NAUSP Portal User Guide

National Antimicrobial Utilisation Surveillance Program (NAUSP)

February 2019
This page is left blank intentionally
Contents

1 About this guide ............................................................................................................................................. 5
2 NAUSP Helpdesk ........................................................................................................................................... 6
3 Getting started .................................................................................................................................................. 7
  3.1 Access ....................................................................................................................................................... 7
  3.2 Technical requirements ............................................................................................................................ 7
  3.3 User registration (existing contributor hospital) ...................................................................................... 8
    3.3.1 Australian Health Practitioner Regulation Agency (AHPRA) registration ........................................ 8
    3.3.2 Hospital email address ...................................................................................................................... 8
    3.3.3 Terms and conditions ...................................................................................................................... 8
  3.4 User registration (new contributor hospital) .......................................................................................... 8
    3.4.1 Contact details ................................................................................................................................... 8
    3.4.2 Specialties ......................................................................................................................................... 8
    3.4.3 Demographics ................................................................................................................................... 8
    3.4.4 Services ............................................................................................................................................ 9
  3.5 New user account approval ...................................................................................................................... 9
  3.6 New user account rejection .................................................................................................................... 9
  3.7 Password recovery .................................................................................................................................... 10
  3.8 Maintain user account details ................................................................................................................ 10
  3.9 Maintain hospital details ....................................................................................................................... 10
  3.10 User account deactivation/re-activation ............................................................................................... 10
  3.11 Governance within your facility ......................................................................................................... 11
4 Data submission specialty options ............................................................................................................. 12
  4.1 Submit data by specialty ........................................................................................................................ 12
  4.2 Submit data by Intensive Care Unit (ICU) and non-ICU ....................................................................... 12
  4.3 Submit data by total only ....................................................................................................................... 12
5 Uploading data to the portal ....................................................................................................................... 13
  5.1 Data preparation – antimicrobial usage ............................................................................................... 13
    5.1.1 Dispensing report/extraction from site software .............................................................................. 13
    5.1.2 Use of NAUSP antimicrobial usage template ............................................................................... 14
    5.1.3 Formatting/reviewing data ............................................................................................................. 17
    5.1.4 Saving your data file ....................................................................................................................... 17
  5.2 Data preparation – OBDs ....................................................................................................................... 17
  5.3 User data upload ....................................................................................................................................... 18
    5.3.1 Upload data ....................................................................................................................................... 18
    5.3.2 Submit data ...................................................................................................................................... 20
    5.3.3 Re-upload data ............................................................................................................................... 21
    5.3.4 Load data status meanings ........................................................................................................... 22
6 Rate calculations ........................................................................................................................................... 23
  6.1 Create a new NAUSP rate calculation .................................................................................................... 23
  6.2 Executing a rate calculation ................................................................................................................... 25
  6.3 NAUSP Rate Calculation Templates ................................................................................................... 25
    6.3.1 Check oral liquids QA .................................................................................................................... 25
    6.3.2 NAUSP antibacterial classes ....................................................................................................... 26
    6.3.3 NAUSP antibacterials .................................................................................................................. 26
    6.3.4 NAUSP antifungals ....................................................................................................................... 26
    6.3.5 NAUSP antivirals .......................................................................................................................... 26
The Australian Commission on Safety and Quality in Health Care provides funding for the development and coordination of NAUSP, analysis of data, and the production of related reports for the AURA Surveillance System. NAUSP is conducted by the Infection Control Service, Communicable Disease Control Branch, Department for Health and Wellbeing, South Australia.
1 About this guide

This guide is intended for use by pharmacists or other approved users at hospitals that contribute to the National Antimicrobial Utilisation Surveillance Program (NAUSP).

NAUSP is administered by the SA Department for Health and Wellbeing (DHW) and is funded by the Australian Commission on Safety and Quality in Health Care (ACSQHC) for contribution of data to the Antimicrobial Use and Resistance in Australia (AURA) Surveillance System. The program allows national comparison of antimicrobial usage rates and contributes to improved antimicrobial stewardship.

NAUSP reports on antimicrobial utilisation in Australian acute adult inpatient settings. Epidemiological analysis of antimicrobial usage is provided, facilitating awareness of environmental pressures for selection of resistant organisms within healthcare facilities.

Data are provided by contributing hospitals through submission of monthly antimicrobial usage data and bed occupancy data for compilation and processing within the NAUSP database.

To facilitate comparisons between antimicrobials and contributing hospitals, the usage data are converted to a standardised usage density rate for each agent, defined as number of Defined Daily Doses (DDDs) used per 1000 occupied bed days (OBDs). DDDs are an internationally accepted metric, developed by the World Health Organization for epidemiological investigation of medication usage.

Antimicrobial usage is the numerator and bed occupancy is the denominator.

This guide is designed to complement the training provided in the NAUSP Portal training videos, available via the NAUSP Portal homepage.
2 NAUSP Helpdesk

If you and/or the local NAUSP champion are unable to resolve an issue with the information provided in this guide or the complementary training videos on the NAUSP Portal home website, please email the NAUSP Helpdesk (Health.NAUSPhelp@sa.gov.au) for assistance. NAUSP endeavours to address all email enquiries within two business days.

