atmolytics

Apps

User Guide v2.66

imosphere

Contents

The Apps

More Information About Apps and Reports

1   About this guide

Reports are created within Atmolytics using a simple, intuitive, step-by-step process which begins once you select the **App** you wish to use:

Step 1: Who	Which patients do you want to report on?
	Chapter 15 gives a full explanation
Step 2: What	What settings do you wish to use to produce your report?
	Refer to the chapters for each App for full explanations
Step 3: Where	Which sources or locations do you want the report data to be drawn from?
	Chapter 17 gives a full explanation
Step 4: When	Do you want to report on data from a particular period of time?
	Chapter 18 gives a full explanation

The first part of this guide is where you'll find specific information about each App, and information about the reports each App generates. Every App is described in detail, with references and links to other relevant parts of this guide.

The Apps that are available to you may vary depending on your organization's Atmolytics implementation, and your own user permissions.

The second part of this guide gives detailed information about the process of using Apps to specify, generate and work with reports. Many features of this process apply to all our Apps, so we've gathered the information into one place. This section covers much of the same ground as the **Report Definitions and Outputs Guide**, but we've included it here for easy reference.

2   A note about terminology

Because Atmolytics is fully configurable, different organizations may use different terms to describe the individuals and events they are working with, and these will be reflected in the Atmolytics screens. For example, one organization's **patients**, **encounters** and **reports** may be another organization's **service users**, **admissions/visits** and **explorations**. Your organization may use different terminology in their implementation of Atmolytics.

In this user guide, we've used the terminology **patients**, **admissions/visits**, **Apps** and **reports** throughout.
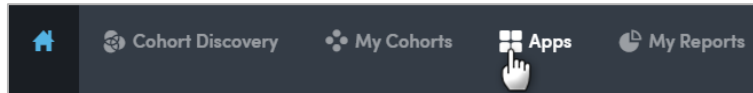
We refer to the 'start' area of Atmolytics (found by clicking the icon) as the **Home** area.
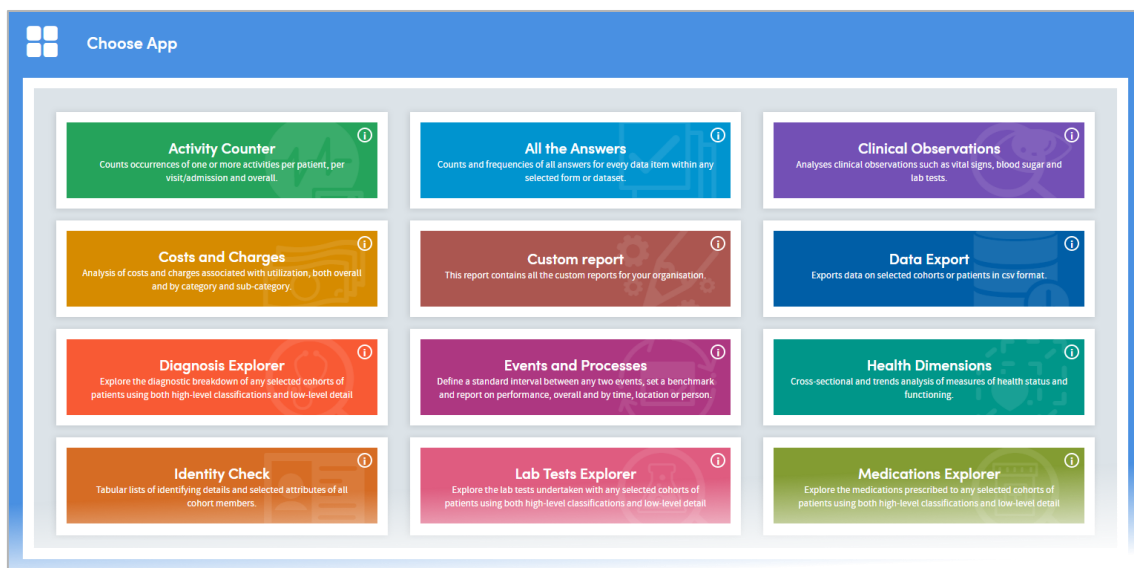
3   Finding and selecting an App

There are several ways of accessing and selecting Apps in Atmolytics:

3.1   Accessing Apps via the top menu bar

The simplest way to access Apps from anywhere in Atmolytics is to click **Apps** in the top menu bar:

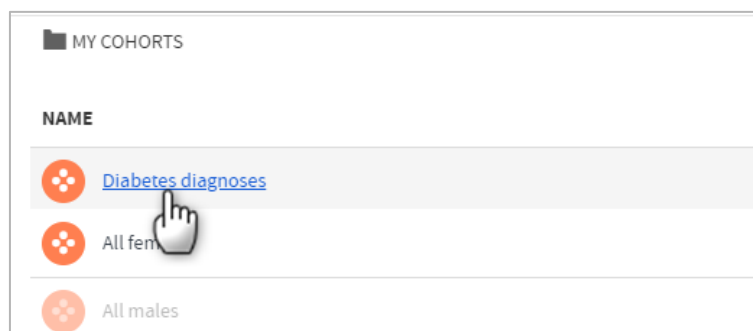You will be taken to the **App selection** screen:

If you click the information symbol on the top right of each App name, you can see a summary of the features and uses of that App. Click any App to open it and go to the first step of the report creation process.
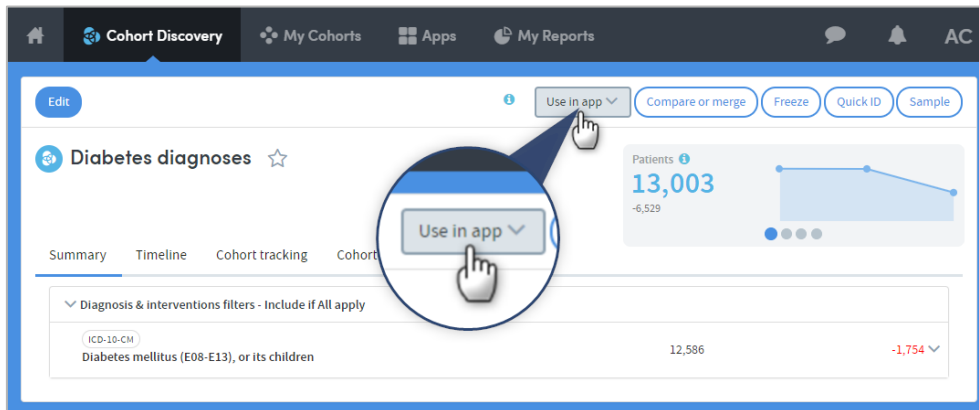
3.2   Accessing Apps via My Cohorts

If you are working with cohorts, you can select a cohort and jump straight to the App you want to use.
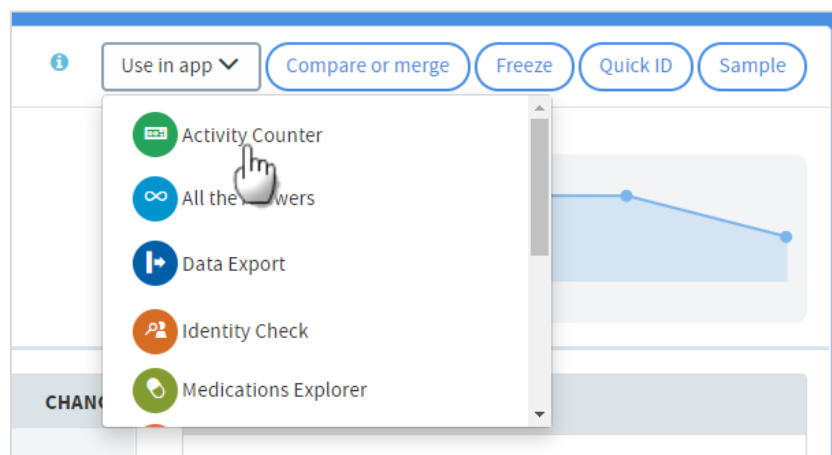
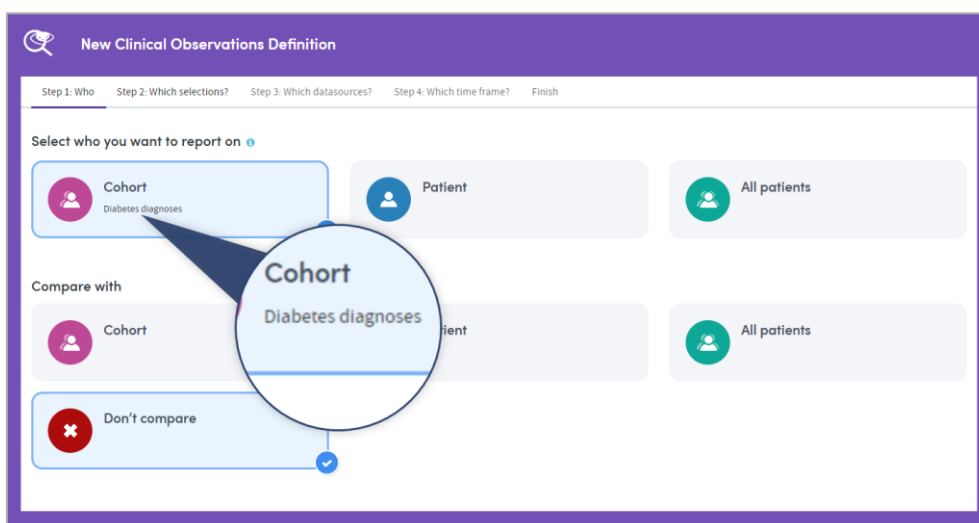On the **My cohorts** screen, click the name of a cohort:

You will be taken to the **Cohort details** screen. Click the **Use in app** button on the top right:

Select the App you wish to use from the drop-down list:

You'll be taken straight to the first step of the report creation process for the App you have selected. Your cohort will already be included as part of the report:
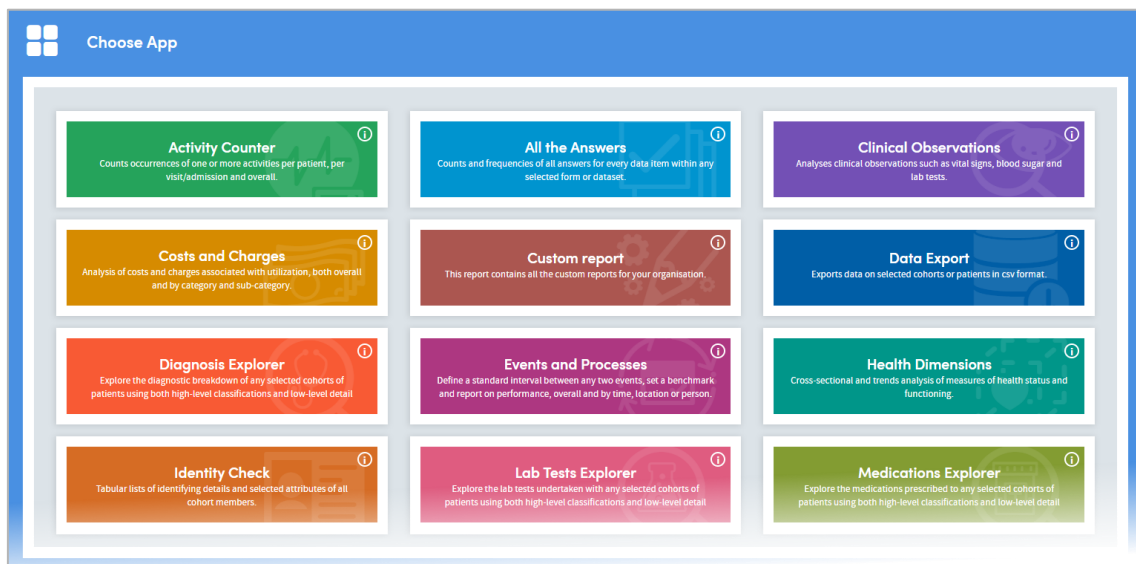
3.3 Accessing Apps via My Reports

If you are viewing or working with existing reports in the **My Reports** area, you can access the Apps by clicking **Create new** on the top left of the page:
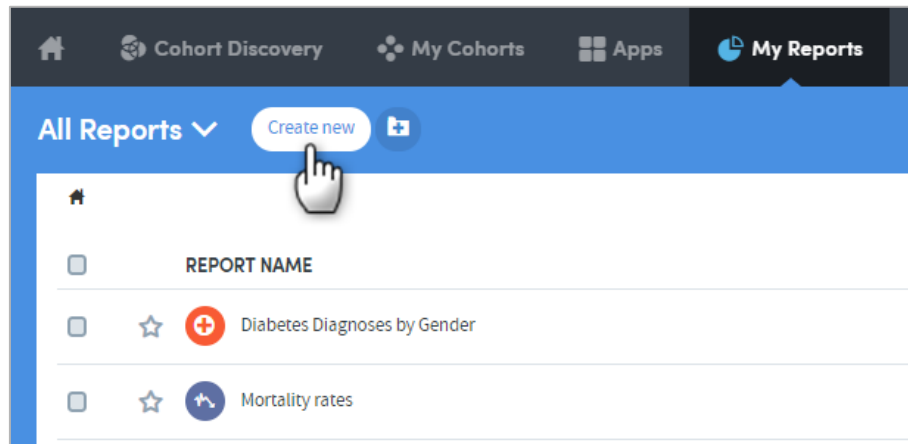
You will be taken to the **App selection** screen:


If you click the information symbol 🛈 on the top right of each App name, you can see a useful summary of the features and uses of that App. Click any App to open it and go to the first step of the report creation process.

4   Activity Counter

This App provides frequency counts of activities, the number of patients for whom an activity was undertaken, and the number of admissions/visits during which the activity was undertaken. Any number of activities may be counted within a single report. For example:

- How many care plans have been produced this quarter.

- How many risk assessments were undertaken last month.

- How many face-to-face contacts have taken place with a team or department.

- How many patients had blood sugar readings during their admission/visit.

Below is a sample section of an Activity Counter report output:
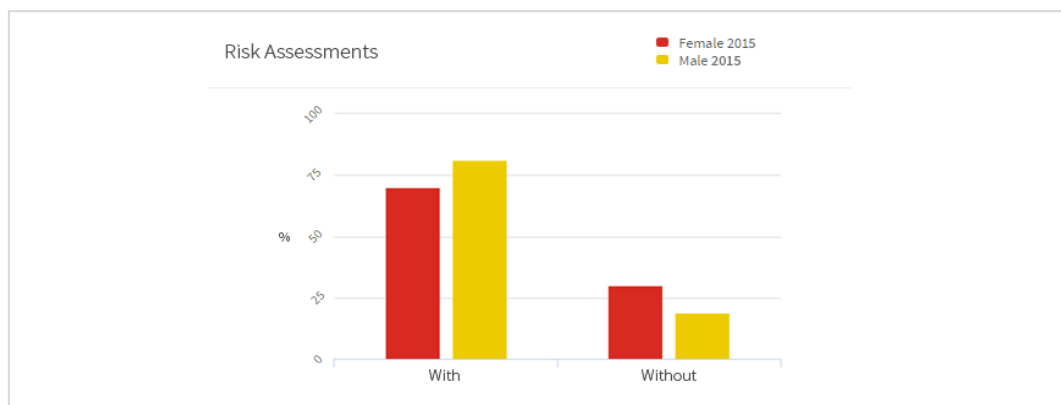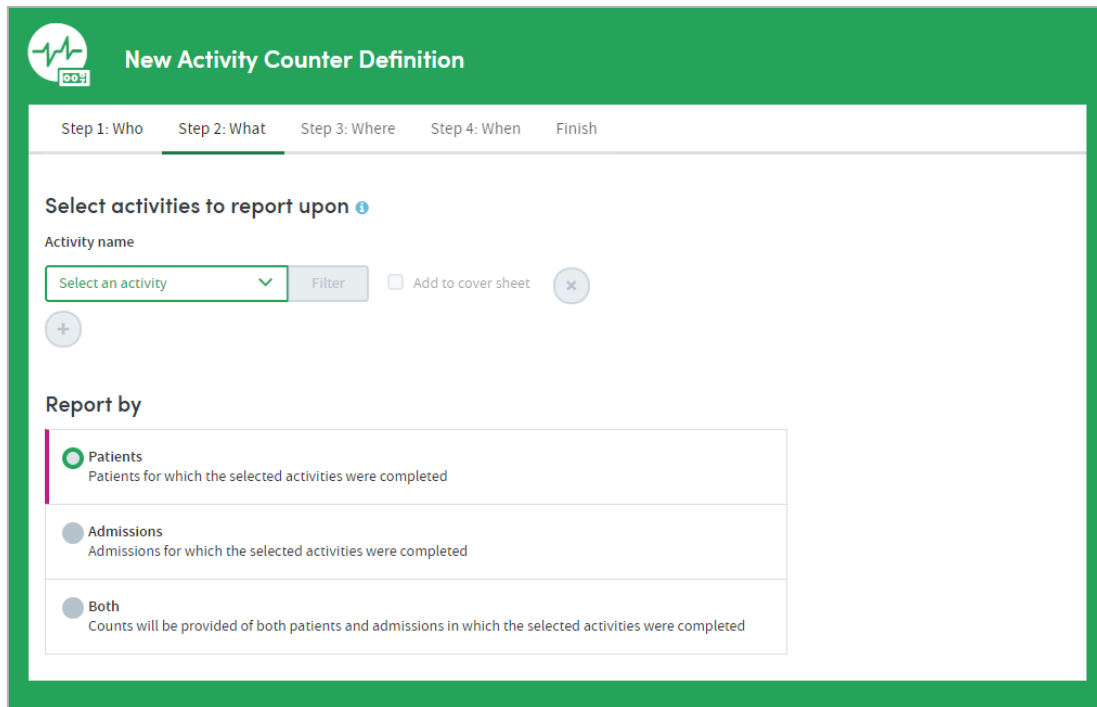

Its features allow you to:

- Count occurrences, patients and admissions/visits in which the activity occurred.

- Highlight items of most interest on a cover sheet.

- Create a subgroup of patients for whom an activity either did or did not occur.

- Check whether differences between cohorts are statistically significant.

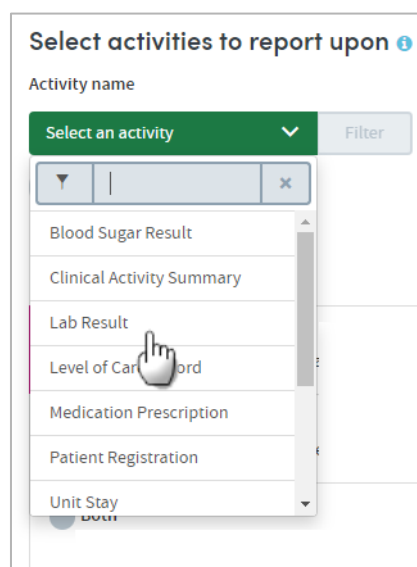- Toggle between counts and percentages.

4.1 Report creation

To create an Activity Counter report, select the App via one of the methods described in chapter 3. Follow the **Who** step (see chapter 15) to choose the patient(s) and cohort(s) you wish to report on and click **Next**. You will arrive at the **What** step for this App, where you have several options:

4.2 Select activities to report upon

You can select any number of **activities** for inclusion in the report. Choose from those available to you by clicking **Select an activity**:

There are two ways to identify and select activities: by simply choosing from the drop-down list, or by searching.
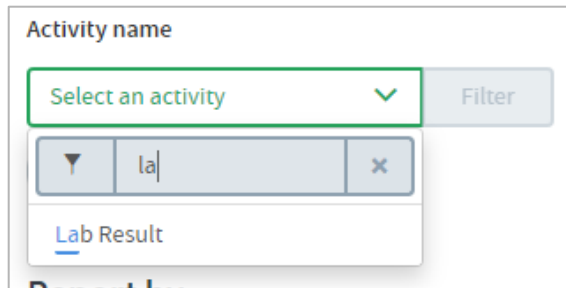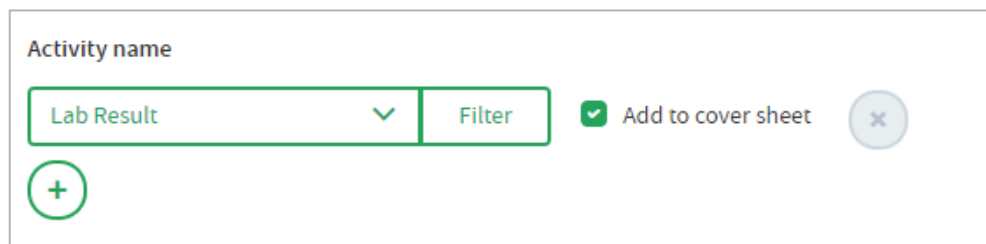
4.2.1 How to search for activities

Start typing your search text into the grey text box:

The list below will dynamically display all the activities containing your search text, wherever it appears in the name:

Once you've found your activity, click the text of the activity name to select it for inclusion in the report. The activity name will be displayed on screen:

Click the **+** button to add another activity to your report.

Click the **X** button to remove an activity.

4.2.2 Add to cover sheet

Every report output has a **cover sheet** which shows a selection of the full report results. You may select up to four activities to include on the cover sheet, and you must select at least one, using the tick boxes.

4.3 Filtering your chosen activities

You can add further filters to your report criteria if you wish, to narrow down the data included in your report. For example, you may want to report on the number of HGB lab results in your cohort(s). To do this you'd first choose the **Lab result** activity (as shown above). Next, click the **Filter** button next to the activity you've chosen. You'll see a pop-up screen similar to the one in the example below:

Click the drop-down arrow to **select a question from the list** (in this case, the **Lab test** item). If you prefer, you can search for the item instead of browsing the list. Enter the search text in the grey text box. Either way, click the item to select it.

Every selection has three elements:

- The **data item** or question, e.g. Lab test
- An **operator**, e.g. Equal to
- The **answer**, e.g. HGB

Make your selection from the drop-down lists. In the example above we have selected **Lab test > Equal to > HGB** as a filter.

Click the **X** on the right if you want to remove a filter after you have set it.

At the bottom of the panel there are two buttons, **Include** and **Exclude**. Choose whether your report should **include** or **exclude** the filter criteria, by clicking one of these options. Once you've done that, your filter will be applied, and you can add more filters if you wish.

If you want to create several **Include** filters, click **Add another** to add more filter items, before clicking the **Include** button. The same applies to the **Exclude** option.

4.3.1   Viewing and working with your filter selections

The number of filters you have created can be seen next to **Your selections** towards the top left of the panel:

You can view and, if applicable, make further decisions about how your filters are applied in the **Your selections** tab:
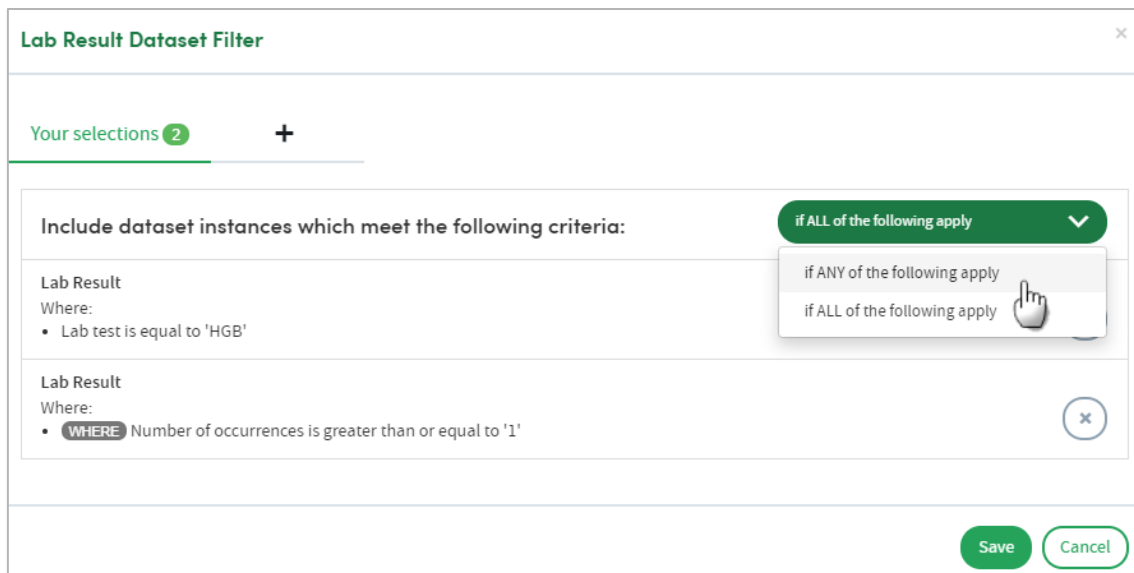
Click the white down-arrow to choose whether to select patients who meet **ANY** of the criteria or **ALL** of the criteria. This can be selected separately for both inclusions and exclusions.

Click the cross to remove a filter from your selections.

4.4   Report by

Choose which counts you want to appear in the report. You can include **Patients**, **Admissions/visits**, or **Both**. If you choose both they will appear as separate graphs in the report.

4.5   Completing the report

Click **Next** when you're happy with your selections.

Follow the **Where** (see chapter 17) and **When** (see chapter 18) steps to complete the report definition process.

See chapters 19 and 20 for information about naming, generating and viewing your report.

4.6 Report outputs: Cover sheet

The cover sheet displays up to four activities. Depending on your report criteria, the data displayed will include the following information for each cohort and activity you selected:

- The number and % of admissions/visits during which each activity was undertaken.

- The number and % of patients for whom each activity was undertaken.

- The total number of occasions each activity was undertaken.
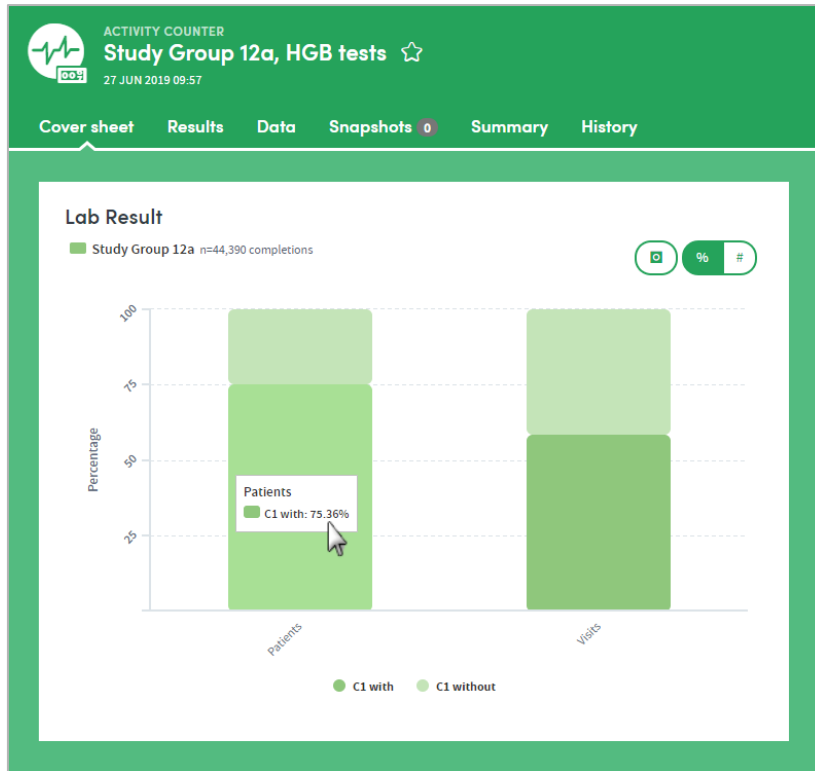
In this sample cover sheet, we can see that our cohort contains 44,390 completed HGB tests. By dwelling the mouse over the chart we can see that 75.36% of the patients in our cohort have HGB tests in their data. We can use the button on the top right to toggle between percentages and counts.

4.6.1   What's the difference?

If two cohorts have been selected, clicking the **What's the difference?** feature indicates whether there is a statistically significant difference in the number of activities between the two cohorts:
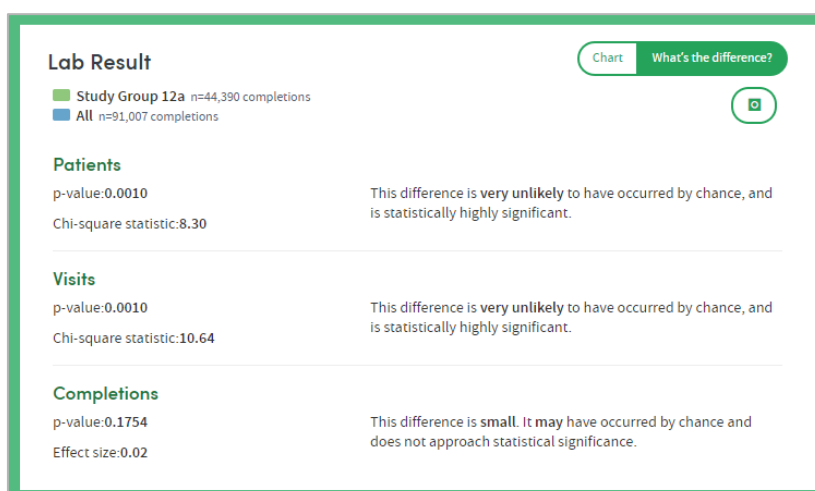
4.7 Report outputs: Results

The Results tab allows you to browse the report data in great depth, on an item-by-item basis with both graphical and tabular representations where appropriate. You'll find a range of interactive facilities designed to enable easy sorting and sifting of the data.

Depending on your report criteria, the data displayed will include the following information for each cohort and activity you selected:

Two bar charts are displayed: one depicting the proportion of **patients** for whom the activity either was or was not completed, and the other depicting the proportion of **admissions/visits** with and without that activity. If two cohorts were selected during report creation, both charts will have two columns for each result; one for each cohort.

It is possible to toggle between display of counts and display of percentages. Click the **Settings** tab on the right-hand side to access these features.
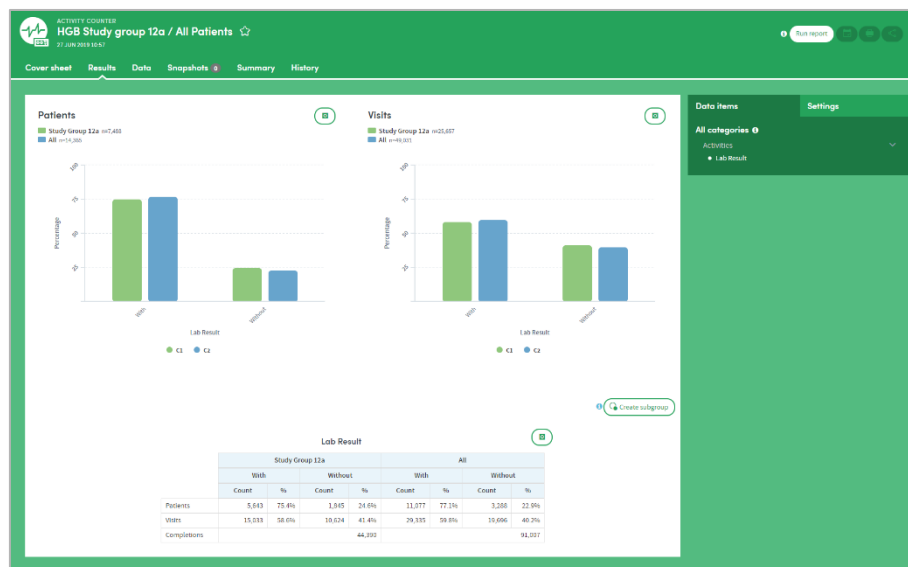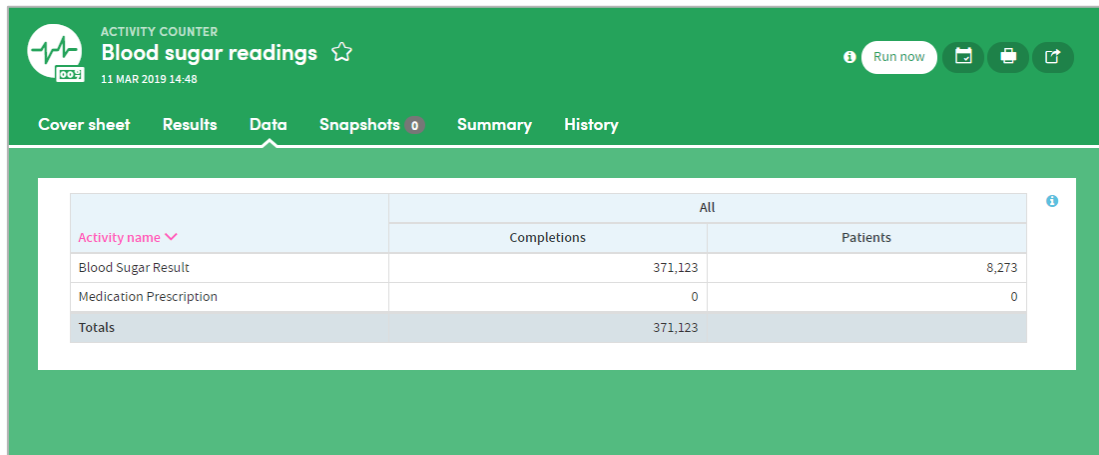

4.7.1 Data table

For each activity, the data table shows raw count data for that form, displaying results for the following counts:

- Number of occurrences of the activity

- Number of admissions/visits during which the activity was undertaken

- Number of patients for whom each activity was undertaken

The table also enables you to view the proportions of patients and visits with and without the activity.

4.8 Report outputs: Data

The Data section tab presents the report data in tabular format, with features which enable in-depth sorting and analysis:

4.9 Report outputs: Snapshots, Summary, History

See section 21.6 for full details of the Snapshot feature

See section 21.4 for full details of the Summary tab

See section 21.5 for full details of the History tab

4.10 Subgroups

The Activity Counter App enables **subgroups** to be created within a report and saved as a new cohort. See chapter 22 for full details of this feature.

4.11 Sharing reports

Depending on the permissions assigned to you, you may be able to share reports with other users. See chapter 23 for details of this feature.

5   All the Answers

All the Answers reports aggregate how many patients fall into each of a number of selected categories within a single dataset of your choosing.

The output of any All the Answers report is a set of counts and percentages describing the frequency of occurrence of the answers to the questions contained in the selected form. These counts are displayed as both a table and charts.

The appearance of charts can be altered from counts to percentages and also manipulated in a number of other ways. These include: filtering out of low-percentage categories; adjustment of bandings; sorting by frequency; and creation of subgroups of interest. These outputs will be shown for any combination of up to two patients or cohorts that you have selected.

For example, you could produce an All the Answers report to find out:

- How many patients belong to different age bands.
- How many are of which gender.
- How many scored high, medium, or low on an assessment or lab test.
- How many patients gave each response in a survey or questionnaire.

Below is a sample section of an All the Answers report output:
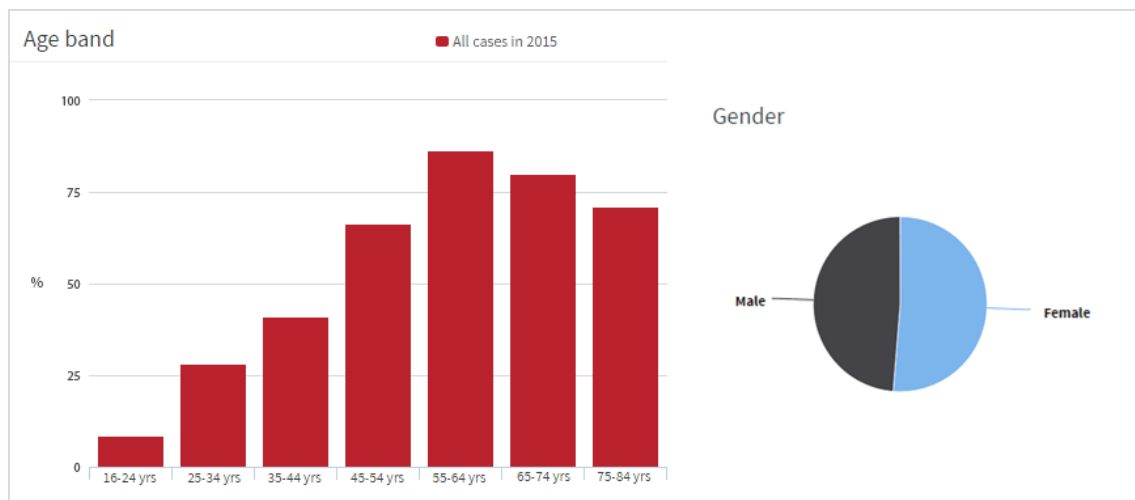
Its features allow you to:

- Choose your preferred chart type, e.g. a pie chart to display gender, a bar chart to display ethnicities.
- Highlight items of most interest on a cover sheet.
- Band the data as you choose, e.g. age, length of stay.
- Choose a color scheme for each report.
- Arrange your outputs to make them easy to read, e.g. switch between counts and percentages, or sort them from high to low.

5.1   Report creation

To create an All the Answers report, select the App via one of the methods described in chapter 3. Follow the **Who** step (see chapter 15) to choose the patient(s) and cohort(s) you wish to report on and click **Next**. You will arrive at the **What** step for this App:

5.2   Select a dataset

You can choose any form or dataset available to you. You may only choose one dataset for each All the Answers report you create.
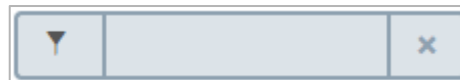
Choose from those available to you by clicking the drop-down arrow:
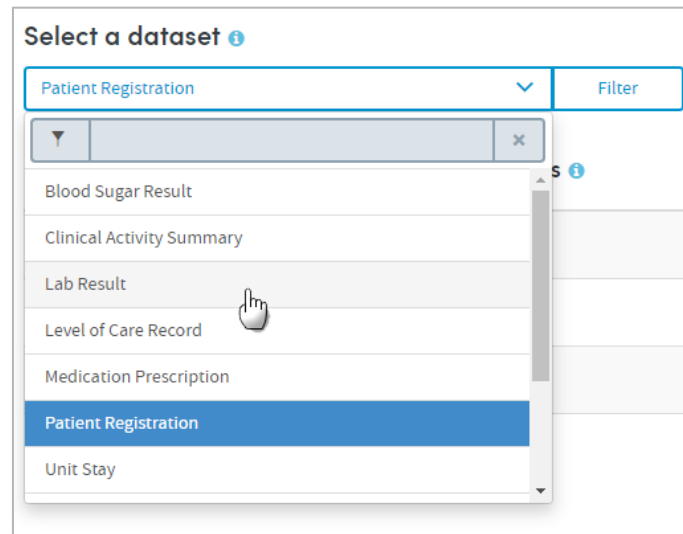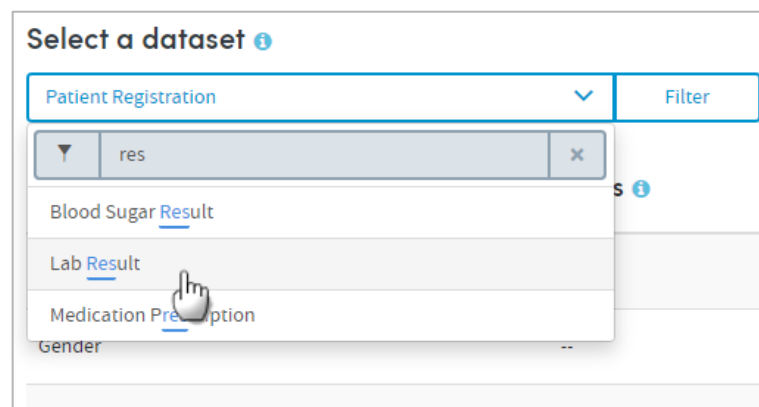

There are two ways to identify and select datasets: by simply choosing from the drop-down list, or by searching.

