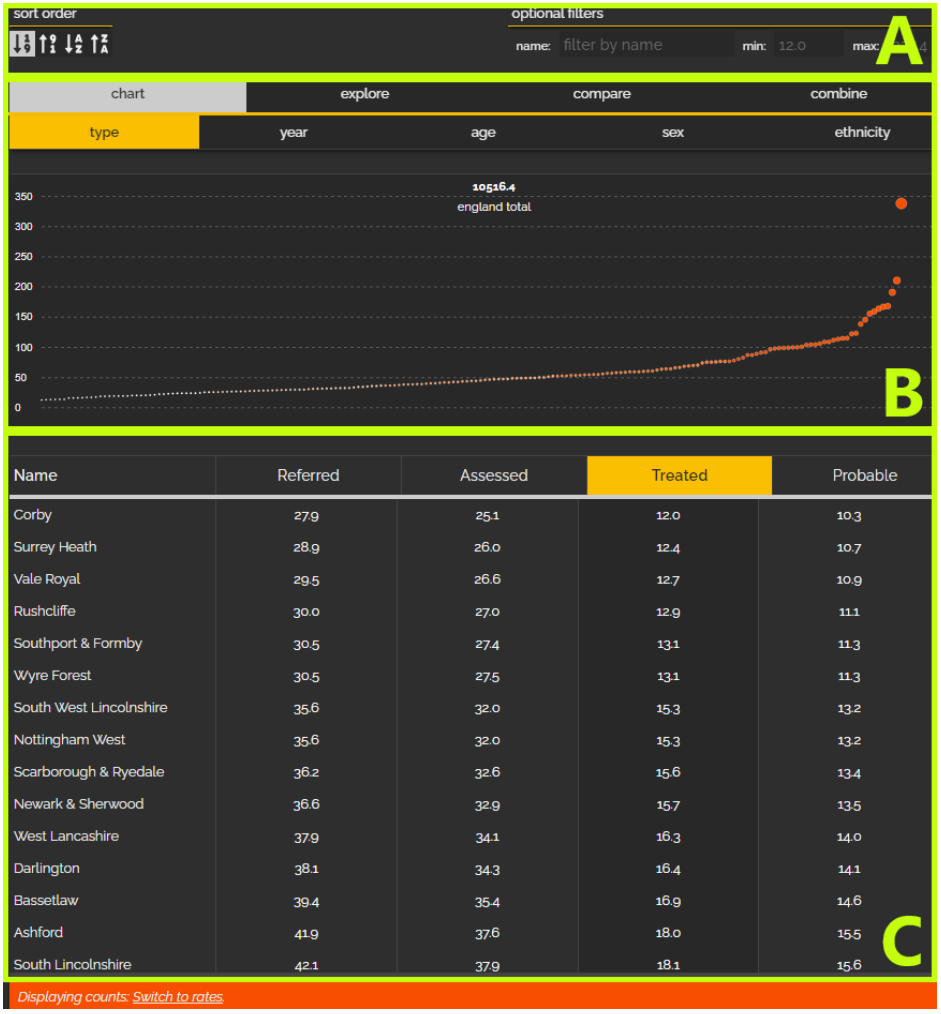
The **legend (C)** indicates the correspondence between colour and prediction values for the selected data.

The **zoom and pan buttons (D)** can be used to interact with the map by panning around and zooming in and out. This can also be done directly with the cursor.

Search for a specific area using the **search tool (E).**

6. DATA WINDOW

The data window to the right of the map provides more detailed information about selected prediction data. It is interactive and contains various features to inspect the data in more detail, as shown below. This panel consists of the **sort and filter tools (A), chart, explore, compare, and combine interface (B), and table window (C).**



A Sort and Filter Tools. B Chart, Explore, Compare, and Combine Interface. C Table Window.

6.1 SORT AND FILTER TOOLS

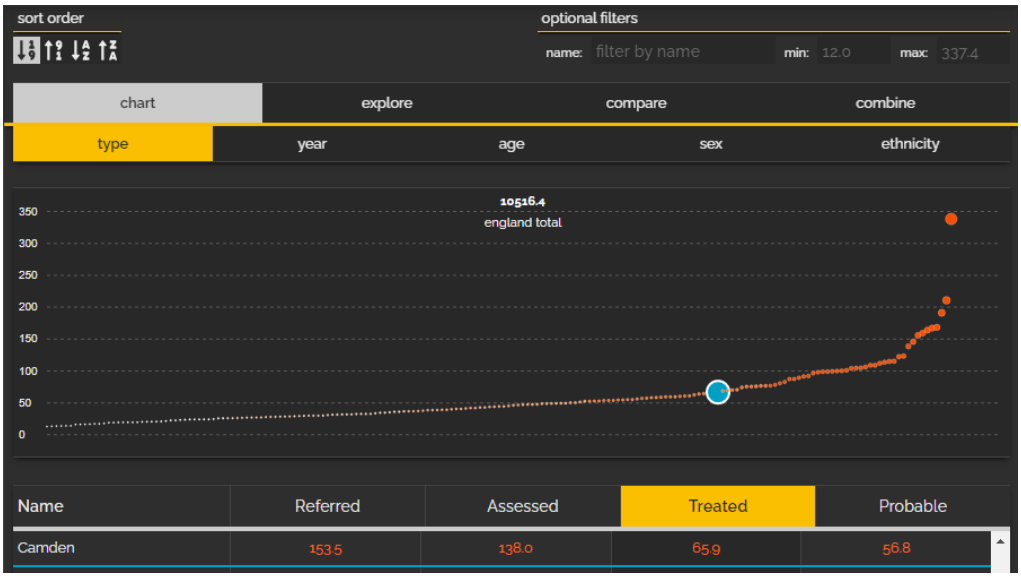
Sort the table numerically by predicted value or sort alphabetically by name. Add **optional filters** to view a subset of the data. Filter by name or minimum and maximum predicted values.

