

USER MANUAL EPICURVE TOOL

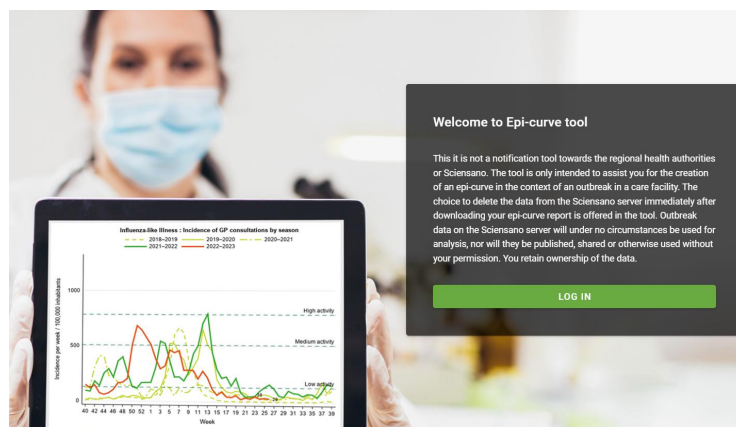
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In collaboration with Departement Zorg, AVIQ, Vivalis

CONTENTS

| | |
|--|----|
| 1. Introduction | 2 |
| 2. The concept | 2 |
| 3. Obtaining access to the tool..... | 3 |
| 3.1. Requesting an account | 3 |
| 3.2. Activating Itsme to log in | 4 |
| 4. The Excel templates..... | 5 |
| 4.1. The Local Template | 5 |
| 4.2. The Upload Template | 5 |
| 5. Generation of the epi-curve | 6 |
| 5.1. Creating the outbreak | 6 |
| 5.2. Importing the cases | 7 |
| 5.3. Generating the epi-curve | 9 |
| 5.4. Editing and deleting data from an outbreak..... | 10 |
| 5.5. Updating the epi-curve..... | 11 |
| 6. Optional additions to the epi-curve report..... | 11 |
| 7. Downloading the report..... | 13 |
| 8. Data privacy, security and ownership | 14 |
| 9. Helpdesk | 14 |



1. INTRODUCTION

An epidemic curve (epi-curve) is a key instrument for following up on an outbreak. It is a graphical representation of the occurrence of new cases over time, such that the outbreak can be clearly visualized and tracked.

Ideally an epi-curve is drafted as soon as an outbreak is suspected. It should be regularly updated with the new cases until the outbreak can be declared terminated.

As part of a proper follow-up of MDRO¹ outbreaks in care facilities, the OST² experts from the regional health authorities³ and Sciensano wanted to offer a simple digital tool to healthcare facilities for creating epi-curves.

The 'EpiCurve' tool was developed by Sciensano's IT department. It is a web application that healthcare facilities (hospitals, long term care facilities) facing an MDRO outbreak (or any other pathogen) can use to easily create epi-curves.

Important reminder:

This is NOT a notification NOR a registration tool

It is only intended to provide IPC⁴ personnel with a user-friendly tool for creating epi-curves

2. THE CONCEPT

The concept is simple (Figure 1) and starts from Excel because everyone is familiar with it.

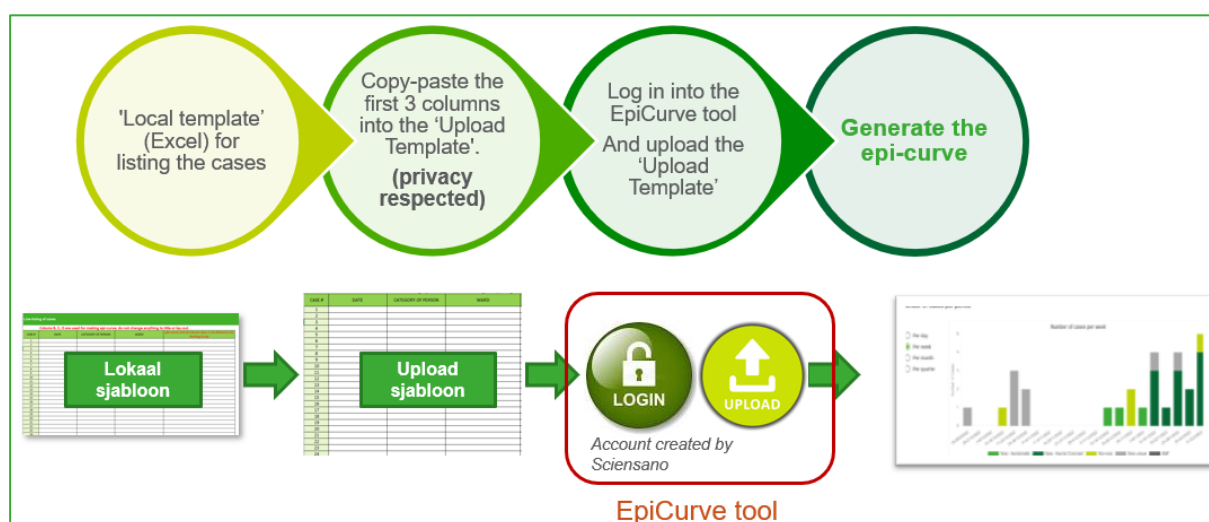


Figure 1: Concept of the EpiCurve tool.