5.2.1 How to search for datasets

Start typing your search text into the grey text box:

The list below will dynamically display all the datasets containing your search text, wherever it appears in the name:

Once you've found your dataset, click its name to select it for inclusion in the report. The dataset name will be displayed on screen, and below that you'll see a list of all the questions in that dataset whose answers are suitable for inclusion in an All the Answers report. There are several other settings here, but we'll come back to those in further sections:

5.3 Filter your dataset

If you choose to ignore the filter option, then your report will include all the answers for every relevant question in the dataset you've selected.

> In our example, that would mean that all the relevant data about every recorded Lab Result would be included in our report.

You can add further filters to your report criteria if you wish, to narrow down the data included in your report.

> For example, you may want to report on data relating only to HGB lab results in your cohort.

To do this you'd first choose the **Lab result** dataset (as shown above). Next, click the **Filter** button next to the dataset name. You'll see a pop-up screen similar to the one in the example below:

Click the drop-down arrow to **select a question from the list** (in this case, the **Lab test** item). If you prefer, you can search for the item instead of browsing the list. Enter the search text in the grey text box. Either way, click the item to select it.

Every selection has three elements:

- The **data item** or question, e.g. Lab test
- An **operator**, e.g. Equal to
- The **answer**, e.g. HGB

Make your selection from the drop-down lists.

> In the example above we have selected **Lab test > Equal to > HGB** as a filter. Now our report will only include data pertaining to HGB lab tests and no other types of lab test.

Click the **X** on the right if you want to remove a filter after you have set it.

At the bottom of the panel there are two buttons, **Include** and **Exclude**. Choose whether your report should **include** or **exclude** the filter criteria, by clicking one of these options. Once you've done that, your filter will be applied, and you can add more filters if you wish.

If you want to create several **Include** filters, click **Add another** to add more filter items, before clicking the **Include** button. The same applies to the **Exclude** option.

5.3.1 Viewing and working with your filter selections

The number of filters you have created can be seen next to **Your selections** towards the top left of the panel:


You can view and, if applicable, make further decisions about how your filters are applied in the **Your selections** tab:
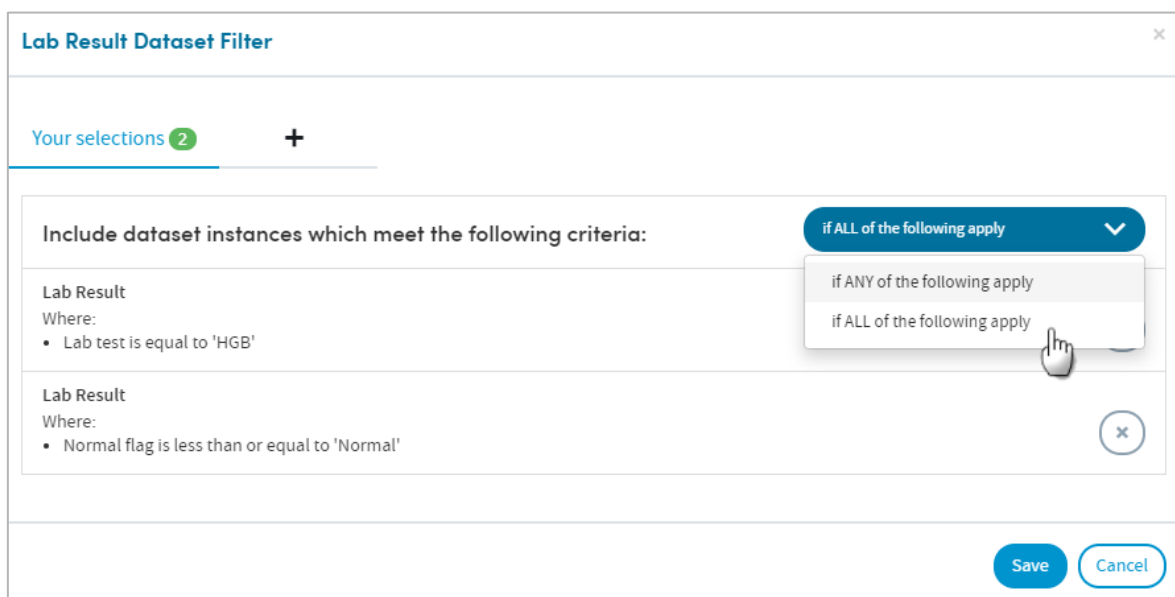
Click the white down-arrow to choose whether to select patients who meet **ANY** of the criteria or **ALL** of the criteria. This can be selected separately for both inclusions and exclusions.

Click the cross to remove a filter from your selections.

## 5.4 Only report on data items if collected with this dataset
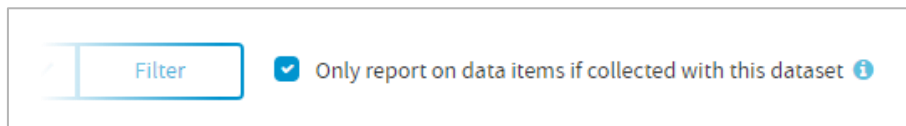
Some data items can be collected in other contexts than the dataset selected. If so, you may choose whether to include such instances in the report or not.

> **Example: Blood pressure** may be recorded in a Nursing Assessment or a Physical Examination.
>
> Consequently, when reporting on blood pressure, the question arises whether to include only answers recorded in the dataset selected (e.g. Nursing Assessment) or whether to include all instances of that data item in the analysis. Typically, the answer is the former, so that is set as the default.

5.5 Select graph type

Atmolytics presents you with a list of graph types relevant to each data item:
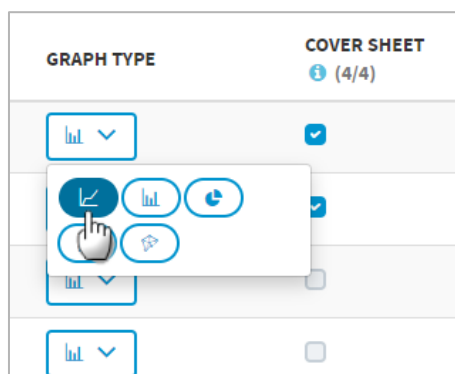
Choose from the options available to you.

5.6 Select cover sheet questions

Every report output has a **cover sheet** which shows selections from the full report results. Up to four data items can be selected for viewing on the cover sheet, and you must choose at least one.

Click the check boxes to make your choice.
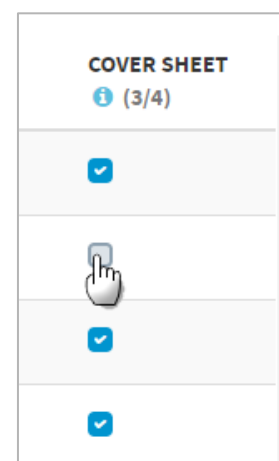
5.7 Bands

Where applicable, data is divided into bands for reporting purposes. Banding is applied to all data items used to collect numeric data.

If banding applies to a particular data item, the details will appear in the **Bands** column. Default bandings will have been set by your system administrator, but you can edit these if you wish.

Hover the mouse over the **Default** text to see the default bandings which have been set for the data item by your system administrator:

Click **Change** if you want to see more details of the bandings for the data item, or change them. You will see two options: **Default** and **Custom**:

Default
These are the bandings set by your system administrator:

Custom

Click **Custom** to edit the parameters of the bandings:

You can add or remove bandings, and edit the band names. The band names are used in the report output as labels for the charts and graphs. Clicking **Reset bands** will put the parameters and names back to the default settings created by your system administrator.

5.8   Report by

This selection determines what is counted within the report. The options are as follows (depending on the nature of your data you may not see every option here):

Patients counts the number of patients with each answer to each question.

> For example, if the data item is **gender**, it will tell you how many patients in your selected cohort(s) are male or female.

Admissions/visits counts the number of admissions/visits with each answer to each question.

For example, if your data item is **gender**, it will tell you how many admissions/visits involved patients who were male or female.

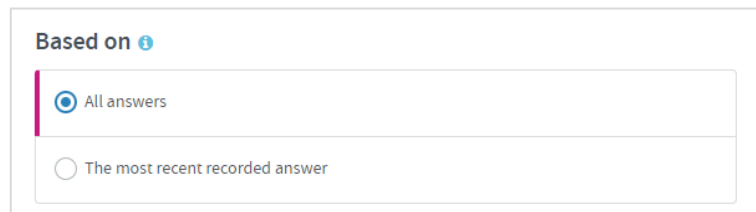The option you choose will affect the data counts in your report.

Example: 1000 patients may have been admitted to hospital this year but 100 may have been admitted twice, so there will have been 1100 admissions.

Consequently, counts for each data item would add up to 1100 if **count admissions/visits** is selected, as opposed to 1000 if **count patients** is selected.

Occurrences of each answer counts the number of occasions on which each answer has been recorded for each question, regardless of the number of patients or admissions/visits those answers pertain to. This option is useful for audit purposes and would not be used routinely.

Example: Consider the question 'What is your sexual orientation?' A report based on **all answers** might reveal that on 75% of occasions the answer was **Did not disclose**, in which case there might be a good case for changing the way the question is asked in order to get better information.

5.9 **Based on**

Based on: All answers
If this option is selected, your report will count all answers to a data item for each patient or admission/visit. Many data items are recorded on more than one occasion, e.g. a patient's blood pressure. This means that the number of observations will be greater than the number of patients.

Consequently, answer counts in the report can add up to more than the number of patients, because some patients will have had different answers to the same question on different occasions.

Example: Suppose 20 patients visited their doctor twice this year and for each patient on one occasion blood pressure was **normal** and on the other it was **high**.

If all answers are included in the report and the report is counting patients, the output will show Patients=20, Normal=20 and High=20 because each patient had two observations.

Similarly, if the report is counting visits the output will show Visits=40, Normal=20 and High=20.

Counts can also add up to more than the number of admissions/visits, because some patients will have had different answers to the same question on different occasions during the same admission/visit. For example, a patient may be recorded as having high blood pressure upon admission and normal blood pressure upon discharge.

Based on: Only the most recent answer

This option allows you to choose to include only the most recent answer to each data item in your report. This could be the most recent answer per patient or per admission/visit, depending upon your Count selection above.

> **Example**: If a physician wanted to know how many of his patients currently had high blood pressure, he might choose to count only the most recent observation for his patients.
>
> Similarly, if a physician wanted to know how often patients were discharged with high blood pressure, he might choose to include only the most recent observation (i.e. final observation) for each admission/visit.

5.10 Completing the report

Click **Next** when you're happy with your selections.

Follow the **Where** (see chapter 17) and **When** (see chapter 18) steps to complete the report definition process.

See chapters 19 and 20 for information about naming, generating and viewing your report.

5.11 Report outputs: Cover sheet

If any of your selected cover sheet data items have more than three possible answers, the cover sheet will display only the three most frequent answers. All other answers will be grouped into a single category: **Other**. This is to make the display easy to understand when several charts are shown on the cover sheet. The full breakdown of answers to all questions selected for the cover sheet is available within the main results section of the output.
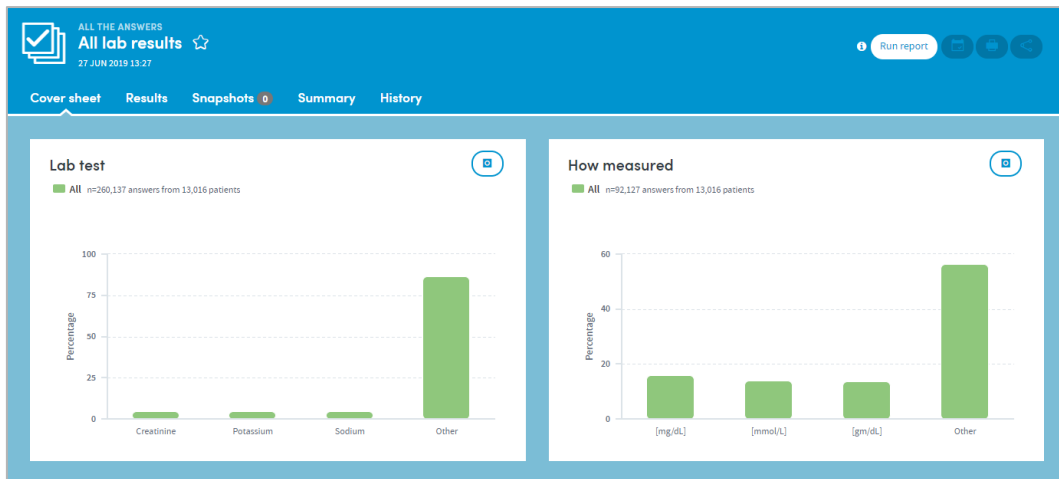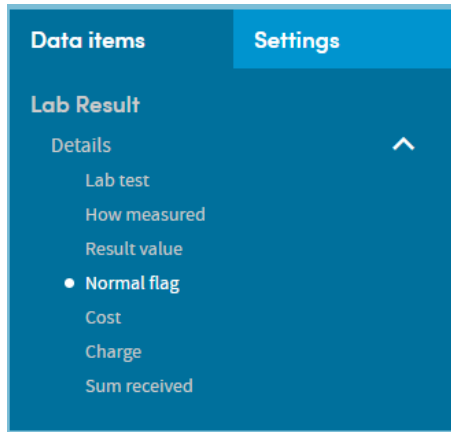
5.12 Report outputs: results

Results display a chart and table for every data item within your selected form or dataset. This includes a full breakdown by category of the items also displayed on the cover sheet:
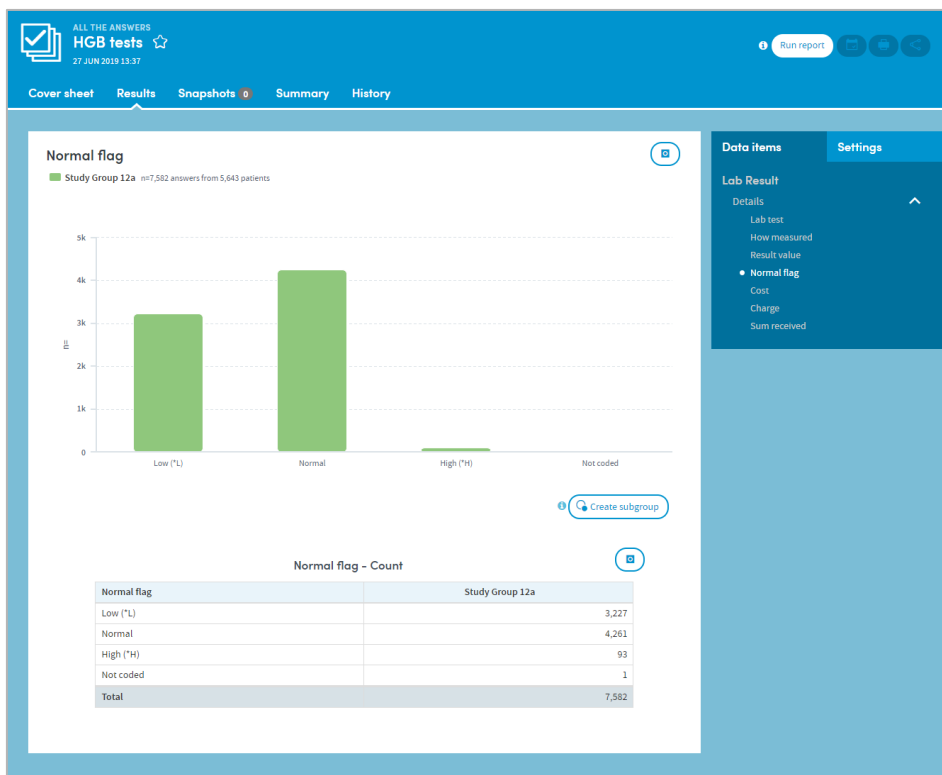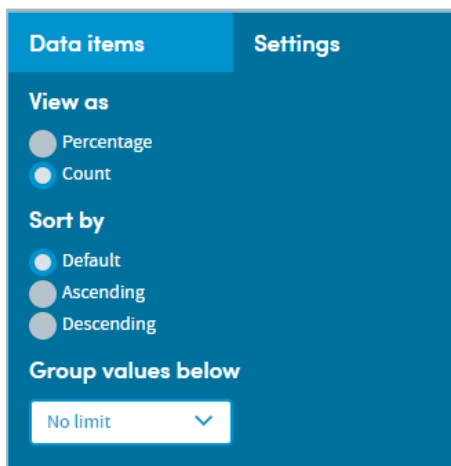

5.12.1 Data items

The results for any item are displayed by clicking in the Data items tab on the right-hand side of the screen:

5.12.2 Settings

Use the Settings tab on the top right of the screen to change the display attributes of the graph:

5.12.3 Data table

The data table displays both counts and percentages. Toggle between these using the **Settings** tab. There are in fact two percentage columns. The first calculates percentages based upon all responses to each data item. The second (excluding nulls) excludes null values such as **not known** from the calculation:

Lab test	All	
	% of n	% of n excluding null values
Creatinine	4.36%	4.52%
Potassium	4.35%	4.51%
Sodium	4.35%	4.51%
BUN	4.35%	4.51%
Glucose	4.35%	4.51%
Calcium	4.35%	4.51%
Total		100.00%

Show all rows

5.13 Report outputs: Snapshots, Summary, History

See section 21.6 for full details of the Snapshot feature

See section 21.4 for full details of the Summary tab

See section 21.5 for full details of the History tab

5.14 Subgroups

This App enables **subgroups** to be created within a report and saved as a new cohort. See chapter 22 for full details of this feature.

5.15 Sharing reports

Depending on the permissions assigned to you, you may be able to share reports with other users. See chapter 23 for details of this feature.

6   Data Export

The Data Export App enables you to export data on selected cohorts or patients in .csv format, for further analysis in Excel or dedicated statistical packages such as SPSS, SAS or R.

Its features enable you to:

- Export data on up to two cohorts
- Select key fields for inclusion, e.g. date of birth, physician, date of discharge
- Export multiple datasets, clinical observations, clinical coding systems and financial data (depending on permissions)
- Set date range for data to be exported
- Select the data sources from which data should be drawn
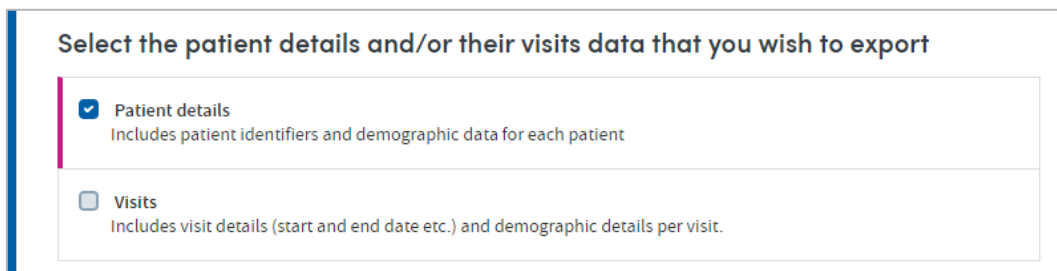
6.1   Report creation

To create a Data Export report, select the App via one of the methods described in chapter 3. Follow the **Who** step (see chapter 15) to choose the patient(s) and cohort(s) you wish to report on and click **Next**. You will arrive at the **What** step for this App, where you have several options:

6.2   Select the patient data to export

Use the check boxes to select one or both of the options: **Patient details** and **Visits**. These will be exported as one file, whether you select one or two:

6.3   Select the data attached to the patients to export

Choose any combination of the data available by clicking the check boxes. You'll have the option to include some patient and visit details in these exported files a little later in the selection process:
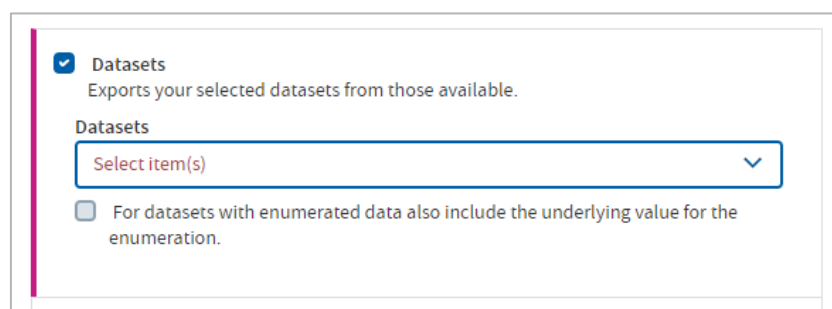

6.3.1   Datasets

If you select **Datasets**, each dataset you choose will be exported as a separate file.

Once you check the **Datasets** box, you will be presented with further options:

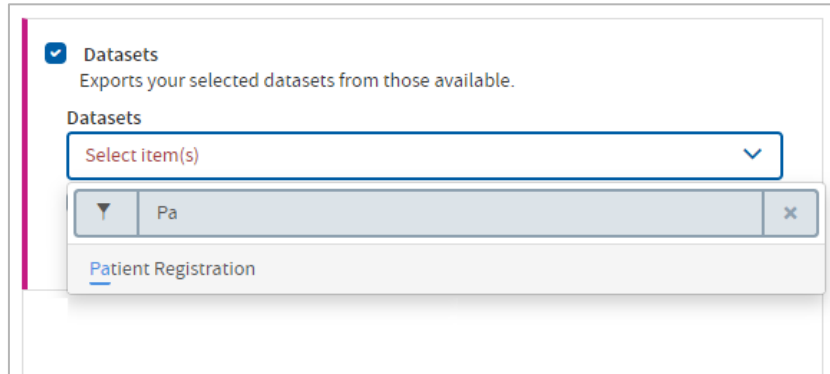
Click **Select item(s)**. There are two ways to identify and select datasets: by searching and by choosing from the drop-down list.

Search for datasets

Start typing your search text into the grey search box:

The list below will dynamically display all the datasets containing your search text, wherever it appears in the name:

Click the text of a dataset name to select it for inclusion in the report. The dataset name will appear above the search field:
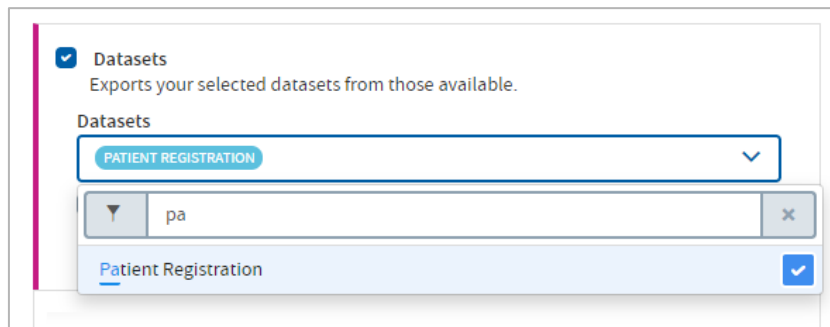
Continue searching and adding datasets as necessary.

Choose datasets from a list
Click on datasets in the drop-down list to select them. The dataset name(s) will appear above the search field:

To remove a dataset from your selection:
Click the dataset name above the search field, and uncheck the blue and white check box in the list.
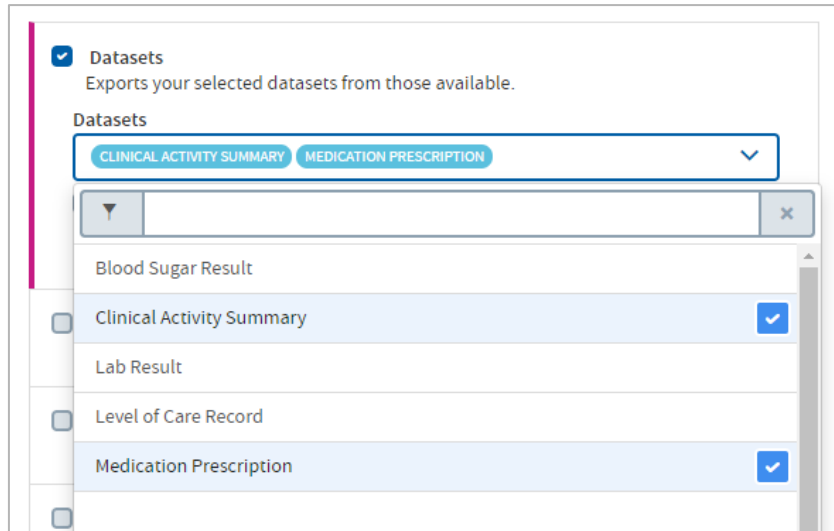
6.3.2   Datasets with repeating sections

Some datasets may have repeating sections within them. For example, a Patient Registration dataset may have a repeating section where the names and addresses of multiple family members are recorded: one instance of the section per family member.

If you choose to export a dataset which contains repeating sections, each instance of the repeated section will automatically be exported as a separate .csv file contained within the main .zip file of exported data.

6.3.3   Clinical coding systems

As with **Datasets** above, click the down-arrow and use the drop-down list to choose the clinical coding systems you want to export. You can also search using the grey search field if you prefer. To remove a selection, click the name above the search field, and uncheck the blue and white check box in the list.

6.3.4   Clinical observations

As with **Datasets** above, click the down-arrow and use the drop-down list to choose the observations you want to include in your export. You can also search using the grey search field if you prefer. To remove a selection, click the name above the search field, and uncheck the blue and white check box in the list.

6.3.5   Financial data

As with **Datasets** above, click the down-arrow and use the drop-down list to choose the data you want to include in your export. You can also search using the grey search field if you prefer. To remove a selection, click the name above the search field, and uncheck the blue and white check box in the list.

6.4 Additional fields to export

As well as selecting datasets to include in the exported output, you can also choose to add other fields, such as identifying data (names, dates of birth) and fields pertaining to when and where the report data was collected. These will be included in the .csv file containing each dataset's data.

As with **Datasets** above, click the down-arrow and use the drop-down list to choose the data you want to include in your export:

You can also search using the grey search field if you prefer. To remove a selection, click the name above the search field, and uncheck the blue and white check box in the list.

6.5 Completing the report

Click **Next** when you're happy with your selections.

Follow the **Where** (see chapter 17) and **When** (see chapter 18) steps to complete the report definition process.

See chapters 19 and 20 for information about naming, generating and viewing your report.

6.6 Report output: results

For the report output example below, we chose these criteria, including **Patient details** and **visits**, three **datasets**, and two **additional fields**:

The **Results** screen will look something like this, depending on the options you selected when creating the report:


In our example, the **Visits** and **Patient details** data has been exported as a single downloadable file, listed under the Visits headings for each cohort.

Datasets

Each dataset we exported is available for download as a separate file. Each file will also contain the additional **data collection start and end date** fields we chose to include when specifying the report output.

6.6.1 Downloading your output files

Click the download link:
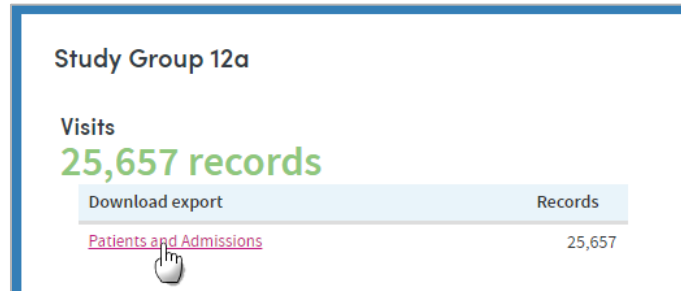
The .csv file will be downloaded in .zip format and can be accessed via Excel or other dedicated statistical packages. Here is a section of a sample export, viewed in Excel:

6.7 Report outputs: Summary, History

See section 21.4 for full details of the Summary tab

See section 21.5 for full details of the History tab

6.8 Sharing reports

Depending on the permissions assigned to you, you may be able to share reports with other users. See chapter 23 for details of this feature.

7 Diagnosis Explorer

This App enables you to explore the diagnostic breakdown of a single cohort or to compare the diagnostic breakdown of two cohorts.

For example:

- What range of conditions present in a typical week, month or year?
- What are the most common conditions presenting at an emergency department?
- Do the caseloads of two doctors differ in range and frequency of diagnoses?
- Are certain conditions more common in one team or clinic than another?
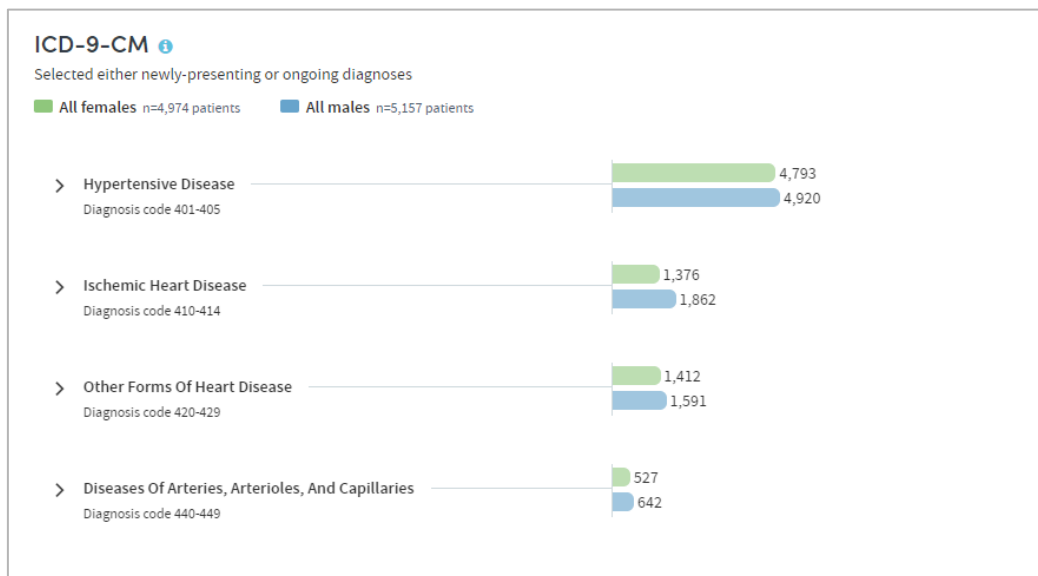
Features

- View your results as a browsable graphical tree.
- All standard diagnostic classifications available e.g. ICD-9, ICD-10, ICD-O, DRGs.
- Filter data by primary or secondary diagnoses or other qualifiers.
- Highlight diagnoses of particular interest on your cover sheet.
- Arrange your outputs to make them easy to read; e.g. switch between counts and percentages, or sort by frequency, alphabetically or by diagnostic code.

7.1   Report creation

To create a Diagnosis Explorer report, select the App via one of the methods described in chapter 3. Follow the **Who** step (see chapter 15) to choose the cohort(s) you wish to report on and click **Next**. You will arrive at the **What** step for this App, where you have several options:

7.2   What classification

First, use the drop-down list to select the classification system you wish to report on:

The coding systems available to you may vary depending on your organization's Atmolytics data.

7.3   What diagnoses

You can choose to report on **All** the diagnoses available for the classification system you've selected, or you can specify any number of **Selected diagnoses**. Click the option you require.
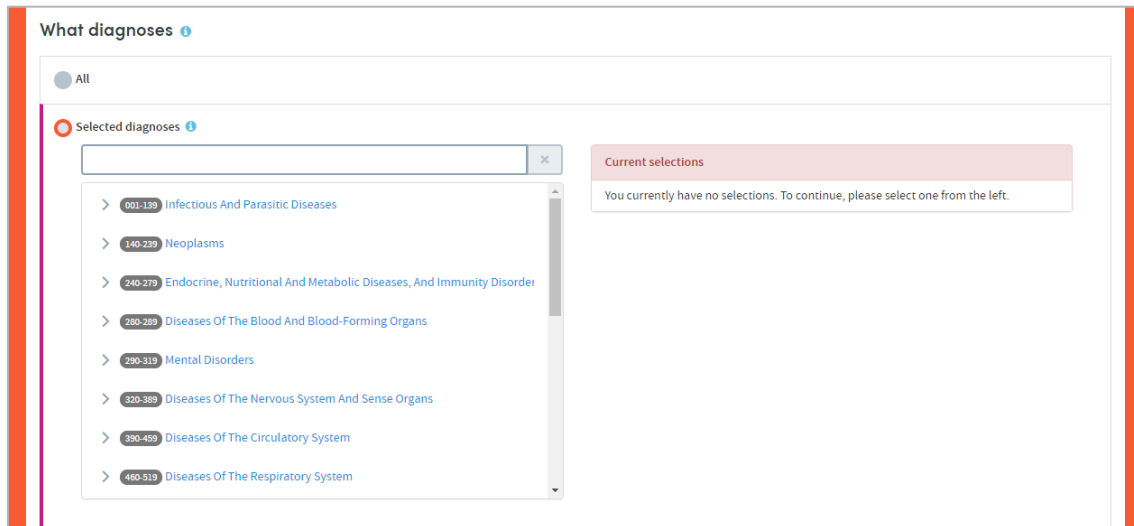
If you want to report on selected diagnoses, you can locate them either by browsing or by searching. You can select any number of specific items from any level of the list. Doing so automatically selects the item and all its children. The data pertaining to all the children will be included in the report, and you will be able to drill down into all the child levels when browsing the report data.

7.3.1   Selecting diagnoses by browsing
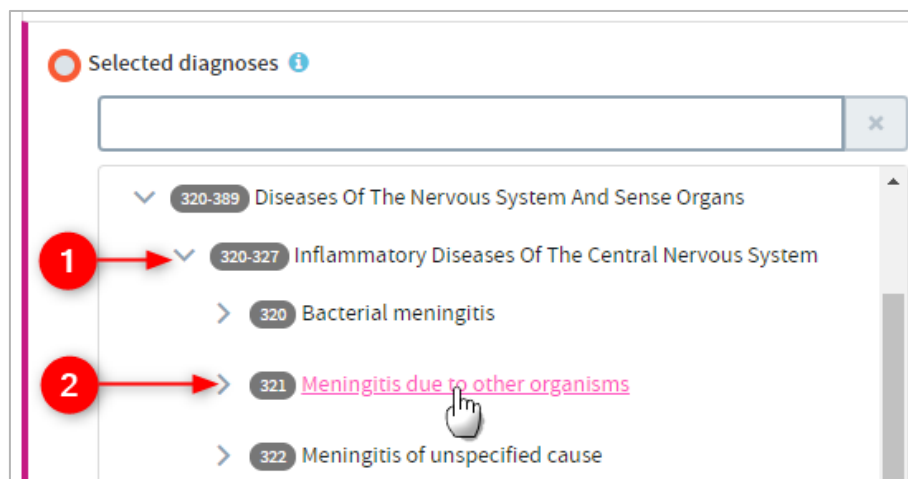
1   Browse the list of diagnoses by clicking the arrows on the far left to move up and down between the levels.

2   Click the text of an item to select it for inclusion in the report.

7.3.2 Selecting diagnoses by searching
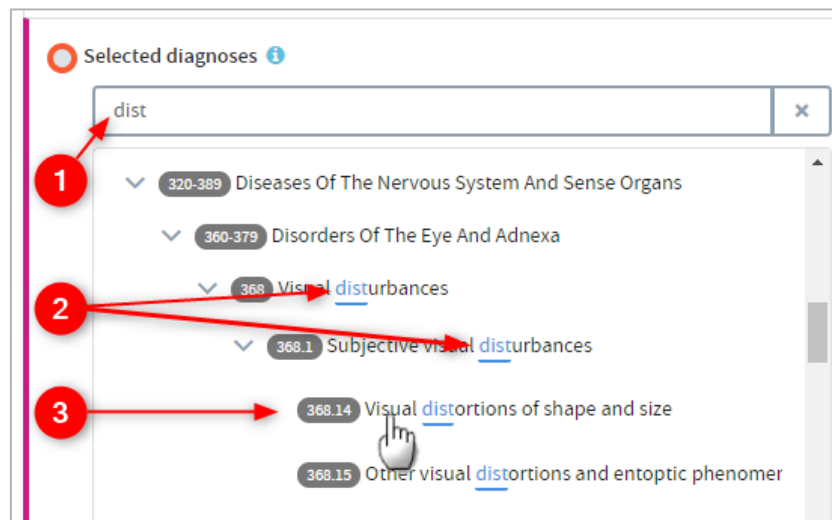
1 Start typing your search term into the text box.

2 The list below will dynamically display all the items containing your search term, wherever it appears in the term text.

3 Click the text of an item to select it for inclusion in the report.

7.4 Presentation
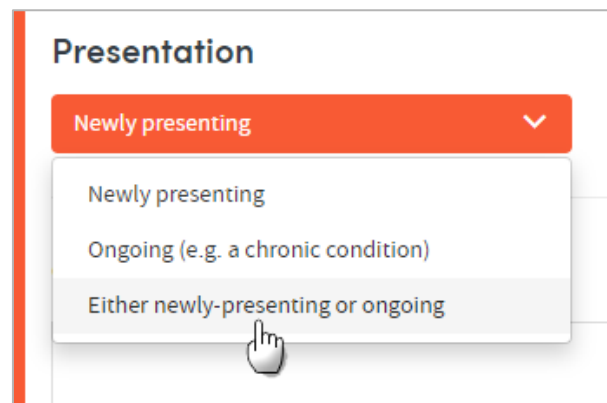
Use the drop-down list to choose diagnoses which are new or ongoing, or you can choose to include both presentation types.

7.5 Count

This section enables you to choose how the diagnoses included in the report output will be identified and counted. Click the setting you require:

The options are:

Patients: Counts and reports on how many patients in your selected cohort(s) have each of the selected diagnoses.

> **Based upon: All**
> This option counts and reports on the number of patients receiving each diagnosis, taking into account **all** their visits/admissions.

> **Based upon: Most recent admission**
> This option counts and reports on the number of patients receiving each diagnosis, taking into account only their **most recent** visit/admission.

Visits: This option counts and reports on the number of visits/admissions involving your cohort(s) in which each of the selected diagnoses were present.