If your enquiry requires urgent and immediate attention, please phone the NAUSP Helpdesk on (08) 7425 7169.
3 Getting started

3.1 Access

Access to the NAUSP Portal (displayed below) is available via the NAUSP Portal home page.

The NAUSP Portal is intended for use by pharmacists or other approved users at hospitals that contribute to the program and who are using the NAUSP Portal to upload antimicrobial usage data and access NAUSP reports.

3.2 Technical requirements

The NAUSP Portal is a web-based interface. To use this Portal you will need access to:

> A secure internet connection
> Microsoft Excel 2007 or above – data files to be uploaded must be able to be saved with the .xlsx suffix
> The latest version of one of the following internet browsers:
  > Google Chrome (preferred option); or
  > Mozilla Firefox (preferred option); or
  > Internet Explorer.

The system is not guaranteed to be fully functional in older versions of browsers or other browsers not included in this list.

![Log in](image.png)
3.3 User registration (existing contributor hospital)

3.3.1 Australian Health Practitioner Regulation Agency (AHPRA) registration
To register as a NAUSP user you must have a current AHPRA registration number. If you are not a registered health practitioner you will need to contact the NAUSP help desk to obtain a substitute number. Each AHPRA registration number can only be used once for the health practitioner to whom it is assigned.

3.3.2 Hospital email address
Please ensure that you register with your primary hospital employment email address. Once set, this email address cannot be edited (for change of email, please see 3.8 Maintain user account details). Generic, private and non-secure email addresses (e.g. Hotmail, Gmail, Bigpond etc.) will not be accepted.

You should only select hospitals for which you have permission to submit data and extract reports. Any requests for hospitals you are not authorised to access will be rejected.

3.3.3 Terms and conditions
By completing your registration and using the NAUSP Portal, you agree to maintain the confidentiality of the NAUSP data for your hospital and to notify SA Health when access is no longer required. You also agree that you understand that SA Health will remove your access to this site and its data on written request from an authorised executive representative of your hospital.

Ownership of the data submitted to NAUSP remains with the hospital or Local Health Network/Local Health District from which the data are supplied.

3.4 User registration (new contributor hospital)
If your hospital cannot be found in the drop-down list, please complete your personal details (as per 3.3 User registration (existing contributor hospital) then select New to register a new contributor hospital. Please ensure all tabs are completed to the best of your knowledge; this information may be edited once your registration is finalised.

If your hospital is new to NAUSP there are several steps that need to be completed before approval is given to start contributing. A summary of these steps can be found in the New Contributor Checklist. A Willingness to Participate form containing written approval to submit antimicrobial usage and bed occupancy data will need to be sent from your local health district’s or hospital’s CEO (or delegate) before submission to the NAUSP portal can begin. Once you register interest in your hospital joining the NAUSP through completion of your personal details, as well as those of your hospital (sections 3.4.1 to 3.4.4 below), the NAUSP team will contact you to provide further information regarding completion of your hospital’s registration.

3.4.1 Contact details
Enter the contact details of your hospital. Once submitted and accepted, NAUSP will assign any applicable Local Health Network (LHN) / Local Health District (LHD), Australian Institute of Health and Welfare (AIHW) Peer, and Benchmarking Groups.

3.4.2 Specialties
You must select one manner in which you will contribute your hospital’s data to NAUSP. Please see 4 Data submission – specialty options, for a more detailed explanation. This selection can be edited once your registration is finalised.

3.4.3 Demographics
Enter your hospital’s demographic information by ward/specialty. If you are unable to enter definite numbers, an estimate will be adequate. This information assists NAUSP by creating a profile of your hospital. It does not affect data submission, and provides additional context for national reports and other statistical analyses.
3.4.4 Services
Please indicate what services are offered by your hospital. This information does not affect data submission, but provides additional context for national reports and other statistical analyses.

3.5 New user account approval
When your registration is confirmed and approved by NAUSP you will receive an email directing you to the NAUSP Portal to set a password and complete your registration.

Security guidelines state that passwords must be at least eight characters including:

- one alpha character
- one numeric character
- one non alpha-numeric character
- one uppercase character
- one lowercase character.

3.6 New user account rejection
Reasons your registration request may be refused include:

- the email provided is not associated with a hospital that contributes to NAUSP
- your AHPRA number cannot be verified
> the email address or AHPRA number is already in use for a NAUSP account
> the email address supplied is not a valid email (e.g. contains a typo).

### 3.7 Password recovery

If you have forgotten your password, click on the *Forgotten your password?* link from the log-in page and enter your registered email address. You will then receive a system-generated email prompting you to reset your password.

If you do not know the email address you initially registered with, or it has changed, please email the NAUSP Helpdesk ([Health.NAUSPhelp@sa.gov.au](mailto:Health.NAUSPhelp@sa.gov.au)) for further assistance.

### 3.8 Maintain user account details

In the event of changes to your name, position title or phone number, you can update your NAUSP account details via *Maintain My Details* under the drop-down menu in header bar. You may also request access to additional hospitals; any changes must first be approved by NAUSP and will not immediately take effect.

Should your AHPRA registration number change please email the NAUSP Helpdesk ([Health.NAUSPhelp@sa.gov.au](mailto:Health.NAUSPhelp@sa.gov.au)).

To change your registered email address, you must deactivate your account and register as a new user. Each unique email address is associated with data upload and report extraction activity, and for audit purposes, cannot be altered or deleted.