In a nutshell, care facilities are provided with a **standardized Excel template to list the cases**. The filled sheet remains locally and is therefore referred to as **'Local Template'**. This sheet can contain any information that the IPC team deems useful, including personal patient information, as this sheet remains locally. Next, the **essential data for the epi-curve are copy-pasted in the 'Upload Template'**. The Upload Template is protected in such a way that it can only contain the required information for the

¹ MDRO: Multi-Drug Resistant Organisms

² OST: Outbreak Support Team

³ Departement Zorg, AVIQ, Vivalis

⁴ IPC: Infection Prevention and Control

epi-curve, which is the data from the first 3 columns. As a third step, the **Upload Template is uploaded in the EpiCurve tool**, where the anonymous case data are used to create an epi-curve.

This concept has several advantages:

1. Excel is a widely used software program
2. Additional columns and information can be added in the Local Template for local use
3. Copy-pasting in the protected Upload Template avoids double work (no need for manual data entry in the web application)
4. No issues with data privacy/security; no personal data are extracted nor saved on the Sciensano server

More details on each of these steps and on the protection of data are given in the next chapters, but first it is explained how to get access to the tool.

3. OBTAINING ACCESS TO THE TOOL

3.1. Requesting an account

The application is running on the Sciensano server; it is a so-called Sciensano extranet. This is how the homepage looks like (Figure 2):

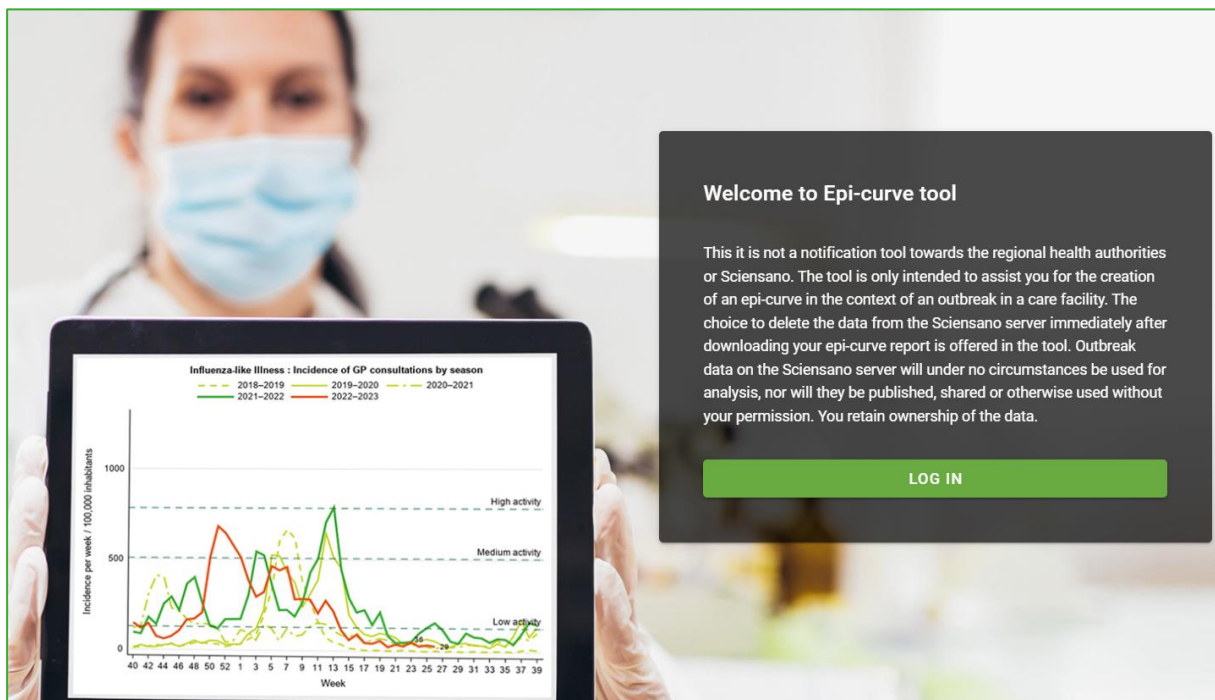


Figure 2: The homepage of the EpiCurve tool (<https://epicurve.sciensano.be/>)

For using the EpiCurve tool, you need a Sciensano account. The account is per user. Your account is always linked to your healthcare facility (or facilities). All the accounts linked to a certain healthcare facility will see all the outbreaks of this facility.

For creating your account, we need your first name, last name, birthdate, language, e-mail address, and facility name (or names).