> **Example**: 1000 patients may have been admitted to hospital this year but 100 may have been admitted twice, so there will have been 1100 admissions.
>
> Consequently, assuming that a primary diagnosis is recorded for each admission, total counts for primary diagnoses will add up to 1100 if **count visits/admissions** is selected, but will add up to 1000 if **count patients** is selected.

Occurrences of each answer: This counts the number of *occasions* on which each diagnosis has been assigned, regardless of the number of patients or visits/admissions those diagnoses pertain to. This option is primarily useful for audit purposes and would not be used routinely.

> **Example**: A patient may receive diagnoses of both melanoma of the lip and melanoma of the neck during an admission.
>
> If **occurrences** are counted, this would be counted as two occurrences of melanoma of the skin rather than one.

7.6   Completing the report

Click **Next** when you're happy with your selections.

Follow the **Where** (see chapter 17) and **When** (see chapter 18) steps to complete the report definition process.

See chapters 19 and 20 for information about naming, generating and viewing your report.

7.7   Report outputs: Cover sheet

In addition to providing full details of every item you've included, your report output contains a **cover sheet**. This is automatically generated and contains a selection of the most significant data in your report:

The cover sheet shows the five most commonly-occurring diagnoses from each of the two most frequently-occurring high-level categories you select.

For example, if you select four high-level categories to report on, the five most commonly-occurring diagnoses pertaining to two of the four will be displayed on the

cover sheet. If you've chosen to compare two cohorts, the data for each cohort will be included.

7.8 Report outputs: Results

7.8.1 Browsing the results
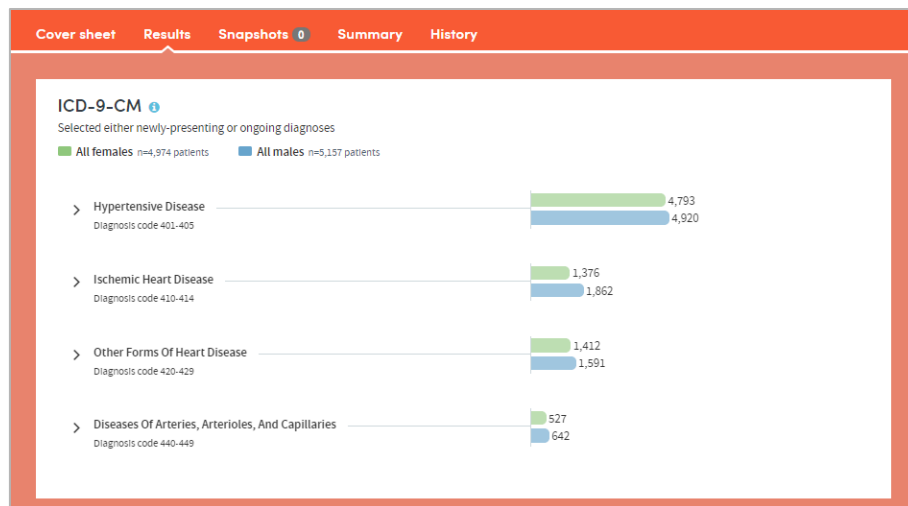
This part of the report output allows you to browse through the branches of a tree of counts or percentages pertaining to all the diagnostic categories you selected:
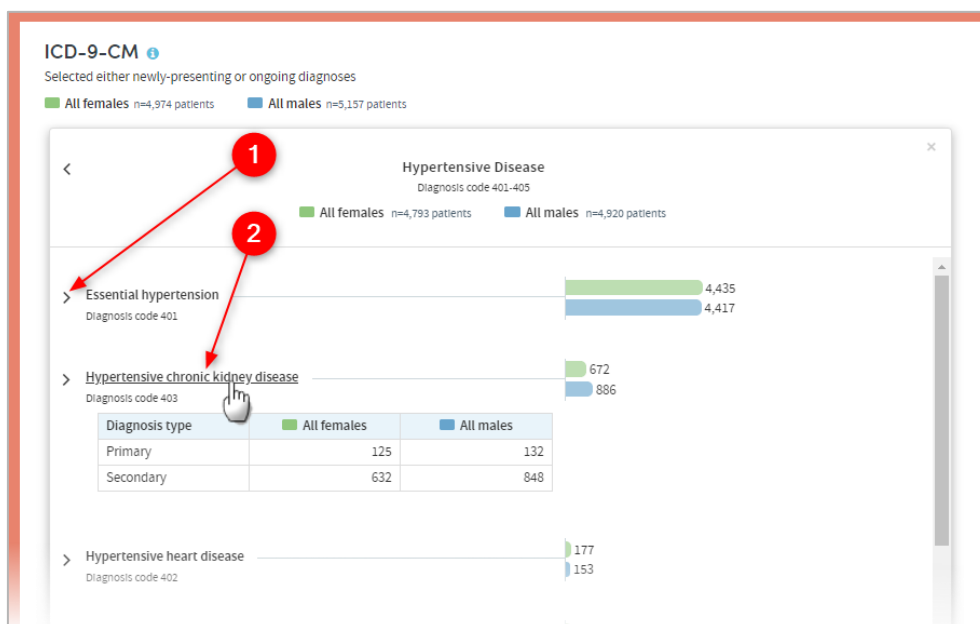
1 Click the arrows on the left to move up and down through the different levels of your selected data.

2 Click the text itself to see a further tabular breakdown. The data this contains will depend on the classification system you're reporting on, and the filters you may have set

as part of the report generation process. Click the text again to remove the tabular data from the display.

Note: As you browse down the tree, the counts (or percentages) of lower branches may come to a total which is greater than the parent branch which you have browsed down from. This is because some patients may have received more than one diagnosis falling under a particular parent classification.

> **Example**: A cohort comprises 100 patients of whom 20 have a diagnosis of malignant melanoma of the skin. Of those 20, 10 (50%) had a diagnosis of malignant melanoma of the lip and 15 (75%) had a diagnosis of malignant melanoma of the neck. This is because some patients may have two melanoma diagnoses: lip and neck melanoma. Consequently, the sum of all counts is 35, even though only 20 patients have melanoma. The sum of all percentages is 125%, for the same reason.
>
> Similarly, although only 20 patients may have melanoma, the number with a primary diagnosis may be 20 and the number with a secondary diagnosis may be 15: again because 15 patients have two different types of melanoma. The sum of the tabular breakdown into primary and secondary will again be greater than the main parent category.

7.8.2   Results settings
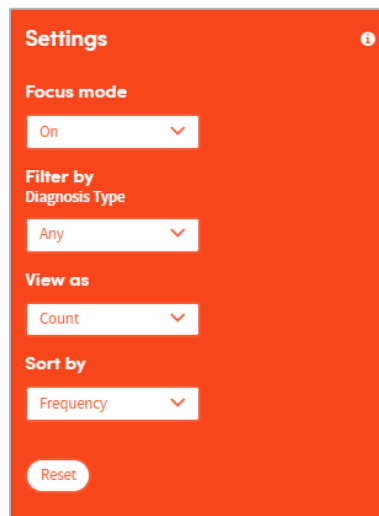
On the right of the results screen there are several configurable settings which allow you to view the data from different perspectives:

Focus mode

If focus mode is **on**, clicking an arrow to move up or down the tree of diagnoses will bring up a pop-up window which only displays the branch you have selected. In the example below, the user has just clicked on the arrow to the left of **Hypertensive Disease**. The data for that branch of the tree appears in a pop-up display as follows:
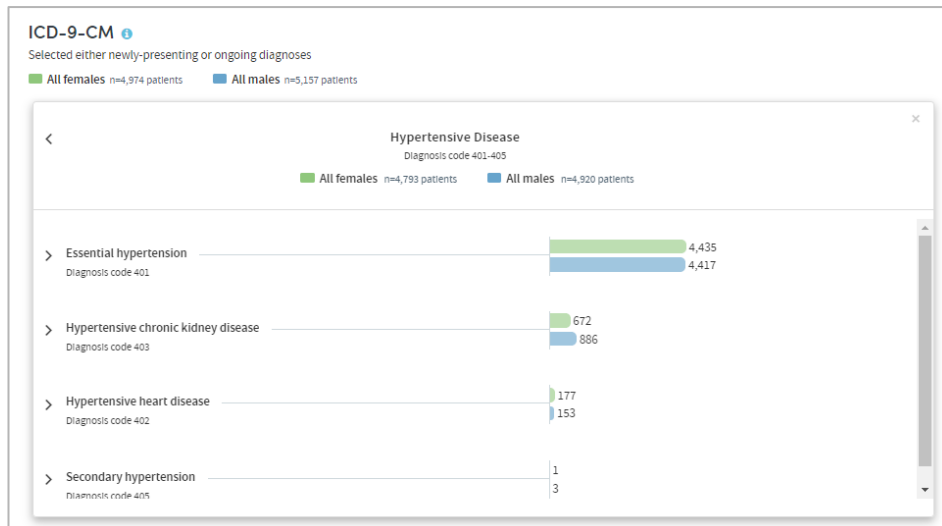
If focus mode is **off**, clicking an arrow to move up or down the tree of diagnoses will unfold the tree so that branches surrounding the selected branch can be seen and browsed by the user. In the example below, the user has clicked on the arrow to the left of **Hypertensive Disease** and has browsed further down the tree. The path taken through the tree and the data pertaining to each branch are displayed as an indented list as follows:

Filter by

This option enables you to filter the displayed counts according to suitable criteria for the classification system you have selected. This may be, for example, filtering by primary or secondary diagnoses.

View as

This option enables you to display the results as either **counts** or **percentages**.

If you opt to display percentages, you will be able to choose whether the percentages displayed are expressed as a percentage:

- **Of n**: the total number (n) in each cohort
- **Of parent category**: the total number in the parent category for each cohort

- **Of total n**: the combined total n of both cohorts (if you're reporting on two cohorts)

> **Example:** We have two cohorts:
>
> **Cohort A** comprises 100 patients, of whom 20 have a diagnosis of malignant melanoma of the skin. Of those 20, 10 have a diagnosis of malignant melanoma of the lip.
> **Cohort B** also has 100 patients, none of whom have malignant melanoma.
>
> **% of parent category**: The 10 patients with a diagnosis of lip melanoma represent **50%** of those patients with melanoma.
>
> **% of n**: The 10 patients with a diagnosis of lip melanoma represent **10%** of the total cohort.
>
> **% of total n**: The 10 patients with a diagnosis of lip melanoma represent **5%** of the combined total of 200 patients in both cohorts.

Sort by
This option enables you to sort the report results in one of three ways:

- By **Clinical code** (according to the classification system you selected),
- By **Frequency** (from the highest count or percentage to the lowest),
- Alphabetically, from **A-Z**.

Reset
Selecting this will return all the display options to their default settings.

7.9   Report outputs: Snapshots, Summary, History

See section 21.6 for full details of the Snapshot feature

See section 21.4 for full details of the Summary tab

See section 21.5 for full details of the History tab

7.10 Sharing reports

Depending on the permissions assigned to you, you may be able to share reports with other users. See chapter 23 for details of this feature.

8   Events and Processes

The Events and Processes App enables you to define and explore your own performance indicators, including both locally-agreed standards or universal standards. For example, you could produce an Events and Processes report to find the answers to the following questions:

- How soon after admission was the patient triaged
- After a treatment was identified as needed, how soon was the treatment given?
- Does performance vary by doctor, or team, or time of year?
- Has performance improved after a quality improvement intervention?

Below are a couple of sample sections of an Events and Processes report:
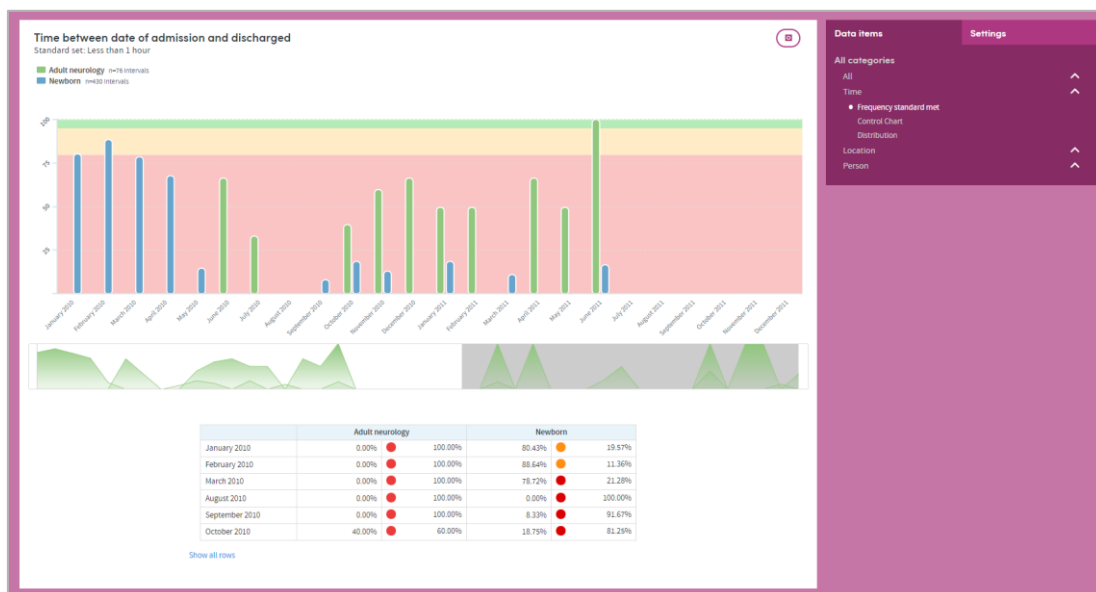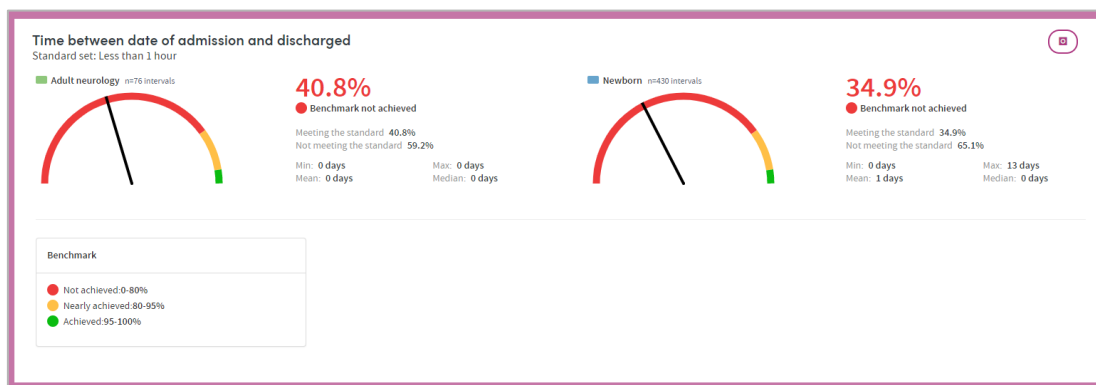
Its features allow you to:

- Set your own benchmark for any two events and see if it has been achieved.
- Explore variations in performance by time, location or doctor (or other role).
- Create subgroups of patients for whom the standard either was or was not met.
- Identify outliers and explore why the standard was not met.

8.1 Report creation

To create an Events and Processes report, select the App via one of the methods described in chapter 3. Follow the **Who** step (see chapter 15) to choose the cohort(s) you wish to report on and click **Next**. You will arrive at the **What** step for this App, where you have several options:

8.2 Select events

You can report on the time interval between any two events within any two **Event sets**. The pairs of events that are identified and included in the report output will always have occurred within a single admission/visit.

There is also the concept of a **meta event** of **Recorded/Completed Date**. Regardless of whether the date the event occurred is directly recorded in the dataset, you may use the event's completed date as an initial or subsequent event.

The event sets included in the selection list (and the events contained within those sets) will have been pre-selected by your organization. Choose an initial event set and event by selecting from the drop-down lists:

Do the same for the subsequent event set and events.

You can also **search** for event sets and events if you have a long list to choose from:
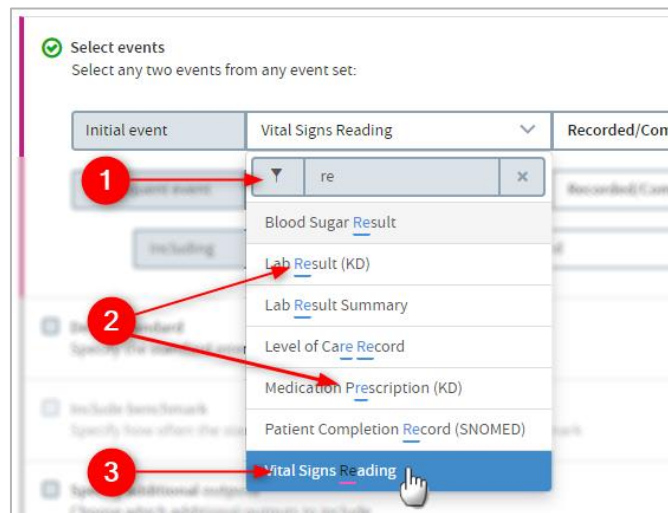
1   Start typing your search term into the text box.

2   The list below will dynamically display all the items containing your search term, wherever it appears in the term text.

3   Click an item to select it for inclusion in the report.

8.2.1   Including
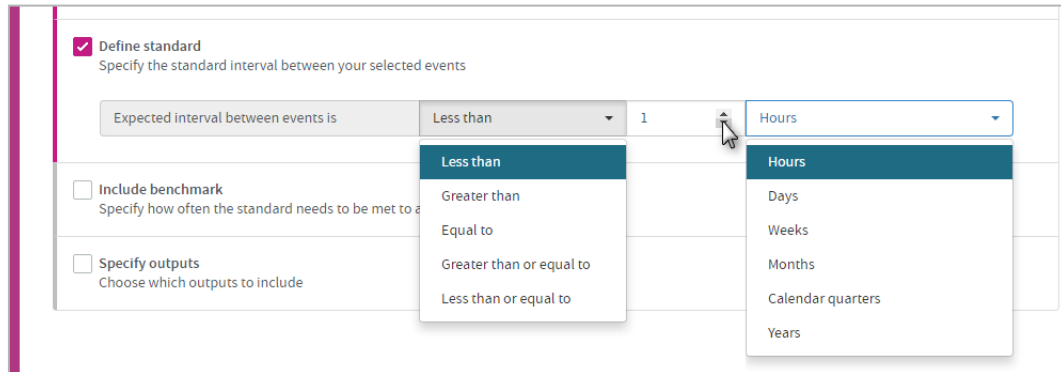
Next, you need to choose which occurrences of these events to report on. The **Including** drop-down list contains three options for you to choose from:
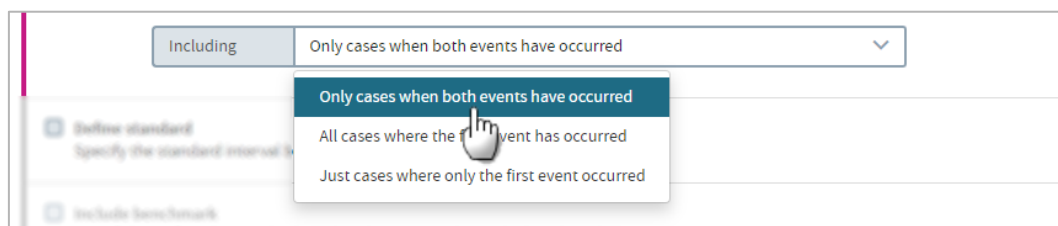
- Only cases when both events have occurred
- All cases where the first event has occurred
- Just cases where only the first event occurred

8.3   Define standard
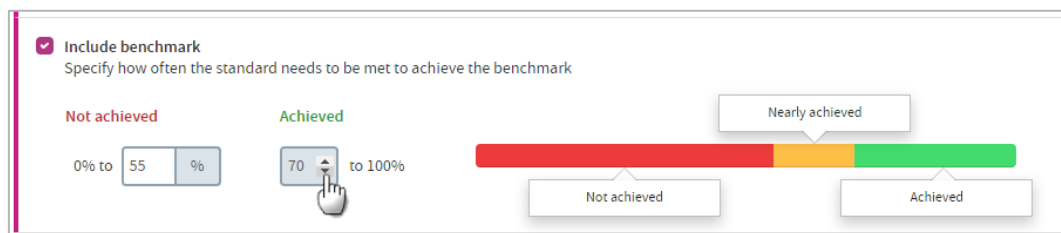
If you wish, you can specify a standard interval between your selected events. This is the interval of time that is expected to take place between the two events. Click the check box to select this option, then choose the operator, number, and unit you want to apply:

8.4   Include benchmark

If you specify a standard interval, you may also set a benchmark. This describes how often the expected standard interval should be met. Click the check box to select this option. The following controls will appear:

Click the up and down arrows to specify:

- The percentage of occurrences which, failing to meet the standard interval, would lead to the benchmark not being achieved, and:

- The percentage of occurrences which need to meet the standard interval in order to achieve the benchmark.

By setting these percentages separately, you have the option of creating a mid-interval which indicates where the benchmark was nearly achieved.

8.5   Specify additional outputs

This feature allows you to choose which performance data to include in your report. If you click the check box to access this feature, the following options will appear:

You can select any or all of the available options. Each option is applied independently of any others you choose, creating discrete outputs which you can then browse individually within the report.

8.5.1 Time

The report output will collate and display performance data using a time period of your choosing (e.g. week-by-week, month-by-month, etc.). Choose a time period from the drop-down list:

8.5.2 Location

The report output will collate and display performance data by location. You can choose to report on performance data from all the locations available to you, or you can search for and select any number of specific locations by clicking the **Selected** button:

To choose specific locations:
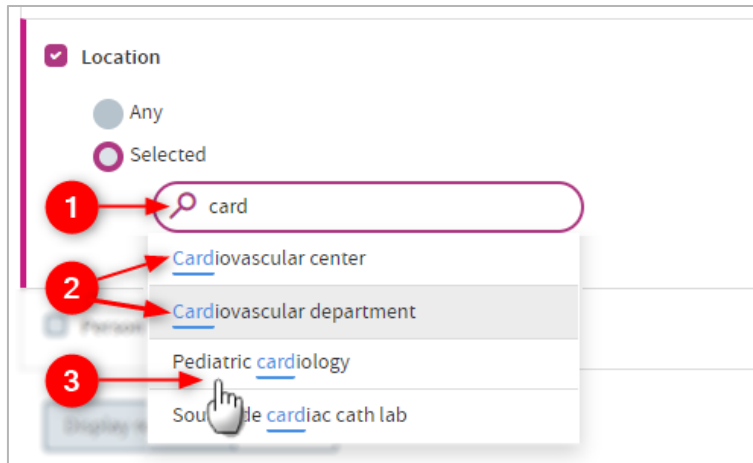
①   Start typing your search text into the text box.

②   The list below will dynamically display all the locations containing your search text, wherever it appears in the location name.

③   Click a location name to select it for inclusion in the report. The location will appear below the search field:
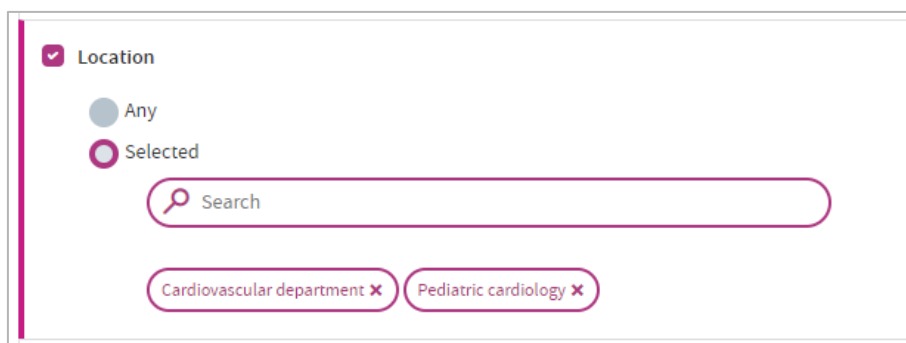
Continue searching for and adding locations as necessary. To remove a location from the list, click the cross to the right of its name.

8.5.3 Person

The report output will collate and display performance data by person (i.e. the members of staff involved in the events which are included in the report output). You can choose to:

- Report on performance data from all the staff available to you,
- Report on performance data by staff role,
- Search for and select any number of specific individuals.

To include all the staff available to you:

Choose **Any** (you'll probably find that this is the default option):

To report on a staff role:

Choose **Staff role**, and select from the drop-down list:
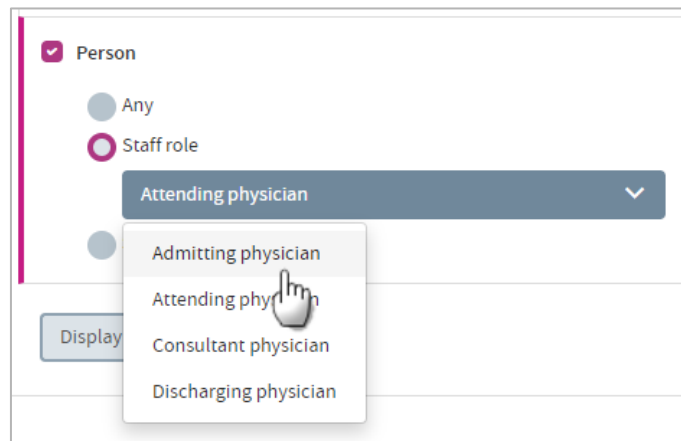
To include specific individuals in your report output:

Choose **Selected Staff**. First, choose the staff role of the person you're searching for from the drop-down list:
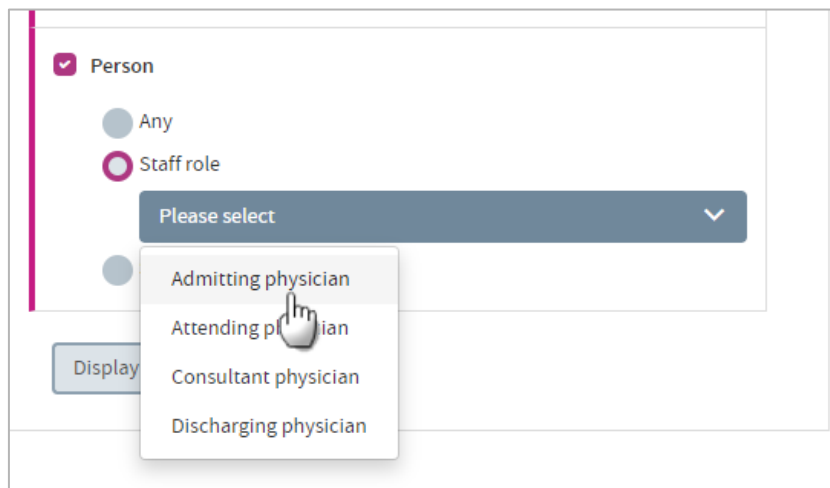
Next, you need to search for the specific person you want to add to the report output:
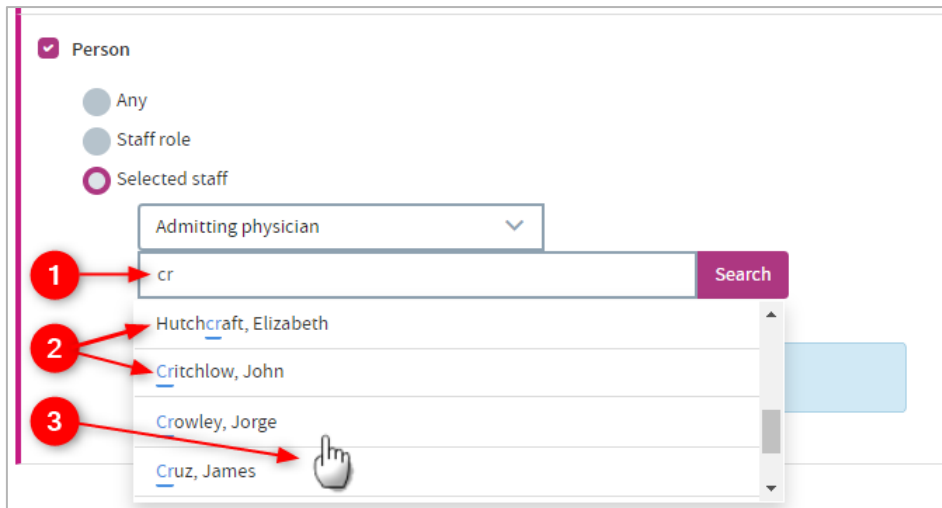
① Type your text into the text box, and click **Search**. You do not need to type the full name.

② The list below will display all the names containing your search text, wherever it appears in the name.

③ Click the text of a name to select it for inclusion in the report. The name will appear below the search field:
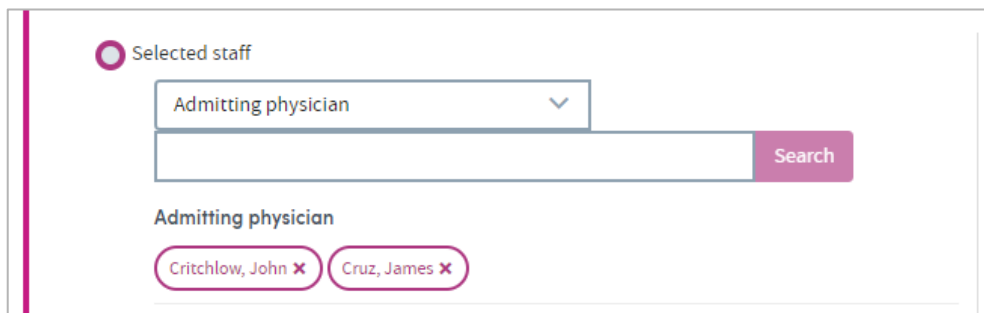
Continue searching and adding individuals as necessary. To remove a person from the list, click the cross on the right of their name.

8.5.4 Display results in:

This final option is where you choose how the report output will display the time intervals between the first and subsequent dates of your pairs of events. Choose from the drop-down list:
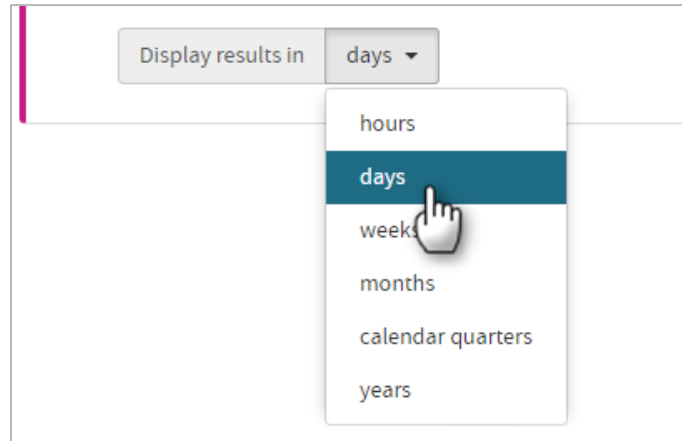
Click **Next** when you're happy with your selections.

8.6   Step 3: Where

See chapter 17 for full details of this step.

8.7   Step 4: When

This step is where (if you wish) you can set a time frame for the data to be included in your report. This part of the report setting process is explained in detail in chapter 18 of this guide, but there are some aspects of it which are specific to the Events and Processes App, which are explained below.

If you choose to set a time frame, whether it be a period of time, or a specific date range, you will see an extra element on the screen that does not appear in other Apps, under the heading **Data to include**:
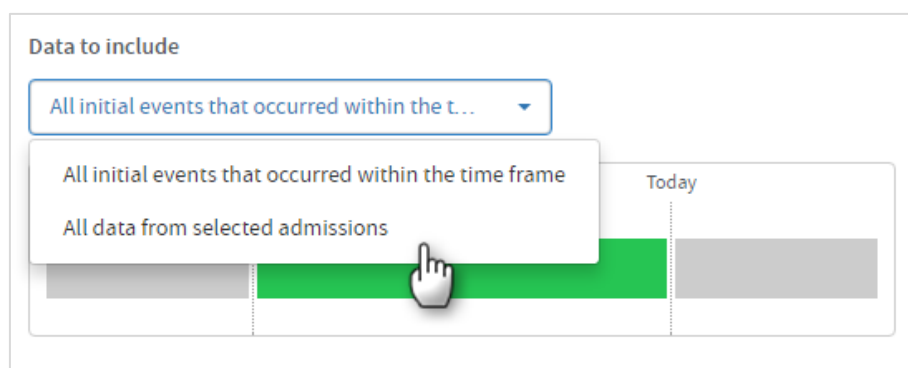
You have two options:

8.7.1   All initial events that occurred within the time frame

This option means that the data in the report output will only include time intervals where the **initial** event you selected (in **Step 2: What**) took place during the time you've specified here.

For example, if your initial event is **admission date** and your subsequent event is **discharge date**, the output will only report on the time intervals between those two events when the admission date occurs during the time period you specify here – be that a period of time (the past week, the past year, etc), or a specific date range.

This enables you to set a tight start boundary on the data in your report.

8.7.2   All data from selected admissions

This option enables you to extend the boundaries of the data included in your report output beyond those you specify when selecting your time frame.

The report output will contain all the data recorded during the time frame you've specified, be that a period of time (the past week, the past year, etc), or a specific date range. However it will also contain data which **may have been recorded during an admission, at a time which extends beyond the time limits you have set**.

There are up to four types of admission available to select from. You can choose any available combination of these types using the tick boxes which appear when you choose this option.

8.8   Completing the report

See chapters 19 and 20 for information about naming, generating and viewing your report.

8.9   Report outputs: Cover sheet

In addition to providing full details of every item you have included, your finished report contains a **Cover sheet**. This is automatically generated and contains a selection of the most significant data in your report:
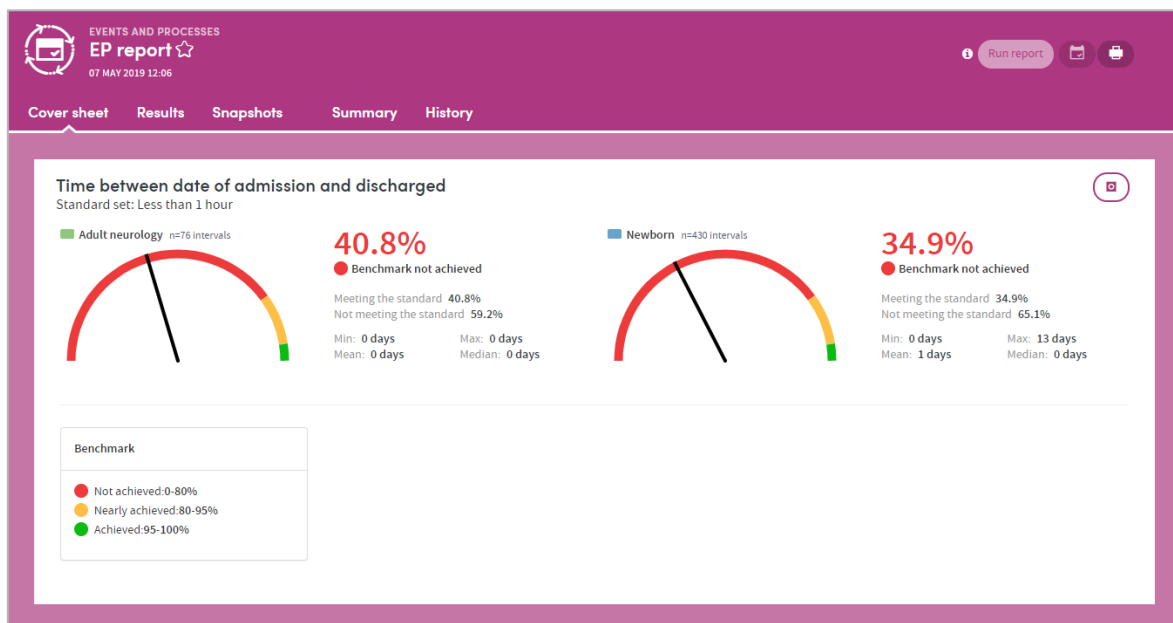
This includes details of standards met and benchmarks achieved, if you set these when creating the report output.

8.10 Report outputs: Results

The **Results** tab allows you to browse the report output in great detail using configurable charts and graphs, and tabulated data. We recommend you spend some time browsing the data to get an idea of the full scope of information available to you here.

To start browsing, use the controls on the top right of the screen:

8.10.1 Data items

The headings here will match the **Specify additional outputs** selections you made when creating the report definition.

Click a heading to see the types of data available for this output.

Click the text (e.g. **Control Chart**) to view this in detail on the left of the results screen:
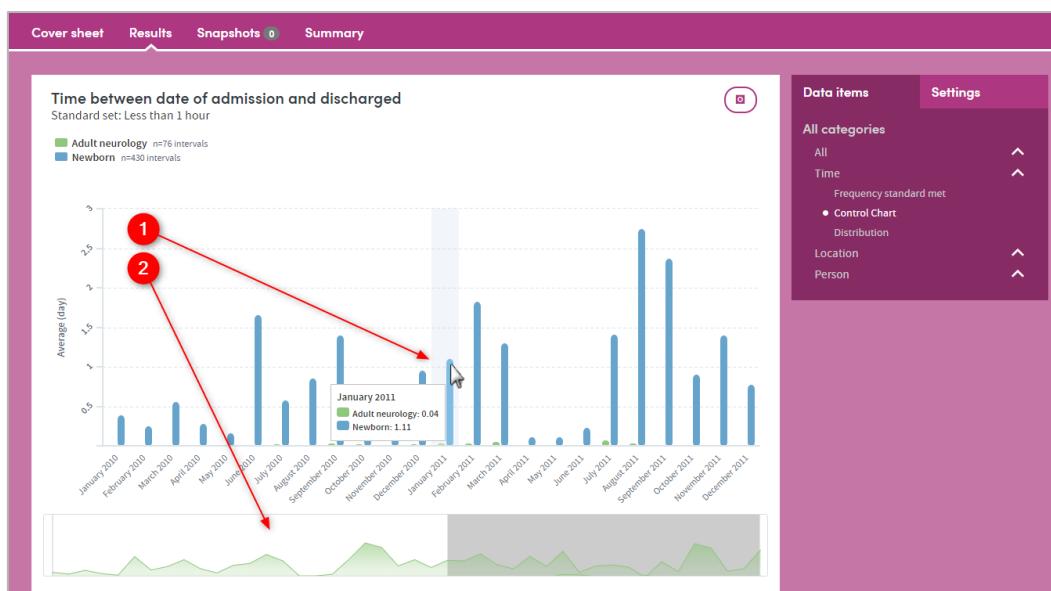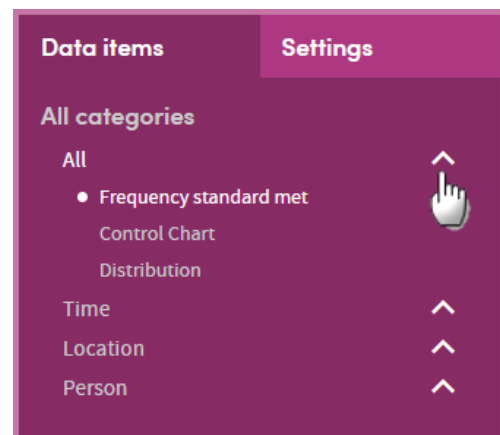
1 Hover the mouse pointer over an item in the chart to see more detail.