### 3.9 Maintain hospital details

If you need to edit your hospital’s details, you can edit information via *Maintain my Hospitals* under your user profile in the drop-down menu in header bar. For more detailed information regarding specialties, please see **4.1 Submit data by specialty**.

### 3.10 User account deactivation/re-activation

If no activity in the NAUSP Portal is registered for six (6) months (i.e. you have not logged in to the NAUSP Portal), your account will automatically be deactivated.

You may also choose to deactivate your NAUSP account (for example, if you are going to be absent from work for an extended period) by editing your NAUSP account details and clicking the *Deactivate Account* link via *Maintain my Details* under the drop-down menu in header bar.

To re-activate your NAUSP account, click on the *Request reactivation of a deactivated account* link and enter the email address you had previously used to register with NAUSP. If you do not know the email address you initially registered with, or it has changed, please email the NAUSP Helpdesk ([Health.NAUSPhelp@sa.gov.au](mailto:Health.NAUSPhelp@sa.gov.au)).
3.11 Governance within your facility

It is recommended that your NAUSP data submission activities are overseen by a governance group within your facility (such as your AMS Committee). Each facility is encouraged to develop a local ‘standard operating procedure’ to assist future-proofing ongoing data submission.
4 Data submission specialty options

NAUSP has the capacity for hospitals to submit and report data by total hospital usage or by selected medical specialties. Definitions of minimum requirements to report data from wards or units by specialty are provided in the NAUSP Data principles and definitions document. The specialties for which data may currently be submitted are Intensive Care Unit, High Dependency Unit, Haematology/Oncology and Respiratory. In addition hospitals can submit data by “total” if they do not meet the requirements for submitting under any of the specialties above. If any other specialty but total is selected, all wards not covered by a chosen specialty should be assigned to the specialty of “other-non ICU” in the specialty column of the data upload Excel file, this will ensure usage in all wards except those covered by your chosen specialties is also captured. Refer to Sections 4.1 to 4.3 for further explanation of these data submission options.

4.1 Submit data by specialty

This option is for contributor hospitals that have the ability to extract data for at least one of the following specialties: Intensive Care Unit*, High Dependency Unit, Haematology/Oncology or Respiratory. To utilise this feature, you must be able to provide both numerator and denominator data (i.e. antimicrobial usage and occupied bed days) for at least one of these specific wards/patient groups. Your hospital does not need to have all specialties offered to select this option (i.e. you may select just one specialty in addition to Other Non-ICU). NAUSP offers a limited number of specialties for reporting, with the view to expand as contributor hospital reporting capabilities improve.

Contributor hospitals that elect to submit by specialty are able to extract reports with comparator data drawn from specialty use in other hospitals, total-hospital usage, and combined non-ICU usage. For more information on the reporting functionality of the NAUSP portal, see Section 7 Reports.

*Note that if the only specialty for which data are available is Intensive Care Unit, please see 4.2 below

4.2 Submit data by Intensive Care Unit (ICU) and non-ICU

This option is for contributor hospitals that are not able to specify which specialties their data comes from, with the exception of ICU. These sites will be able to run total-hospital and ICU/non-ICU usage reports.

4.3 Submit data by total only

This option is for contributor hospitals that are unable to quantify drug usage data by any of the medical specialties outlined above, or they do not meet the minimum NAUSP requirements for submitting by a specialty. These sites will only be able to run total-hospital usage reports. This method of data submission is suitable for smaller hospitals (for example, those classified as AIHW Public or Private Group B, C or D).
5 Uploading data to the portal

Please ensure that each time you prepare to submit to NAUSP that data are compliant with program rules. Occupied bed day data must align with drug usage from NAUSP-defined included ward/s (and vice versa). As NAUSP data is currently determined from dispensing and distributions to wards it is important to keep up to date with changes in your facility (including new wards, ward closures, renovations etc).

Data submissions must be made monthly. Any contributor hospital that has three or more months’ data missing will have data extraction activities (rate calculation and report generation) restricted. This functionality is restored once data submission has been updated.

The two key files you will have to prepare and maintain in order to submit data to NAUSP are:

- NAUSP Antimicrobial Usage data Excel file
- OBD data file

5.1 Data preparation – antimicrobial usage

5.1.1 Dispensing report/extraction from site software

Drug usage data are to be extracted monthly according to the NAUSP Data principles and definitions and include all agents as outlined in the document Antimicrobial agents included in NAUSP reporting. We recommend including as much detail in your data extraction as possible, such as ward/cost centre, to assist with specialty-specific reporting and NAUSP quality assurance processes.

We advise including NAUSP submissions in your end-of-month ‘house-keeping’ procedures. Please ensure you extract raw drug usage data for the correct month; there is no mechanism for NAUSP to confirm the correct data have been extracted by a user from their local software (e.g. dispensing system) to populate the upload template for any given month.

For further details relating to NAUSP methodology, see NAUSP Data principles and definitions.

Please remember to include only inpatient use as defined by NAUSP definitions and ensure drug usage is supplied as units (i.e. number of tablets/capsules/vials/tubes/bottles) not packs. All liquids must be in number of bottles, not milliliters.

Once you have your raw data for the month, it can be transferred to the NAUSP template. For an example of how to extract usage from iPharmacy® see Appendix 3- Example of how to extract NAUSP data from iPharmacy®.