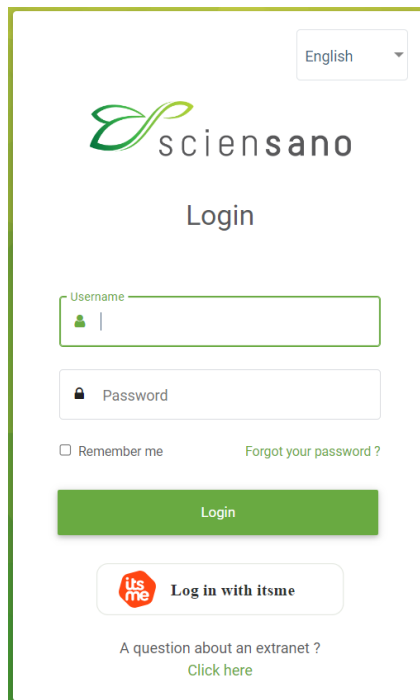
An account can be requested at mdro_ost@sciensano.be

At the end of a short registration process, you will receive a username and password. Your username will be `firstname.lastname@sciensano.be`. You can choose your password.

Itsme login is also available but you need to activate it yourself. See 3.2. on how to activate Itsme.

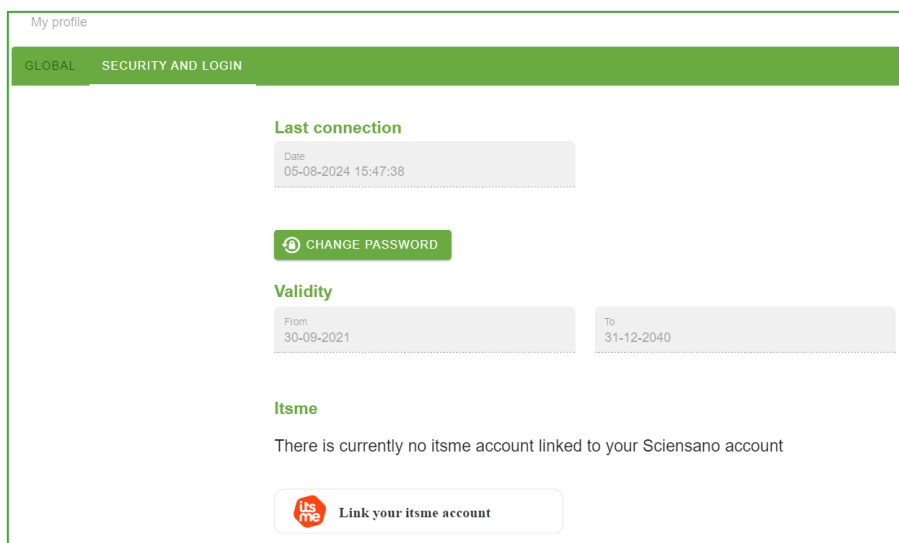
3.2. Activating Itsme to log in

To activate Itsme, go to the Sciensano User Portal (<https://userportal.sciensano.be>) and log in with your Sciensano user name (`firstname.lastname@sciensano.be`) and password:



The screenshot shows the Sciensano login interface. At the top right, there is a language dropdown menu set to 'English'. The Sciensano logo is centered at the top. Below the logo, the word 'Login' is displayed. There are two input fields: 'Username' with a person icon and 'Password' with a lock icon. Below the password field, there is a checkbox for 'Remember me' and a link for 'Forgot your password?'. A green 'Login' button is positioned below these fields. At the bottom, there is a button with the 'itsme' logo and the text 'Log in with itsme'. Below this button, there is a link for 'A question about an extranet? Click here'.

In your profile, under 'Security and login', you can activate Itsme. As of now, you can use Itsme to log in to Sciensano applications:



The screenshot shows the 'My profile' page with the 'SECURITY AND LOGIN' section active. Under the heading 'Last connection', there is a 'Date' field showing '05-08-2024 15:47:38'. Below this is a green button with a refresh icon and the text 'CHANGE PASSWORD'. Under the heading 'Validity', there are 'From' and 'To' fields showing '30-09-2021' and '31-12-2040' respectively. Under the heading 'Itsme', there is a message: 'There is currently no itsme account linked to your Sciensano account'. Below this message is a button with the 'itsme' logo and the text 'Link your itsme account'.

4. THE EXCEL TEMPLATES

4.1. The Local Template

As a first and logical step, a list of all cases should be made. For this purpose, a standardized Excel template was designed, referred to as Local Template (Figure 3). Columns are provided for the essential information (date, type of case, ward) but additional columns can be added for any other case-related information that is deemed useful (such as patient names, room numbers, lab result etc.) as this Excel file is kept locally with you.

| | A | B | C | D | E | F | G | H | I |
|----|-----------------------|--|--------------|------|---|-------|-------|-------|------|
| 1 | Line-listing of cases | | | | | | | | |
| 2 | Line-listing of cases | | | | | | | | |
| 3 | Line-listing of cases | | | | | | | | |
| 4 | | <i>Data from Columns B, C and D are used for making the epi-curve and need to be copied in the Sciensano Upload Template</i> | | | <i>Add additional columns as you wish</i> | | | | |
| 5 | CASE # | DATE | TYPE OF CASE | WARD | TITLE | TITLE | TITLE | TITLE | TITL |
| 6 | 1 | | | | | | | | |
| 7 | 2 | | | | | | | | |
| 8 | 3 | | | | | | | | |
| 9 | 4 | | | | | | | | |
| 10 | 5 | | | | | | | | |
| 11 | 6 | | | | | | | | |
| 12 | 7 | | | | | | | | |
| 13 | 8 | | | | | | | | |
| 14 | 9 | | | | | | | | |
| 15 | 10 | | | | | | | | |
| 16 | 11 | | | | | | | | |

Figure 3: The Local Template, with the first 3 columns provided for the essential information (date, type of case and ward). Other information can be added to the right as desired.