6.2 CHART, EXPLORE, COMPARE AND COMBINE INTERFACE

Use this interface to produce a **chart** of the prediction data for all areas, **explore** the prediction data for a selected area in more detail, **compare** prediction data from different CCGs, or **combine** prediction data from different CCGs.

6.2.1 CHART

The **chart** displays a histogram of the predicted value for any selected CCG (blue dot) in relation to the other CCGs and England (see below). The window offers different options for sorting the data (ascending or descending by predicted value or ascending or descending by CCG name). Optional filters can also be applied by inserting a specific CCG name or minimum and maximum predicted values.



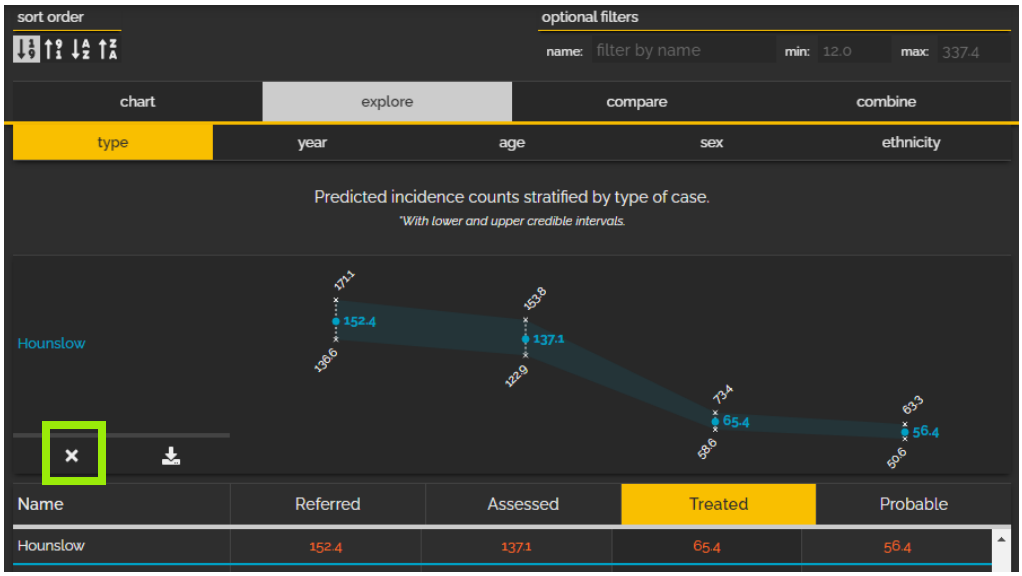
Displaying the predicted value for a single CCG in relation to the predicted values for all other CCG and the total for England.

6.2.2 EXPLORE

Use **explore** to view the selected prediction data separately by **type**, **year**, **age (16-64, 16-35, 36-64)**, **sex**, and **ethnicity**.

The blue dots represent the predicted values, and the white x's denote the upper and lower limits of the 95% confidence intervals. The user can reset the selection using the large X symbol in the bottom left corner (highlighted in green in the screenshot below) or by selecting a new area using the map window.

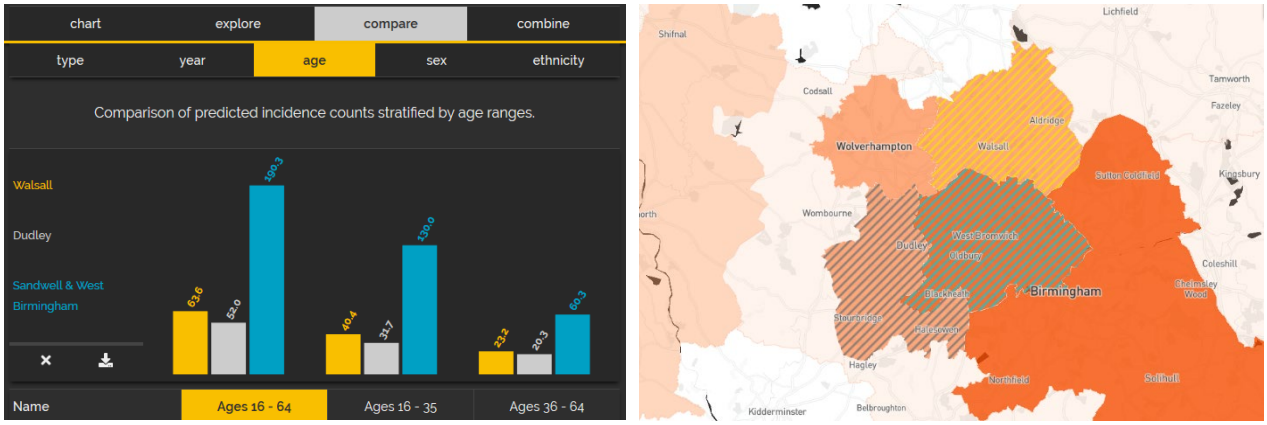
> **Tip:** In the current version of PsyMaptic, it is only possible to view the data broken down by ethnicity for men and women combined and not separately by ethnic group and sex.