If your dispensing reports are unable to distinguish discharge supply from inpatient use, a separate discharge report should be generated so it can be subtracted later (see section 5.1.2 below).

If clinical trial antimicrobials are administered at any time within your facility, please contact the NAUSP team regarding inclusion in monthly submissions. These will be addressed on a case-by-case basis.
**5.1.2 Use of NAUSP antimicrobial usage template**

The NAUSP template is available for download from the Related resources section of the [NAUSP Portal homepage](#). This template is the only method of data submission to NAUSP. Completion of cells B1-3 and columns B, C and D is mandatory (from Row 8 and below); these are shown as green highlight in the figure below. Entering a ward description is strongly encouraged to ensure drug usage aligns with bed occupancy data and specialties. Please ensure that only the first tab of the workbook is in use; do not add other data (e.g. OBDs for the same month) to subsequent worksheets.

**Historically, NAUSP has discarded outsourced elastomeric infusions** (e.g. those manufactured by Baxter®) on the assumption that they are administered outside the hospital (e.g. hospital in the home). If your facility uses such infusions for inpatients of included wards or areas, please modify your submission to include “inpatient” in the product line description prior to upload (see below). This will ensure the product is flagged for NAUSP administrators to assign the correct alias, and these infusions will be included in your submission.

Similarly, pre-pack products (for example packs dispensed to Emergency Departments and labelled “PP” or equivalent) are discarded - NAUSP assumes these antimicrobials will be consumed outside of hospital. If pre-packs are used for inpatients please modify your submission to include “inpatient” in the product line description prior to upload. Please note that pre-pack quantities will need modification to reflect number of units dispensed.
How to complete the template:

Type your hospital name exactly as it appears in the NAUSP Portal. Saving a template with this information already entered may save time for future data submissions.

If there is any doubt, you can copy and paste your hospital name from the Maintain my Hospital page within the Portal or copy the name from the Submission Parameters at the Load screen.

If there are any errors in cell B1, your data upload will not be successful. Enter the year in cell B2 (four figures long) and select the correct month (three characters long) from the drop-down menu in cell B3.

Ward description (or short code) is not mandatory for successful data upload; however we strongly encourage you to complete this column to facilitate cross-checking of numerator and OBD inclusions/exclusions for quality assurance (QA) activities. Entering the ward description column will also allow you to easily apply the relevant specialties.

The Specialty column must be populated with only those specialties for which you are registered to submit data. If you are unsure, consult the Specialties tab within the Maintain my Hospital menu. If you attempt to upload data for a specialty you have not registered for, you will be prevented from uploading your drug usage file.
### Data submission method

<table>
<thead>
<tr>
<th>Specialty</th>
<th>How to complete specialties column</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medical Specialty</td>
<td>Type (or copy and paste) each required specialty exactly as it appears in NAUSP Portal. Any discrepancies will prevent the data from being uploaded. The specialties available to upload will be listed in the monthly file submission window. Only specialties registered against your hospital will be allowed to be submitted. Any extras/omissions will first require edits to Maintain my Hospital (Specialties). Data from wards not assigned to a medical specialty should be assigned Other non-ICU in the specialty column.</td>
</tr>
<tr>
<td>ICU and non-ICU</td>
<td>Assign specialty <strong>Intensive Care Unit (ICU)</strong> to applicable data, and <strong>Other non-ICU</strong> to remainder of dataset.</td>
</tr>
<tr>
<td>Total only</td>
<td>All entries must be assigned <strong>Total</strong>.</td>
</tr>
</tbody>
</table>

**Product description** must include the name (or brand), strength and form of the drug, and ideally volume (if it is a liquid formulation), weight (eg tube size as number of grams), or pack size. If products that are usually discarded by NAUSP, such as elastomeric infusions or pre-packs, have been used for inpatients then the Product Description must contain the words “inpatient use” or similar.

If your raw data report does not place the drug name, strength and form within the same cell, you will need to **concatenate** the cells that contain this information (i.e. join this information together). For instructions on how to do this, please refer to Appendix 1 – How to concatenate cells.

**Quantity** relates to the number of units, not number of packs used. If your dispensing reports generate pack data (e.g. FRED® reports or pre-packs used by inpatients) these must be converted to units **before** submission. Only numerical quantities are accepted.

If discharge data are reported separately, please **add** (paste) these rows of data to the end of the drug usage data and **multiply each number in the quantity column by -1**. This will ensure this usage is **subtracted** from the total drug usage.

**NB** – only carry out this process if what is included in your discharge report also appears in your total usage report – we do not want to subtract it twice and under-report usage.
5.1.3 Formatting/reviewing data

Once populated with data from the drug usage/dispense report, this template should provide an accurate reflection of antimicrobial usage for the month.

A tip from the NAUSP team: When you are ready to transfer your data into the NAUSP data upload template, group your antimicrobials by specialty/ward and use the “fill down” feature in Excel to populate column B. Creating a reference table with the wards included in your submission and their corresponding NAUSP specialties, may assist your upload process.

Scroll through your data spread sheet to verify:

> All data intended for inclusion are listed in columns B, C and D
> Specialty names in column B appear with exactly the same wording as the NAUSP Portal uses.
> Only the first tab of the Excel spreadsheet contains data – do not include OBD data on subsequent tabs as this will prevent loading.