Notice the first 3 columns (Date, Type of case, Ward): they contain the essential case information to make two curves:

- (1) Number and type of cases over time ('classical' epi-curve)
- (2) Number of cases per ward, over time

The date is written in the format dd/mm/yyyy.

For filling 'Type of case', there is a dropdown list with the following choices:

- (1) Noso⁵ symptomatic
- (2) Noso asymptomatic/colonized
- (3) Non-noso (*positive case but not acquired in the ward e.g. known carrier*)
- (4) Noso unsure (*if not sure about noso or non-noso*)
- (5) Staff

The column 'Ward' provides for free text.

The columns with the data needed for the epi-curve will have to be copied in the Upload Template which looks similar but only allows for the data needed for the curve (a simple copy/paste from one excel file to another).

4.2. The Upload Template

This is how it looks (Figure 4):

⁵ 'Noso' is defined as more than 48 hours after admission in care facility. The term 'noso' is now obsolete but proposal is to use it anyway - also for other healthcare institutions - because it is still widely used and well understood in both national languages, contrary to the current term 'HAI'

| | A | B | C | D | E | F | G | H | I |
|----|--|------|--------------|------|---|---|---|---|---|
| 1 | Line-listing of cases ONLY for copy-pasting selected information from the Local Template | | | | | | | | |
| 2 | | | | | | | | | |
| 3 | | | | | | | | | |
| 4 | CASE # | DATE | TYPE OF CASE | WARD | | | | | |
| 5 | 1 | | | | | | | | |
| 6 | 2 | | | | | | | | |
| 7 | 3 | | | | | | | | |
| 8 | 4 | | | | | | | | |
| 9 | 5 | | | | | | | | |
| 10 | 6 | | | | | | | | |
| 11 | 7 | | | | | | | | |
| 12 | 8 | | | | | | | | |
| 13 | 9 | | | | | | | | |
| 14 | 10 | | | | | | | | |
| 15 | 11 | | | | | | | | |

Figure 4: The Upload Template, for copy-pasting the first 3 columns from the Local Template. The sheet is protected such that it can contain no other information.

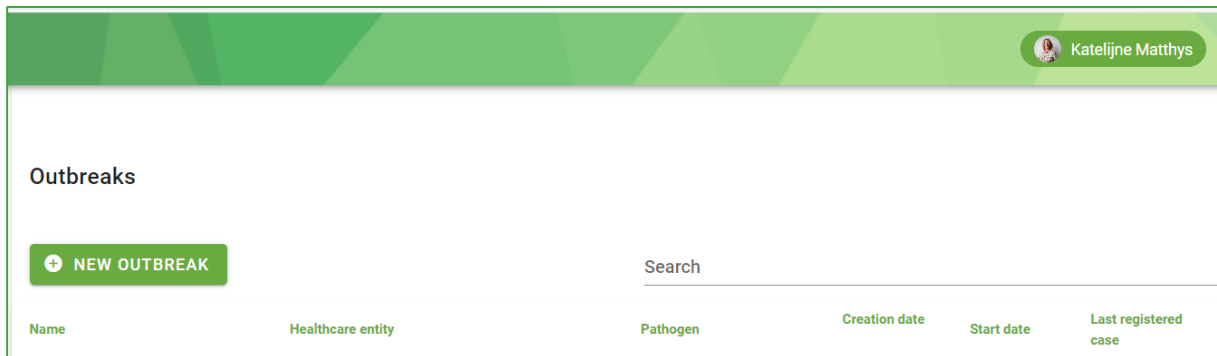
The Upload Template is then uploaded in the Sciensano EpiCurve tool.

As long as the outbreak is active, the locally-kept data sheet should be updated regularly with new cases, followed by copy-pasting the updated list in the Upload Template and running the EpiCurve application on the updated data set (see also 5.5).

5. GENERATION OF THE EPI-CURVE

5.1. Creating the outbreak

Log in to the web application (<https://epicurve.sciensano.be/>).



Click on 'New Outbreak'. Fill general information on the outbreak:

New outbreak

Name *
Outbreak XYZ

Healthcare entity *
Sciensano

Pathogen *
Acinetobacter baumannii

Antibiotic resistance
Multidrug-resistant (MDR)

Start date (automatically set after import)

Last case registered (automatically set after import)

Comment

SAVE

Give a name to the outbreak, pick your hospital, pick the pathogen⁶, pick the resistance profile. If a pathogen or resistance profile is missing, you can choose 'other' and fill in⁷.

Start date will be filled automatically after uploading the cases, based on the earliest case date in the list of cases. Last case registered is filled automatically.