Exploring the predicted counts of cases for a single CCG by type (referred, accepted, treated, probable FEP) of case. The figure shows the predicted value and 95% upper and lower interval limits.

6.2.3 COMPARE

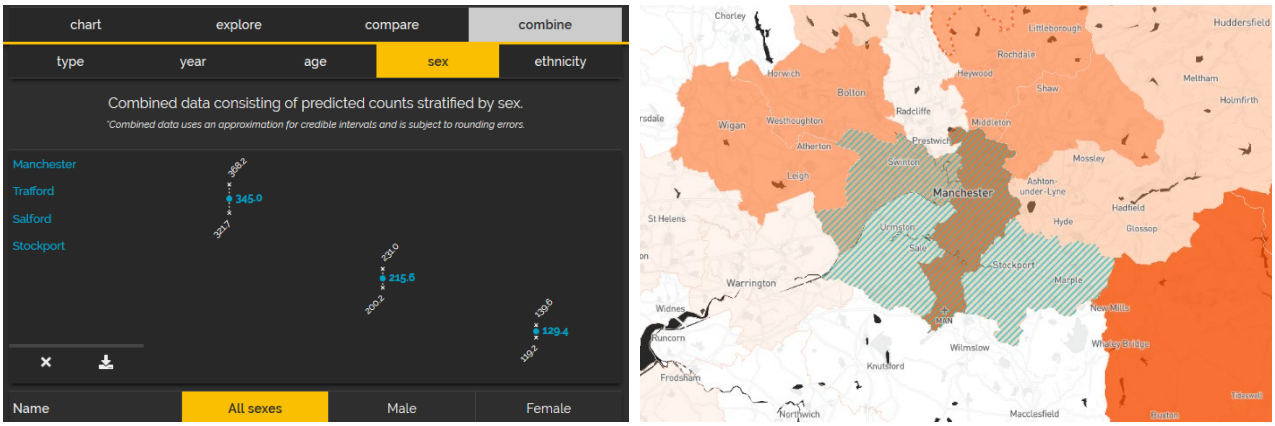
Select up to three CCGs (by clicking on the map or the table) and **compare** the selected prediction data for each CCG. Comparisons are visualised by a side-by-side bar chart. The subtitle in this section reports which data are currently being compared



Comparing predicted values for three CCGs by age group.

6.2.4 COMBINE

Combine predictions from multiple CCGs (by clicking on the map) and explore the combined data. Note that due to computational intensity, combined predictions use an approximation of the full 95% credible intervals provided with the downloadable data (see Section X for information about how to download the datasets) and should be treated as approximate intervals.



Displaying aggregated prediction data for a combined selection of four CCGs by sex.

6.3 TABLE WINDOW

The **table window** shows the prediction data for each CCG according to the data displayed (by type, year, age, sex or ethnicity). To change the data displayed in the table, first select the desired attribute from the top of the Data Window, here:

Each row in the table corresponds to a specific CCG, indicated by the name in the 'Name' column. Subsequent columns in the table correspond to the categories specified in the chart, explore, compare, and combine interface. Select a row in the table to zoom to that CCG on the map. Selecting a row will also populate the graph above, allowing the user to take a closer look at the data. In the screenshot below, the data is visualised by "ethnicity" in the selection bar above, and displayed by ethnic group as follows:

Name	All	Wh-Brit	Wh-Oth	Bl-Car	Bl-Afr	Ind	Pak	Ban	Mix	Oth
Corby	12.0	8.1	2.5	0.2	0.6	0.1	0.0	0.1	0.3	0.1
Surrey Heath	12.4	8.3	1.2	0.3	0.5	0.3	0.2	0.1	0.6	0.8
Vale Royal	12.7	11.4	0.6	0.1	0.1	0.1	0.0	0.0	0.3	0.2
Rushcliffe	12.9	10.2	0.5	0.3	0.2	0.5	0.3	0.0	0.6	0.4
Southport & Formby	13.1	11.1	1.0	0.1	0.1	0.1	0.0	0.1	0.5	0.2
Wyre Forest	13.1	11.4	0.5	0.1	0.1	0.0	0.1	0.4	0.4	0.1
South West Lincolnshire	15.3	12.9	1.4	0.2	0.1	0.1	0.1	0.0	0.3	0.3
Nottingham West	15.3	11.0	1.3	0.3	0.4	0.4	0.3	0.0	0.6	1.1
Scarborough & Ryedale	15.6	12.8	1.4	0.1	0.3	0.1	0.1	0.0	0.3	0.4
Newark & Sherwood	15.7	13.3	1.4	0.2	0.1	0.1	0.1	0.0	0.4	0.2
West Lancashire	16.3	13.9	1.3	0.1	0.1	0.1	0.1	0.0	0.5	0.2
Darlington	16.4	13.6	1.1	0.2	0.2	0.2	0.1	0.2	0.4	0.5
Bassetlaw	16.9	14.2	1.1	0.3	0.3	0.1	0.2	0.0	0.5	0.3
Ashford	18.0	13.1	1.6	0.3	0.5	0.2	0.0	0.1	0.8	1.4
South Lincolnshire	18.1	14.2	2.8	0.2	0.2	0.1	0.0	0.0	0.4	0.2

The table window displays predicted values for each CCG.