5.1.4 Saving your data file

When you have finished populating the NAUSP template and are satisfied that it is correct, please ensure that the file is saved with the following naming convention:

Facility_YYYY_MM

> Facility (code is the 3 or 4 letter code assigned by NAUSP)
> YYYY (4 digit year)
> MM (2 digit month)

Your hospital code will be displayed in the File Upload screen as the expected filename; please contact the NAUSP team if you are unsure.

If this naming convention is not adhered to, you will receive an error message when attempting to upload the file.

It is recommended you keep a copy of the Excel files you submit for up to 2 years in the event an error is discovered in your data and requires re-submission.

5.2 Data preparation – OBDs

OBDs are used as denominator data for the program’s statistical analysis on antimicrobial usage rates.

Monthly bed occupancy data should be extracted/obtained from patient services/casemix (depending on your facility) according to the NAUSP data principles and definitions. The mechanism for accessing bed occupancy reporting may vary from facility to facility. You may need to seek permission from your Clinical Analytics team (or equivalent) to access this data. Your Chief Executive’s initial signed approval for contribution of data to NAUSP provided agreement that necessary data would be supplied to NAUSP consistently.

We recommend maintaining a spreadsheet that outlines monthly OBDs per ward. The OBD wards included in your file should match the wards in the NAUSP Antimicrobial Usage data Excel file. As you are entering your OBD data for NAUSP, it is good practice to compare the current month OBD to the previous month OBD (to check they are similar or that there is a reason for major discrepancies such as a ward closure) to avoid errors.

Our suggested template for OBDs can be downloaded from the Related resources section of the NAUSPPortal homepage. An example of an acceptable format can be found in Appendix 2 – OBD template. When your data is requested for NAUSP QA and audit purposes, NAUSP will need to easily identify which wards have been included or excluded from your submission and match this with
drug usage data. Keeping track of ward movements or closures on this Excel spreadsheet may assist with this process.

5.3 User data upload

To access the data submission area of the Portal, click on Submit data under the Data Submission menu from the NAUSP homepage. The most recent month available for upload will be displayed for the hospital/s for which you are authorised to submit data, with any overdue submissions highlighted for your attention. A drop-down menu allows you to select previous months. Click on Upload for the facility you wish to submit data for that month. Before you commence this step you should have your OBD data and your NAUSP Antimicrobial Usage data Excel file prepared.

5.3.1 Upload data

Drug usage and OBD data are submitted by month in one step. If your hospital submits data by specialty, you will be required to enter the OBD figure for each specialty separately, along with the remaining other non-ICU areas as a combined figure. You can only submit data for specialties for which you have been approved.

If a specialty area closes or you no longer wish to submit by specialty, contact the NAUSP team.
To upload drug usage, click the **Browse** button to select the required file from your computer. Please double check that the month and hospital code matches the submission request, and click **Upload File** to continue.

**For successful upload, all denominator and drug usage file fields must be filled prior to clicking Upload File. If any are missing, you will receive an error message.**

You will be shown a summary of data extracted from your upload file. Records that will be uploaded will be highlighted in green and will have a tick in the check box. Scroll through the summary submission to review all records. The number of rows will be the same as in the uploaded Excel file.

**A tip from the NAUSP team:** Scroll through your submission summary and cross reference the last product matches the last product on your upload template.
Records that cannot be uploaded will be highlighted in red and will not have a tick in the check-box (e.g. missing specialty/product/quantity in Excel file). Stop uploading data and amend errors where required.

Click *Upload Data* to confirm, or *Cancel* to exit and edit the dataset.

Once uploaded, the database will sort the uploaded data into specialties, according to those assigned in the specialty column of the NAUSP data upload template sheet, for review and submission.

### 5.3.2 Submit data

Once a file is ready for processing, the *Submit Data* page lists warnings and errors for consideration before submitting the data. Data are grouped by specialty with four sub-menus (shown in red in the example below) per specialty. Hospitals that submit ICU/other non-ICU or Total hospital data will see only Intensive Care Unit (ICU) and Other non-ICU or Total.

Working through these tabs, you can review (see also 8.1 Data validation processes when loading data):

- **Unknown antimicrobials** – the NAUSP team will review and determine whether new aliases are needed. You can continue to submit your data and the NAUSP team will review once data are submitted.
- **Discarded Antimicrobials** – records that are being discarded according to program rules.
> Usage Warnings – e.g. records that have warnings caused by statistical anomalies (less than 50 or greater than 200 percent of preceding 12 months average quantities).

> Submission Summary – a summary of all data to be added to the NAUSP database for the selected specialty (Note: antimicrobial quantities are summed and appear in alphabetical order).

It is important to work through all specialties and all sub-menus (particularly Usage Warnings) prior to clicking the Submit Data button. Completing this action will submit data for all specialties loaded, not just that currently on display. If you are satisfied with the warnings, submission summary, unknown and discarded antimicrobials then proceed by clicking the Submit Data button.

If you believe there is an error in the data, you can cancel and re-upload the file after the error has been corrected (see Section 5.3.3 Re-upload data below).

5.3.3 Re-upload data

The NAUSP Portal will allow you to delete and update (re-load/override) existing data prior to submission (if you make an error), and up to 10 days from the original submission date. After 10 days, the submission becomes locked for editing by NAUSP and you are no longer able to change it. Should you need to re-load any submission beyond the 10 day timeframe, please contact the NAUSP Helpdesk (Health.nausphelp@sa.gov.au).