Add comments in the 'Comment' pane if you wish. Click 'Save'.

5.2. Importing the cases

You are now all set for uploading the data. If you hover over the 3 dots to the right of the outbreak you just created, you see a 4-item menu:


| Outbreak XYZ | Sciensano | Acinetobacter baumannii | 05/08/2024 | 01/08/2023 | |
|----------------|-----------|-------------------------|------------|------------|---|
| test jan 24 | Sciensano | Actinomyces spp. | 18/01/2024 | | <div style="display: flex; flex-direction: column; gap: 5px;"> <div style="display: flex; align-items: center; gap: 5px;"> Edit</div> <div style="display: flex; align-items: center; gap: 5px;"> Import data</div> <div style="display: flex; align-items: center; gap: 5px;"> Generate report</div> <div style="display: flex; align-items: center; gap: 5px;"> Delete</div> </div> |
| Rows per page: | | | | | <div style="display: flex; align-items: center; gap: 5px;"> ⋮ ⋮ </div> |

Choose 'Import data'.

⁶ Note that the list of pathogens is not limited to MDRO, such that you can also use the application for other pathogens.

⁷ We will ensure that it is added to the list in the application later on.

Outbreak XYZ - File selection

 Upload template file

You don't have the local template file? Click [here](#) to download it.
You don't have the Sciensano template file? Click [here](#) to download it.

Upload the Upload Template file. Click 'Next'. You will now see your case list.

Outbreak XYZ - Preview and save

| CASES | NUMBER TESTED | PRE-OUTBREAK DATA | |
|---|------------------|---------------------------|------|
| Total number of cases: 13 Sampling timeframe: 01/08/2023 to 09/09/2023 | | | |
| Search | | | |
| Case # | Date of sampling | Type of case | Ward |
| 1 | 01/08/2023 | Noiso - Asympt./Colonized | A |
| 2 | 12/08/2023 | Non-noiso | B |
| 3 | 12/08/2023 | Noiso - Asympt./Colonized | A |
| 4 | 15/08/2023 | Noiso unsure | C |
| 5 | 15/08/2023 | Non-noiso | A |
| 6 | 15/08/2023 | Noiso - Symptomatic | C |
| 7 | 15/08/2023 | Noiso - Symptomatic | C |
| 8 | 15/08/2023 | Noiso - Symptomatic | C |
| 9 | 15/08/2023 | Staff | D |
| 10 | 16/08/2023 | Noiso unsure | A |
| 11 | 20/08/2023 | Noiso - Asympt./Colonized | B |
| 12 | 01/09/2023 | Noiso - Asympt./Colonized | D |
| 13 | 09/09/2023 | Noiso unsure | D |

Rows per page: 50 1-13 of 13

[SAVE DATA](#)

Click on 'Save'.

Name *
Outbreak XYZ

Healthcare entity *
Sciensano


Pathogen *
Acinetobacter baumannii

Antibiotic resistance
Multidrug-resistant (MDR)

Start date (automatically set after import)
01/08/2023

Last case registered (automatically set after import)
03/09/2023







Comment



 SAVE

Notice that start and end date are now filled, based on the imported data. Click on 'Save'.

5.3. Generating the epi-curve

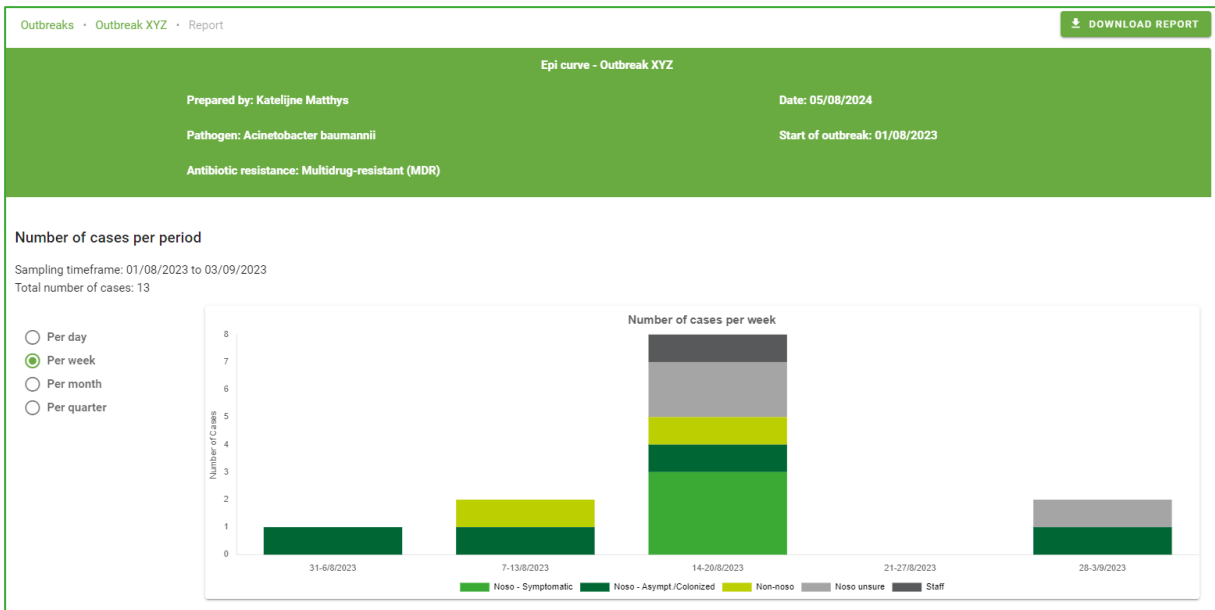
To generate the curve, hover over the 3 dots and choose 'Generate report':