7. DISPLAYING THE PREDICTION DATA

The prediction data can be displayed in a number of different ways. The data visualisation can be customised according to **prediction type, year, unit, and demographic variables.**

7.1 PREDICTION TYPE

The data can be displayed according to four different prediction types: referred, assessed, treated, and probable FEP.

- **Referred:** People referred to Early intervention in Psychosis services for "suspected psychosis".
- **Assessed:** People accepted for assessment (not necessarily treated) by Early Intervention Psychosis services.
- **Treated:** People accepted for treatment by Early Intervention in Psychosis services.
- **Probable:** People treated by Early Intervention in Psychosis services with probable first-episode psychosis.

7.2 YEAR

The data can only be visualised for a single year at a time, ranging from **2019 to 2025**.

7.3 DEMOGRAPHIC VARIABLES

There are three categories of demographic variables upon which the data can be displayed:

- **Age:** 16-35; 36-64; 16-64.
- **Sex**: male; female; all sexes.
- **Ethnicity**: White British, Irish, Gypsy and Traveller; White, other; Black Caribbean and Black, other; Black African; Indian, Pakistani; Bangladeshi; Mixed ethnic background; all other ethnicities; all ethnicities.

7.4 UNIT

The data can also be displayed in either counts or rates.

- **Count:** total number of predicted cases per year.
- **Rate:** total number of predicted cases per 100,000 people per year.

💚 **Tip: Counts provide the raw count of cases for the given selection predicted by our model for the year selected. Rates provide this data expressed per 100,000 people at-risk.**

Counts and rates have different uses depending on your purpose. Both are useful for service planning. The count provides information about future caseload sizes, the rate provides information about how frequently FEP occurs for every 100,000 people in a given year.

A worked example:

CCG "A" has a predicted caseload of 100 new FEP cases per year, aged 16-64. CCG "A" provides healthcare for a population aged 16-64 of 50,000 people. The count of new cases per year for CCG "A" is 100. The rate at which these new cases occur in CCG "A" is 200 new cases per 100,000 people per year.

CCG "B" also has a predicted caseload of 100 new FEP cases per year, aged 16-64. However, CCG "B" provides healthcare for a population aged 16-64 of 200,000 people. The count of new cases per year for CCG "B" is also 100. But the rate at which these new cases occur in CCG "B" is 50 new cases per 100,000 people per year.

Both CCGs have the same expected new caseload per year. But the rate at which these cases occur is 4 times quicker in CCG "A" than CCG "B".

The following list provides examples of how all of the above variables can combine to display a specific subset of the predictions data:

- Rates of referred cases by CCG in 2022 for white British males aged 16-64
- Counts of probable cases by ward in 2025 for females of all ethnicities aged 36-64
- Rates of treated cases by ward in 2019 for Indian individuals of all sexes aged 16-35

8. DOWNLOADING DATA

There are two main ways to download the prediction data from www.psymaptic.org: via our **datastore** or directly via the **visualisation dashboard**.

Tip: We recommend using the datastore to download data for most user purposes

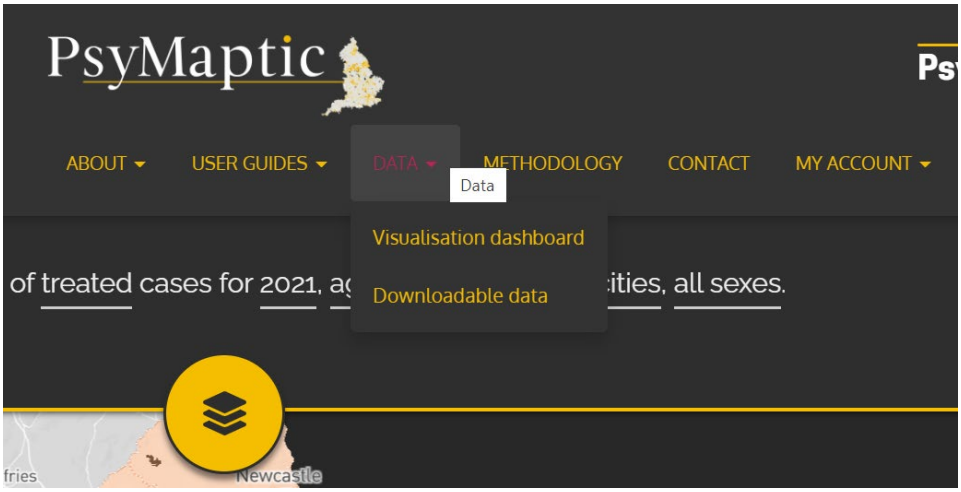
8.1 DATASTORE

To download our prediction datasets, our bulk downloading facility enables the user to download several datasets required for their purposes.