2 This section shows an outline of all the available data items for the chart you have selected. If there are more data items than can be comfortably displayed in

the chart above, only the unshaded area of this image will be shown on the chart. Click and drag on this feature to move the boundary of the shaded and unshaded areas. The chart above will automatically display the new unshaded area.

The bottom part of the results screen is where you will find the tabulated data relating to the chart you're viewing:

	Adult neurology	Newborn
	Average (day)	Average (day)
January 2010	0.00	0.40
February 2010	0.00	0.26
March 2010	0.00	0.56
April 2010	0.00	0.29
May 2010	0.00	0.17
June 2010	0.01	1.66
July 2010	0.03	0.58

Show all rows

8.10.2 Settings

The **Data points**, **Chart type**, and **Sort** order of the chart can be varied according to choice by clicking and selecting here.

The options available to you will vary depending on the selections you've made in the **Data items** tab.

Data items **Settings**

Data points
- Display mean
- Display quartiles
- Restrict data to +3SD
- Display +3SD

Chart type
- Line
- Column

Sort by
- Default
- Ascending
- Descending

8.11 Report outputs: Snapshots, Summary, History

See section 21.6 for full details of the Snapshot feature

See section 21.4 for full details of the Summary tab

See section 21.5 for full details of the History tab

8.12 Subgroups

This App enables **subgroups** to be created within a report and saved as a new cohort. See chapter 22 for full details of this feature.

8.13 Sharing reports

Depending on the permissions assigned to you, you may be able to share reports with other users. See chapter 23 for details of this feature.

9 Identity Check

This App lists names and other key identifying personal, demographic and clinical details of all patients in any selected cohort. It allows you to produce filterable, sortable lists for many everyday purposes. For example:

- List a clinician's current caseload, including key demographic and clinical characteristics.

- List all patients who attended a particular clinic last week or last year.

- List recent inpatient admissions including who admitted them, reason for admission/visit and length of stay.

Below is a sample section of an Identity Check report output:

Its features allow you to:
- Select any data items of interest for inclusion.
- Filter the outputs using selection criteria that you have chosen yourself.
- Identify and create subgroups from the lists you have created.
- Create averages for any numeric items, e.g. age, length of stay.

In the case of data items that may have changed over time, for example marital status or risk status, the report lists the most recently recorded answer.

9.1 Report creation

To create an Identity Check report, select the App via one of the methods described in chapter 3. Follow the **Who** step (see chapter 15) to choose the patient or cohort you wish to report on and click **Next**. You will arrive at the **What** step for this App, where you have several options:

9.2 Select items to include in your report

Certain datasets are pre-loaded into this part of Atmolytics, and you must choose at least one item from them. These will be datasets containing identifying information that will enable the creation of an ID Check report.

In this instance, Patient Registration is the mandatory dataset:

Click the drop-down arrow to select items from the datasets:
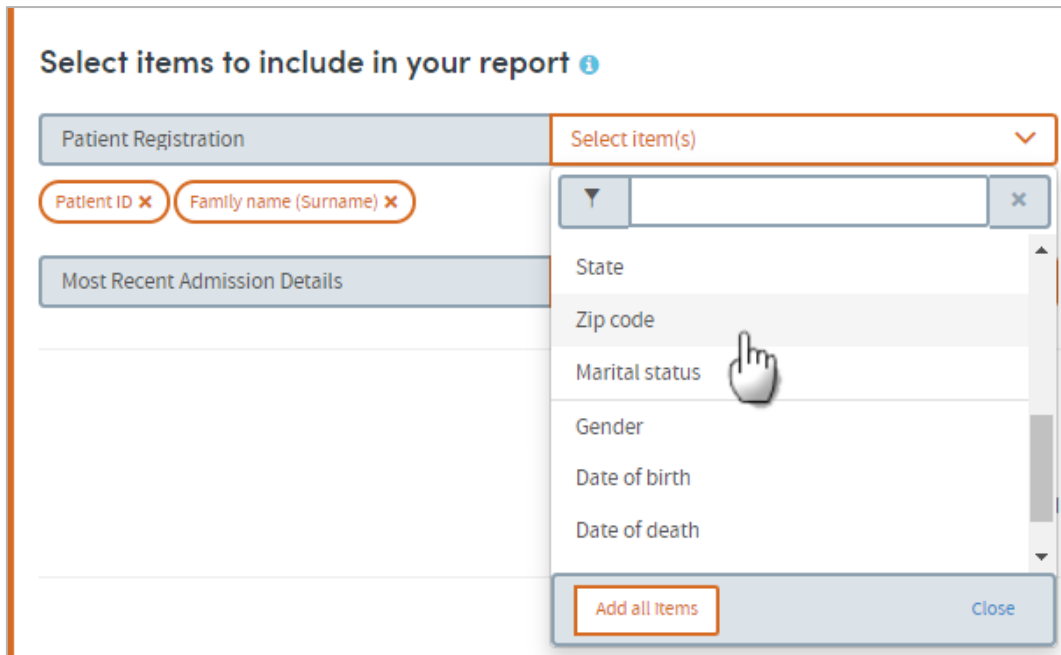
There are two ways to identify and select items: by choosing from the drop-down list and by searching.

- Click the orange cross next to an item if you want to remove it.
- You can also choose to **Add all items** if you prefer.

Search for items

Start typing your search text into the search box:

The list below will dynamically display all the items containing your search text, wherever it appears in the name:
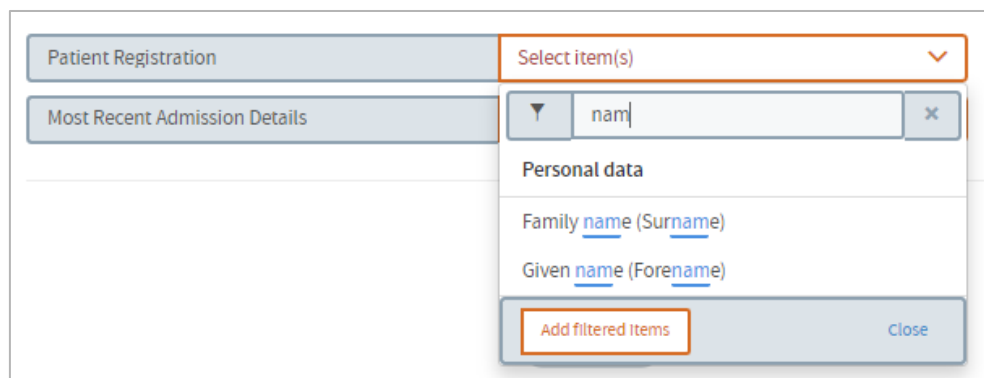
Click the text of an item to select it for inclusion in the report. The item name will appear next to the search field. Continue searching and adding items as necessary.

9.3   Select additional items

As well as the main datasets in the top section, you can choose to add items from additional datasets if you wish. First you need to select a dataset and then choose the items from that dataset.
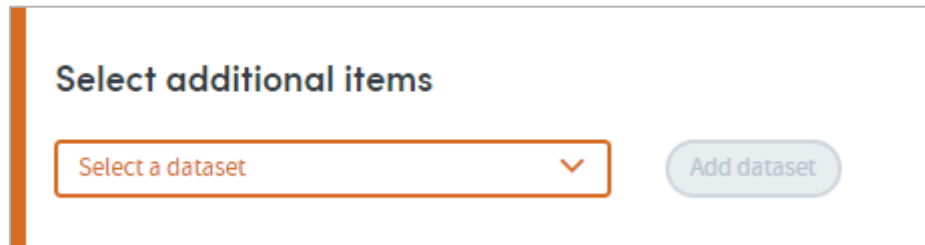
Click the drop-down arrow to choose a dataset:
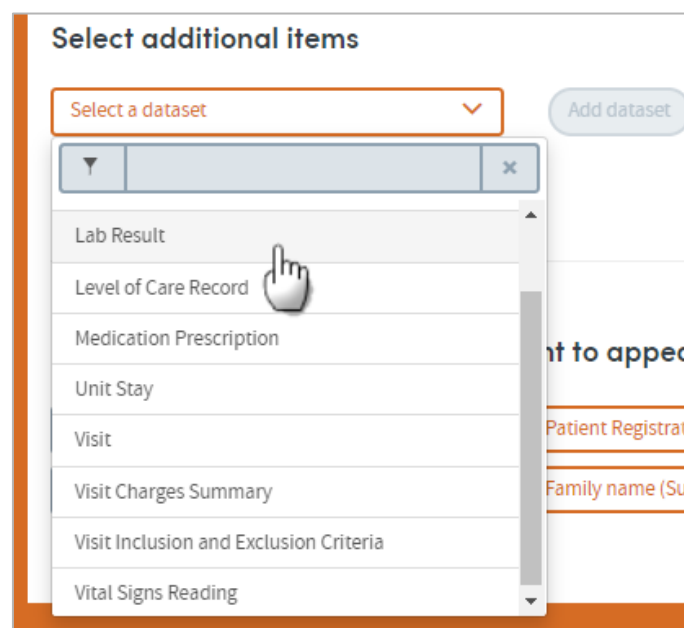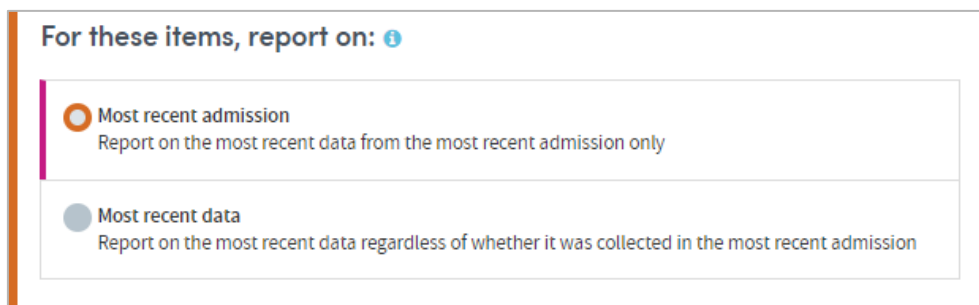
As above, you can choose datasets by selecting from the drop-down list, or by searching. Once you've chosen a dataset, click the Add dataset button. You'll then be able to choose items from that dataset:
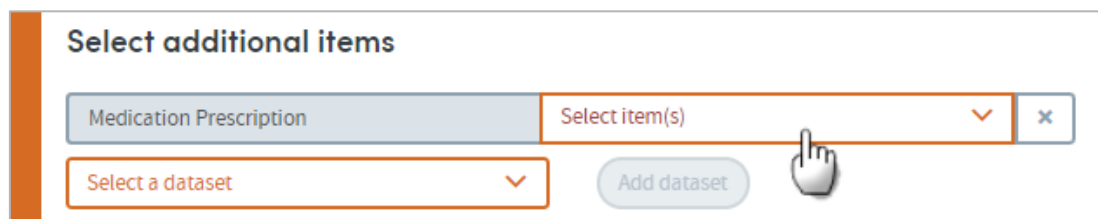
Again, use the search field or the drop-down list to choose items. You can add as many items as you wish, from any of the datasets available to you.

9.4 For these items, report on:

If you select additional items for inclusion, an **advanced option** will become available:

Data items may have been recorded several times for each patient. Only the most recently recorded data item for each patient is included in the report. You have two options when deciding which data to include:

Most recent admission/visit
This option selects the most recent data items recorded during the most recent admission/visit only.

> **Example**: Patient A has had three admissions/visits, but only had their blood pressure recorded during the first one.
>
> Selecting the **Most recent admission/visit** option means that if you choose to include the blood pressure data item in your report, this part of the report will be blank for Patient A, as their blood pressure was recorded during a previous admission/visit.

Most recent data
This option selects the most recent data items that have been recorded, regardless of when that was.

> **Example**: Patient A has had three admissions/visits but only had their blood pressure recorded during the first one in 2011.
>
> Selecting the **Most recent data** option means that if you choose to include the blood pressure data item in your report, this information will be included for Patient A, even though this data was recorded several years ago during a previous admission/visit.

9.5   Select the first column of the report

Choose the item you want to form the first column of your report. First, choose the dataset and then select the item:

9.6   Completing the report

Click **Next** when you're happy with your selections.

Follow the **Where** (see chapter 17) and **When** (see chapter 18) steps to complete the report definition process.

See chapters 19 and 20 for information about naming, generating and viewing your report.

9.7   Report outputs: Results

The basic output of an Identity Check report is a table with patient details listed in the left-hand columns and selected items from other forms alongside. The total number of patients included in the report is shown at the top:

Additionally, an average score is generated for any data items that are numeric; for example, age, length of stay, blood pressure. These can be accessed by clicking the **Averages** tab:

9.7.1   Filtering report data

Your report can be filtered by any combination of answers recorded about data items with structured lists of answers; for example, gender or marital status. Click the Filter button towards the top left of the results page:

All the suitable filter items will be available to you here. Choose the dataset, question/item, and answer that you want to filter on, and click **Apply**.

The updated number of patients is also shown, once the selected filters have been applied. In the example below, filtering by **marital status=single** reduces the number of patients to 1,533:

Click **Add another** to add a second filter. You can apply any number of filters. However, the rules applying to filtering should be noted (see below).

> **Example**: If you filter on **marital status=single** and **gender=male**, this will filter the list down to all patients who are **single** AND **male**, i.e. all single men.

If you select **gender=male**, **marital status=single** and also select **marital status=widowed** this will select all patients who are **single** OR **widowed** AND **male**, i.e. all men who are single or widowed.

This is what would be intuitively expected. However, note that the software is using the **AND** operator across two different questions; and the **OR** operator within single questions such as marital status. For example, you cannot select patients who are single AND widowed; you can only select patients who are single OR widowed.

9.7.2 Sort list

Listed patients may be sorted on any available column by selecting the column and clicking the pink arrow.

9.7.3 Download CSV

The full listing of patients produced by the report can also be downloaded as a .CSV file that can be opened directly into Excel by clicking the **Download CSV** button in the top right-hand corner of the screen.

9.8   Subgroups

This App enables **subgroups** to be created within a report and saved as a new cohort. See chapter 22 for full details of this feature.

9.9   Report outputs: Summary and History

See section 21.4 for full details of the Summary tab

See section 21.5 for full details of the History tab

9.10 Sharing reports

Depending on the permissions assigned to you, you may be able to share reports with other users. See chapter 23 for details of this feature.

10 Lab Tests Explorer

Use this app to explore the investigations undertaken for a single cohort or to compare those undertaken for two cohorts.

For example:

- What range of investigations were undertaken in a clinic or hospital department in a typical week, month or year?

- What are the most common investigations undertaken for a particular disease?

- Do two doctors or clinics order similar investigations of patients with similar diagnoses?

- Are certain investigations undertaken more commonly in one clinic than another?
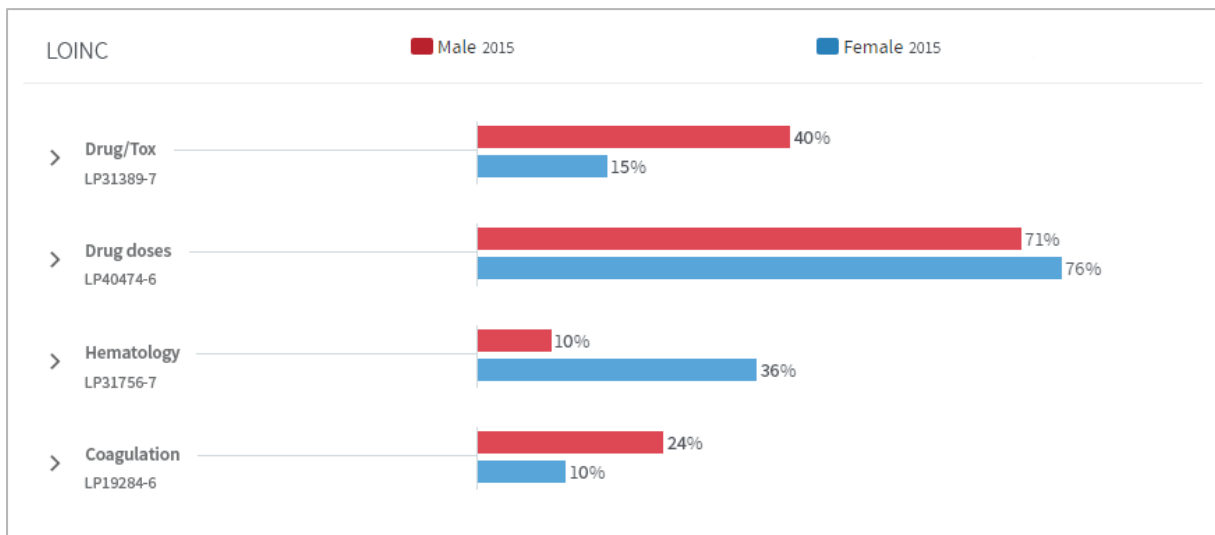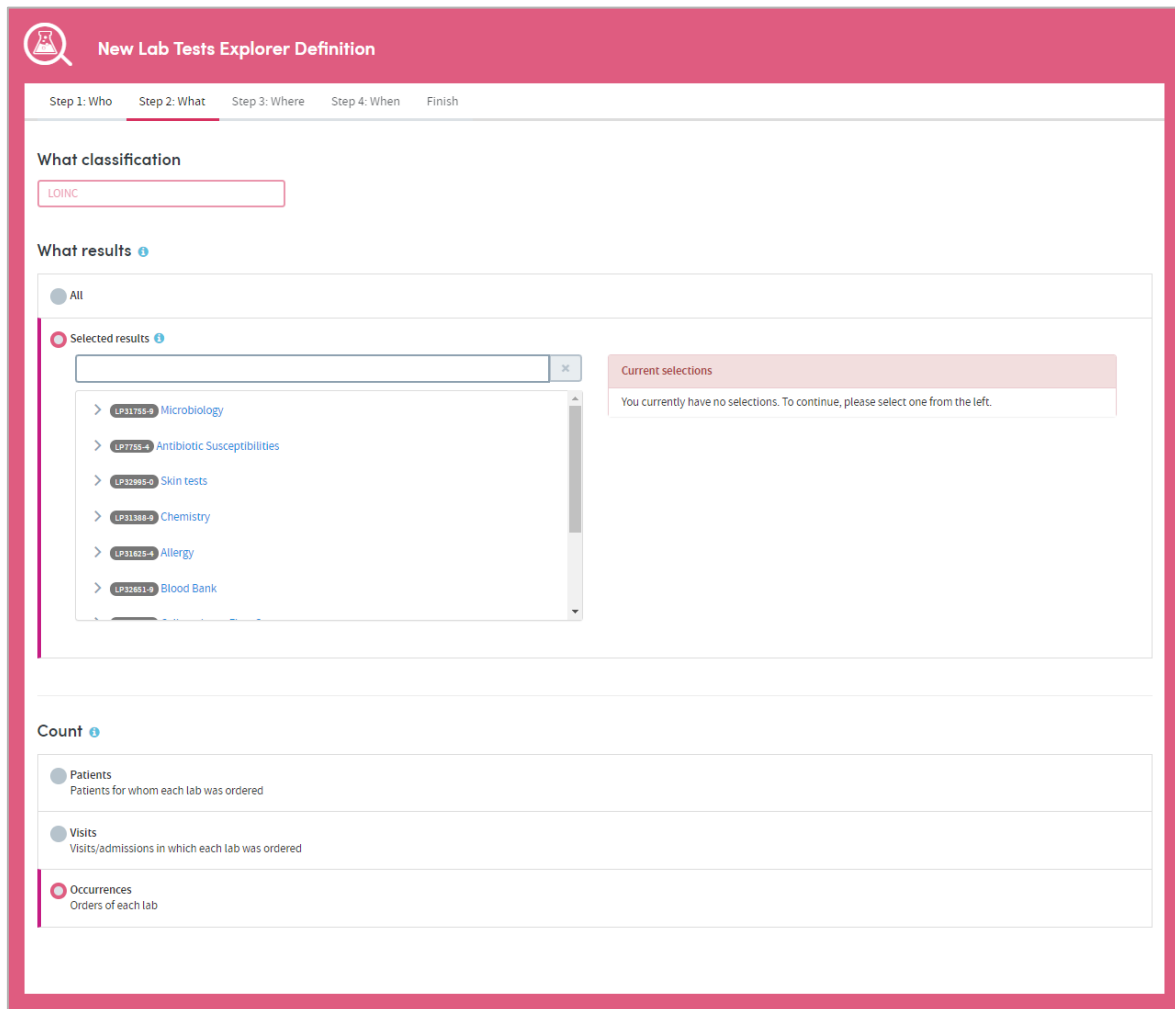
Features

- View your results as a browsable graphical tree.

- Choose any standard labs or investigations classification e.g. LOINC.

- Highlight investigations of particular interest on your **Cover sheet**.

- Arrange your outputs to make them easy to read e.g. switch between counts and percentages, or sort alphabetically, by frequency, or by clinical code.

10.1 Report creation

To create a Lab Tests Explorer report, select the App via one of the methods described in chapter 3. Follow the **Who** step (see chapter 15) to choose the cohort(s) you wish to report on and click **Next**. You will arrive at the **What** step for this App, where you have several options:

10.2 What classification

First, confirm the classification system you wish to report on:

The classification systems available to you may vary depending on your organization's Atmolytics data. If you have access to more than one, you'll be able to choose from a drop-down list.

10.3 What results

You can choose to report on **All** the results available for the classification system you've selected, or you can specify any number of **Selected results**. Click the option you require.
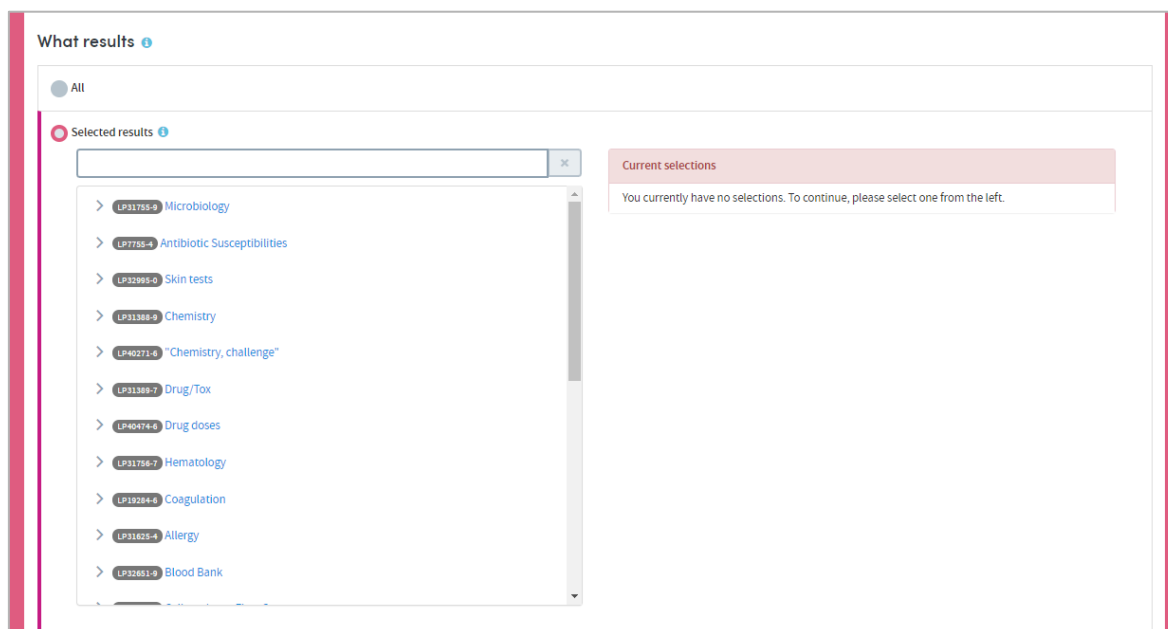
If you want to report on selected results you can locate them either by browsing or by searching. You can choose any number of specific items from any level of the list. Doing so automatically selects the item and all its children. The data pertaining to all the children will be included in the report, and you will be able to drill down into all the child levels when browsing the report data.

As you make your selections, they'll be listed on the right of your screen. Click the cross next to an item to remove it from the list:

10.3.1 Selecting results by browsing
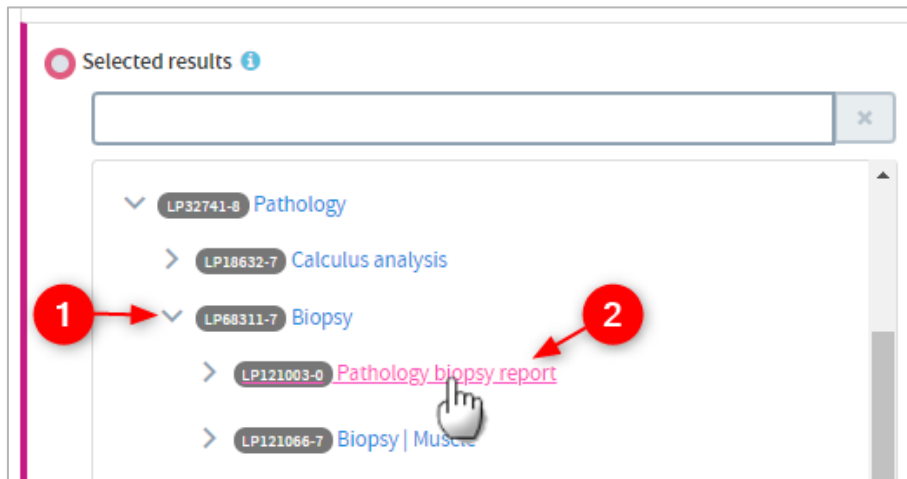
1 Browse the list of results by clicking the arrows on the far left to move up and down between the levels.

2 Click the text of an item to select it for inclusion in the report.

10.3.2 Selecting results by searching

1 Start typing your search term into the text box.

2 The list below will dynamically display all the items containing your search term, wherever it appears in the term text.

3 Click the text of an item to select it for inclusion in the report.

10.4 Count

This option enables you to choose how the results included in the report output will be identified and counted. The options are:

Patients: Counts and reports on how many patients in your selected cohort(s) received the selected labs or lab types.

> **Based upon: All**
> This option counts and reports on the number of patients receiving each lab, taking into account **all** their visits/admissions.

> **Based upon: Most recent admission**
> This option counts and reports on the number of patients receiving each lab, taking into account only their **most recent** visit/admission.

Visits: This option counts and reports on the number of visits/admissions involving your cohort(s) in which each of the selected labs were ordered.

> **Example**: 1000 patients may have been admitted to hospital this year but 100 may have been admitted twice, so there will have been 1100 admissions.
>
> Consequently, the number of patients for whom each lab was undertaken may differ from the number of admissions or visits upon which that lab was undertaken.

Occurrences of each answer: This counts the number of occasions on which each lab was undertaken, regardless of the number of patients or visits/admissions those labs pertained to. A lab may be ordered several times during one admission, so this option provides a guide to overall utilization of each lab.

> **Example**: A patient may have their blood pressure taken several times during an admission.

If **occurrences** are counted, this would be counted as several occurrences rather than one.

10.5 Completing the report

Click **Next** when you're happy with your selections.

Follow the **Where** (see chapter 17) and **When** (see chapter 18) steps to complete the report definition process.

See chapters 19 and 20 for information about naming, generating and viewing your report.

10.6 Report outputs: Cover sheet

In addition to providing full details of every item you have included, your finished report contains a **Cover sheet**. This is automatically generated and contains a selection of the most significant data in your report:
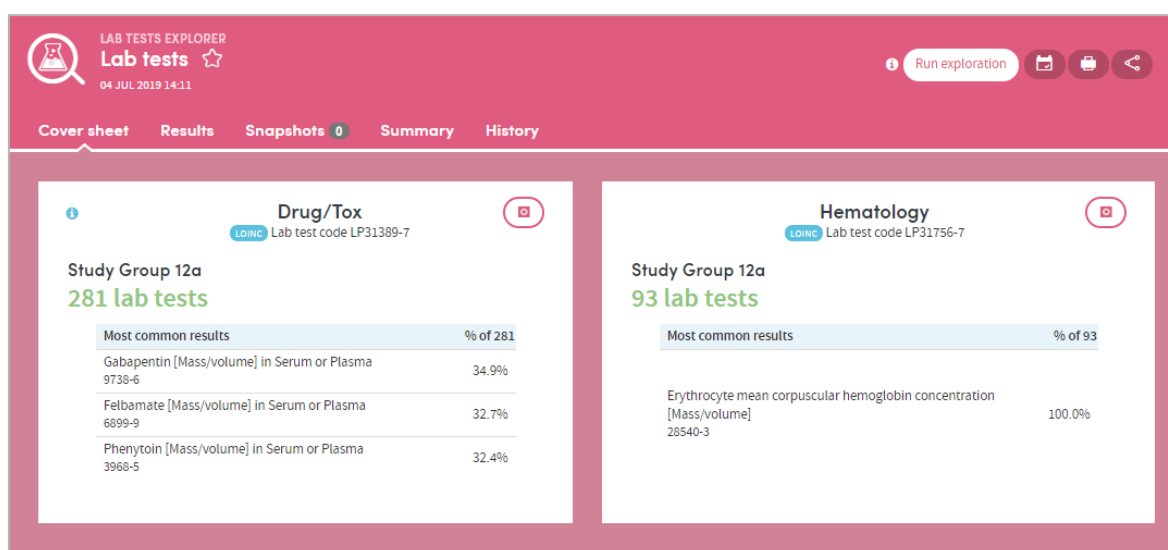
The cover sheet shows the five most commonly-occurring labs or lab types from each of the two most frequently-occurring high-level categories you select.

For example, if you select four high-level categories to report on, the five most commonly-occurring labs or lab types pertaining to two of the four will be displayed on the cover sheet.

10.7 Report outputs: Results

10.7.1 Browsing the results

The left-hand side of the report output enables you to browse through the branches of a tree of counts and percentages pertaining to all the labs or lab types you selected:

Click the arrow keys on the left to move up and down through the different levels of your selected data:

Click the text itself to see a further tabular breakdown:

The data this contains will depend on the classification system you're reporting on, and the filters you may have set as part of the report generation process. Click the text again to remove the tabular data from the display.

Note: As you browse down the tree, the counts (or percentages) of lower branches may come to a total which is greater than the parent branch which you have browsed down from. This is because some patients may have received more than one lab test falling under a particular parent classification.

Example: A cohort may comprise 100 patients of whom 20 had a blood test. Of those 20, 10 (50%) had a full blood count and 15 (75%) had blood glucose levels. This is because some patients may have had both tests.

Consequently, the sum of all counts is 35, even though only 20 patients had a blood test, and the sum of all percentages is 125% for the same reason.

Similarly, although only 20 patients had a blood test, the number with an **abnormal** result may be 18 and the number with a **normal** result may be 17 – again because 15 patients had two tests.

10.7.2 Results settings

On the right of the results screen there are several configurable settings which allow you to view the data from different perspectives:
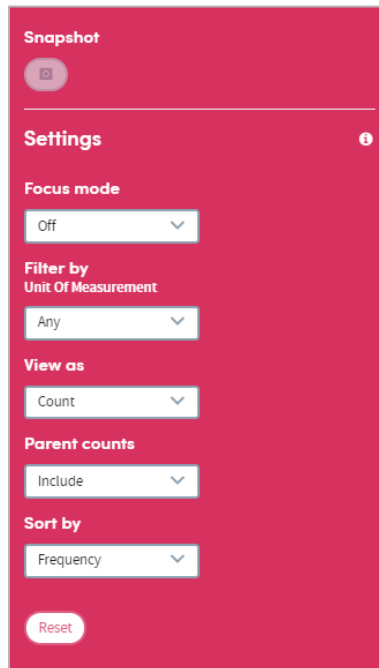
Focus mode

If focus mode is **on**, clicking an arrow to move up or down the tree of lab tests will bring up a pop-up window which only displays the branch you have selected. In the example below, we've just clicked on the arrow to the left of **Drug/Tox**. The data for that branch of the tree appears in a pop-up display as follows:
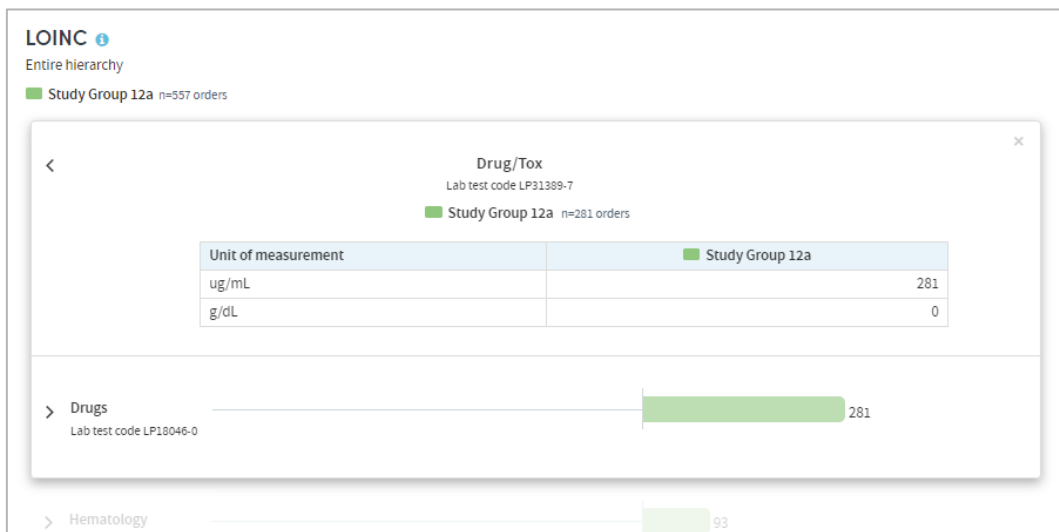
If focus mode is **off**, clicking an arrow to move up or down the tree of diagnoses will unfold the tree so that branches surrounding the selected branch can be seen and browsed. In the example below, we've clicked on the arrow to the left of **Hypertensive Disease** and have browsed further down the tree. The path taken through the tree and the data pertaining to each branch are displayed as an indented list as follows:
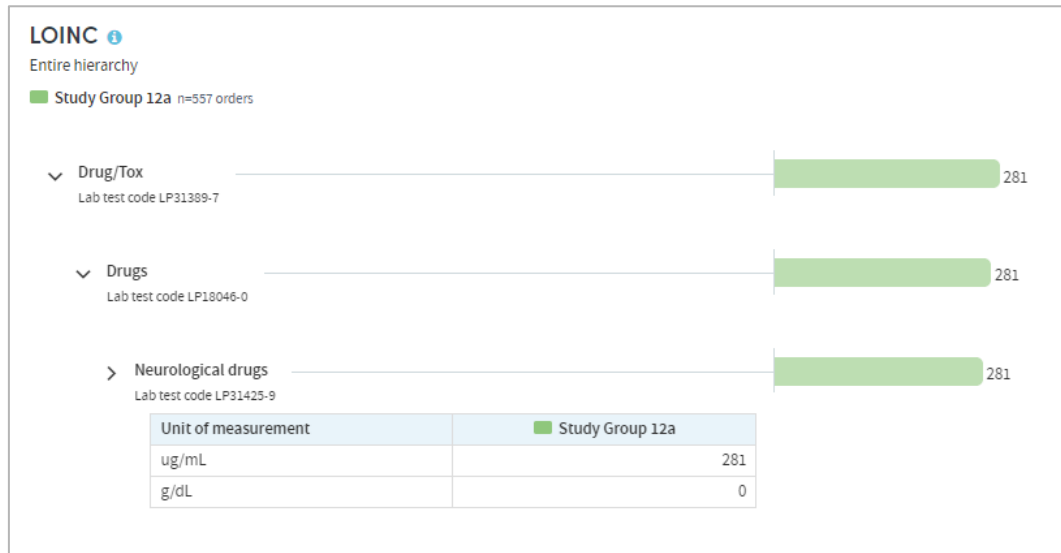
Filter by

This option enables you to filter the displayed counts according to suitable criteria for the classification system you have selected. This may be, for example, filtering by different units of measurement.

View as

This option enables you to display the results as either **counts** or **percentages**.

If you opt to display percentages, you will be able to choose whether the percentages displayed are expressed as a percentage:

- **Of n**: the total number (n) in each cohort

- **Of parent category**: the total number in the parent category for each cohort

- **Of total n**: the combined total n of both cohorts (if you're reporting on two cohorts)

Example: We have two cohorts:

**Cohort A** comprises 100 patients, of whom 20 have a Pathology biopsy report. Of those 20, 10 have a muscle biopsy report, and 10 have a liver biopsy report.
Cohort B also has 100 patients, none of whom have Pathology biopsy reports.

% of parent category: The 10 patients with a muscle biopsy report represent **50%** of those patients with Pathology biopsy reports.

% of n: The 10 patients with a muscle biopsy report represent **10%** of the total cohort.

% of total n: The 10 patients with a muscle biopsy report represent **5%** of the combined total of 200 patients in both cohorts.

Parent counts

This feature enables you to include or exclude a parent item's data from the report results.

> **Example**: A cohort comprises 100 patients, of whom 12 had unspecified **blood glucose tests**, 25 had **fasting glucose tests** and 15 had **glucose tolerance tests**.
>
> In the classification system being used, fasting glucose tests and glucose tolerance tests are classified as children of the more generic term of blood glucose test.

If you choose to **Exclude Parent counts** from your report results, the 12 unspecified blood glucose tests would be excluded from the total count, which would be displayed as follows:

Blood glucose tests: **40**
       Fasting glucose tests: **25**
       Glucose tolerance tests: **15**

If you choose to **Include Parent counts** in your report results, the 12 unspecified blood glucose tests would be included in the total count, which would be displayed as follows:

Blood glucose tests: **52(12)**
       Fasting glucose tests: **25**
       Glucose tolerance tests: **15**

Sort by

This option enables you to sort the report results in one of three ways:

- By **Clinical code** (according to the classification system you selected),
- By **Frequency** (from the highest count or percentage to the lowest),
- Alphabetically, from **A-Z**.

Reset

Selecting this will return all the display options to their default settings.

10.8 Report outputs: Snapshots, Summary, History

See section 21.6 for full details of the Snapshot feature

See section 21.4 for full details of the Summary tab

See section 21.5 for full details of the History tab

10.9 Sharing reports

Depending on the permissions assigned to you, you may be able to share reports with other users. See chapter 23 for details of this feature.

11 Medications Explorer

Use this app to explore questions about the use of medications such as:

- What medications were prescribed in a clinic for a particular condition?

- How often were different medications prescribed in a typical week, month or year?

- Did two cohorts receive different medications?

- What are the most common medications prescribed for particular purposes e.g. pain relief?