| | | | | | | |
|--------------|-----------|-------------------------|------------|------------|---|--|
| Outbreak XYZ | Sciensano | Acinetobacter baumannii | 05/08/2024 | 01/08/2023 |  Edit |   |
| test jan 24 | Sciensano | Actinomyces spp. | 18/01/2024 | |  Import data | |
| | | | | |  Generate report | |
| | | | | |  Delete | |

Rows per page:  

The following curves will result:

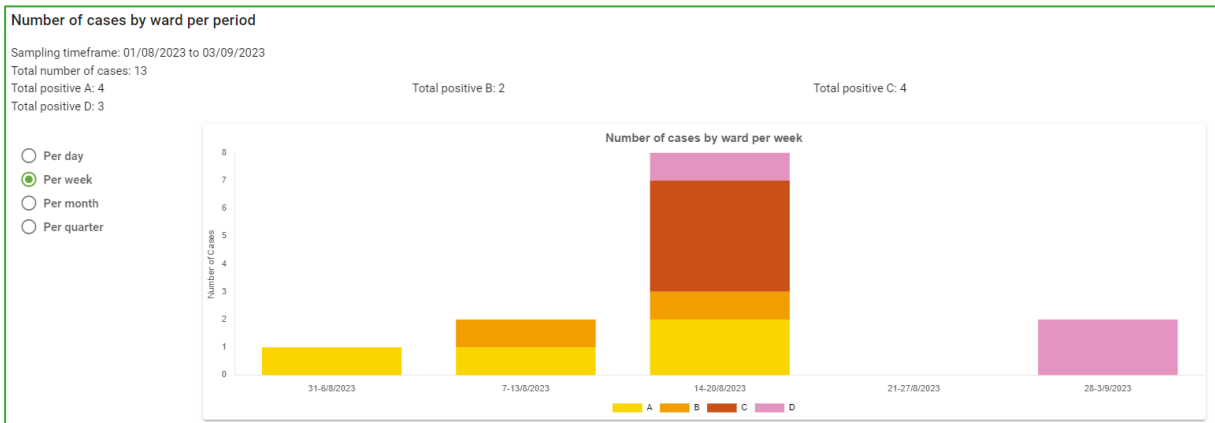
- (1) Number and type of cases over time ('classical' epi-curve)



You have the choice to have a view per day, week, month or quarter.

If you want to see a selection of the data, for example remove 'noso unsure', you can simply click on the legend.

(2) Number of cases per ward, over time



You can download the information and graphs in a report (see Chapter 7) to save locally.

5.4. Editing and deleting data from an outbreak

When you hover over the 3 dots, you see that the last item in the short menu is 'Delete'. This allows you to delete the outbreak. Of course, you will then lose the history of outbreaks in the application.

| Outbreak XYZ | Sciensano | Acinetobacter baumannii | 05/08/2024 | 01/08/2023 | Edit | ⋮ |
|--------------|-----------|-------------------------|------------|------------|-----------------|---|
| test jan 24 | Sciensano | Actinomyces spp. | 18/01/2024 | | Import data | ⋮ |
| | | | | | Generate report | ⋮ |
| | | | | | Delete | ⋮ |

Rows per page:

'Edit' can be used if you want to update the general information on the outbreak, for example change the name of the outbreak or add comments in the Comment pane. Make sure to save your changes.