To reload a submission within the allowed timeframe, you must first delete the file that is to be reloaded by clicking the ‘x’ beside the required file (as demonstrated in the example below). You can also view a summary of data loaded for each month (via Remove) from this screen.

If your file is at the Complete stage, you will need to enter a reason for deleting data (e.g. wrong month uploaded, error in data extraction etc.)

The status of the submission will change from Complete to Upload, and you can start again.
## 5.3.4 Load data status meanings

<table>
<thead>
<tr>
<th>Status</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Upload</td>
<td>No data has been uploaded yet for the contributor, location and month.</td>
</tr>
<tr>
<td>Submit</td>
<td>A data file has been processed but not yet submitted to the NAUSP database for the contributor, location and month.</td>
</tr>
<tr>
<td>Complete</td>
<td>Data has been processed and submitted for the contributor, location and month.</td>
</tr>
<tr>
<td>NAUSP Team Review</td>
<td>Unknown antimicrobials need attention from the NAUSP team. The NAUSP team will complete the upload.</td>
</tr>
</tbody>
</table>
6 Rate calculations

Rate calculations provide additional functionality over traditional NAUSP reports and allow Portal users to analyse their antimicrobial usage both at a local level, and in comparison to other similar hospitals, to assist with local AMS activities. Rate calculations can be run for any antimicrobial that NAUSP collects data for (see Antimicrobial agents included in NAUSP reporting) at a formulation, agent and class level. The resultant rate calculation will provide usage of your selected antimicrobial(s) in an Excel spreadsheet, along with the aggregated usage of your selected comparator group.

You will find the option of running rate calculations under the Data Analysis menu from the NAUSP Portal homepage. This function is used to examine antimicrobial usage rates for trend analysis, benchmarking and for quality assurance processes. Additionally, data for antimicrobial classes and/or agents that are not included in the standard NAUSP reports may be selected. An enhanced feature available to external users of the Portal is the ability to extract aggregate data (in the form of a rate calculation) from multiple comparators.

*Please note - Rate calculations return tabular data in an Excel file that you can then use to create your own charts.*

To quickly view the details of a rate calculation, hover over the ‘?’ alongside the table, and a pop-up window will display existing parameters (example below). Either run or edit the rate calculation as desired. (To minimise the pop-up box, click the ‘?’ again.)

Rate calculations can be saved for consistent use over time.

6.1 Create a new NAUSP rate calculation

To create a new rate calculation, set the parameters per your requirements.

**Calculation Name** must be unique and should be descriptive enough to be identifiable for future reference (in case you wish to run the report again)

**Specialty** refers to the ward source of data. You may select from any specialty you contribute to. *Combined non-ICU* refers to all specialty plus non-specialty usage excluding Intensive Care. *Other non-ICU* refers to usage from wards not included in data from any of your specialties. *Total* refers to all hospital use.

**Contributor** – select the hospital, for which you wish to extract data (if applicable)
Comparators – select which comparators (if any) you wish to extract aggregate data for. You will be able to choose from a combination of geographical regions and AIHW peer groups that are applicable to your hospital. There must be a minimum of three hospitals in any given comparator group to facilitate this feature.

For example, Seattle Grace is a Principal Referral hospital in South Australia, within the Central Adelaide LHN (n = 3). Available comparator rates to select from will include:

- All National hospitals (i.e. all current NAUSP contributors)
- National Principal Referral hospitals
- South Australian Principal Referral hospitals
- All South Australian hospitals (all AIHW peer groups)
- Central Adelaide LHN (all AIHW peer groups)

Hovering over each comparator option will display the percentage of data loaded within that benchmark group. This percentage is calculated across the entire date range selected. You will not be prevented from extracting a rate calculation if there are insufficient comparator data available; this information is made available to indicate how reliable the extraction will be and must be taken into account when interpreting the output.

Antimicrobials of interest – select which World Health Organization (WHO) Anatomical Therapeutic Chemical (ATC) classifications, classes, agents or formulations you wish to look at. Please ensure you click the Add button after selecting individual agents and that your selection appears in the list below the drop-down boxes.

To remove an agent from the rate calculation, check the ‘Remove’ box prior to saving.

Appearance – to further define your data, select:

- Route of administration
- Period Type – options include monthly, quarterly, half yearly, yearly, or financial year
- Periods (for moving average (MA) output) – options include 3- or 5-month moving average

In the case of a 3-month moving average, this is calculated by averaging the usage rates for the month prior, the month in question, and the month after. For example, a February 3-month MA is the average of January, February and March rates. Selecting a moving average smooths longitudinal data.

In the example below, selecting amikacin, gentamicin and tobramycin in the Add Antimicrobial Agent drop-down with the Report Antimicrobials Separately box checked will result in the three agents being reported separately. Leaving this box unchecked will result in the aggregate of the three agents and usually equal to the rate of the Aminoglycosides (excl. streptomycin) class as a whole (difference would only occur if neomycin was included in data collection).
6.2 Executing a rate calculation

Once you have selected the desired parameters for the data you wish to extract as a rate calculation, simply run by pressing one of the two paper plane icons.