All datasets downloaded during the bulk downloading process contain data for each major age group (16-64, 16-35, 36-64), by sex and by major ethnic group as default, and include the point estimate of the count or rate estimate and the 95% confidence interval around this estimate. Datasets can be downloaded at CCG-level (all CCG in England) or as national (England) summaries.

To begin bulk downloading, follow these steps

From the menu bar, navigate to the **Downloadable Data** page:

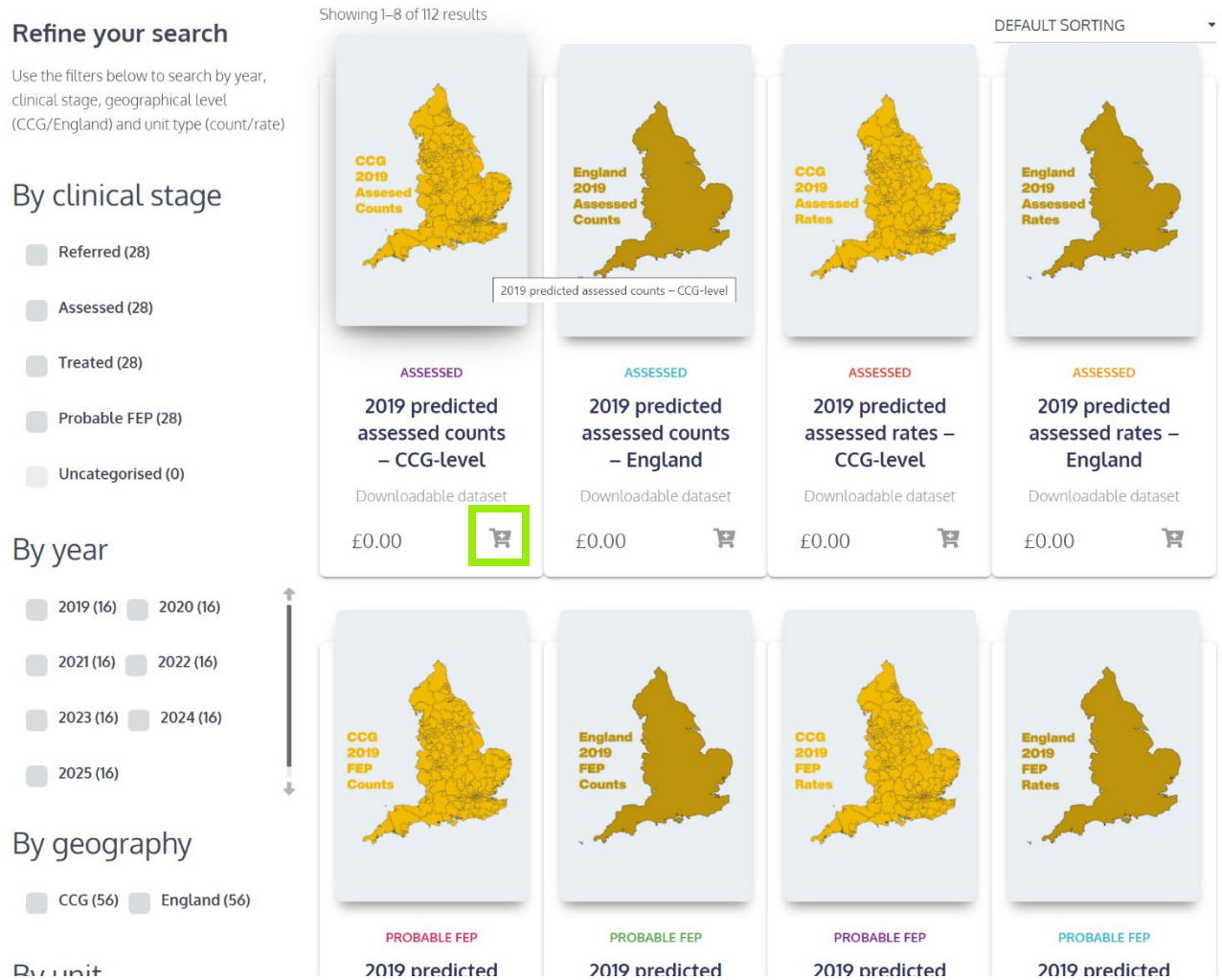


The **Downloadable Data** page contains a brief overview of the data available to download on our website. Once you are familiar with what data are available, click on the **Click Here To Access Our Datastore** to begin downloading via the datastore.