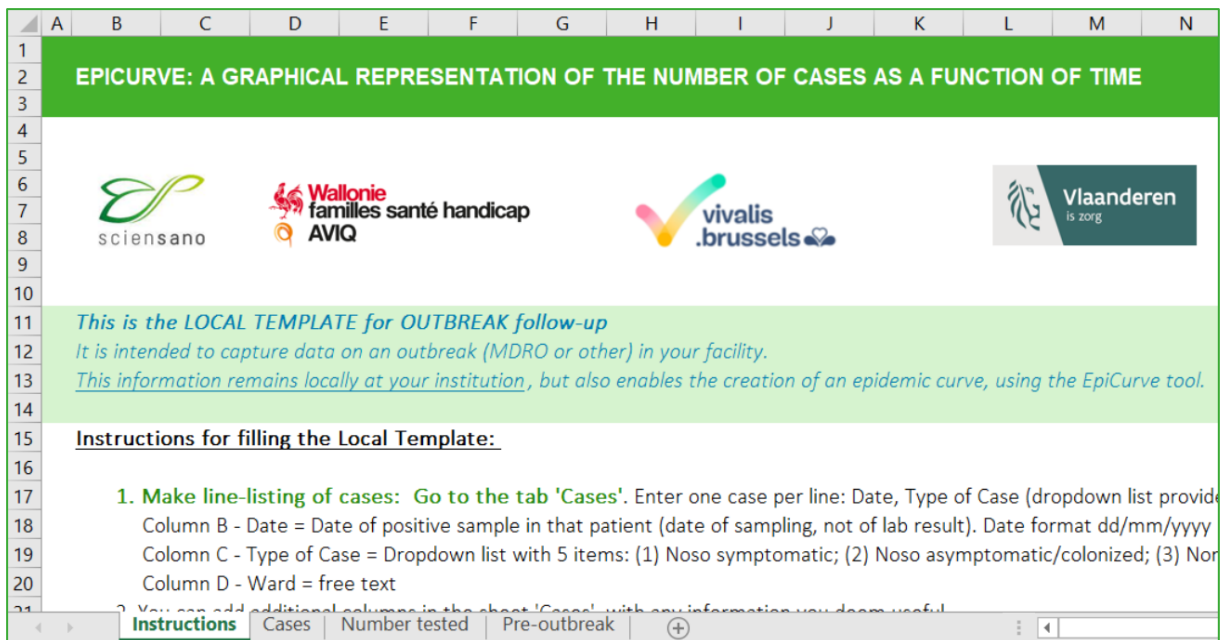
5.5. Updating the epi-curve

To update the epi-curve with new cases (or make changes to existing cases), you need to restart from the Local Template: update the existing Local Template and copy-paste the required data in the Upload Template. Then select the outbreak that you are working on, click on 'Import data', and upload.

You can also make your updates in the Upload Template, but then you have no means to add any additional information on the cases. Therefore it is advised to always start from the Local template and copy-paste the data required for the curve in the Upload Template.

6. OPTIONAL ADDITIONS TO THE EPI-CURVE REPORT

Described above is the basic format of an epi-curve. But you have probably noticed by now that the Excel templates have two additional sheets i.e. 'Number tested' (3rd sheet) and 'Pre-outbreak' (4th sheet):



The first sheet contains brief instructions.

The second sheet is the case list (Figure 3).

The third sheet is called 'Number tested' (Figure 5), should you wish to keep track of how many patients were tested during the outbreak period. The visualization of this information is presented in Figure 6.

The fourth sheet is called 'Pre-outbreak data' (Figure 7), should you wish to include information on the pre-outbreak period (baseline level). Figure 8 illustrates how this information is visualized.

| | A | B | C | D | E | F |
|----|--|----------------------|---|---|---|---|
| 2 | Number of patients tested over time since the outbreak started | | | | | |
| 3 | <i>Data of Columns A and B to be copied in the Sciensano Upload Template</i> | | <i>Add additional information as you wish</i> | | | |
| 4 | | | | | | |
| 5 | DATE | NUMBER TESTED | | | | |
| 6 | | | | | | |
| 7 | | | | | | |
| 8 | | | | | | |
| 9 | | | | | | |
| 10 | | | | | | |
| 11 | | | | | | |
| 12 | | | | | | |
| 13 | | | | | | |
| 14 | | | | | | |
| 15 | | | | | | |
| 16 | | | | | | |
| 17 | | | | | | |
| 18 | | | | | | |

Figure 5: Third sheet of the Local Template, where you can collect the date and the number of patients tested during the outbreak period. Columns A and B to be copied in the Upload Template for data visualization.

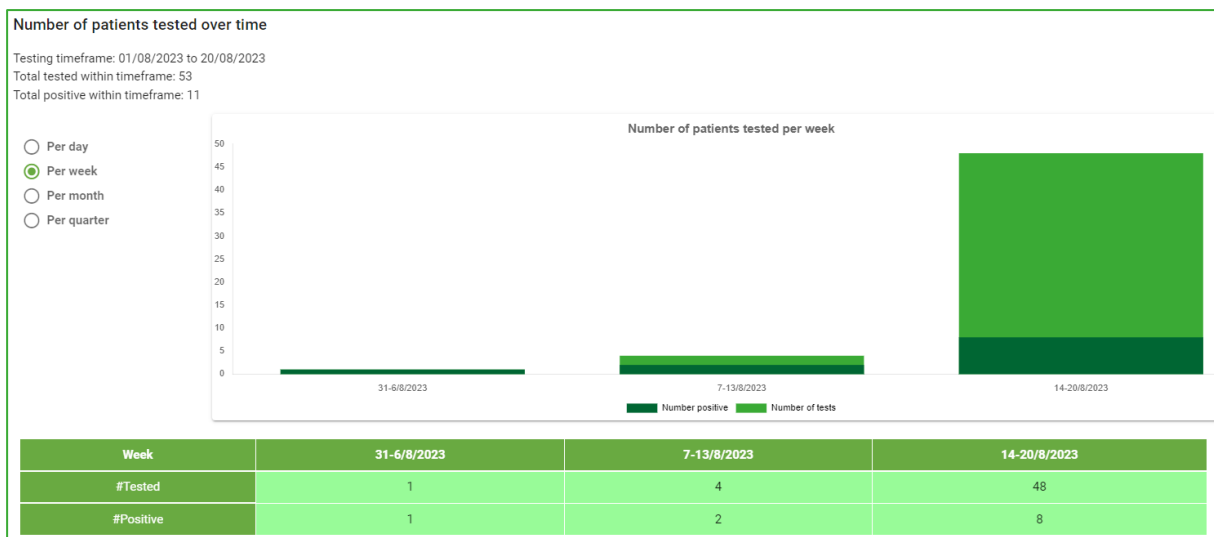


Figure 6: Number of patients tested over time (light green) and number that tested positive (dark green), with the numbers also visible in the graph below.