- Do two doctors or clinics have different prescribing patterns?
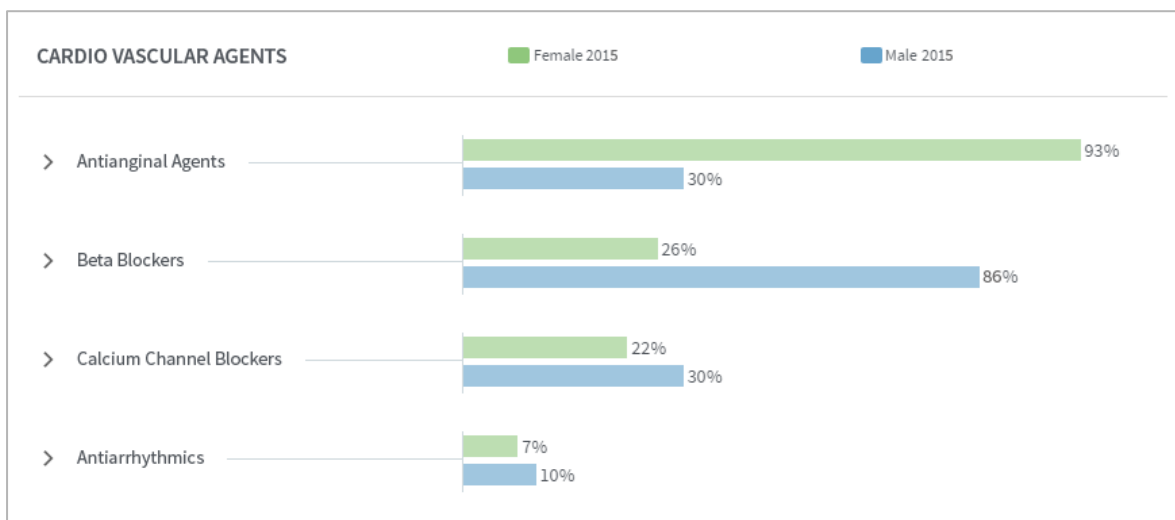
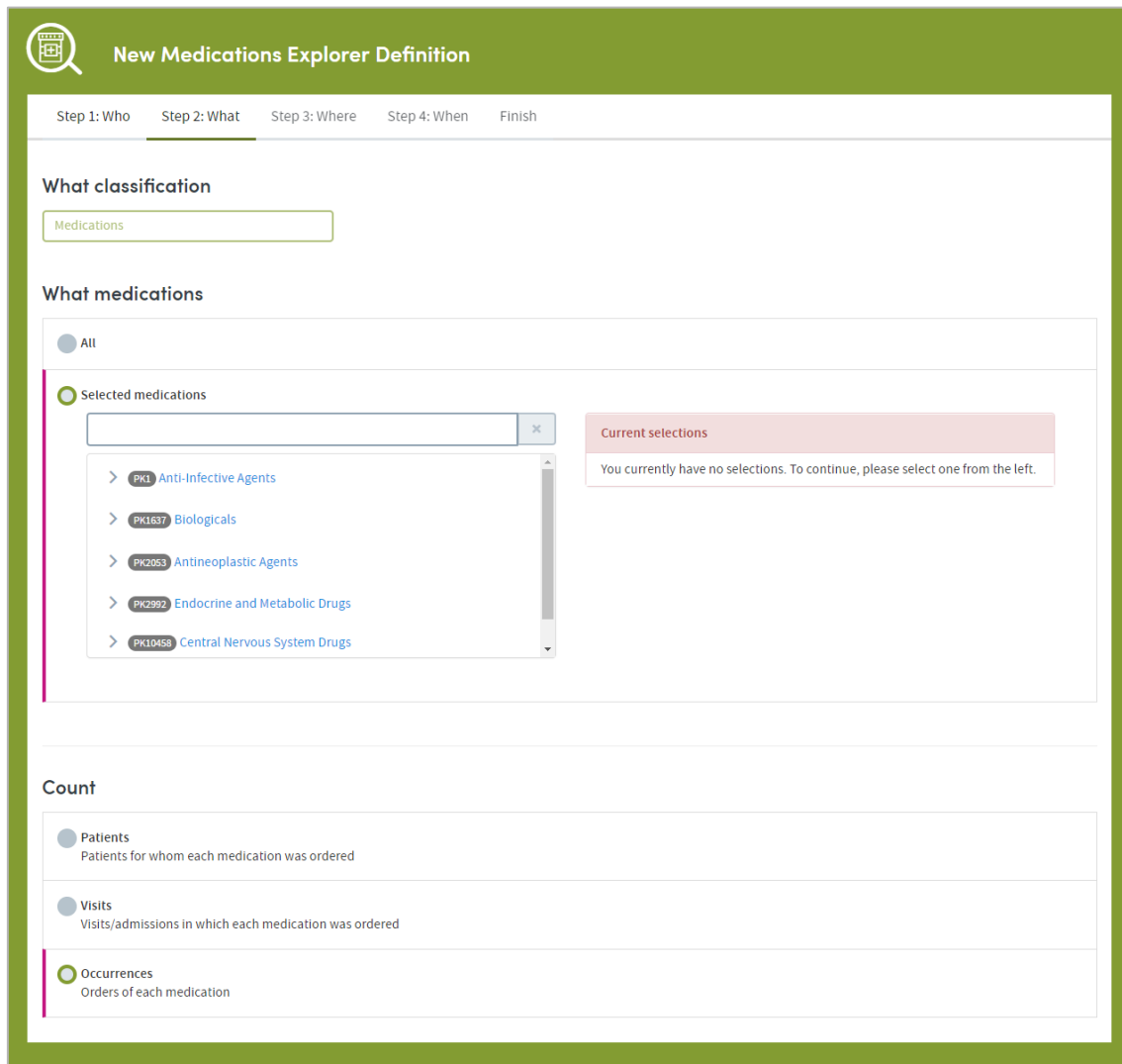**Features**

- View your results as a browsable graphical tree based upon standard medication classifications.

- Filter data by initial or repeat prescription or other qualifiers.

- Highlight medications of particular interest on your **Cover sheet**.

- Arrange your outputs to make them easy to read e.g. switch between counts and percentages, or sort by frequency of occurrence or alphabetically.

11.1 Report creation

To create a Medications Explorer report, select the App via one of the methods described in chapter 3. Follow the **Who** step (see chapter 15) to choose the cohort(s) you wish to report on and click **Next**. You will arrive at the **What** step for this App, where you have several options:

11.2 What classification

First, confirm the classification system you wish to report on:

The classification systems available to you may vary depending on your organization's Atmolytics data. If you have access to more than one, you'll be able to choose from a drop-down list.

11.3 What medications

You can choose to report on **All** the medications available for the classification system you've selected, or you can specify any number of **Selected medications**. Click the option you require.

If you want to report on selected medications, you can locate them either by browsing or by searching. You can choose any number of specific items from any level of the list. Doing so automatically selects th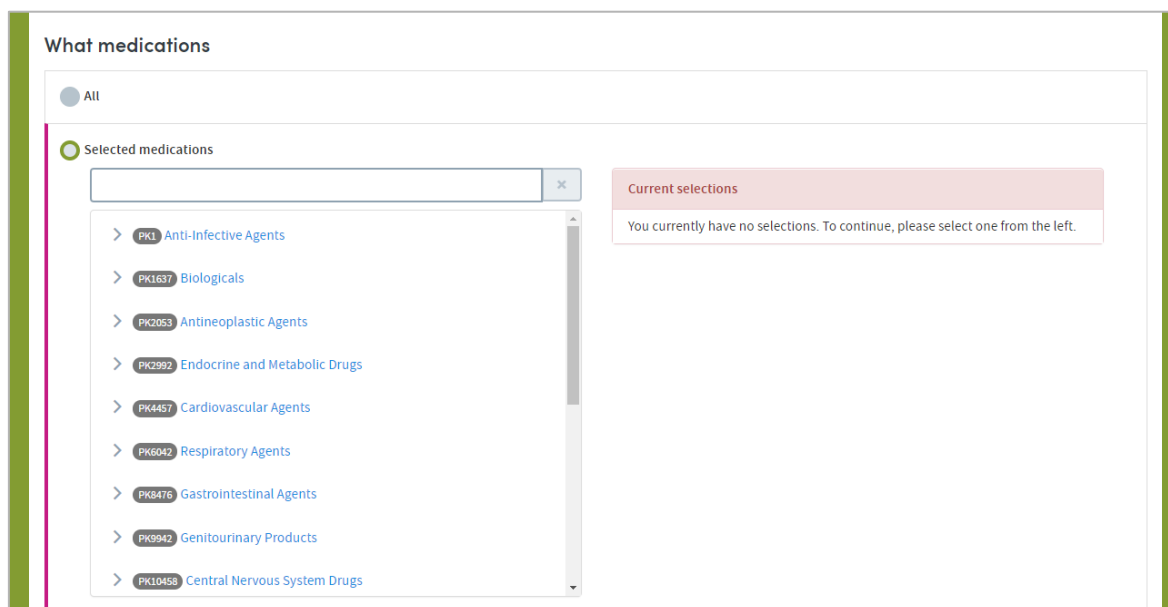e item and all its children. The data pertaining to all the children will be included in the report, and you will be able to drill down into all the child levels when browsing the report data.

As you make your selections, they'll be listed on the right of your screen. Click the cross next to an item to remove it from the list:
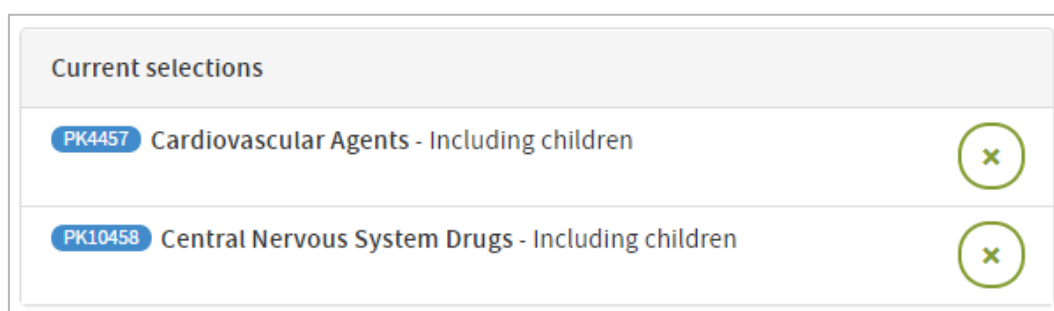
11.3.1 Selecting medications by browsing
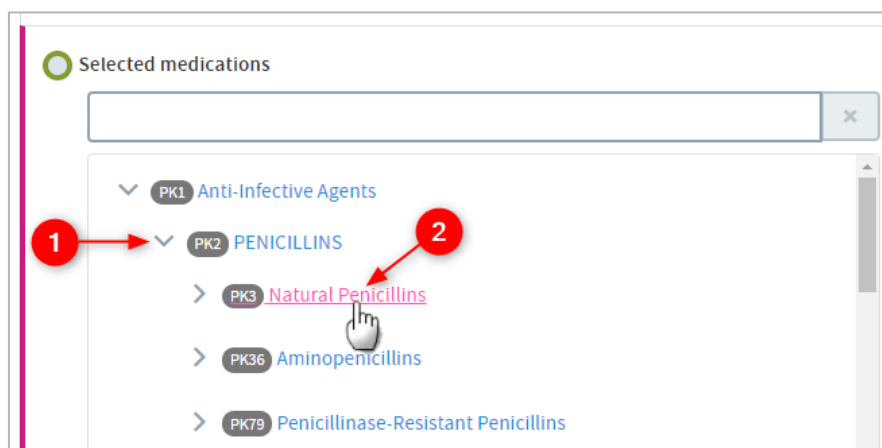
1   Browse the list of medications by clicking the arrows on the far left to move up and down between the levels.

2   Click the text of an item to select it for inclusion in the report.

11.3.2 Selecting medications by searching
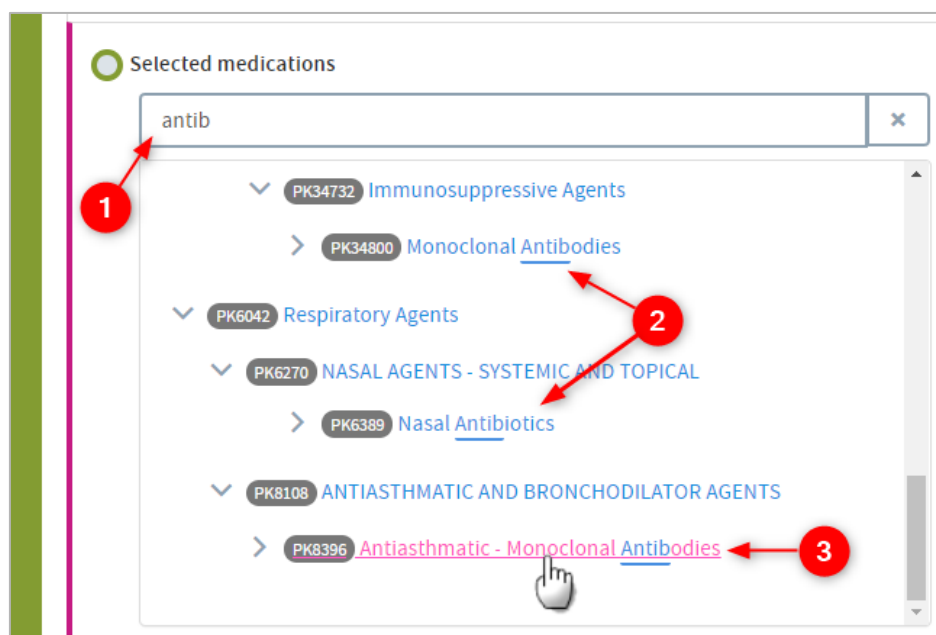
1   Start typing your search term into the text box.

2   The list below will dynamically display all the items containing your search term, wherever it appears in the term text.

3   Click the text of an item to select it for inclusion in the report.

11.4 Count

This option enables you to choose how the medications included in the report output will be identified and counted. The options are:

Patients: Counts and reports on how many patients in your selected cohort(s) were prescribed the selected medications or medication types.

> **Based upon: All**
> This option counts and reports on the number of patients prescribed the selected medications or medication types, taking into account **all** their visits/admissions.

> **Based upon: Most recent admission**
> This option counts and reports on the number of patients prescribed the selected medications or medication types, taking into account only their **most recent** visit/admission.

Visits: This option counts and reports on the number of visits/admissions involving your cohort(s) in which each of the selected medications or medication types were prescribed.

> **Example:** 1000 patients may have been admitted to hospital this year but 100 may have been admitted twice, so there will have been 1100 admissions.
>
> Consequently, the number of patients for whom each lab was undertaken may differ from the number of admissions or visits upon which that lab was undertaken.

Occurrences of each answer: This counts the number of occasions on which each medication was prescribed, regardless of the number of patients or visits/admissions those diagnoses pertain to. A medication may be ordered several times during one admission, so this option provides a guide to overall utilization of each medication.

> **Example:** A patient may receive both meperidine and morphine for pain relief during an admission.

> If occurrences are counted, then this would be counted as two occurrences of pain-relieving medication rather than one.
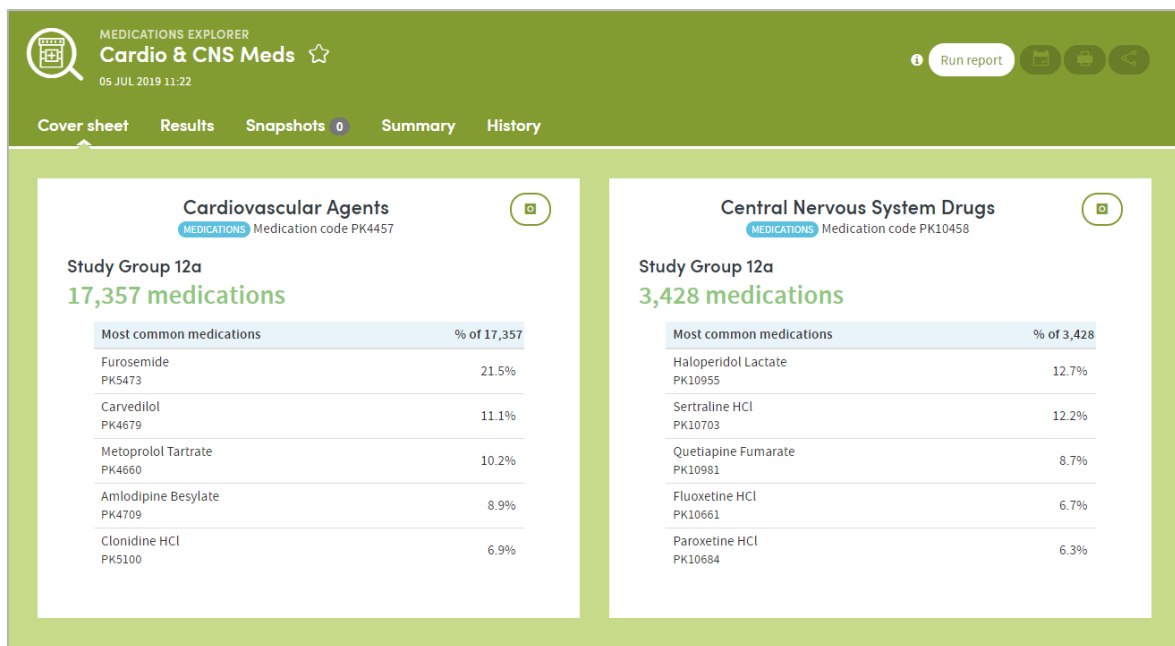
11.5 Completing the report

Click **Next** when you're happy with your selections.

Follow the **Where** (see chapter 17) and **When** (see chapter 18) steps to complete the report definition process.

See chapters 19 and 20 for information about naming, generating and viewing your report.

11.6 Report outputs: Cover sheet

In addition to providing full details of every item you have included, your finished report contains a **Cover sheet**. This is automatically generated and contains a selection of the most significant data in your report:



The cover shows the five most commonly-occurring medications or medication types from each of the two most frequently-occurring high-level categories you selected when specifying your report.

For example, if you selected four high-level categories to report on, the five most commonly-occurring medications or medication types pertaining to two of the four will be displayed on the cover sheet.
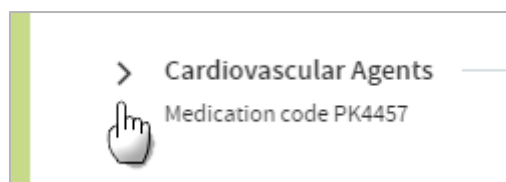
11.7 Report outputs: Results

11.7.1 Browsing the results

The left-hand side of the report output enables you to browse through the branches of a tree of counts and percentages pertaining to all the medication categories you selected:
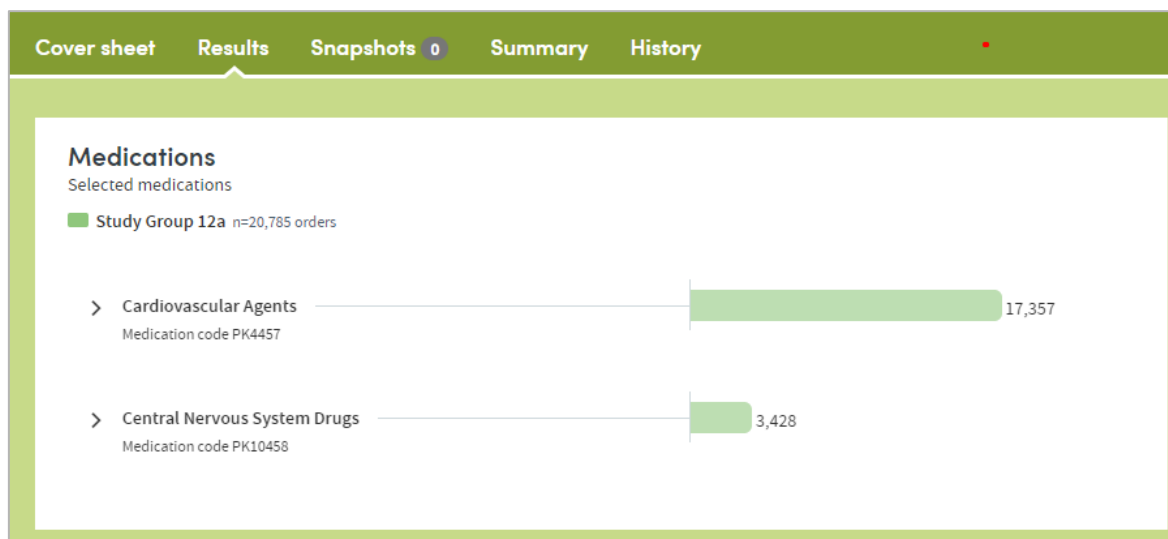
Click the arrow keys on the left to move up and down through the different levels of your selected data:

Click the text itself to see a further tabular breakdown:
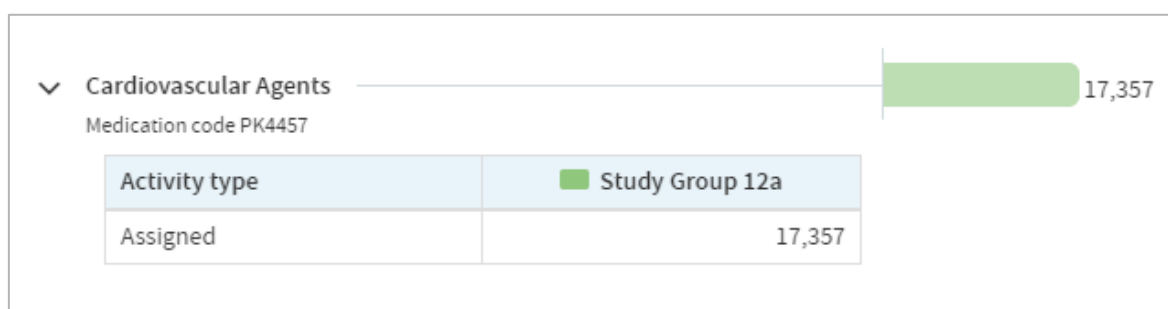
The data this contains will depend on the classification system you are reporting on, and the filters you may have set as part of the report generation process. Click the text again to remove the tabular data from the display.

Note: As you browse down the tree, the counts (or percentages) of lower branches may come to a total which is greater than the parent branch which you have browsed down from. This is because some patients may have received more than one medication falling under a particular parent classification.

Example: A cohort may comprise 100 patients of whom 20 were prescribed pain relief. Of those 20, 10 (50%) were prescribed morphine and 15 (75%) were prescribed meperidine. This is because some patients may have been prescribed both.
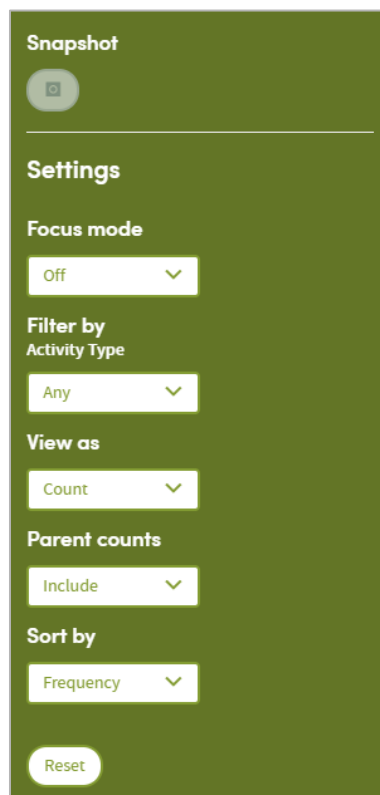
Consequently, the sum of all counts is 35, even though only 20 patients were prescribed pain relief, and the sum of all percentages is 125% for the same reason.

Similarly, the sum of the tabular breakdown could again be greater than the main parent category.

11.7.2 Results settings

On the right of the results screen there are several configurable settings which allow you to view the data from different perspectives:

Focus mode

If focus mode is **on**, clicking an arrow to move up or down the tree of medications will bring up a pop-up window which only displays the branch you have selected. In the example below, we've just clicked on the arrow to the left of **Cardiovascular Agents.** The data for that branch of the tree appears in a pop-up display as follows:
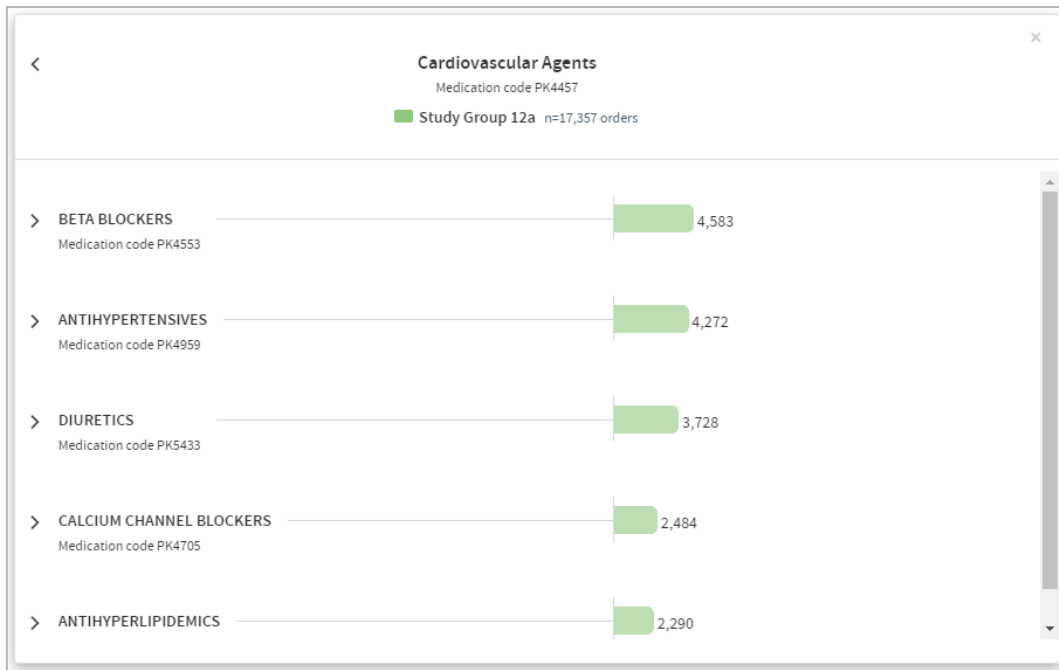
If focus mode is **off**, clicking an arrow to move up or down the tree of medications will unfold the tree so that branches surrounding the selected branch can be seen and browsed. In the example below, we've clicked on the arrow to the left of **Cardiovascular Agents** and have browsed further down the tree. The path taken through the tree and the data pertaining to each branch are displayed as an indented list as follows:
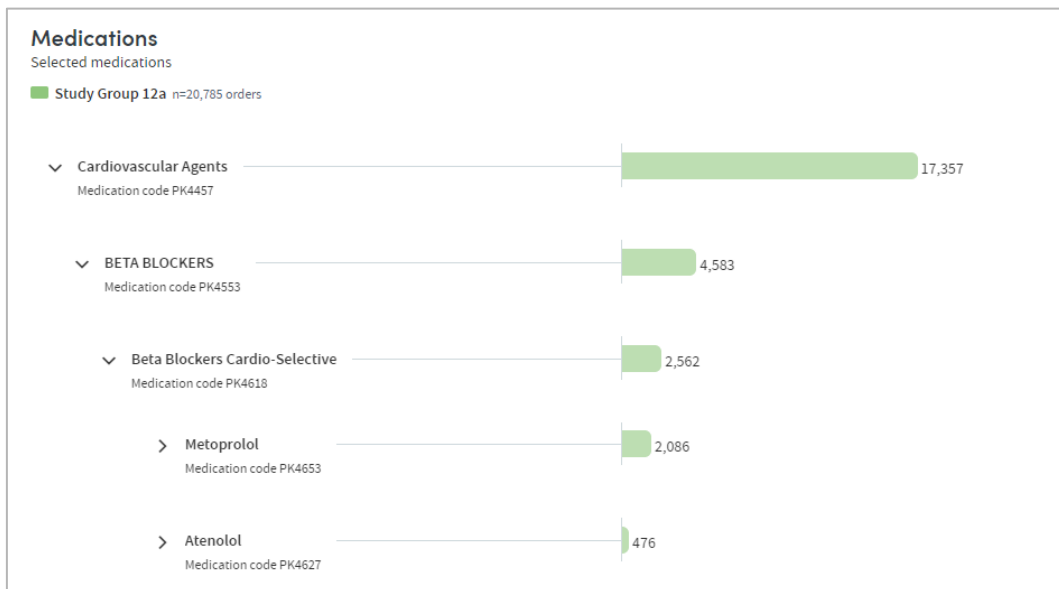
Filter by

This option enables you to filter the displayed counts according to suitable criteria for the classification system you have selected. This may be, for example, filtering by ordered medications or filled medications.

View as

This option enables you to display the results as either **counts** or **percentages**.

If you opt to display percentages, you will be able to choose whether the percentages displayed are expressed as a percentage:

- **Of n**: the total number (n) in each cohort

- **Of parent category**: the total number in the parent category for each cohort

- **Of total n**: the combined total n of both cohorts (if you're reporting on two cohorts)

Example: We have two cohorts:

Cohort A comprises 100 patients, of whom 20 were prescribed painkillers. Of those 20, 10 were prescribed morphine, and 10 were prescribed meperidine. **Cohort B** also has 100 patients, none of whom were prescribed painkillers.

% of parent category: The 10 patients prescribed morphine represent **50%** of those patients prescribed painkillers.

% of n: The 10 patients prescribed morphine represent **10%** of the total cohort.

% of total n: The 10 patients prescribed morphine represent **5%** of the combined total of 200 patients in both cohorts.

Parent counts

This feature enables you to include or exclude a parent item's data from the report results.

Example: A cohort comprises 100 patients, of whom 12 were prescribed unspecified **painkillers**, 25 were prescribed **meperidine** and 15 were prescribed **morphine**.

In the classification system being used, meperidine and morphine are classified as children of the more generic term painkiller.

If you choose to **Exclude Parent counts** from your report results, the 12 generic painkillers would be excluded from the total count, which would be displayed as follows:

Painkillers: **40**
      Meperidine: **25**
      Morphine: **15**

If you choose to **Include Parent counts** in your report results, the 12 generic painkillers would be included in the total count, which would be displayed as follows:

Painkillers: **52(12)**
      Meperidine: **25**
      Morphine: **15**

Sort by

This option enables you to sort the report results in one of three ways:

- By **Clinical code** (according to the classification system you selected),
- By **Frequency** (from the highest count or percentage to the lowest),
- Alphabetically, from **A-Z**.

Reset

Selecting this will return all the display options to their default settings.

11.8 Report outputs: Snapshots, Summary, History

See section 21.6 for full details of the Snapshot feature

See section 21.4 for full details of the Summary tab

See section 21.5 for full details of the History tab

11.9 Sharing reports

Depending on the permissions assigned to you, you may be able to share reports with other users. See chapter 23 for details of this feature.

12 Mortality Rates

The Mortality Rates App enables you to undertake analysis of mortality rates by age, gender, and per specific time period, for up to two cohorts of your choice. For example, you may use this App to:

- Calculate all causes of hospital mortality rates.
- Calculate mortality rates for patients moved into residential homes
- Compare mortality rates of patients receiving different interventions.
- Examine variations in mortality rates throughout the year.
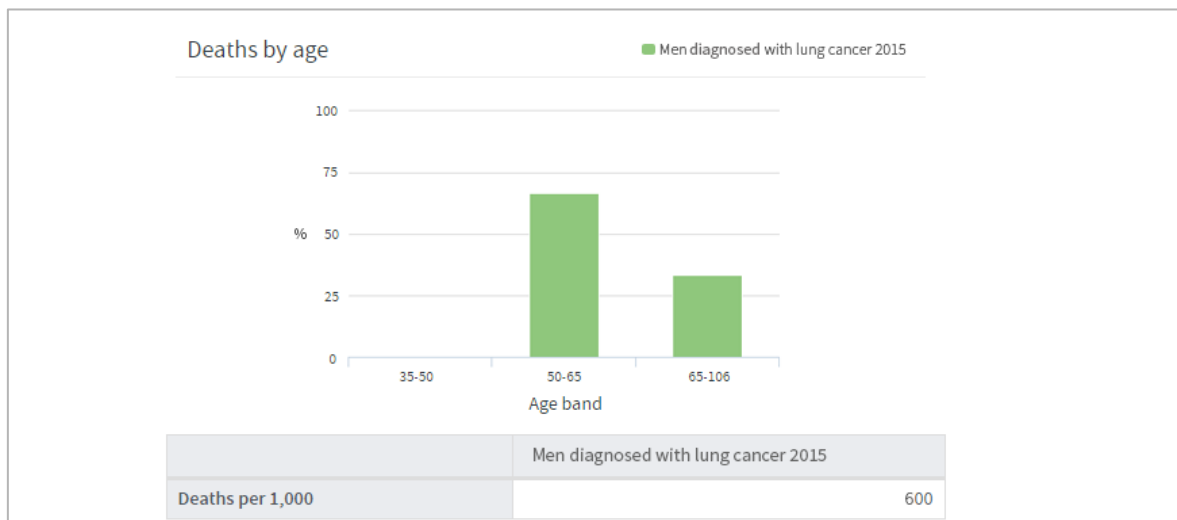
Its features enable you to:

- Produce standard mortality by age and gender.
- Calculate 'excess' mortality compared to your base cohort.
- Calculate mortality rates per admission.
- Explore mortality rates over time.

12.1 Report creation

To create a Mortality Rates report, select the App via one of the methods described in chapter 3. Follow the **Who** step (see chapter 15) to choose the cohort(s) you wish to report on and click **Next**. You will arrive at the **What** step for this App, where you have several options:

12.2 Select output options

This option enables you to choose whether or not to report on expected vs observed deaths:

Atmolytics bases its calculation of expected deaths on the underlying mortality rate of your base cohort. This will then be displayed in the report output alongside the observed mortality rate of your selected cohort(s).

12.3 Select age bands

The mortality rates output data is divided into age bands for reporting purposes:

Default bandings will have been set by your system administrator, but you can change the bands if you wish by clicking **Custom**:

1   Type into the number fields, or use the small arrows to click up and down.

2   Click the cross to delete a band, and **Add band** to create a new one

3   Clicking **Reset bands** will put the age bands back to the default settings.

12.4 Select denominator

Number of patients discharged within the selected time frame
The report output will show the mortality rate of patients who were discharged within the time frame you may choose to set in the **When** step (see chapter 18) e.g. within the past week or year).

Number of patients with no record of death at commencement of time frame
The report output will show the mortality rate of patients who did not have a recorded date of death (i.e. were definitely alive) at the beginning of the time frame you may choose to set in the **When** step (see chapter 18) e.g. at the beginning of the past week or year).


12.5 Completing the report

Click **Next** when you're happy with your selections.

Follow the **Where** (see chapter 17) and **When** (see chapter 18) steps to complete the report definition process.

See chapters 19 and 20 for information about naming, generating and viewing your report.

12.6 Report outputs: Cover sheet

In addition to providing full details of every item you have included, your finished report contains a **Cover sheet**. This is automatically generated and contains a selection of the most significant data in your report:
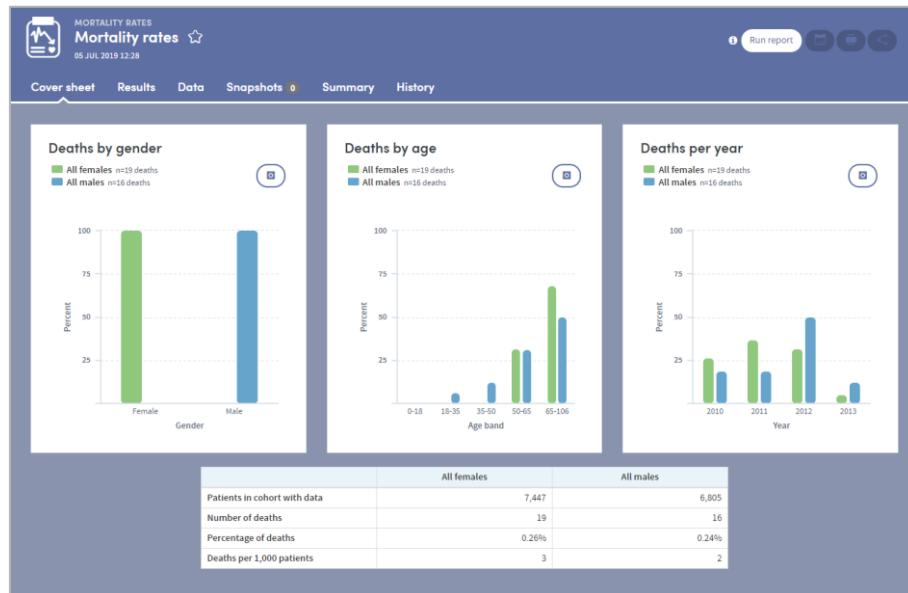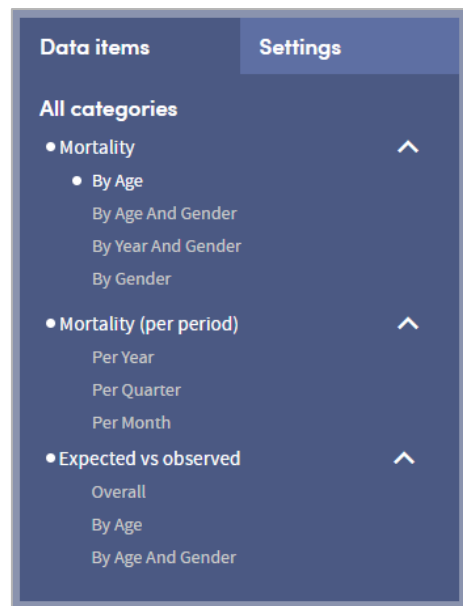

12.7 Report outputs: Results

The results tab shows the comprehensive report data:
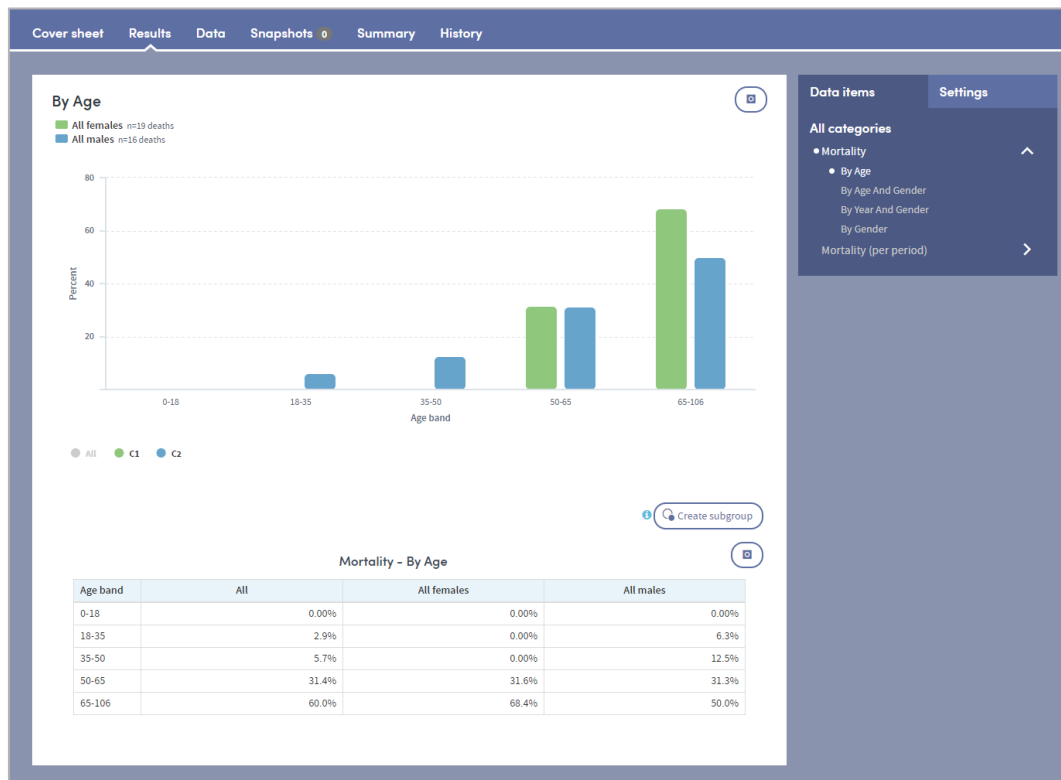
12.7.1 Data items

On the top right is a dynamic list of all the items in the report output.