Our Datastore works exactly like many online shops. You select the data you would like to download, add it to your cart and checkout. At checkout we ask you to confirm acceptance of our terms and

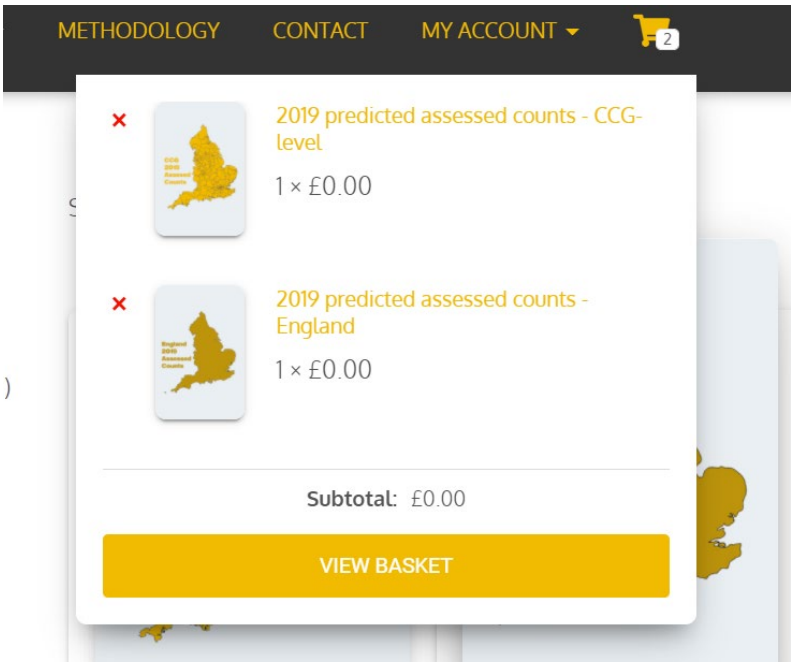
conditions for using the data (see Section X for further details). Once you have checked out, the data are available in your user account, where they are saved for future use.

The basic features of the Datastore allows you to quickly select the data you require, as follows:



Select the features under **Refine your search** to narrow your search. To add a dataset to your cart, you can click on the cart button (🛒) for the selected dataset, as shown in green above. You can also click on each dataset to get more information about that dataset and add it to your cart from that page.

Once a dataset is added to your cart, the system will show you this briefly in the cart pop-up as follows:

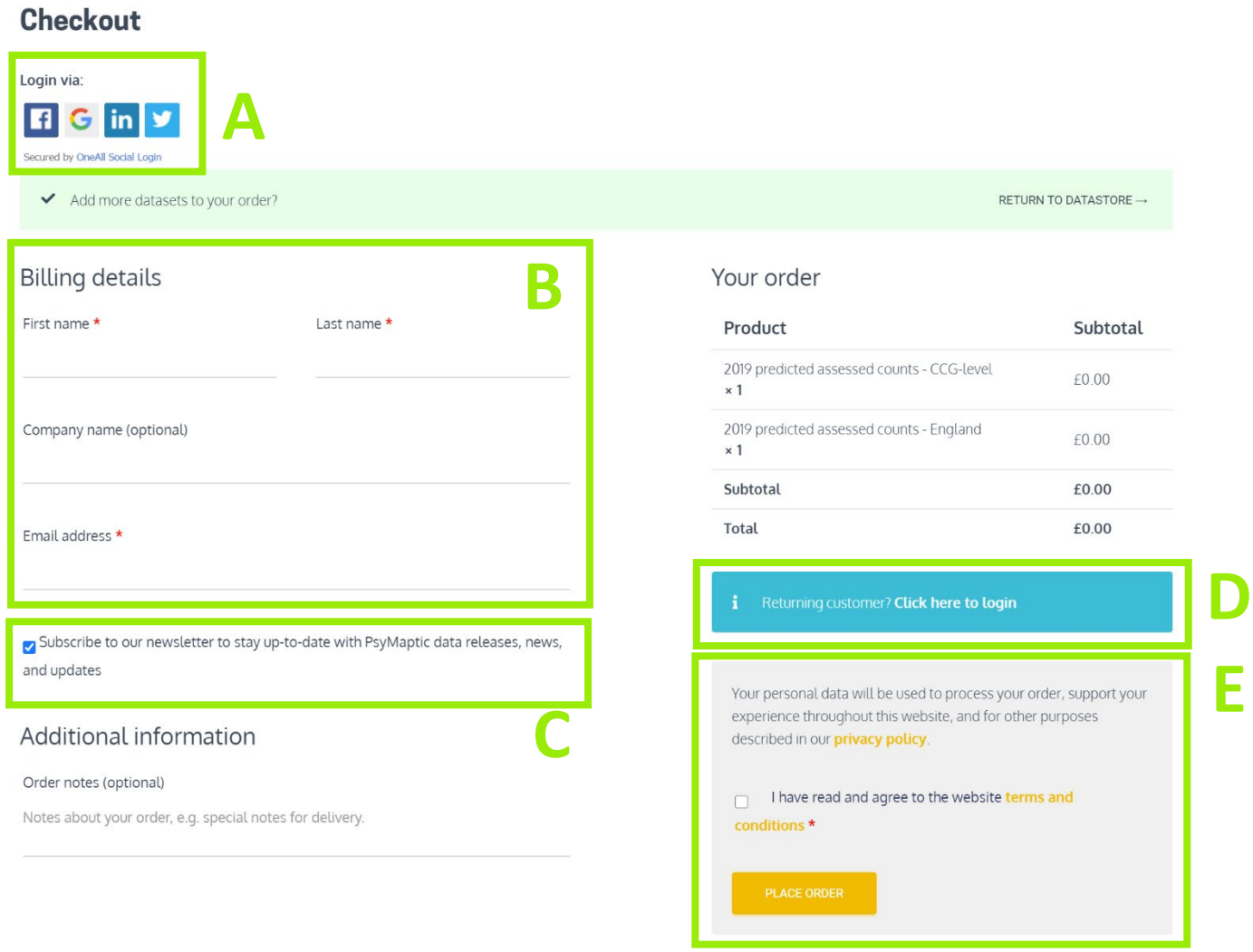


When you are ready to checkout, either click the **View Basket** button on click on the **Cart** in the menu window  . This will begin the checkout process.