- The Run icon will deliver a summary of the rate calculation at formulation, agent, class or ATC classification level, depending on your selection.
- The Full icon will deliver an expanded data extract, with extra tab/s included in the Excel file for each comparator selected along with your hospital’s data. The extra tab/s contain formulation level data for each of the agents contained in your rate calculation.

Enter your date range, and press the Run button. If the comparator data availability requirement (80% - set by NAUSP) has not been met for any given month, you will see a Data Availability Warning pop-up.

Should you elect to proceed, you will receive email notification that your rate calculation has been scheduled, and once completed, will be sent to your registered email address as an Excel file attachment.

- Sheet 1 of the spreadsheet outlines the rate calculation details for your reference.
- Sheet 2 displays usage rates (in DDD/1,000 OBD) for your hospital (column K). RateMA (column L) refers to the moving average, and will differ from the rate if you selected 3 or 5 periods. Columns G, H, I and J show quantity (of vials, tablets, tubes etc), denominator (OBD), DDDs and grams respectively.
- Sheets 3 (and beyond) contain rate calculations for any comparator groups you selected. The data contained in these sheets represent the aggregate figures within the comparator group.
- The final sheet lists any missing data.

6.3 NAUSP Rate Calculation Templates

To save you some time, NAUSP has created some commonly used rate calculations that you can copy and edit as desired. To use a template:

- Click Copy to open the edit screen
- Rename the rate calculation and make any adjustments required
- Click Save As.

6.3.1 Check oral liquids QA

According to NAUSP principles, the unit quantity for oral liquid formulations is number of bottles NOT number of millilitres. This rate calculation will extract all current oral liquid formulation antimicrobials for a given hospital.
over a prescribed period of time. Users are encouraged to run this report and either filter or sort quantities to assess the accuracy of quantities such as multiples of 100 or +/- 5. For those hospitals that subtract discharge dispensing before data submission, please double check that both inpatient and discharge oral liquids are recorded as millilitres, not bottles.

6.3.2 NAUSP antibacterial classes
This rate calculation includes 30 pre-populated antibacterial classes and can be used to extract data at either an individual class level or aggregated.

6.3.3 NAUSP antibacterials
This rate calculation includes 66 pre-populated antibacterial agents and can be used to extract data at either an individual agent level or aggregated

6.3.4 NAUSP antifungals
This rate calculation includes 14 pre-populated antifungal agents and can be used to extract data at either an individual agent level or aggregated

6.3.5 NAUSP antivirals
This rate calculation includes 43 pre-populated antiviral agents and can be used to extract data at either an individual agent level or aggregated. Note: most antiviral combinations are not included as ATC DDDs have not yet been determined.

7 Reports
Pre-defined reports, such as those presented to Antimicrobial Stewardship (AMS) committees, are available through NAUSP reporting functionality. Portal users are able to run a variety of reports and choose their comparator to enable benchmarking of antimicrobial usage, these options are outlined below.

To access reporting functions, click the Generate Reports button under the ‘Data Analysis’ menu on the NAUSP Portal.

Please be aware that report generation with a benchmark will only be successful if at least 80% of data within a peer group are loaded across the date range specified. Hovering over each comparator option will display the percentage of data loaded within the group. This percentage is calculated for the date range selected. If insufficient data are available to form a comparator rate, you will not be able to select the comparator checkbox. Users are encouraged to load drug usage and OBD data promptly each month (after OBD data is finalised) so that all users can download reports in a timely fashion.

7.1 Types of reports
Users can access different types of reports:

> Standard NAUSP Report:
  - A selection of reports is available (with or without ICU usage charts, and with or without inclusion of IV amoxicillin–clavulanate usage). Users are able to run reports whenever they choose and for a time period of their choice.

> Specialty Reports:
  - *Intra-hospital Specialty Report* – your hospital specialty’s use benchmarked against your total hospital use
  - *Standard Specialty Contributor Report* – your hospital specialty’s use benchmarked against the selected comparator’s aggregate specialty use.
7.2 Generate report

1. Select the hospital for which you wish to generate a report (you will only have the hospitals that you are authorised to report for available for your selection)

2. Enter the desired date range. Note: Medical Specialty reporting options (with the exception of ICU) are only available from January 2017

3. Select a report template from the drop-down menu

4. Select desired report from drop-down menu

   > Specialty reports will activate a second drop-down menu to select the specialty of interest

5. Select the Benchmarking Group from the available options

   > If a comparator benchmarking group is not selected, only the data from your hospital will be charted. Available comparators will depend of your individual hospital but can include national, state, AIHW peer and multi-state (e.g. NSW and ACT) comparators.

   > Intra-hospital reports do not require a benchmarking group.

6. After you click Schedule you will receive an on-screen pop-up if any months in the selected period do not have sufficient comparator data loaded.

7. Click Proceed or Cancel

8. A notification that your request has been added to the queue and an email notifying that a requested NAUSP report is pending will be displayed

9. Your report should be emailed to your registered email address as an attachment within 24 hours (most often within 15 minutes)

8 Data validation and QA

Contributing hospitals are responsible for uploading accurate data. NAUSP has developed several checks and balances to promote robust data entry and extraction.

8.1 Data validation processes when loading data

To ensure the accuracy of data being loaded, NAUSP users can review their upload prior to submission.