Click any of the items to see the data specific to that item. The data is displayed in the chart on the left and also in the data table at the bottom of the screen.

12.7.2 Results settings

Click the **Settings** tab to see the report output data as either a **count** or a **percentage of the total** for the report output you are viewing.
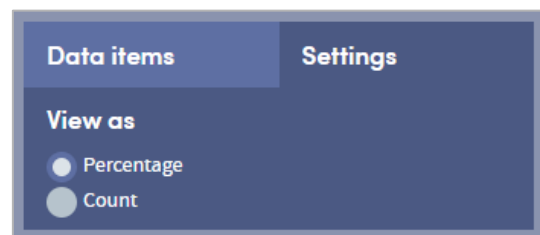
12.8 Report outputs: Data

The data tab shows a full breakdown of the complete report data:

Overview of Mortality Rates by cohort

	All	Study Group 12a
n=	14,823	7,447
Deaths	35	19
Deaths per 1,000 patients	2	3
Mortality rate %	0.24%	0.26%

By age

Mortality	Study Group 12a		
By age	n=	Expected deaths	Observed deaths
0-18	72	0	0
18-35	1,000	1	0
35-50	1,395	1	0
50-65	2,335	5	6
65-106	2,942	11	13

By gender

Mortality	Study Group 12a		
By gender	n=	Expected deaths	Observed deaths
Female	7,744	19	19
Male	0	0	0

12.9 Report outputs: Snapshots, Summary, History

See section 21.6 for full details of the Snapshot feature

See section 21.4 for full details of the Summary tab

See section 21.5 for full details of the History tab

12.10   Subgroups

This App enables **subgroups** to be created within a report and saved as a new cohort. See chapter 22 for full details of this feature.

12.11   Sharing reports

Depending on the permissions assigned to you, you may be able to share reports with other users. See chapter 23 for details of this feature.

13 Procedures Explorer

This App enables you to explore the diagnostic breakdown of a single cohort or to compare the diagnostic breakdown of two cohorts.

For example:

- What range of procedures were undertaken in a hospital or department in a typical week, month or year?

- What are the most common procedures undertaken on Admissions from an Emergency department?

- Do two doctors undertake similar procedures on patients with similar diagnoses?

- Are certain procedures undertaken more commonly in one clinic than another?
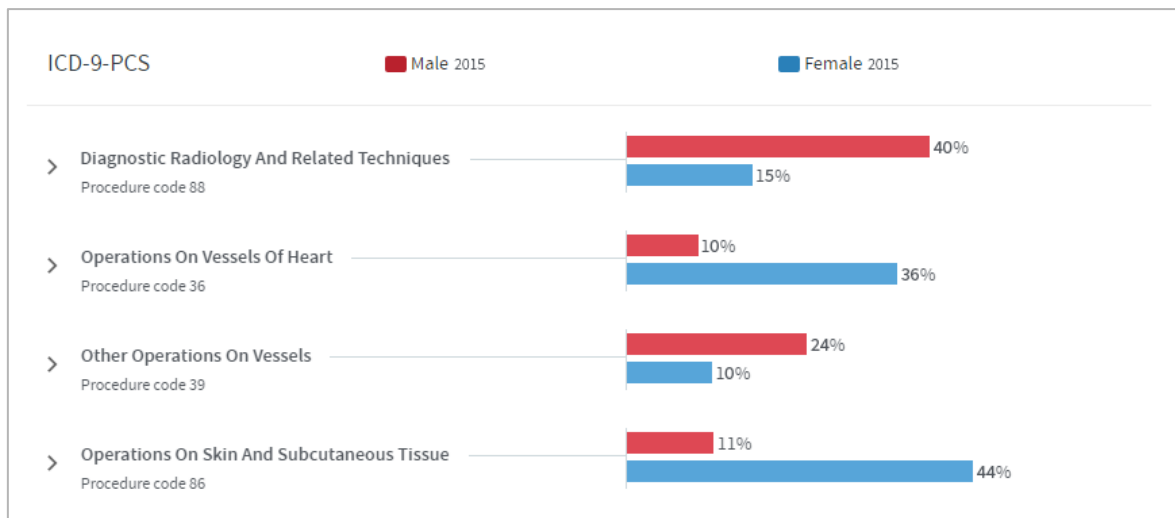
Features

- View your results as a browsable graphical tree.

- Choose any standard procedure classification.

- Highlight procedures of particular interest on your **Cover sheet**.

- Arrange your outputs to make them easy to read e.g. switch between counts and percentages, or sort by frequency, alphabetically or by procedure code.

13.1 Report creation

To create a Procedures Explorer report, select the App via one of the methods described in chapter 3. Follow the **Who** step (see chapter 15) to choose the cohort(s) you wish to report on and click **Next**. You will arrive at the **What** step for this App, where you have several options:

13.2 What classification

First, use the drop-down list to select the classification system you wish to report on:

The coding systems available to you may vary depending on your organization's Atmolytics data.

13.3 What procedures

You can choose to report on **All** the procedures available for the classification system you've selected, or you can specify any number of **Selected procedures**. Click the option you require.
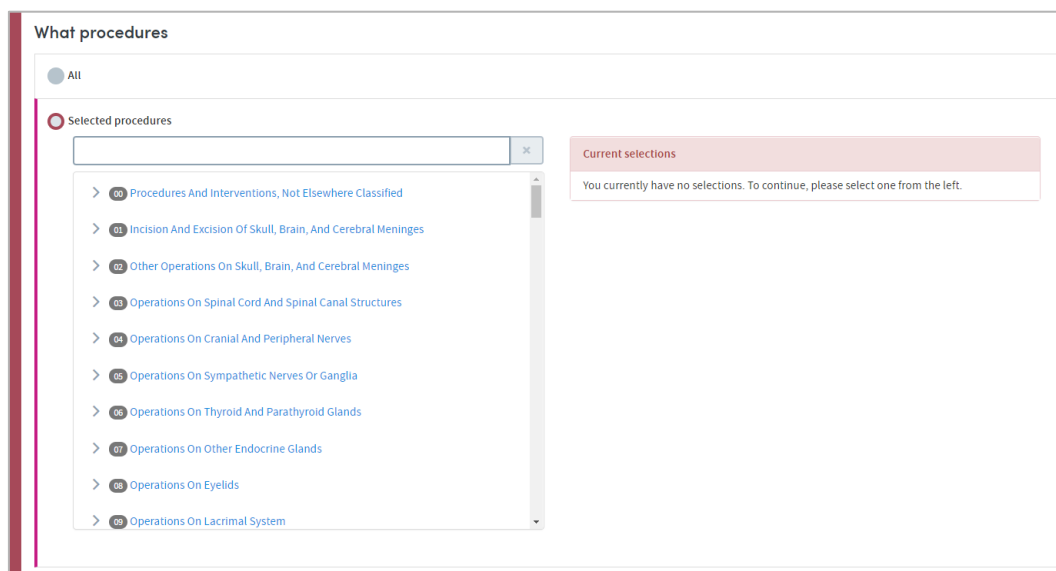
If you want to report on selected procedures, you can locate them either by browsing or by searching. You can select any number of specific items from any level of the list. Doing so automatically selects the item and all its children. The data pertaining to all the children will be included in the report, and you will be able to drill down into all the child levels when browsing the report data.

13.3.1 Selecting procedures by browsing
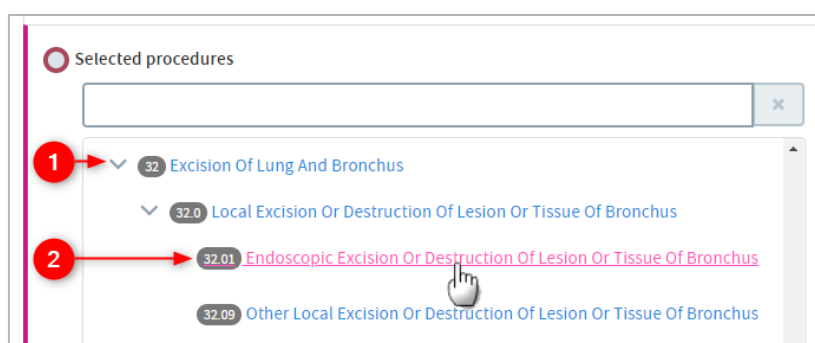
1 Browse the list of procedures by clicking the arrows on the far left to move up and down between the levels.

2 Click the text of an item to select it for inclusion in the report.

13.3.2 Selecting procedures by searching
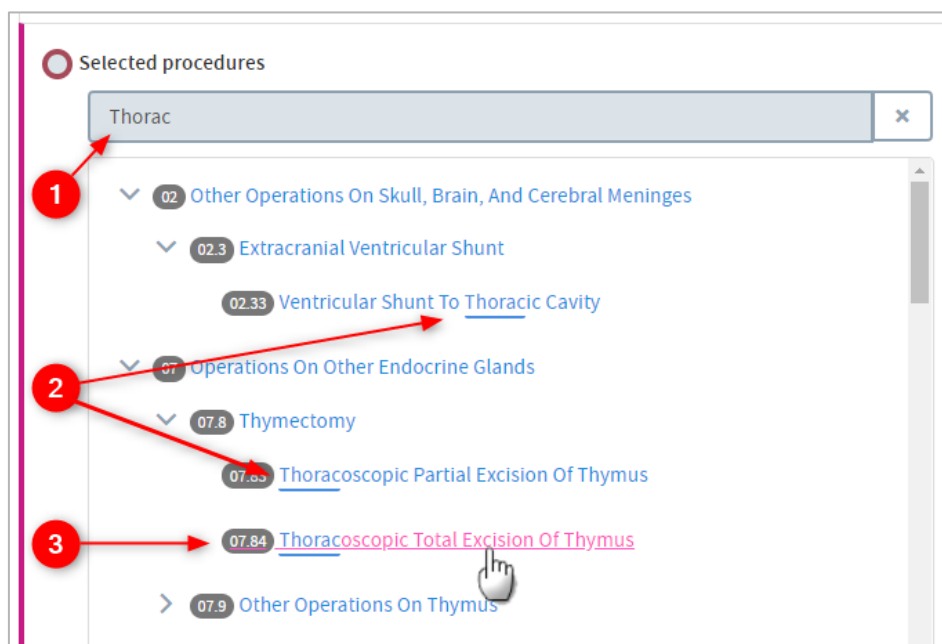
① Start typing your search term into the text box.

② The list below will dynamically display all the items containing your search term, wherever it appears in the term text.

③ Click the text of an item to select it for inclusion in the report.

13.4 Count

This option enables you to choose how the procedures included in the report output will be identified and counted. Click the setting you require:
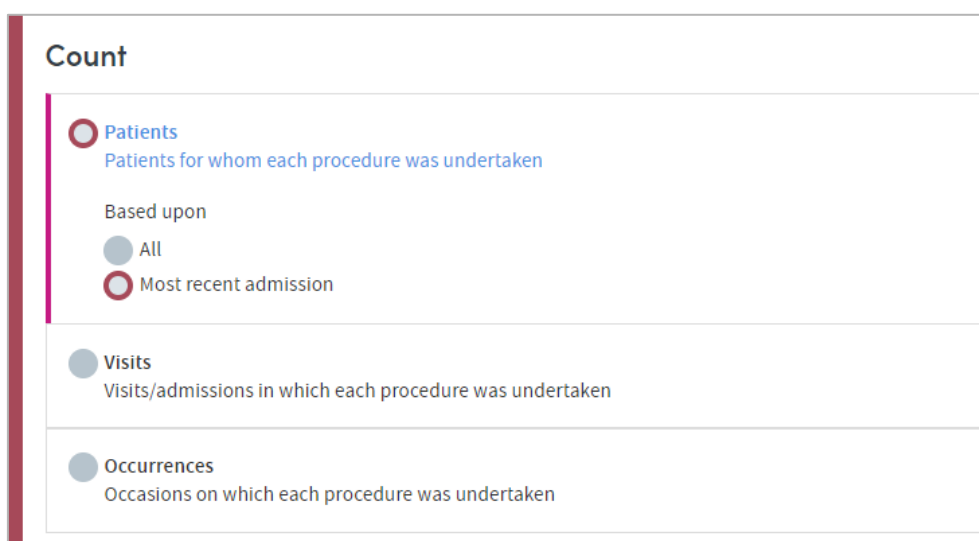
The options are:

Patients: Counts and reports on how many patients in your selected cohort(s) received the selected procedures or procedure types**.**

Based upon: All
This option counts and reports on the number of patients receiving each procedure, taking into account **all** their visits/admissions.

Based upon: Most recent admission
This option counts and reports on the number of patients receiving each procedure, taking into account only their **most recent** visit/admission.

Visits: This option counts and reports on the number of visits/admissions involving your cohort(s) in which each of the selected procedures were ordered.

> **Example**: 1000 patients may have been admitted to hospital this year but 100 may have been admitted twice, so there will have been 1100 admissions.
>
> Consequently, the number of patients for whom each procedure was undertaken may differ from the number of admissions or visits upon which that procedure was undertaken.

Occurrences of each answer: This counts the number of occasions on which each procedure was undertaken, regardless of the number of patients or visits/admissions those procedures pertain to. Note that a procedure may be ordered several times during one admission, so this option provides a guide to overall utilization of each procedure.

> **Example:** A patient may receive a blood transfusion and an echocardiogram on a number of occasions during an admission.
>
> If **occurrences** are counted, these would be counted as several occurrences rather than one.
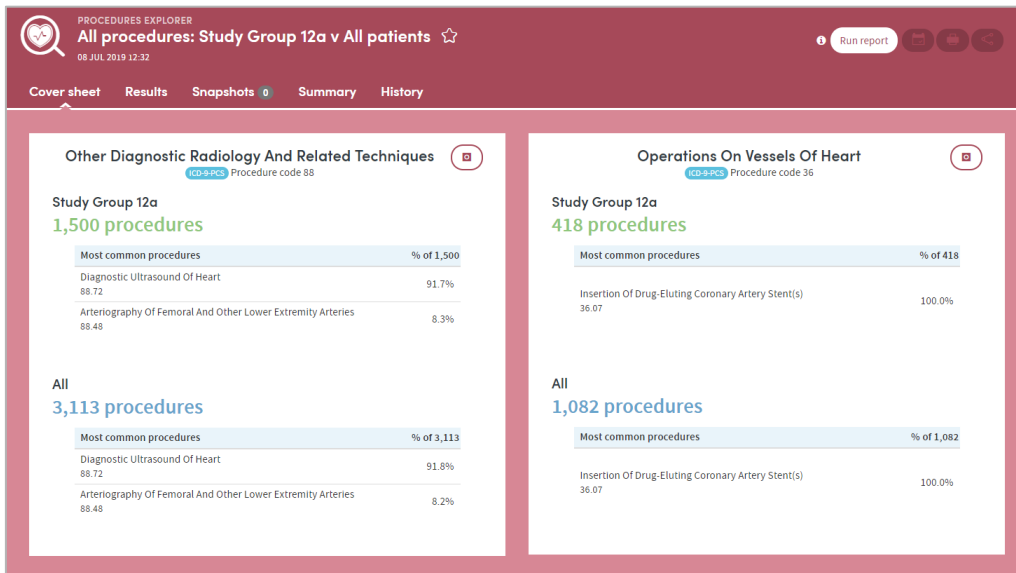
13.5 Completing the report

Click **Next** when you're happy with your selections.

Follow the **Where** (see chapter 17) and **When** (see chapter 18) steps to complete the report definition process.

See chapters 19 and 20 for information about naming, generating and viewing your report.

13.6 Report outputs: Cover sheet

In addition to providing full details of every item you've included, your report output contains a **Cover sheet**. This is automatically generated and contains a selection of the most significant data in your report:


The cover sheet shows the five most commonly-occurring diagnoses from each of the two most frequently-occurring high-level categories you select.

For example, if you select four high-level categories to report on, the five most commonly-occurring diagnoses pertaining to two of the four will be displayed on the cover sheet. If you've chosen to compare two cohorts, the data for each cohort will be included.

13.7 Report outputs: Results

13.7.1 Browsing the results
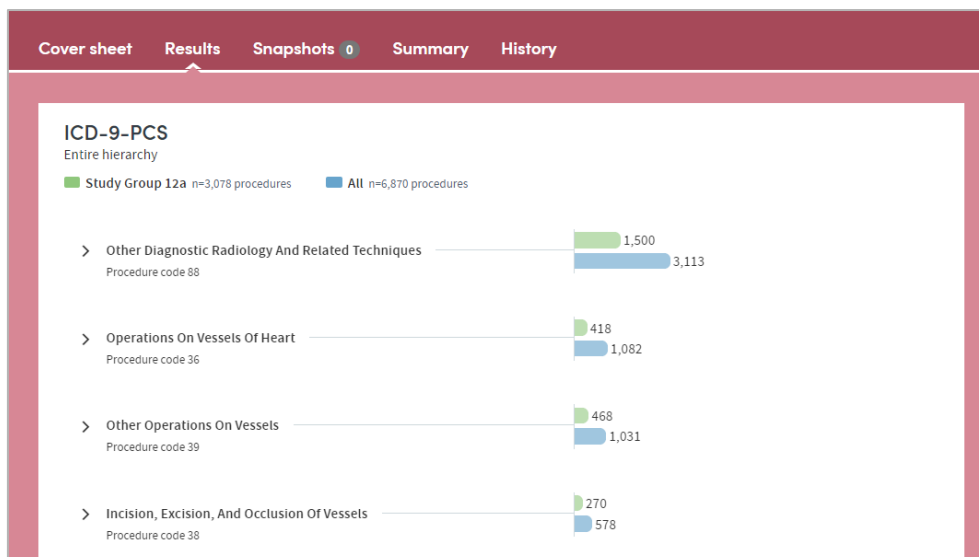
This part of the report output allows you to browse through the branches of a tree of counts or percentages pertaining to all the procedures categories you selected:
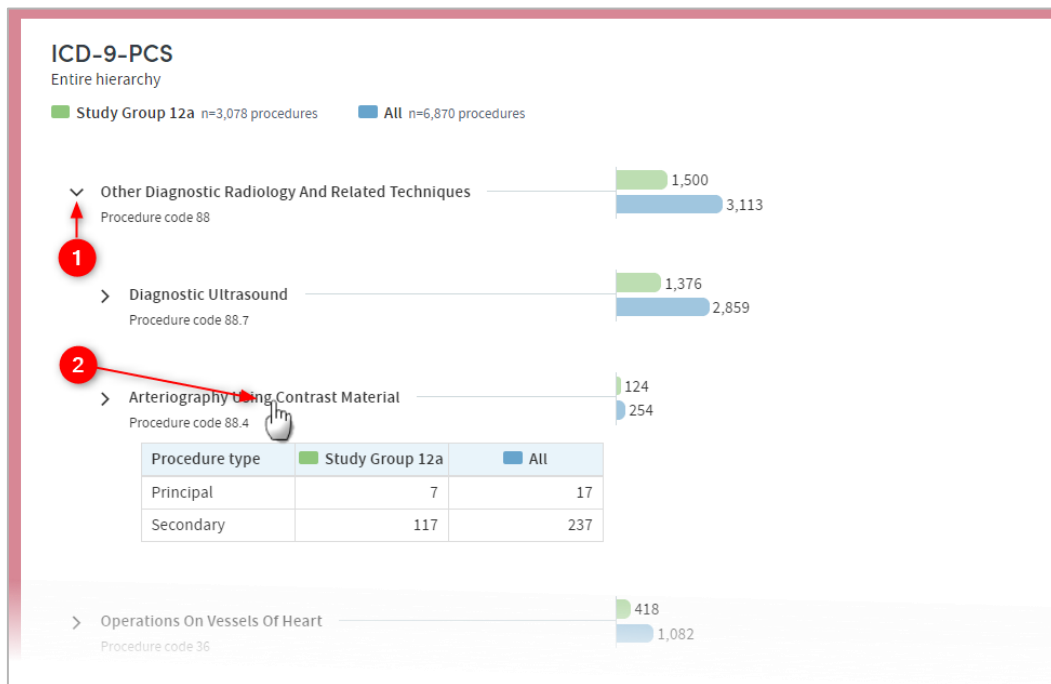
1   Click the arrows on the left to move up and down through the different levels of your selected data.

2   Click the text itself to see a further tabular breakdown. The data this contains will depend on the classification system you're reporting on, and the filters you may have set as part of the report generation process. Click the text again to remove the tabular data from the display.

Note: As you browse down the tree, the counts (or percentages) of lower branches may come to a total which is greater than the parent branch which you have browsed down from. This is because some patients may have received more than one procedure falling under a particular parent classification.

> **Example:** A cohort comprises 100 patients of whom 20 had **Removal or restoration of teeth** carried out. Of those 20, 10 (50%) had a forceps extraction and 15 (75%) had a filling. This is because some patients may have had both.
>
> Consequently, the sum of all counts is 35, even though only 20 patients had a procedure on their teeth. The sum of all percentages is 125% for the same reason.
>
> Similarly, although only 20 patients had a procedure, the number with a **no complications** result may be 18 and the number **with complications** may be 17, because 15 patients had procedures on more than one tooth.

13.7.2 Results settings
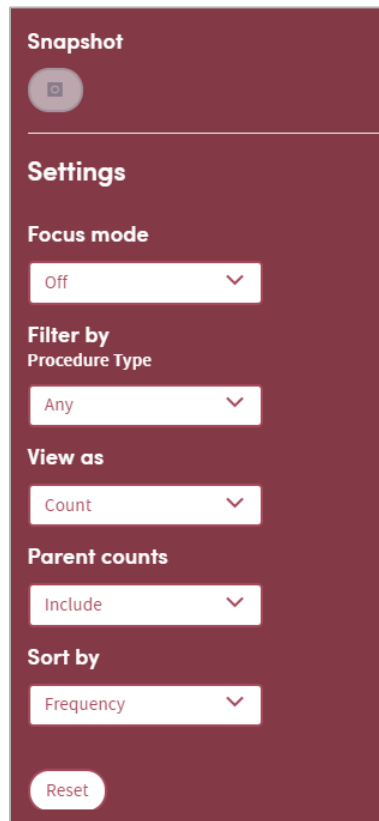
On the right of the results screen there are several configurable settings which allow you to view the data from different perspectives:

Focus mode

If focus mode is **on**, clicking an arrow to move up or down the tree of procedures will bring up a pop-up window which only displays the branch you have selected. In the example below, we've just clicked on the arrow to the left of **Other diagnostic radiology and related techniques.** The data for that branch of the tree appears in a pop-up display as follows:
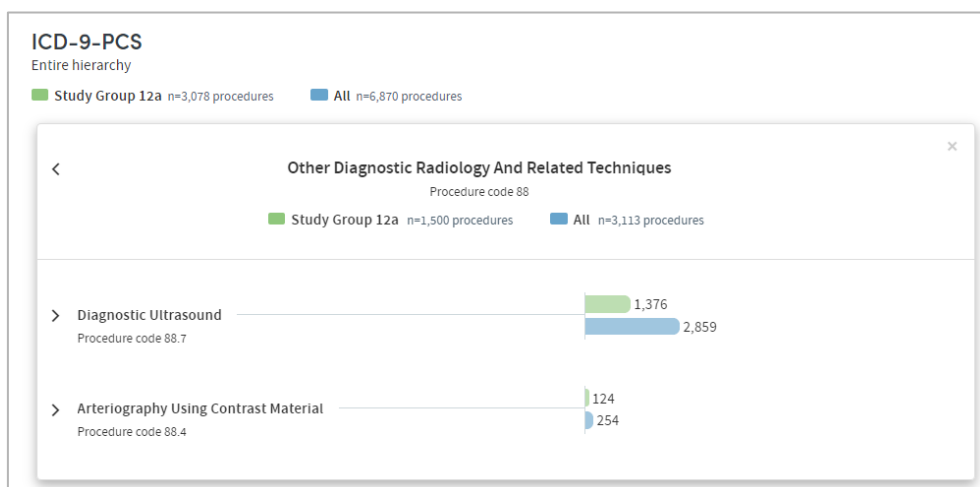
If focus mode is **off**, clicking an arrow to move up or down the tree of procedures will unfold the tree so that branches surrounding the selected branch can be seen and

browsed by the user. In the example below, we've just clicked on the arrow to the left of **Other diagnostic radiology and related techniques** and browsed further down the tree. The path taken through the tree and the data pertaining to each branch are displayed as an indented list as follows:
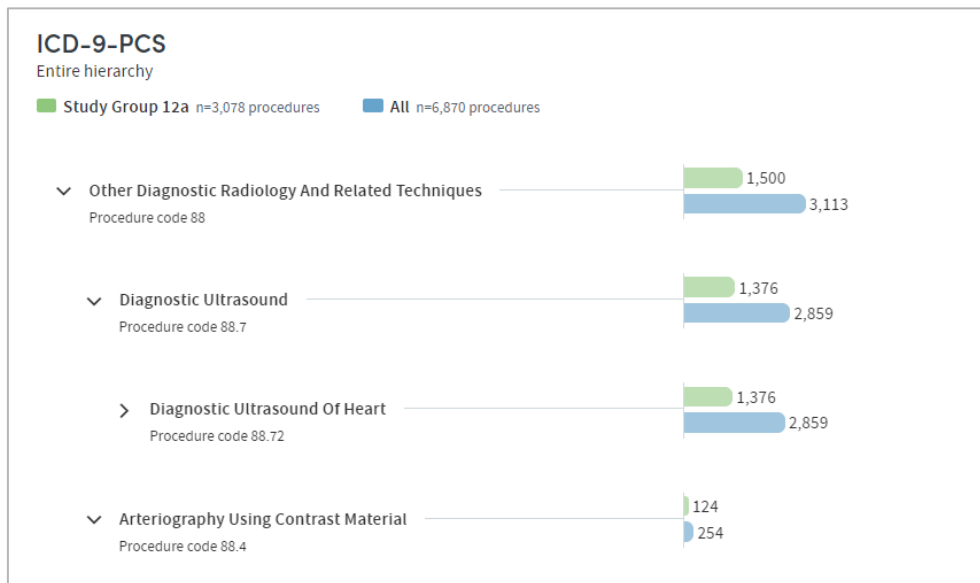
Filter by

This option enables you to filter the displayed counts according to suitable criteria for the classification system you have selected. This may be, for example, filtering by principal procedures or secondary procedures.

View as

This option enables you to display the results as either **counts** or **percentages**.

If you opt to display percentages, you will be able to choose whether the percentages displayed are expressed as a percentage:

- **Of n**: the total number (n) in each cohort

- **Of parent category**: the total number in the parent category for each cohort

- **Of total n**: the combined total n of both cohorts (if you're reporting on two cohorts)

Example: We have two cohorts:

Cohort A comprises 100 patients, of whom 20 underwent a mastectomy procedure. Of those 20, 10 had a unilateral simple mastectomy, and 10 had a bilateral radical mastectomy.
Cohort B also has 100 patients, none of whom underwent a mastectomy procedure.

% of parent category: The 10 patients undergoing a unilateral simple mastectomy represent **50%** of those patients undergoing a mastectomy procedure.

% of n: The 10 patients undergoing a unilateral simple mastectomy represent **10%** of the total cohort.

% of total n: The 10 patients undergoing a unilateral simple mastectomy represent **5%** of the combined total of 200 patients in both cohorts.

Parent Counts

This feature enables you to include or exclude a parent item's data from the report results.

Example: A cohort comprises 100 patients, of whom 80 had some form of **Removal or restoration of teeth** carried out. 25 had a **forceps extraction**, 45 had a **filling**, and the 10 remaining procedures were recorded as unspecified Removal or restoration of teeth procedures.

In the classification system being used, forceps extraction and filling are classified as children of the more generic term Removal or restoration of teeth.

If you choose to **Exclude Parent counts** from your report results, the 10 unspecified Removal or restoration of teeth procedures would be excluded from the total count, which would be displayed as follows:

Removal or restoration of teeth: **70**
      Forceps extraction: **25**
      Filling: **45**

If you choose to **Include Parent counts** in your report results, the 10 unspecified Removal or restoration of teeth procedures would be included in the total count, which would be displayed as follows:

Removal or restoration of teeth: **80(10)**
      Forceps extraction: **25**
      Filling: **45**

Sort by

This option enables you to sort the report results in one of three ways:

- By **Clinical code** (according to the classification system you selected)
- By **Frequency** (from the highest count or percentage to the lowest)
- Alphabetically, from **A-Z**

Reset

Selecting this will return all the display options to their default settings.

13.8 Report outputs: Snapshots, Summary, History

See section 21.6 for full details of the Snapshot feature

See section 21.4 for full details of the Summary tab

See section 21.5 for full details of the History tab

13.9 Sharing reports

Depending on the permissions assigned to you, you may be able to share reports with other users. See chapter 23 for details of this feature.

14 Survival Rates

The Survival Rates App will calculate survival rates for any patient cohort(s), starting from a date of your choice. For example, report outputs may include:

- Survival rates since date of first admission to a hospital
- Survival rates since date of first diagnosis with breast cancer
- Survival rates of patients who have received a particular treatment for their cancer

Below is a sample section of a Survival Rates report output:
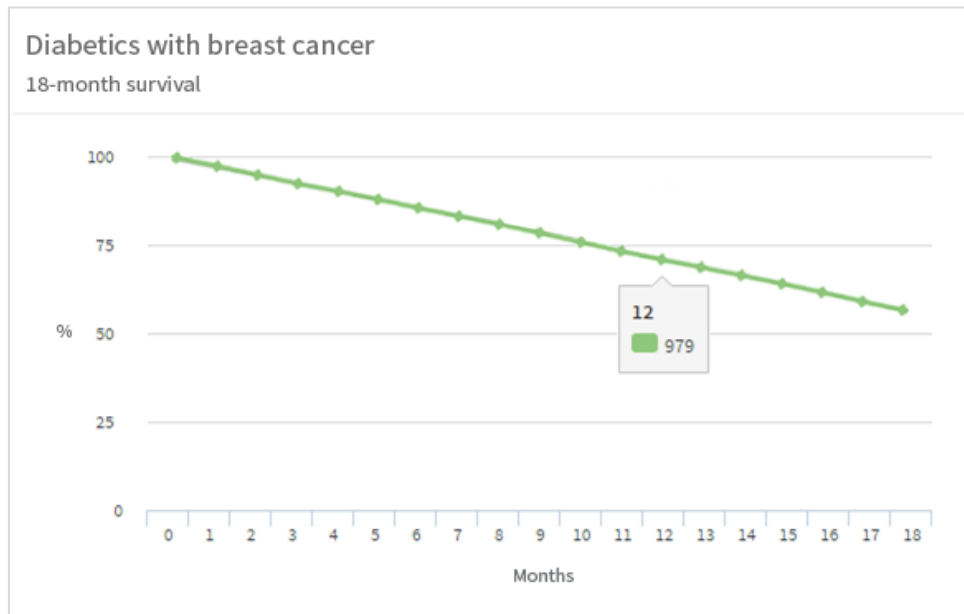
This App's features enable you to:

- Produce both standard survival charts and Kaplan-Meier charts.
- Explore survival rates in different years or other time periods.
- Compare survival rates with those of your base cohort.
- Toggle between counts and percentages.

14.1 Report creation

To create a Survival Rates report, select the App via one of the methods described in chapter 3. Follow the **Who** step (see chapter 15) to choose the cohort(s) you wish to report on and click **Next**. You will arrive at the **What** step for this App, where you have several options. Your screen might look slightly different from this, as some system configurations may not include all these features:

14.2 Index date from which survival rates to be calculated

Use this option to set the date from which each patient's survival data will be calculated. The choices available to you will depend on your organization's Atmolytics data:

You'll make further selections based on the option you choose here.
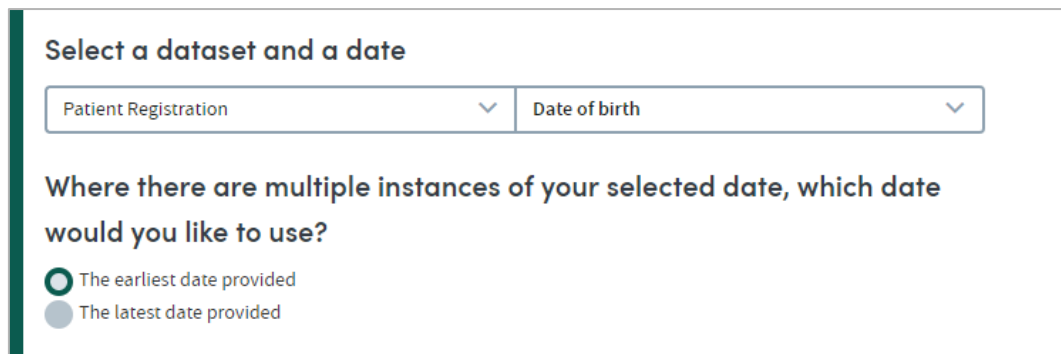
14.3 A date recorded in a dataset

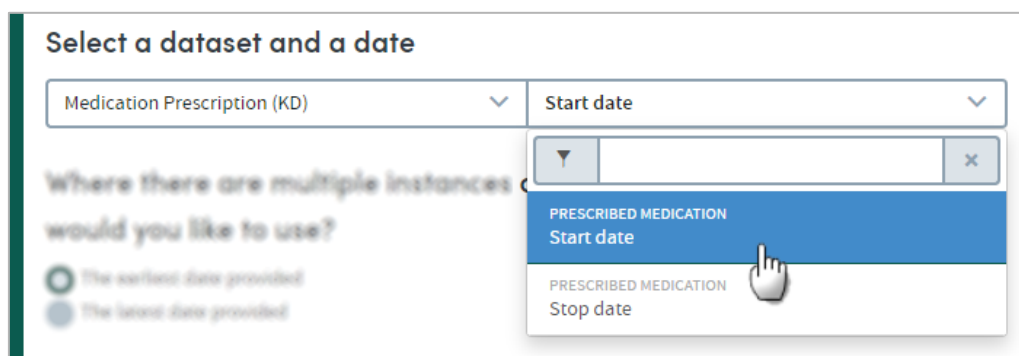If you choose this option, you'll be presented with the following:

Click the drop-down list to choose a dataset. The date questions contained in that dataset will be available for selection in the second field:

There are two ways to identify and select date items: by choosing from the drop-down list and by searching. To search for items, start typing your search text into the search box:

A list will dynamically display all the items containing your search text, wherever it appears in the item. Click the text of an item to select it for inclusion in the report.

14.3.1 Which date would you like to use?

If a date question has been answered more than once, you can choose which instance of the date to base your report on: the earliest or the latest. Click the radio button you require.

14.4 A date of diagnosis from a clinical coding system

If you choose this option, you will be presented with the **Select diagnosis** feature:

First, use the drop-down list to choose the classification system you wish to select from:

The coding systems available to you may vary depending on your organization's Atmolytics data.

Any diagnosis you choose will remove individuals from your chosen cohorts if they do not have a record of the specified diagnosis.

You can locate diagnoses either by browsing or by searching. You can select any number of diagnoses from any level of the list. Doing so automatically selects dates of diagnosis pertaining to the selected diagnosis and **all its children**.

You can choose multiple diagnoses. Individuals will be included if they have dates of diagnosis pertaining to ANY of the chosen diagnoses (rather than ALL the diagnoses).
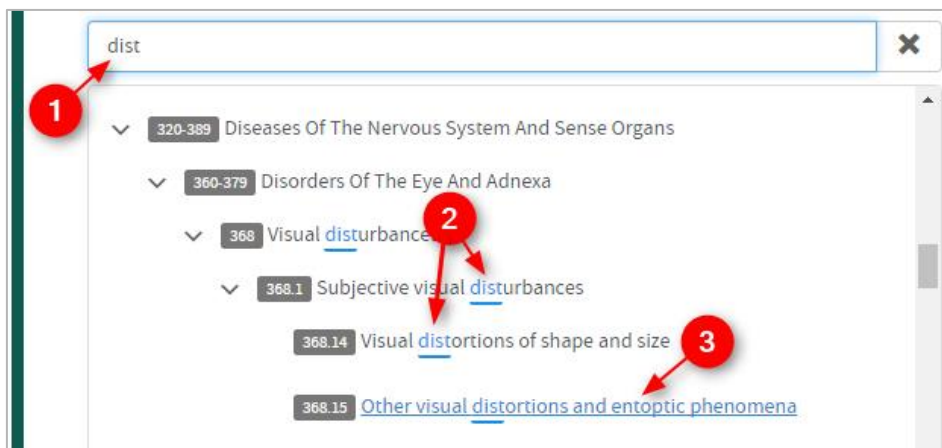
14.4.1 Selecting diagnoses by browsing
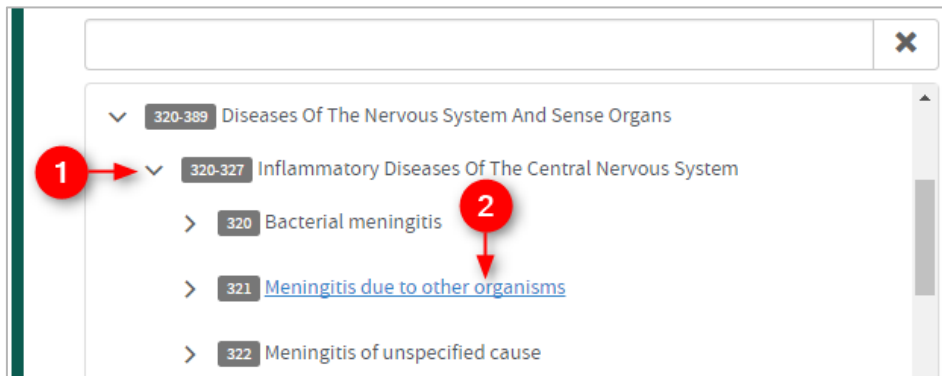
1   Browse the list of diagnoses by clicking the arrows on the far left to move up and down between the levels.
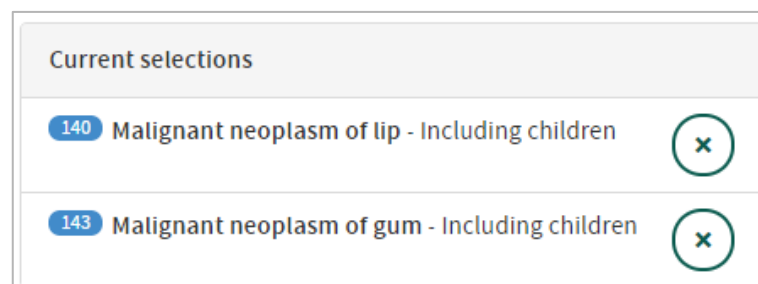
2   Click the text of an item to select it.