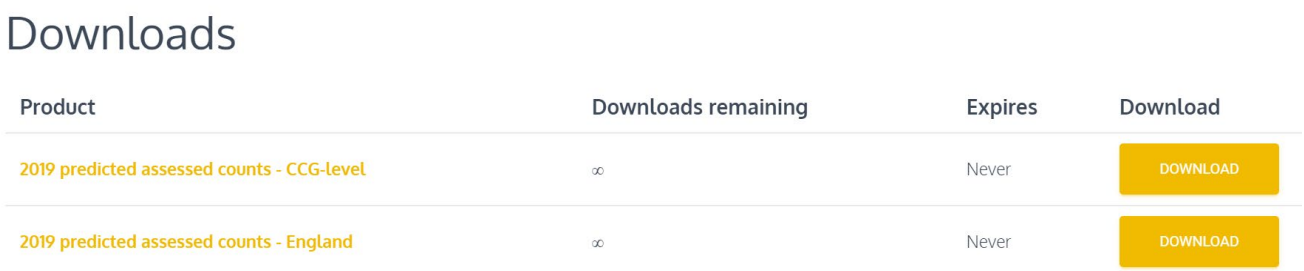
Proceed through the checkout process.

During checkout you will be asked to create an account or login if you have an existing account. For your convenience, you can securely login using an existing Facebook, Google, LinkedIn or Twitter account profile **(A, screenshot overleaf)**. Once logged in, please complete any missing details in the "Billing details" section **(B, screenshot overleaf)**. If you would prefer, you can create your own unique psymaptic.org account by entering your details in the "Billing details" section (note no payment details are ever required) **(B, screenshot overleaf)**. Please note, new users can optionally choose to be added to our PsyMaptic mailing list **(C, screenshot overleaf)**, to be kept up to date with the latest news and data releases on PsyMaptic.org. Returning users can also log-in during the checkout process **(D, screenshot overleaf)**.

When you place your order **(E, screenshot overleaf)** you will be asked to confirm you accept our terms and conditions (see Section X for further details).

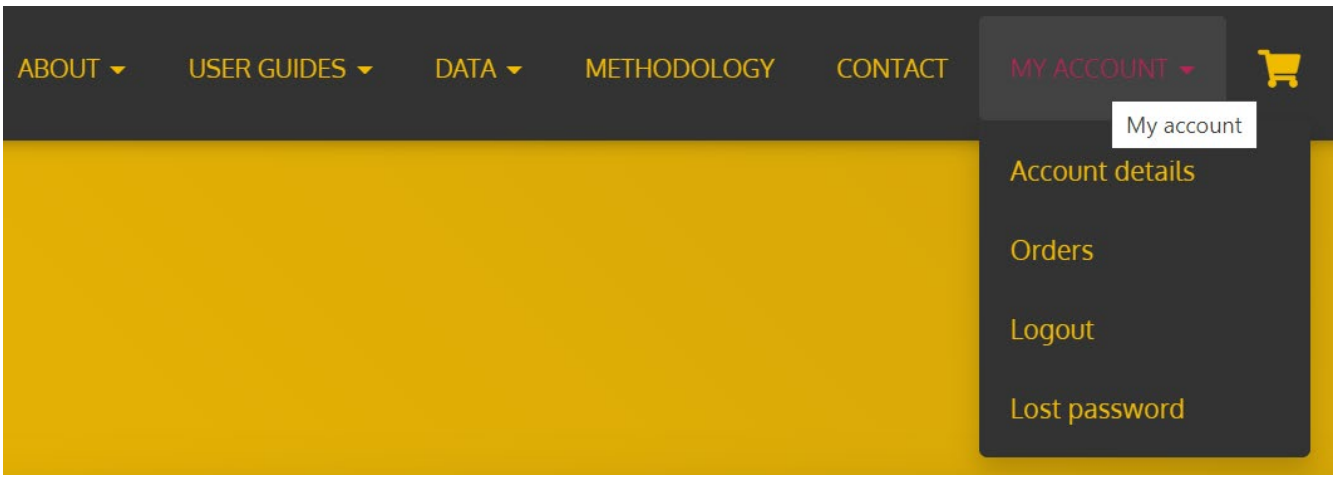


After placing your order, you will be redirected to your account page which confirms your order and provides you with a download link to your data, as follows



Tip: All data downloaded via the Datastore are in .xlsx format

Once logged in you can also manage your account details from the **My Account** section of the menu window:



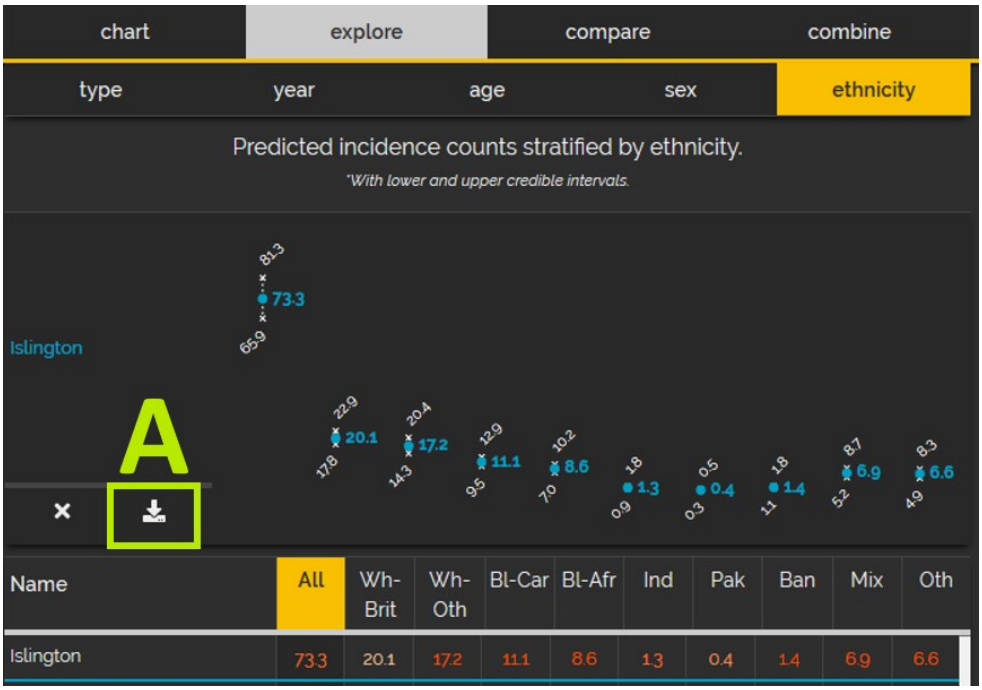
8.2 DOWNLOADING VIA THE VISUALISATION DASHBOARD

A second method of downloading data, directly from the visualisation dashboard, is available on www.psymaptic.org. In most cases, we do not recommend this method and encourage you to use the Datastore method described in Section 8.1.

Downloading via the visualisation dashboard is useful when you wish to download customised data for bespoke analyses (such as having combined or compared data for a subset of CCGs for bespoke needs). In such scenarios, downloading the selected data via the visualisation dashboard allows you to download the combined or compared predictions and appropriate 95% confidence intervals in a way not provided in the Datastore.

Once you have selected your desired data on the dashboard, to download it proceed as follows:

The selected data can be easily downloaded in .csv format by clicking on the highlighted button (labelled **'A'** in the image below). The filename of the .csv dataset will indicate the variables that were selected to display the data.



Download the selected data in .CSV format by clicking on the highlighted button.

9. TECHNICAL REQUIREMENTS

For best results, please use a desktop or laptop computer when visiting www.psymaptic.org. Screen resolution should be set to a minimum of 1024 x 736 pixels to optimise all features of the visualisation dashboard described in this guide.

Users viewing the platform at lower resolutions may see a “lite mode” warning displayed.

The visualisation dashboard on www.psymaptic.org was developed by Cityseer.io and is powered by Mapbox. The main website is powered by Wordpress and was developed by the PsyMaptic research team.

10. LICENCING

By viewing, downloading and using our data you agree to abide by the CC-BY-SA and agree to our Disclaimer, Privacy Policy and Cookie Policy, as detailed on our website.

- ➡ Disclaimer and license details: www.psymaptic.org/disclaimer/
- ➡ Privacy policy: www.psymaptic.org/privacy/
- ➡ Cookie policy: www.psymaptic.org/cookie-policy/

11. FAQ

What is a 95% interval and how do I interpret it?

This 95% interval reflects the range of plausible values for the prediction. A 95% interval indicates a 95% probability that the predicted value will fall within the given range, given the observed data. These intervals can be interpreted as the degree of certainty or uncertainty in a prediction. A larger interval reflects greater uncertainty and a smaller interval reflects less uncertainty.

Can I use this platform on a mobile device or iPad?

Yes, you can use this platform across devices of all size, however full functionality is only available for larger devices. The platform enters 'lite' mode for mobile devices and those with small screens (<1024 pixels width). On lite mode, you can only use the Map Window (and not the Data Window). Mid-size screens, such as for smaller laptops, do not display the Graph Window within the Table Window.

Does this platform work across all major browsers (eg. Chrome, Firefox, Edge, Safari)?

Yes.

12. CONTACT

You can contact the team in the following ways:

- 🖇 Via the website: www.psymaptic.org/contact/
- 💬 On Twitter: www.twitter.com/psymaptic
- 📩 Via email: info@psymaptic.org

The team was led by Dr James B Kirkbride in the Division of Psychiatry at UCL. You can find full details about our team at www.psymaptic.org/welcome/team/