| | A | B | C | D | E | F | G |
|----|--|---------------|-----------------|--|---|---|---|
| 1 | Pre-outbreak data | | | | | | |
| 2 | | | | | | | |
| 3 | | | | | | | |
| 4 | Data of Columns A, B and C to be copied in the Sciensano Upload Template | | | Add additional information as you wish | | | |
| 5 | DATE | NUMBER TESTED | NUMBER POSITIVE | | | | |
| 6 | | | | | | | |
| 7 | | | | | | | |
| 8 | | | | | | | |
| 9 | | | | | | | |
| 10 | | | | | | | |
| 11 | | | | | | | |
| 12 | | | | | | | |
| 13 | | | | | | | |
| 14 | | | | | | | |
| 15 | | | | | | | |
| 16 | | | | | | | |
| 17 | | | | | | | |
| 18 | | | | | | | |
| 19 | | | | | | | |
| 20 | | | | | | | |

Attention! Cell cannot be empty. Please put '0' if there are zero positive samples

Figure 7: Fourth sheet of the Local Template, where you can collect the date and the number of patients tested in the pre-outbreak period. Columns A, B and C to be copied in the Upload Template for data visualization.



Figure 8: Example of pre-outbreak data (blue bars) visualized.

If you are interested in these additional options, make sure to copy-paste the data from the Local Template into the respective sheets from the Upload Template. They will then appear in the output report.

7. DOWNLOADING THE REPORT

The report can be downloaded in Word (Figure 9) or in PDF-format. To do so, click in the upper right corner on 'Download report' after generating the report.



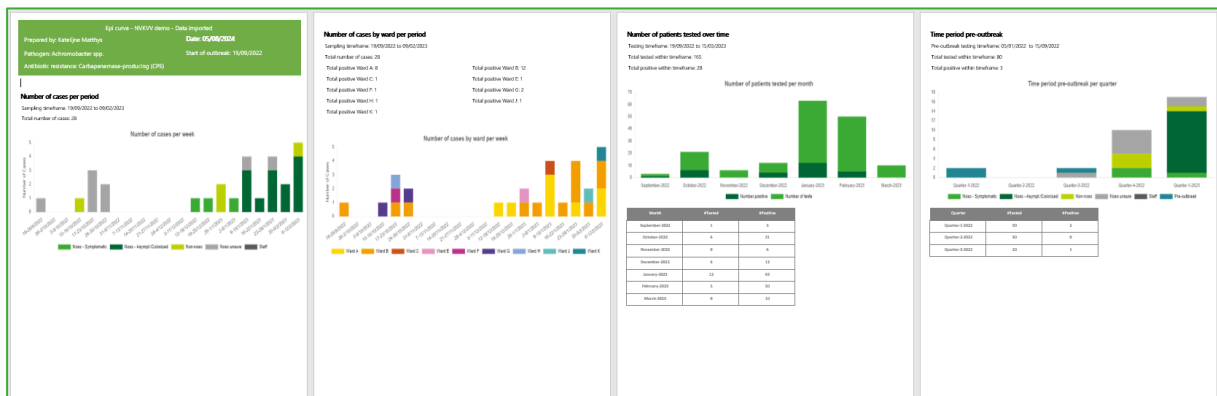


Figure 9: Example of report downloaded in Word.

8. DATA PRIVACY, SECURITY AND OWNERSHIP

- ❖ This is NOT a data collection tool for Sciensano or regional health authorities. The only objective is to provide a user-friendly tool for IPC personnel. You are free to use it or not. You also have the choice to delete the data from the Sciensano server. As a result, the history of outbreaks will not be visible in the application.
- ❖ As the personal data of patients are totally absent, Sciensano is allowed to have the data on its server. But the data is in no way used by Sciensano or third parties for analysis. You remain the owner of the data.
- ❖ Patient privacy is fully protected by built-in restrictions that prevent accidental storage of GDPR-protected patient data.

All this is clearly stated in the disclaimer on the login page:

“This it is not a notification tool towards the regional health authorities or Sciensano. The tool is only intended to assist you for the creation of an epi-curve in the context of an outbreak in a care facility. The choice to delete the data from the Sciensano server immediately after downloading your epi-curve report is offered in the tool. Outbreak data on the Sciensano server will under no circumstances be used for analysis, nor will they be published, shared or otherwise used without your permission. You retain ownership of the data.”

9. HELPDESK

If you encounter issues with using the application, or have suggestions for improvements, please contact mdro_ost@sciensano.be.