14.4.2 Selecting diagnoses by searching

1   Start typing your search term into the text box.

2   The list below will dynamically display all the items containing your search term, wherever it appears in the term text.

3   Click the text of an item to select it.

The diagnoses you select will be displayed on screen. Click the ⊗ icon to remove any item.

14.5 Select age bands

The survival rates output data is divided into age bands for reporting purposes:

Default bandings will have been set by your system administrator, but you can change the bands if you wish by clicking **Custom**:
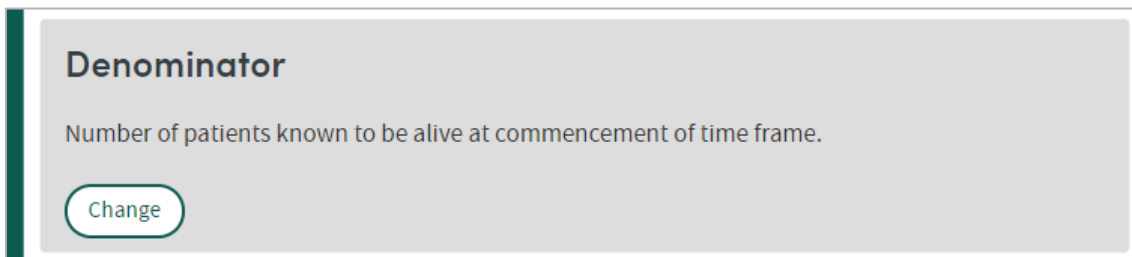

**1** Type into the number fields, or use the small arrows to click up and down.

2 Click the cross to delete a band, and **Add band** to create a new one

3 Clicking **Reset bands** will put the age bands back to the default settings.

14.6 Denominator

Depending on your organization's Atmolytics data, you might see the Denominator feature at the bottom of the screen:

This provides another filter for defining the data in your report. Click **Change** to see details of the options, and make your selection by clicking a radio button:
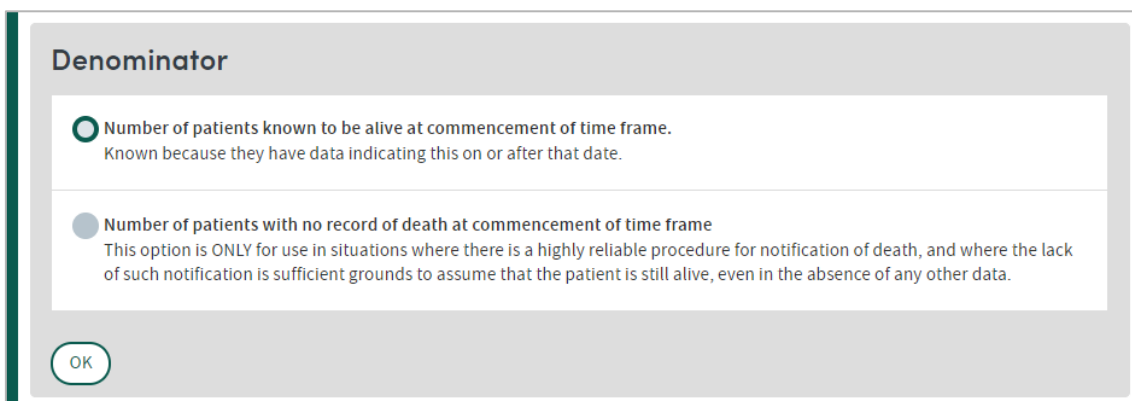

14.7 Completing the report

When you're happy with your selections, click **Next** at the bottom right of the screen.

Follow the **Where** (see chapter 17) and **When** (see chapter 18) steps to complete the report definition process.

See chapters 19 and 20 for information about naming, generating and viewing your report.

14.8 Report outputs: Cover sheet

In addition to providing full details of all the data, your report output contains a **Cover sheet**. This is automatically generated and shows your data as a breakdown of survivals by gender, age, and deaths per calendar year:
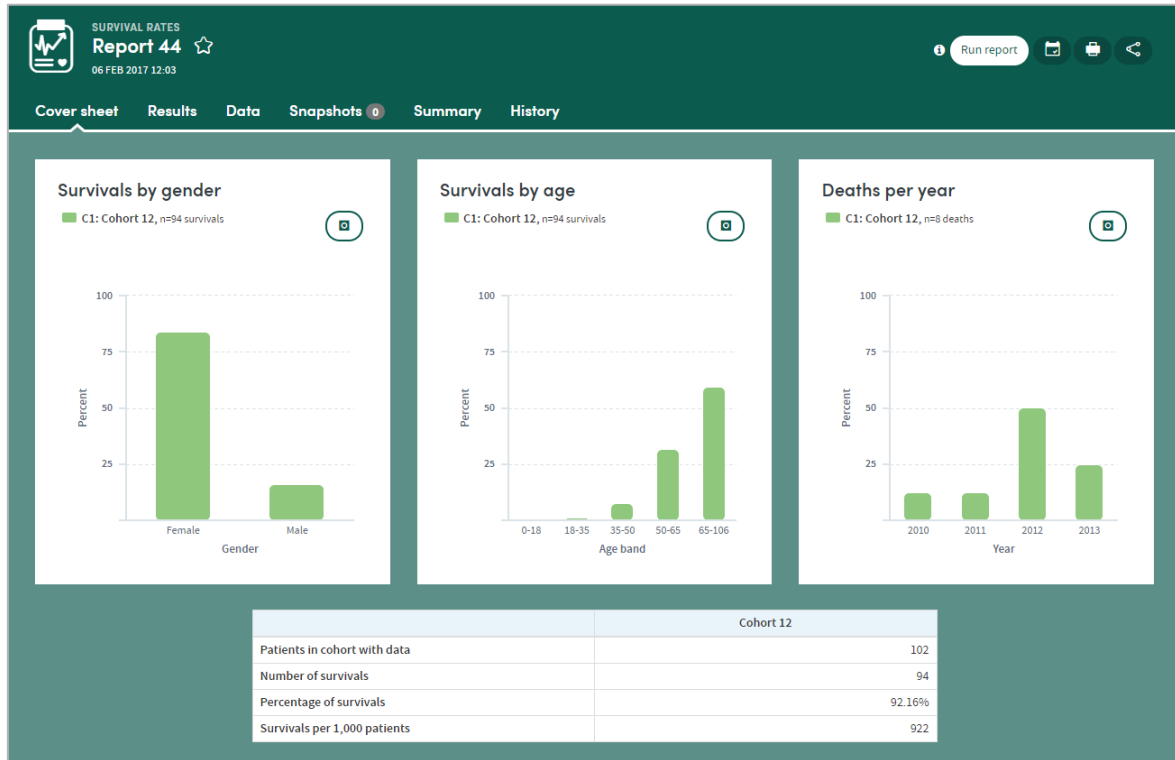
The percentages relate to the percentage of survivals within each cohort. For example:
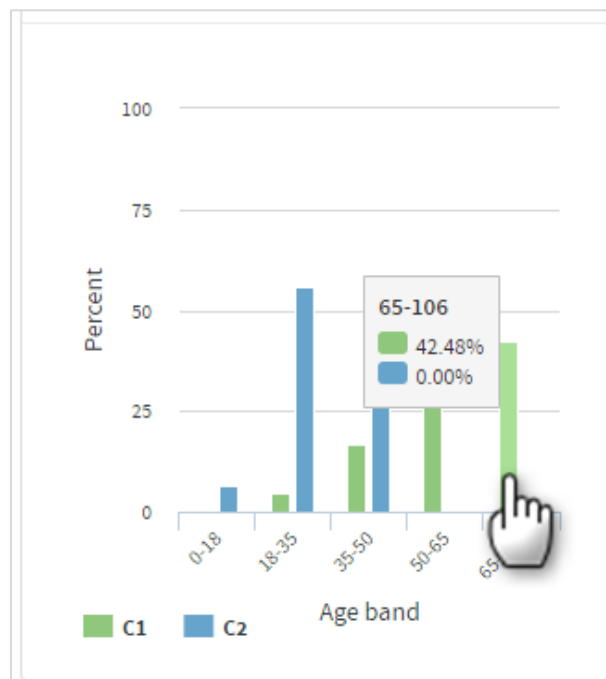
This graph shows us the survivals by age band (in years) of two cohorts (C1 and C2). By hovering the mouse over the bars, we can see that within C1, 42.48% of the survivals were in the 65-106 age band. 4.8% were in the 18-35, 16.6% in the 35-50, and 35.9% in the 50-65.
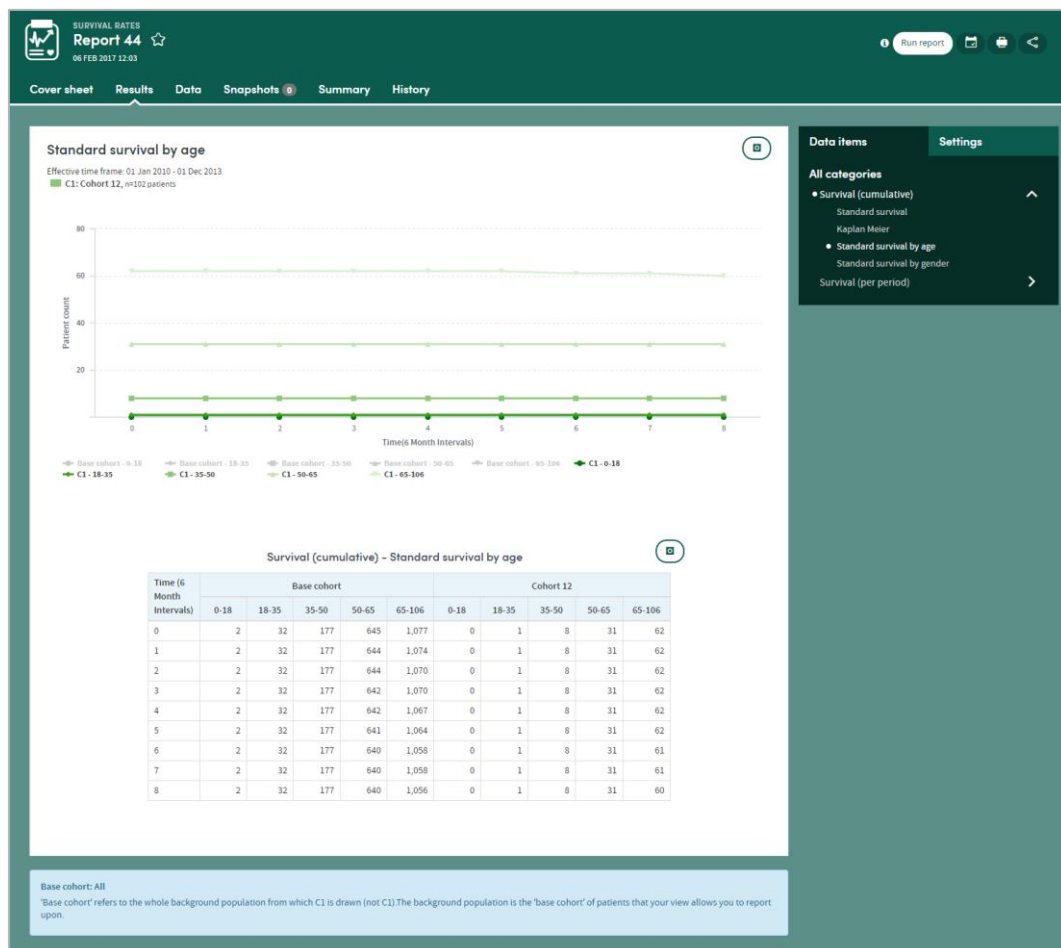
As well as these count values we also calculate survivals per 1000 patients, per cohort, calculated in the following way:

$$\frac{Number\ of\ survivals\ in\ cohort}{\left(\dfrac{Cohort\ size}{1000}\right)} = Survivals\ per\ 1000$$

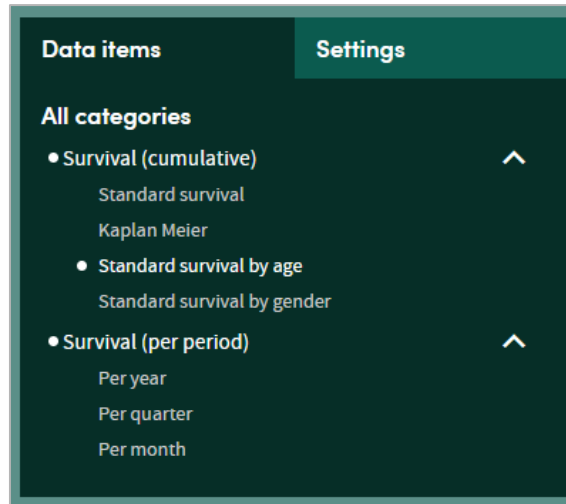The report data can be browsed in full using the **Results** tab.

14.9 Report outputs: Results

The results page shows the comprehensive report data:

14.9.1 Data items

On the top right is a dynamic list of all the data items in the report output:

The survival rates results look at:

Survival (cumulative)

- **Standard survival** over a period of time, displayed by number of patients, age, or gender
- The probability of survival using the **Kaplan Meier** calculation

Survivals (per period)

- The number of survivals at a given period of time, **per year**, **quarter** or **month**

Click any of the options to see the relevant data. The data is displayed in a graph on the left and also in a data table at the bottom of the screen. Survival data for your **base cohort** is also included in the data table for comparison purposes.

Dwell your mouse over any point in the graph to see more information:
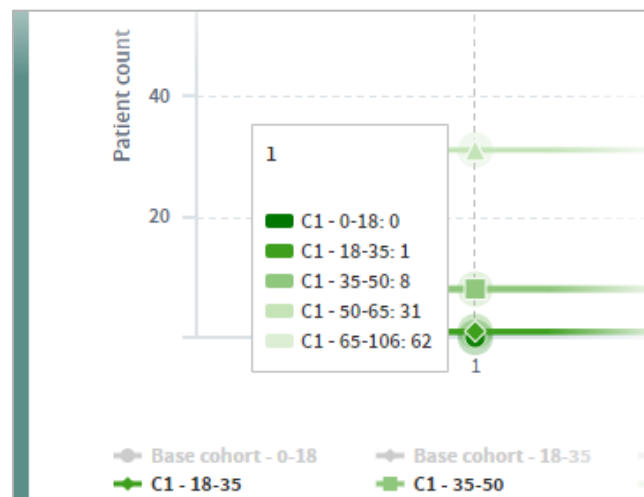
14.9.2 Settings

Click the **View as:** button to see the report output data as either a **count** or a **percentage of the total** for the report output type you are viewing.
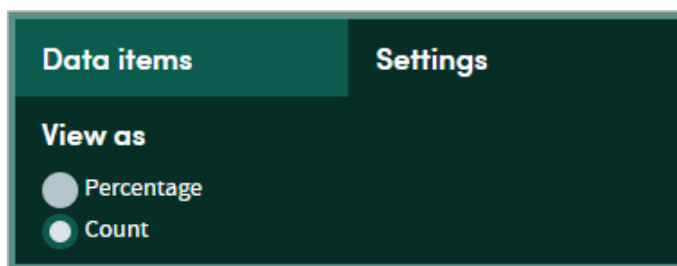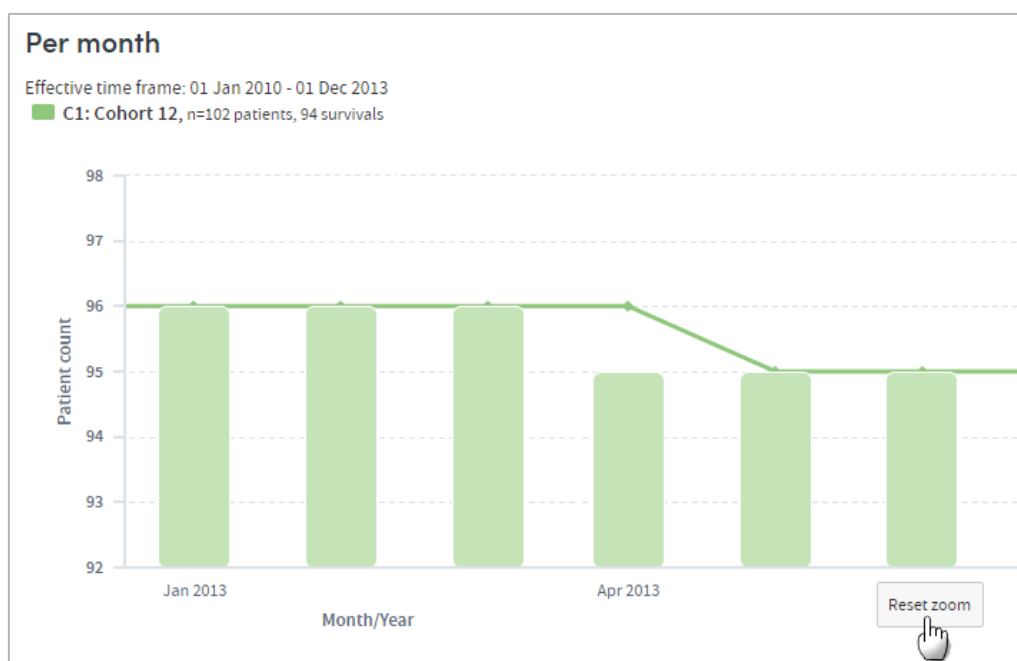

14.9.3 Zoom feature

You may click and drag the mouse along any section of the graph to zoom in on that data. As you click and drag, you'll create a shaded area:
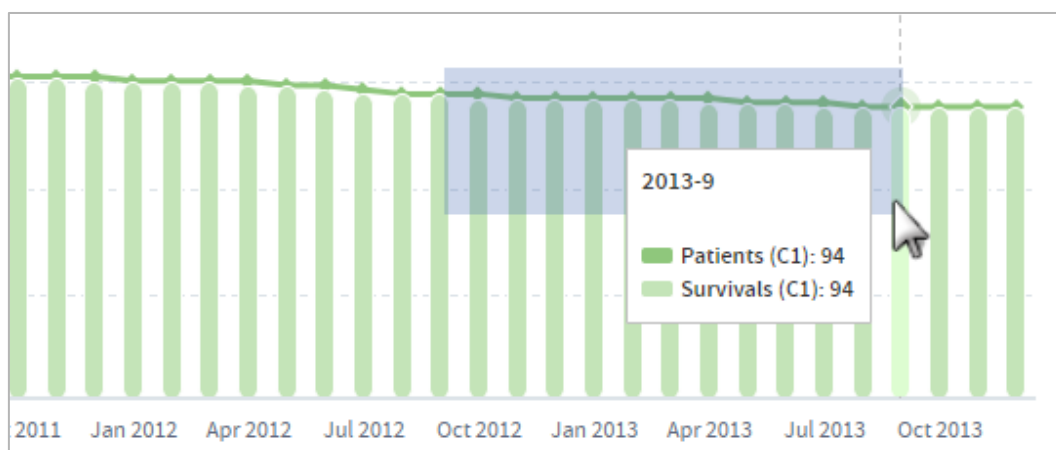
Let go of the mouse to zoom in:

Click **Reset zoom** to go back to the original graph.

14.10 How is the data calculated?

14.10.1 Standard survival

The standard survival chart looks at patient survival over a cumulative period of time, taking the total number of patients in the specified timeframe and subtracting the number of deaths.

For example:

	Patients admitted	Deaths
January 2012	100	30
February 2012	150	50
March 2012	200	90
April 2012	175	60

In this time period of four months we have 625 patients admitted and 230 deaths.

This would create the following data for our Standard survival curve:

Month	Survivals
Month 0	625
Month 1	595
Month 2	545
Month 3	455
Month 4	395

14.10.2 Kaplan-Meier curve

This chart looks at the data as a whole in each cohort and calculates the probability of survival based upon a patient's survival status and the duration (in which they have had a diagnosis or the duration of time that they have survived since first admission).

When we have data for patients with multiple admissions, we look at the date of first admission up until their date of death or to the last date in the specified timeframe **for which there is data on that patient** – in the case where a patient is still alive, we mark them as survived – and calculate the length of time from their first admission.

For example, if we were looking at patients in a time frame of 1st January 2010 – 30th June 2010 we could consider the following data:

Patient	First Admission Date	Date of Death	Duration	Status
Patient A	6th January 2010	22nd July 2010	176 days	Survived
Patient B	15th May 2010	31st May 2010	16 days	Deceased
Patient C	1st January 2010	25th June 2010	176 days	Deceased
Patient D	2nd April 2010	18th April 2010	16 days	Deceased
Patient E	15th June 1010	n/a	16 days	Survived

In this example, although all of our patients have died, **Patient A** has died outside the time frame specified, and so, at the time of study **Patient A** has survived.

Inclusion within a specific 'step' of the calculation depends upon survival status at the commencement of that time step. So, for example, suppose that **Patient E** was discharged after five days, then we know that he was alive at the point of discharge and assume that his time frame is 16 days, i.e. up until the end of the time frame selected. Given that we have no further data for **Patient E** he is then censored from the study and subsequently not used in further calculations relating to subsequent time steps. Similarly, if **Patient E** was known to have died after five days, they would not be included in the subsequent step calculation.

The calculation that this formula takes is to look at the number of patients at risk within the time period. In the example above this can be broken down as:

Duration	Patients at risk	Number of survivals	Probability
16 days	5	2	0.4
176 days	2	1	0.5 (displayed value = 0.4x0.5 = 0.2)

Probability of survival **within any single time 'step'** is therefore calculated as:

$$\frac{Number\ of\ Survivals}{Patients\ at\ Risk} = Probability\ of\ Survival$$

The chart display shows the cumulative probability of survival at each step.

This is the probability of survival in Step 1x probability of survival in Step 2x …probability of survival in Step n.

In the example above, the displayed value for Step 1 would therefore be 0.4 and for Step 2 0.2 (i.e. 0.4 x 0.5).

14.10.3   Survivals per period

The report output looks at the total number of individual patients **newly-admitted** during the time period you select (year, quarter or month), and indicates the number of survivals at the end of that period of the patients that were admitted during that time.

Patients whose visit spans more than one time period are only included in the time period of their initial admission (so a patient admitted in January but still in hospital in February counts as a survival in January but is not included in the calculation for February).

14.11   Report outputs: Data

The data tab provides comprehensive details of all the report data in tabular format:

		All			Cohort 12	
n=		1,933			102	
Deaths		181			8	
Deaths per 1,000 patients		94			78	
Survival rate %		90.64%			92.16%	

Period	All			Cohort 12		
Yearly	Patients at start of period	Survivals	%	Patients at start of period	Survivals	%
2010	1,933	1,884	97.47%	102	101	99.02%
2011	1,884	1,833	97.29%	101	100	99.01%
2012	1,833	1,782	97.22%	100	96	96.00%
2013	1,782	1,752	98.32%	96	94	97.92%
Quarterly	Patients at start of period	Survivals	%	Patients at start of period	Survivals	%
Q1 2010	1,933	1,917	99.17%	102	102	100.00%
Q2 2010	1,917	1,906	99.43%	102	102	100.00%
Q3 2010	1,906	1,896	99.48%	102	101	99.02%
Q4 2010	1,896	1,884	99.37%	101	101	100.00%
Q1 2011	1,884	1,877	99.63%	101	101	100.00%
Q2 2011	1,877	1,858	98.99%	101	101	100.00%
Q3 2011	1,858	1,846	99.35%	101	101	100.00%
Q4 2011	1,846	1,833	99.30%	101	100	99.01%

14.12   Report outputs: Snapshots, Summary, History

See section 21.6 for full details of the Snapshot feature

See section 21.4 for full details of the Summary tab

See section 21.5 for full details of the History tab

14.13   Sharing reports

Depending on the permissions assigned to you, you may be able to share reports with other users. See chapter 23 for details of this feature.

15 Step 1: Who

The images in this chapter are taken from the Clinical Observations App, but the information applies to every App you have available to you.
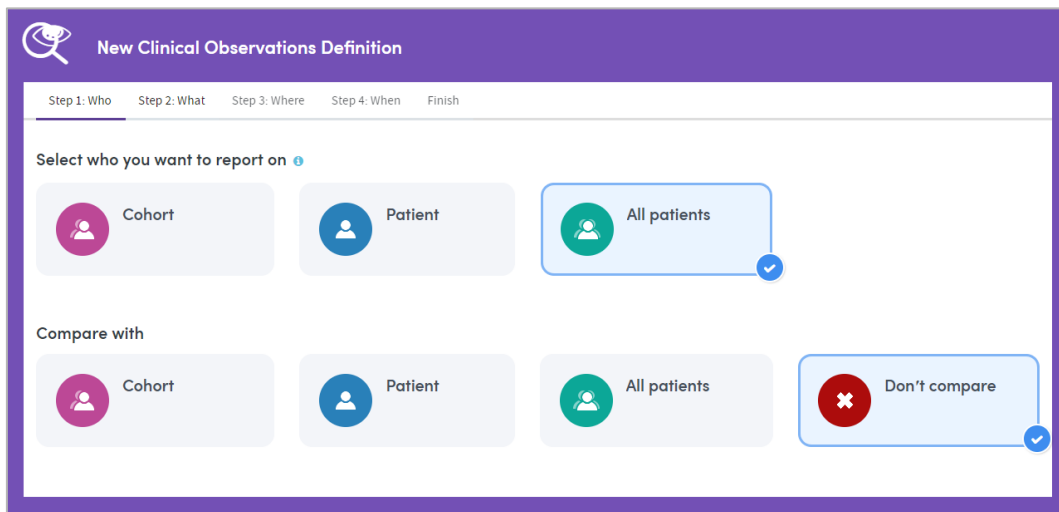
When you are selecting who to report on and who to compare data with, it's important to remember that **you can only report on patients who are included in your own base cohort**. The base cohort contains all the patients you are permitted to report on in your current role. Any other cohorts you create or receive from other users will be automatically filtered to only contain patients who are already in your base cohort.

Depending on the App you're using, you will be able to choose from **Cohorts**, **Patients** and **All Patients**, and you may be able to compare one selection with a second.

Make your selections and click **Next** to move on to Step 2.

15.1 Cohort

Click Cohort to choose from all the cohorts available to you in your **My Cohorts** area. This includes your base cohort, any cohorts you have created, and any cohorts that other users have shared with you:
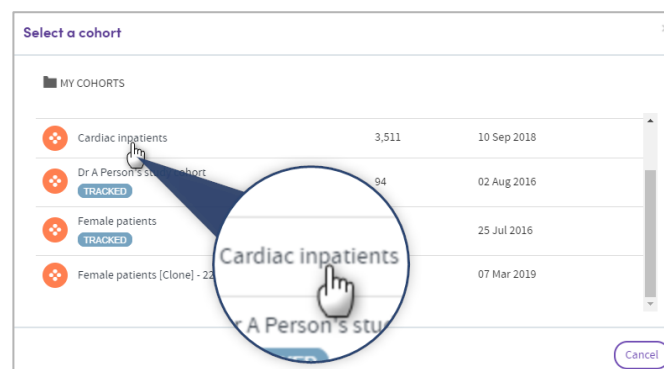
Once you've chosen a cohort, its name will be displayed on screen:
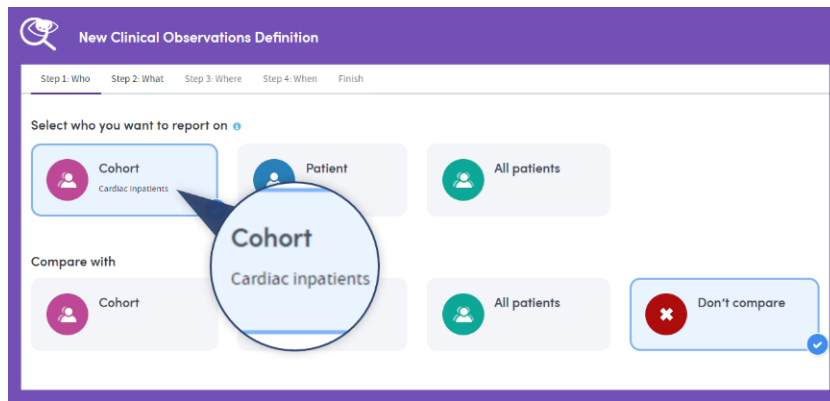
15.2 Patient

Select this option to report on a single patient. A search panel will appear.

You must know the patient's name in order to search for them. Type in part or all the name and click **Search**:

The search results will only list the names of matching patients who are members of your base cohort:

Click the matching name and it will be displayed on the main **Who** Screen:
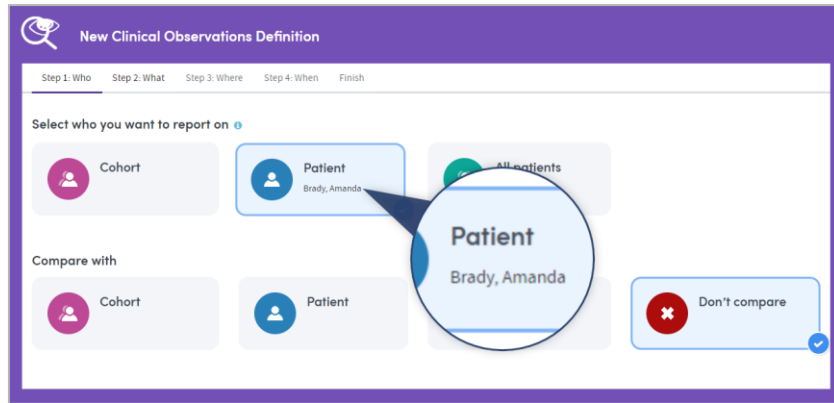
15.3 All patients

Select this option to report on all the patients in your base cohort.

16 Step 2: What

The **What** step enables you to select the settings you wish to use in creating a report with the App you have selected. In contrast with other steps in the process, the **What** step can be significantly different for every App.

Please refer to the chapters for each App for full details of their features

Report settings typically include options such as:

- Which data is to be reported upon?
- Should the output count patients or admissions/visits?
- Selection of items to include on the **Cover sheet** of the report.

Below are some sample images of typical **What** screens. Make your selections and click **Next** to move on to Step 3.

17 Step 3: Where

The images in this chapter are taken from the Costs and Charges App, but the information applies to every App you have available to you.

In this step, you select the data sources you want to include in the report. In most cases, you'll need to choose:

- The type(s) of patient admissions/visits you want to include (e.g. **any admissions/visits**, or **inpatient** or **outpatient** admissions/visits).

- The location(s) of the patient admissions/visits you want to include (e.g. **any location**, or specific clinical departments or hospitals).

- The location(s) in which the report data was recorded (e.g. **any location**, or specific clinical departments or hospitals).

Make your selections and click **Next** to move on to Step 4.

Additional options may be available depending on the App you're using. The default setting is to include all admission types from any location, and data recorded in any location.

Click **Change** to make your own selections (this example is taken from the Costs and Charges App):

1. Click **Selected** to choose specific admission types (inpatient, outpatient, etc.)

2. **Any location** is selected by default, but by clicking **Selected locations** you can choose one or more locations from the list, either by clicking the checkboxes, or by typing in the search field.

3. Click **List** to filter the list of available locations by either **All locations**, or **Only locations with data**.

4. Any additional options specific to the App you're using, will be listed here.

5. Data recorded in **Any location** is selected by default, but by clicking here, the screen will unfold to present you with the same search options as those in ② above. Choose one or more **Selected locations** from the list, either by clicking the checkboxes, or by typing in the search field. You'll also have the option to click the **List** drop-down, to filter the list of available locations by either **All locations**, or **Only locations with data**.

18 Step 4: When

The images in this chapter are taken from the All the Answers App, but the information applies to every App you have available to you.

Note: The **Events and Processes** App has some extra options here. See section 8.7 for details.

This step lets you set time limits on the data to be included in your report. You can choose to apply a date range or time period to the data from your selected sources, or you can select the **No time limit** option.
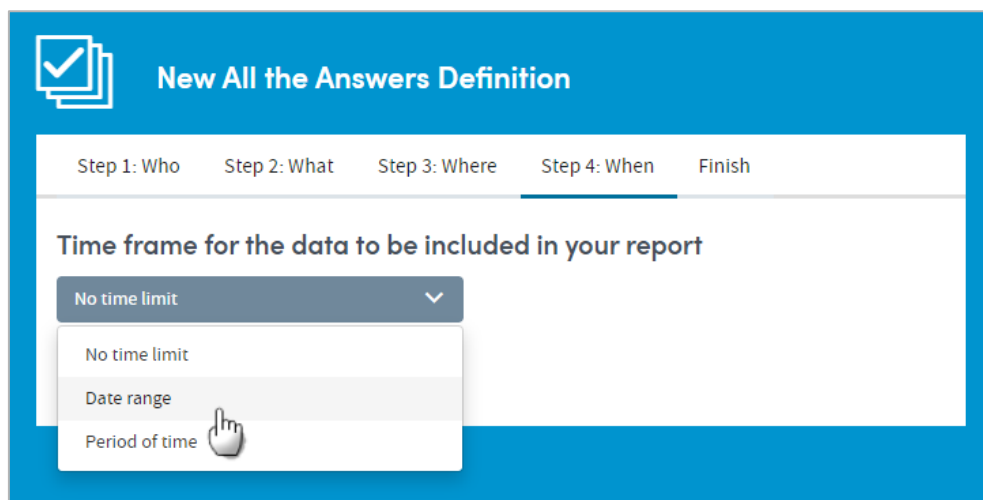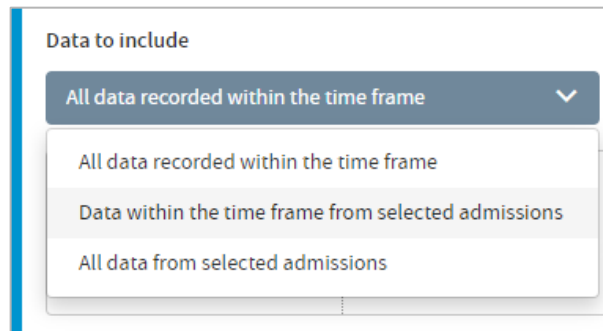

If you choose **Date range** or **Period of time**, you'll then select a date range by clicking the calendar icons, or choose a period of time from a drop-down list (the last week, the last year, etc.).
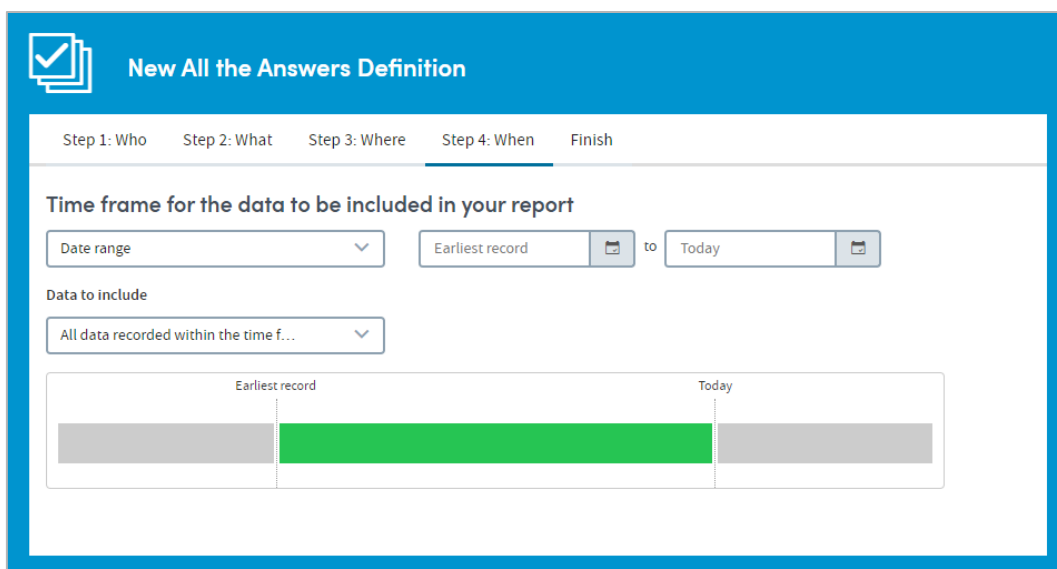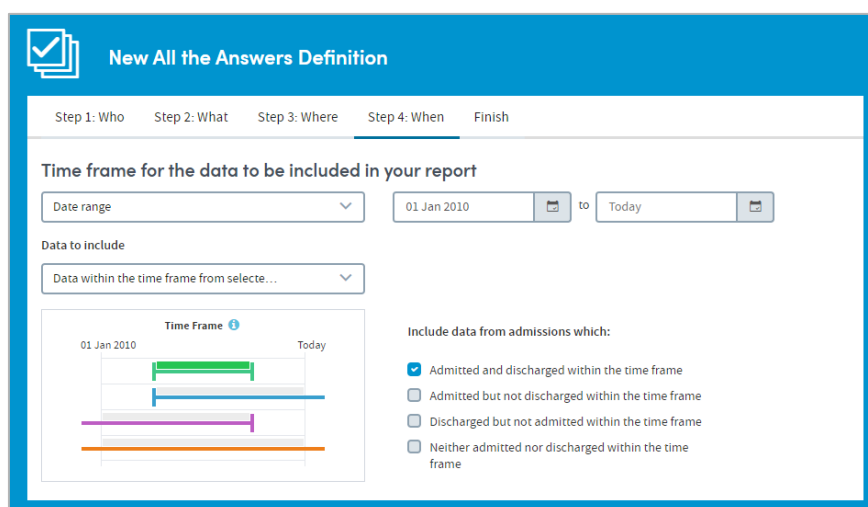
Once a date range or time period has been selected you need to decide which data from which admissions/visits to include within the time frame. Because admissions/visits themselves have a duration, there is the potential for overlap between the duration of an admission/visit and the time frame selected.

The options are:

- **All data recorded during the time frame**
  The report will include any and all data which was **only recorded during the time limits you have set**.

- **Data within the time frame from selected admissions/visits**
  The report will include data which was **only recorded during the time limits you have set**, and **is also** data which was only recorded during admissions/visits meeting specific time-bound criteria (which you will select).

- **All data from selected admissions/visits**
  The report will include *all* data from your selected admissions/visits, even if some of this data was recorded **during a time which extends beyond the time limits you have set**. For example, if you have set a date range of January 1st 2015 – December 31st 2015, and have chosen to include data from admissions/visits that 'neither began nor ended within the time frame' (see below), then your report will include analysis of data pertaining to such admissions/visits that was recorded before January 1st 2015 or after December 31st 2015 (as well as the data recorded within the timeframe).

If you select either of the last two options, you will be presented with up to four specific time-bound criteria to select from. You can choose any available combination of these types using the tick boxes:

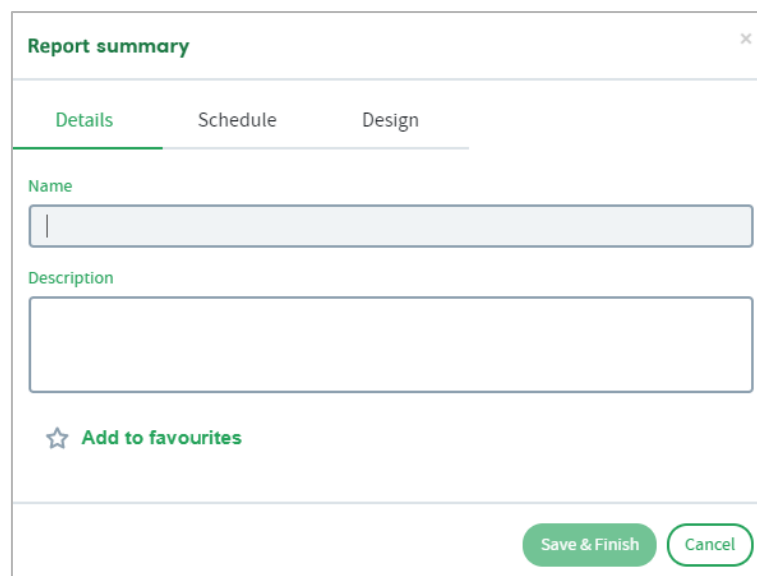Make your selections and click **Finish** to complete your report.

19 Report summary

After you've made your **When** selections and clicked **Finish**, the **Report summary** panel will appear. The panel has three tabs; **Details, Schedule** and **Design**. You must name your report in the **Details** tab of the Report summary, but changing the other settings is optional.

Click **Save & Finish** when you are ready to generate your report.

19.1 Details

Give your report a name and a description, e.g. its purpose, and why you made the selections that you did. You must name the report, but the description is optional.
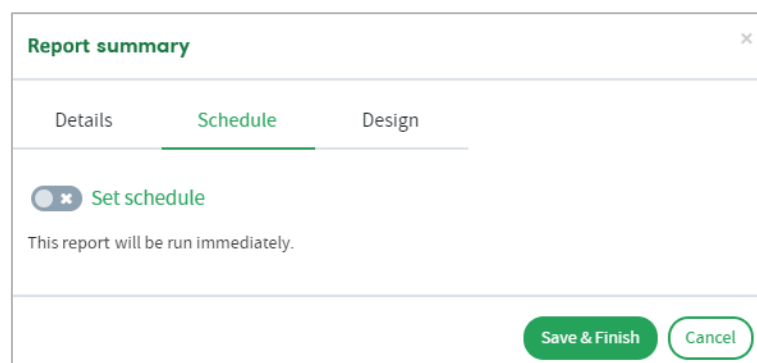
If you wish, add the report to your favorites list by clicking the star icon. You can also add the report or remove it from your favourites list after you've generated and viewed it.

19.2 Schedule report

You can choose whether to run the report once only:

or schedule it to run regularly:

Complete the fields, using the drop-down list and/or the calendars as needed:

19.3 Report design

Finally, you can choose the colour scheme and layout of the **Cover sheet** of the report. The cover sheet layout options available to you will automatically reflect the number of items you selected for inclusion on the cover sheet, and whether you are reporting on a single cohort/patient, or two:

20 Generating the report

You must name your report in the **Details** tab of the Report summary (see 19.1) but changing the other settings in the summary panel is optional. Click **Save & Finish** when you are ready to generate your report.

If you wish, you can move to other areas of Atmolytics while the report is running. You'll see brief notifications in the bottom right corner of your screen, confirming that the report is being generated, and informing you when it's ready:

You may also see a popup panel, confirming that your report is ready, and giving you the option to view it now, or dismiss it:
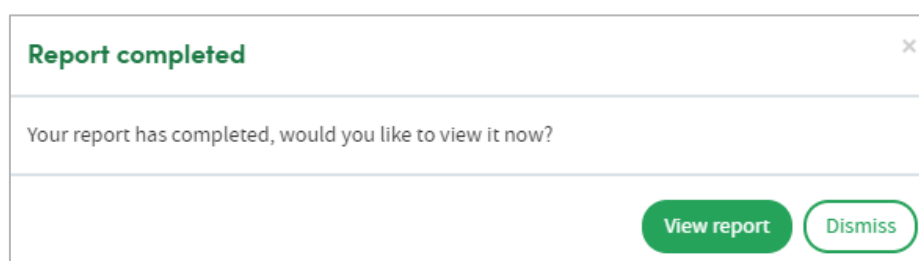
If a new report is ready to view, or a report has been shared with you, the notification bell in the top menu bar will turn orange, and a small orange dot will be visible next to **My Reports**:
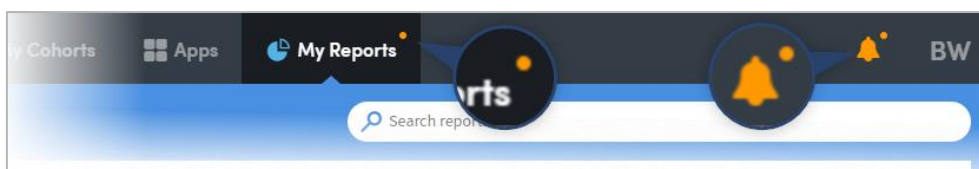
Click **My Reports** in the top menu bar to see all the reports available to you. The most recent reports will be at the top of the list. Click the name of a report to view it:

21 Report outputs

The images in this chapter are taken from various Apps, and the information applies to every App you have available to you. You'll find specific information about each App's report outputs in the chapters of this guide relating to each of the Apps.

Report outputs have a standard format, including a range of standard options:

You can choose to **Run** the report again, **Schedule** the report, **Print** the data from the current tab, or **Share** the output with other users. You can choose to share either the most recent instance of the report or all instances, with other users who have the same role as you.

The content of report outputs depends on the type of App you're working with, but all reports contain **Results**, **Summary** and **History** tabs. Most report outputs also include **Cover sheet**, **Snapshots** and **Data** tabs:
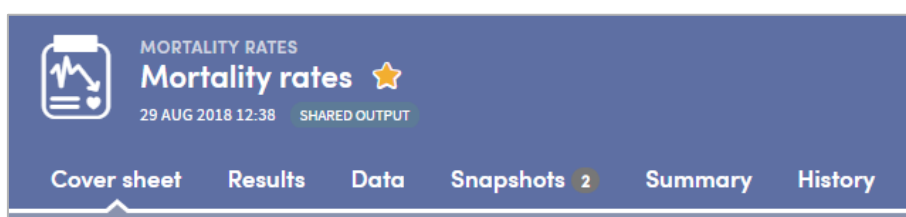
Reports also include a range of interactive facilities designed to enable easy sorting and sifting of the data. These are tailored for each App, and explained in the chapters of this guide relating to each of the Apps.

21.1 Cover sheet

The **Cover sheet** of a report highlights key findings from the report:
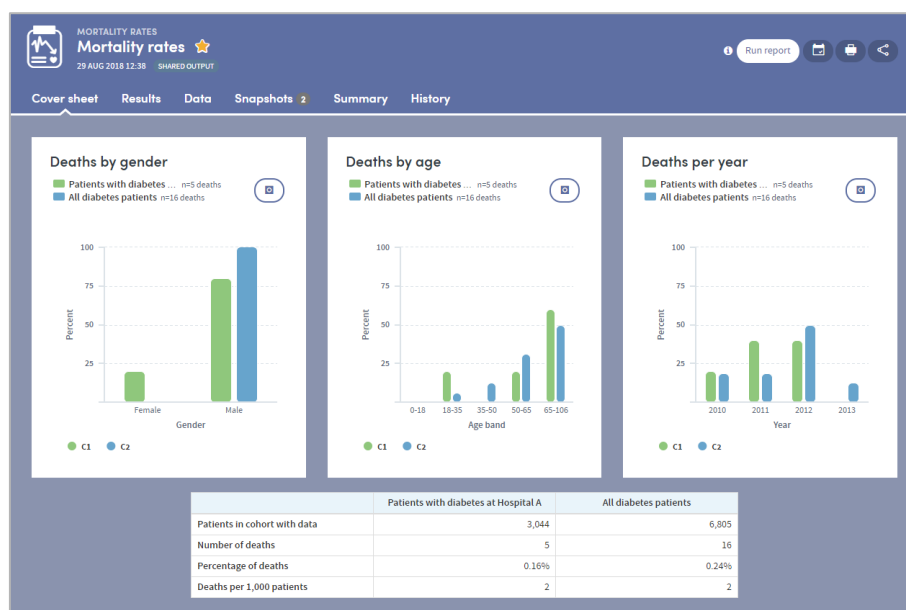
21.2 Results tab

The Results tab allows you to browse the report data in great depth, on an item-by-item basis with both graphical and tabular representations where appropriate. You'll find a range of interactive facilities designed to enable easy sorting and sifting of the data. Again, these are tailored for each App and explained in the chapters of this guide relating to each of the Apps, but you can see an example below:
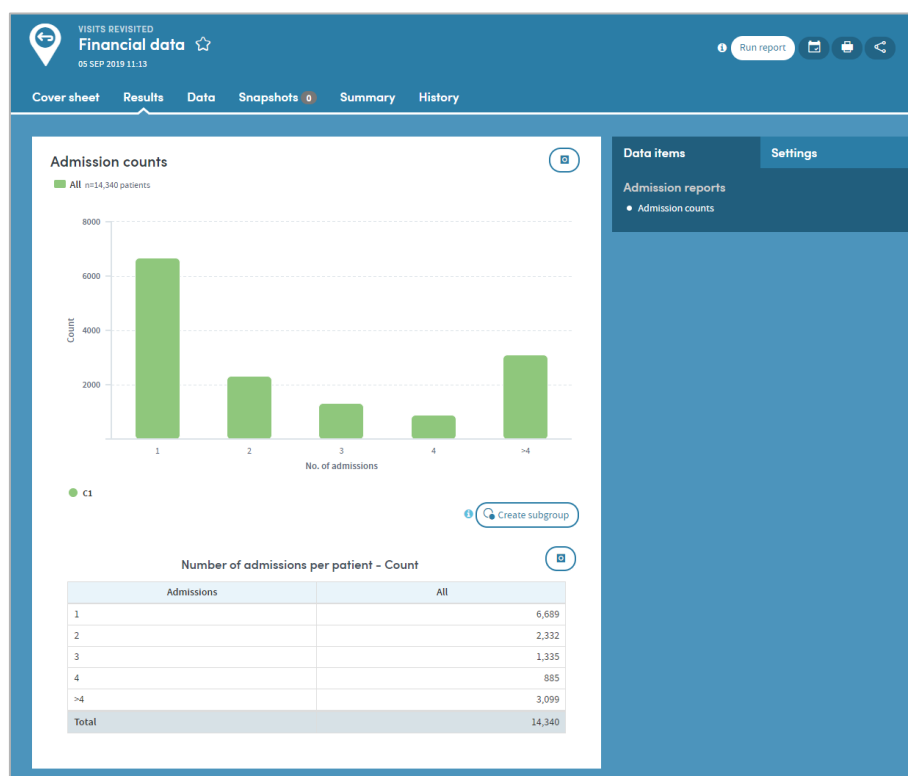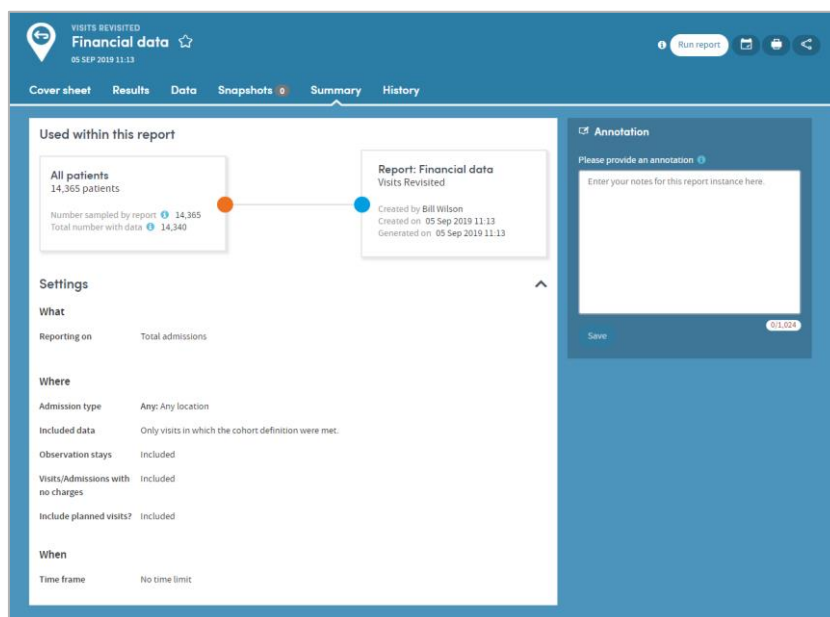

21.3 Data tab

Some types of report include a Data section which presents the report data in tabular format, with features which enable in-depth sorting and analysis:
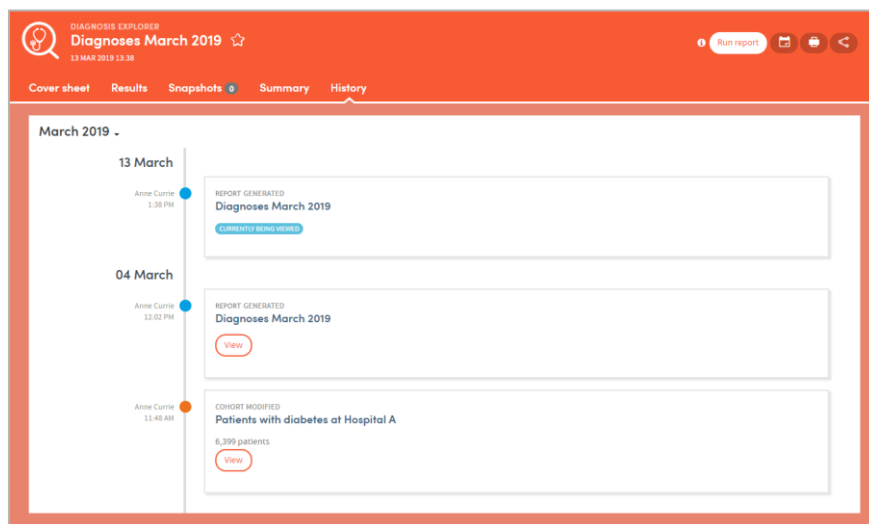
21.4 Summary tab

The Summary specifies all the options selected by the user who created the report. You can also add annotations to the Summary if you wish:

21.5 History tab

Every time a report is generated, it is saved and can be reviewed at any time. The **History** tab allows you to select and view any previous version of your report:

Click the **View** button to see previous versions of the report:

21.6 Snapshots

The images in this chapter are taken from the Mortality Rates App, but the information applies to every App you have available to you.

As well sharing report outputs, you can also take, share, and discuss 'snapshots' of your Atmolytics reports with other users, using a built-in chat room facility. At various places in the **Cover sheet** and **Results** tabs of your report, you'll see a snapshot icon:


Click the icon to take a snapshot of that area of the report:

Add a title and an optional note, and click **Save snapshot**. Once the snapshot is saved, the image and comment are saved under the report's snapshot tab:
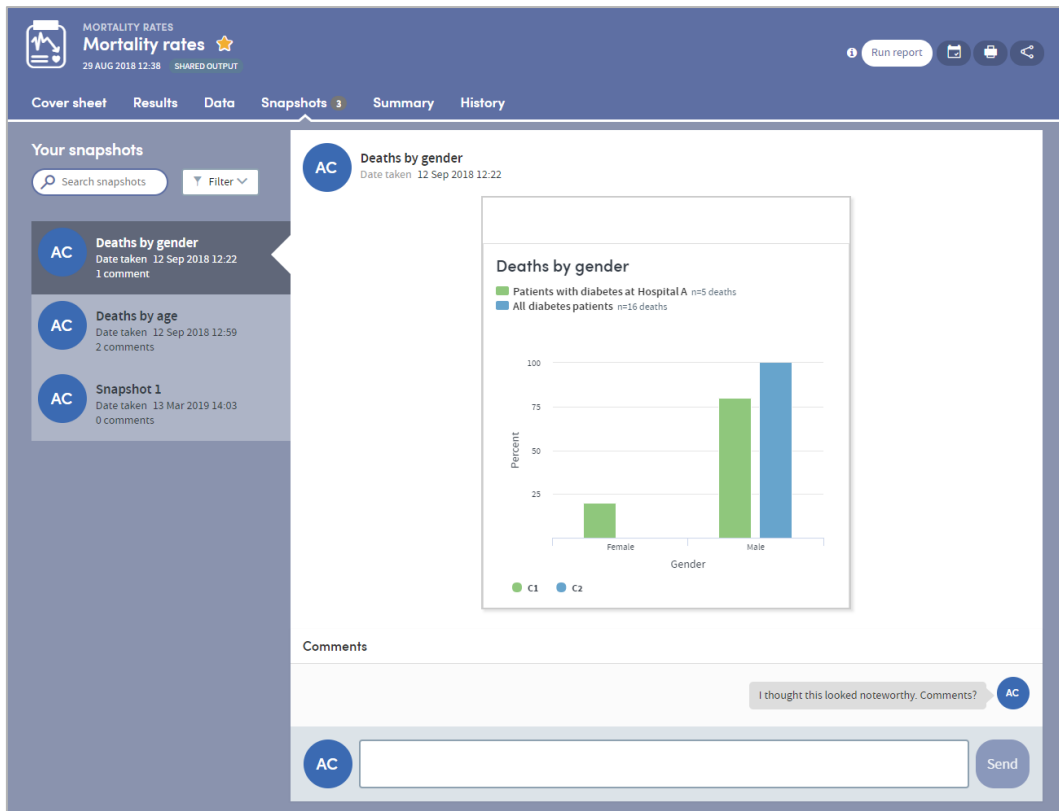
Every user who shares the report output will be sent a notification, letting them know that a new snapshot has been created. Everyone can add comments and discuss the snapshot in real time, enabling easy collaboration with your colleagues:
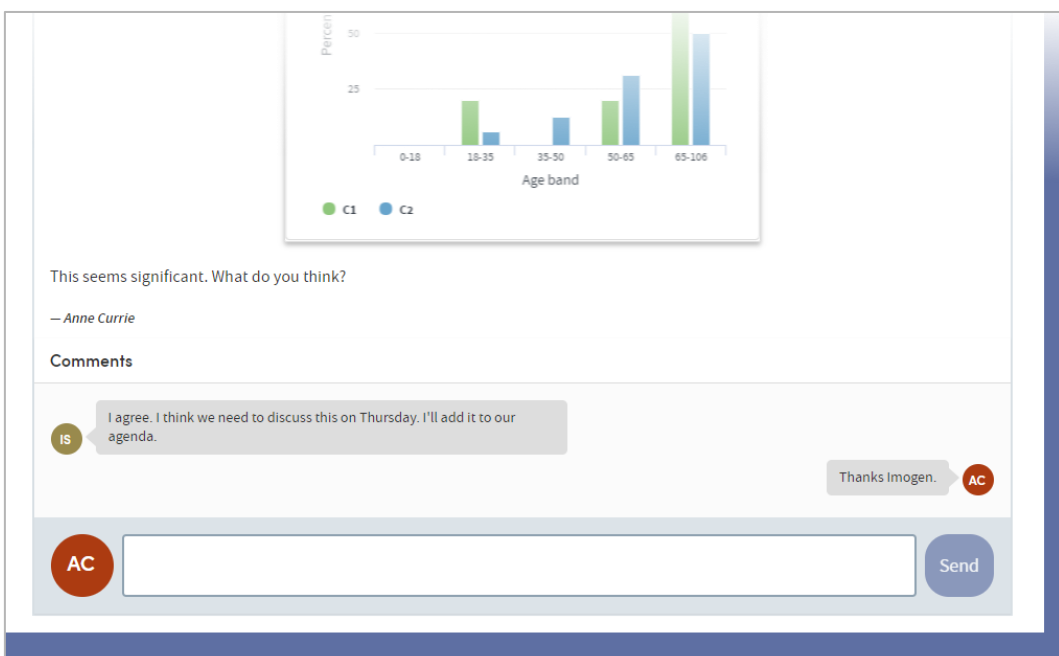
22 Subgroups

Some of the most frequently used Apps enable **subgroups** to be created within a report and saved as a new cohort.

Subgroups are a special type of cohort. They are defined by the **identities** of the individuals who belong to the cohort rather than by the **criteria that select those individuals.** Because of this, subgroups are not editable in the way that standard cohort definitions are editable, since all that Atmolytics has available to it are the IDs of the individuals in the subgroup rather than a set of criteria that can easily be applied back with Cohort discovery.

The **Results** tab of your report may display the **Create subgroup** button:

Click the button and choose the individuals you want to include by clicking the check boxes next to the data in the table. As you do so, the **Subgroup description** field will be populated with the relevant information. You can edit this description if you wish. You also need to complete the **Subgroup name** field.

Click **Create** when you're ready. The subgroup will be created. You'll find the new cohort in the My Cohorts area, with a **SUBGROUP** tag under the cohort name:

Subgroups can be used in reports and (subject to user permissions), shared with other users.

23 Report sharing

There are two forms of report sharing: sharing **outputs** and sharing **definitions**.

A report definition is different from a report output. When you share a report output, you are also sharing the generated information which that specific instance of that report contains. When you share a report definition, you are in effect sharing the 'framework' of a report; the choices and decisions you made along the way about, for example, which cohorts, which datasets, or which period of time to include.

When you share a report definition, you also share the definitions of the cohorts included within the report. These will appear on the recipient's **My cohorts** list.

However, if the recipient has different permissions, or access to different data from you, the patients in their data who satisfy the cohort definition may differ from the patients that you can report upon. Hence, when a recipient runs a report using a definition that you have shared with them, they may generate different results from you.
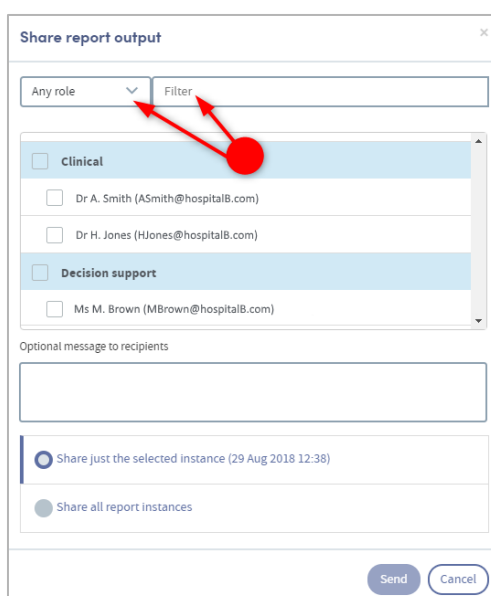
This ensures that the sharing of a report definition does not allow the recipient to view sensitive data that they would otherwise not be permitted to view.

23.1 How to share a report output

To share a report output, first open the report you wish to share (you can do this by clicking the report name in the **Home** area or in the **My Reports** area). On the top right of the report is a small menu bar. Click the **Share** icon:
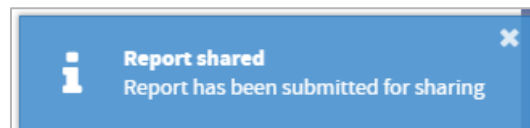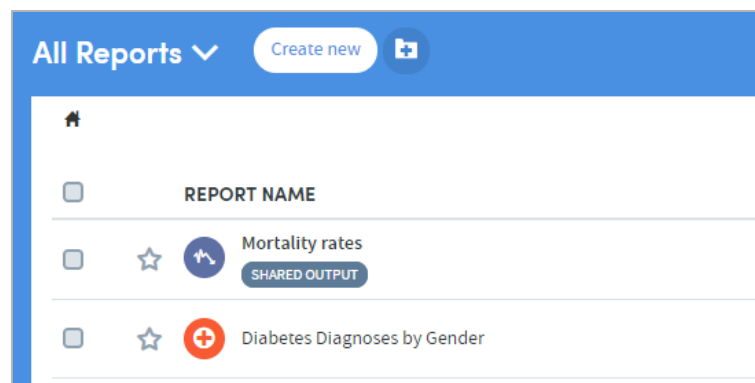

A pop-up box will appear:

If you click the small down-arrow to the right of **Any role** you can select a specific role to narrow down the list of possible recipients. Alternatively, if you know their name, type this into the **Filter** space at the top, and the list below will display matching names for you to select from.

Click in the checkbox to the left of your chosen recipient(s). If you wish, you can add a message.

You can also choose whether to share all instances of this report or just the one that is open. When you have made all your choices, click **Send**. You will see a message at the bottom of the screen:
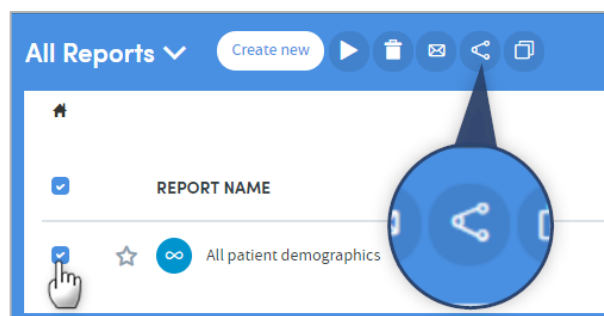

If you now go to your list of reports in the **My Reports** area, you will see that the report you shared has been tagged as **SHARED OUTPUT** in the list:

23.2 How to share a report definition

If you have been given the necessary user permissions, you may share report definitions that you have created.

Go to the **My Reports** area (accessed via the top menu bar) and click the checkbox on the left of the report whose definition you wish to share. Click the **Share report definition** icon:


A pop-up box will appear:

If you click the small down-arrow to the right of **Any role** you can select a specific role to narrow down the list of possible recipients. Alternatively, if you know their name, type this into the **Filter** space at the top, and the list below will display matching names for you to select from.

Click in the checkbox to the left of your chosen recipient(s). If you wish, you can add a message. Click **Send**.

You will see a message at the bottom of the screen:
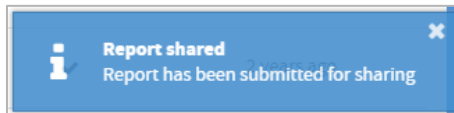
If you now go to your list of reports in the **My Reports** area, you will see that the report definition you shared has been tagged as **SHARED DEFINITION** in the list:
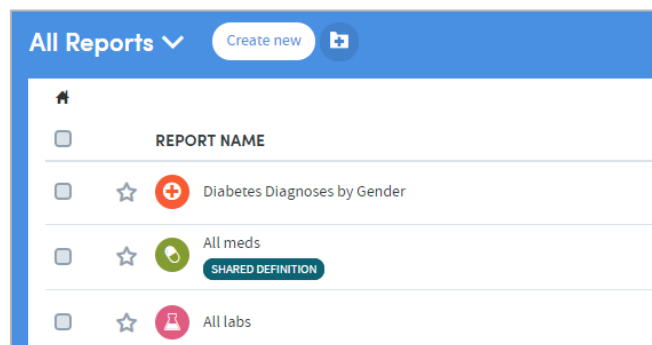
23.3 More about report sharing rules

> ### The principles of sharing data within Atmolytics
>
> Users should be able to freely share information with other users who need to see it. In doing so, they should not be able to:
>
> Expose other users to information that they should not have access to.
>
> Make hidden modifications to other users' content.

There are some specific rules which Atmolytics applies when reports and report definitions are shared. Every user of the system is assigned a **Role** by their system administrator (in some cases a user may have multiple roles assigned to them). This role defines the type and level of permissions the user has when using Atmolytics.

Depending on the role they have, some users may not be permitted to share reports or report definitions. Some users may not be able to create their own reports or report definitions, but may be able to see reports that other users have created and shared with them, or generate reports from definitions that other users have created and shared with them.

These permissions can be set on an app-by-app basis, so a role may allow a user to create and share reports using one app, but in the case of another app, prevent them from creating or sharing reports, or viewing reports that another user tries to share with them.

24 Cloning a report definition

It is possible to create an exact copy of an existing report definition and then edit the report criteria. This is especially useful if you wish to create a variation of a complex report. The easiest way to do this is to clone the complex report and then alter the criteria, rather than create the whole report again. To do this:

Go to the **My Reports** page (accessed via the top menu bar) and click the checkbox to the left of the report definition you wish to clone. Next, click the **Clone** icon:
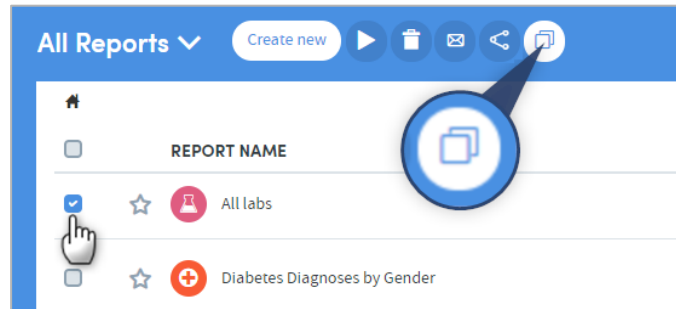
A pop-up box will appear, prompting you to give the new report definition a name and a description (a default name is supplied).

Enter the name and optional description, and click **Save**. You will be taken straight to **Step 1: Who** of the relevant App:
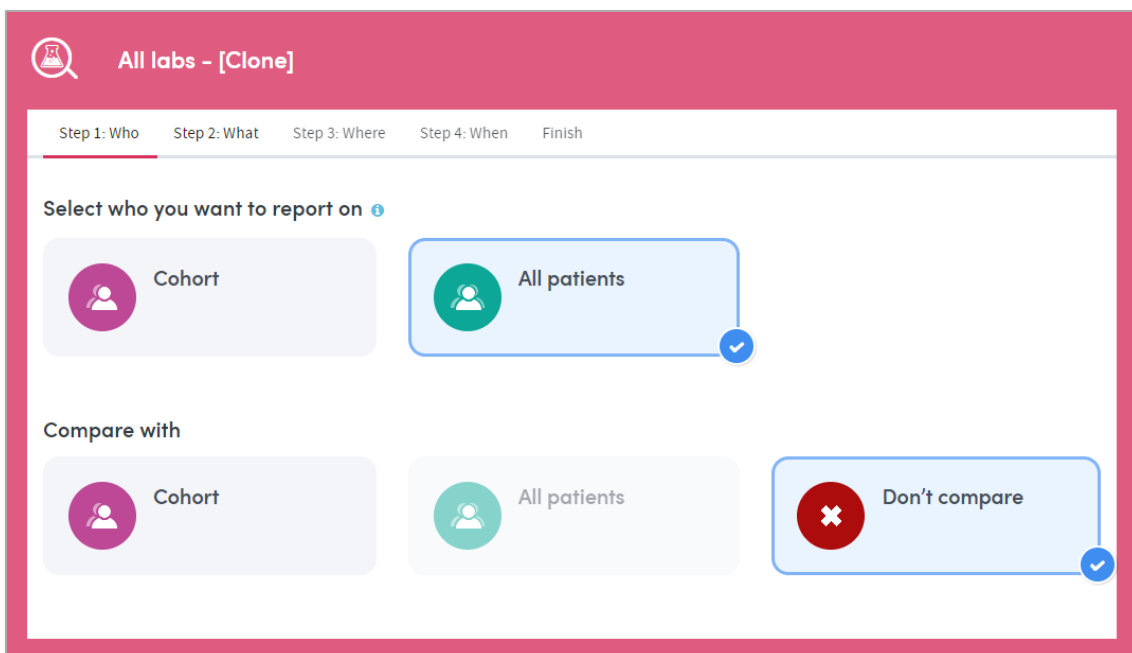

The criteria you set in your original report definition will be 'pre-loaded' into the report definition steps of the App. At any point in the process, you can edit the criteria of the report as you would any other, and generate the report in the usual way.

25 How to tag a report as unread or read

You can tag a report you've looked at as **unread**, and return to it later. To do this, click the checkbox to the left of the report, and click the envelope icon:
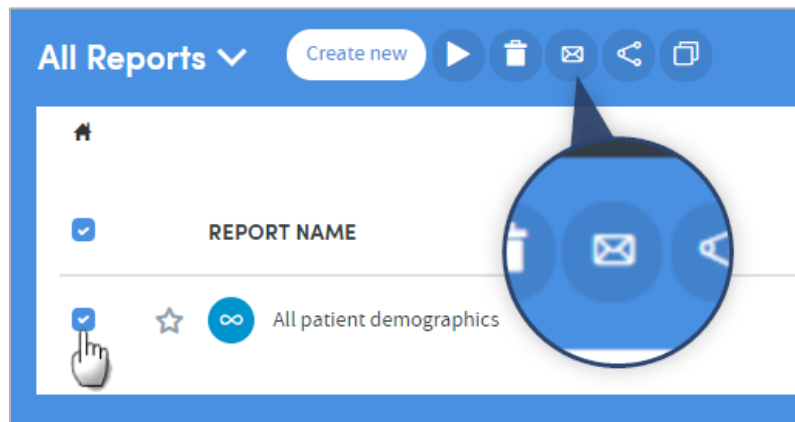

The name of the report will appear in bold, and you'll see the orange notification dot above **My Reports**, telling you you have an unread report in your list:
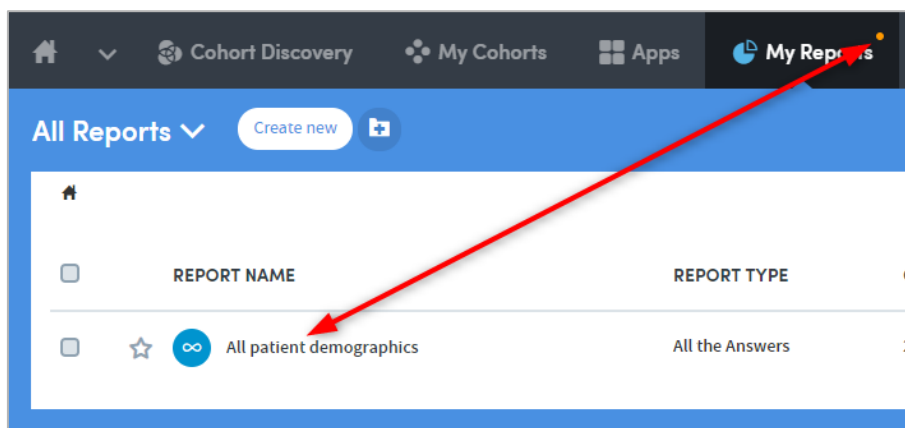
You can mark an unread report as **read** in the same way, by clicking the checkbox followed by the envelope icon.
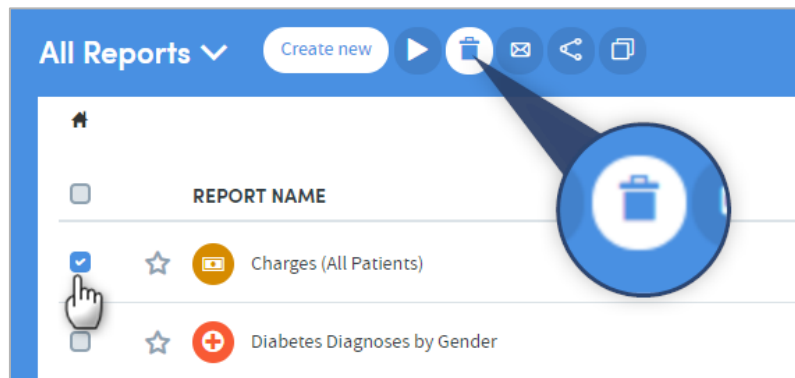
26 Printing reports

When viewing a report, you can print the page which is currently displayed on screen, by clicking the **Print** icon on the top right:
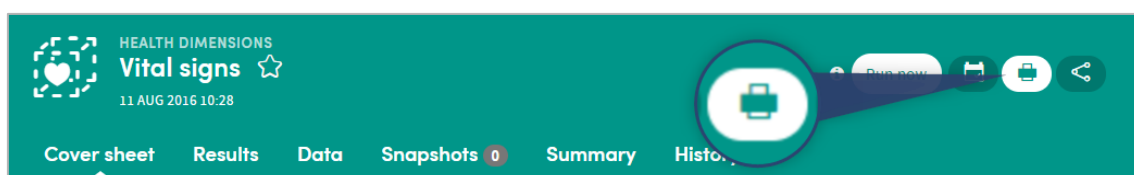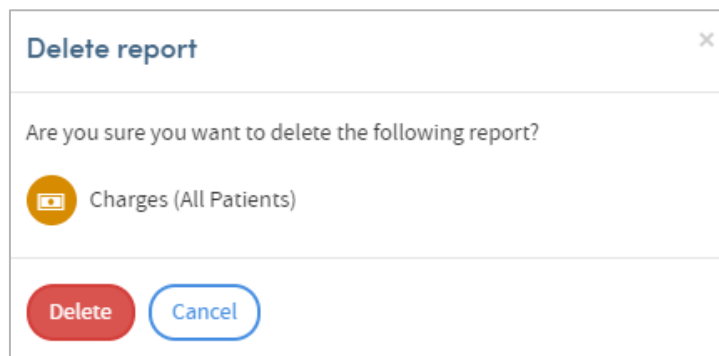
27 Deleting reports

Go to the **My Reports** area (accessed via the top menu bar) and click the checkbox on the left of the report(s) you wish to delete. Click the **Delete** icon:

A pop-up box will appear, asking you to confirm that you want to delete the report(s):

Click **Delete** to confirm.