8.1.1 Usage warnings tab

Please take the time to review the data warnings for each specialty tab when uploading drug usage. These warnings are flagged when:

   > quantities of antimicrobial formulations are less than 50 percent or greater than 200 percent of the average usage for the previous 12 months;

   > the number of bottles of an antimicrobial oral liquid is greater than 20;

   > quantities are less than -10;

   > quantity is zero and average usage quantity is greater than 50.
8.1.2 Discarded antimicrobials tab
This tab is available for you to see antimicrobials that are automatically excluded by NAUSP at each submission. If you wish to include any of these items you will need to discuss with the NAUSP team.

8.1.3 Submission summary tab
Prior to submission of data, you can review quantities of antimicrobial agents to be added to the NAUSP database. These are shown in alphabetical order and by specialty.

8.2 Data validation processes when extracting data
There are two sequential steps built in to the Portal designed to alert users to low or insufficient benchmark data when running rate calculations and reports. These warnings should be kept in mind when interpreting any output from the Portal.

<table>
<thead>
<tr>
<th>Warning type</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hover over comparator checkbox</td>
<td>The “hover” warning will appear when selecting comparator/s for a report or rate calculation. The percentage displayed indicates the volume of data loaded across the entire date range selected. Only comparators with a minimum of 80% of data for the date range entered can be selected – these will appear as blue checkboxes. Comparators that do not meet the 80% threshold will be greyed out, and unable to be selected when running reports, but will be able to be selected when running rate calculations. Adjusting the date range may result in changes to the percentage displayed.</td>
</tr>
<tr>
<td>Data Availability Warning pop-up</td>
<td>The pop-up warning box will appear after the parameters for the report/rate calculation have been entered and set to run. Any individual months for the selected comparator group that do not meet the 80% threshold will be displayed at this screen. This will allow you to interpret the resultant report/rate calculation with data reliability in mind. For example, running a report at the beginning of a new month will likely result in the previous month flagging as having low data. Running the same report later in the month (as more data are loaded by contributor hospitals) will produce a more reliable comparator for these months.</td>
</tr>
</tbody>
</table>

8.3 QA responsibilities

8.3.1 Responsibilities of contributor hospitals
NAUSP relies on contributor hospitals regularly assessing their monthly dispensing extracts to ensure all antimicrobial usage is captured, including new drugs/formulations, and that only wards/specialties and bed day data that meet NAUSP inclusion criteria are uploaded.

8.3.2 Responsibilities of NAUSP
NAUSP will request the OBD worksheet for each contributor hospital twice annually and prior to preparation of the calendar year annual report. This information will be used to confirm figures entered to the Portal, and to cross-check ward/specialty inclusions supplied for drug usage. NAUSP will inform contributors if and when the NAUSP team, as a result of QA processes, alters any OBD data.
9 Glossary

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACSQHC</td>
<td>Australian Commission on Safety and Quality Health Care</td>
</tr>
<tr>
<td>AHPRA</td>
<td>Australian Health Practitioner Regulation Agency</td>
</tr>
<tr>
<td>AIHW</td>
<td>Australian Institute of Health and Welfare</td>
</tr>
<tr>
<td>AMS</td>
<td>Antimicrobial Stewardship</td>
</tr>
<tr>
<td>antimicrobial</td>
<td>Antibacterial, antiviral or antifungal</td>
</tr>
<tr>
<td>ATC</td>
<td>Anatomical Therapeutic Chemical Classification</td>
</tr>
<tr>
<td>AURA</td>
<td>Antimicrobial Use and Resistance in Australia</td>
</tr>
<tr>
<td>contributors</td>
<td>Hospital facilities participating in NAUSP</td>
</tr>
<tr>
<td>DDD</td>
<td>Defined daily dose</td>
</tr>
<tr>
<td>DHW</td>
<td>Department for Health and Wellbeing, SA Health</td>
</tr>
<tr>
<td>Dispensing report</td>
<td>Output of a report of antimicrobial dispensing by month by hospital</td>
</tr>
<tr>
<td>external users</td>
<td>Users of the NAUSP Portal other than the NAUSP team</td>
</tr>
<tr>
<td>ICU</td>
<td>Intensive Care Unit</td>
</tr>
<tr>
<td>LHN</td>
<td>Local Health Network</td>
</tr>
<tr>
<td>MA</td>
<td>Moving average</td>
</tr>
<tr>
<td>NAUSP</td>
<td>National Antimicrobial Utilisation Surveillance Program</td>
</tr>
<tr>
<td>Non-ICU</td>
<td>Any hospital ward/s except ICU</td>
</tr>
<tr>
<td>OBD</td>
<td>Occupied bed days</td>
</tr>
<tr>
<td>Other Non-ICU</td>
<td>Any hospital ward/s except those assigned to ICU, or another NAUSP Specialty</td>
</tr>
<tr>
<td>peer group</td>
<td>Hospitals grouped together for comparison of data</td>
</tr>
<tr>
<td>QA</td>
<td>Quality assurance</td>
</tr>
<tr>
<td>SA</td>
<td>South Australia</td>
</tr>
<tr>
<td>WHO</td>
<td>World Health Organisation</td>
</tr>
</tbody>
</table>

10 Further information/Trouble-shooting

Some frequently encountered technical errors/questions are answered in NAUSP Portal Frequently Asked Questions.
Appendix 1 - How to concatenate cells

If each piece of required information is contained in separate cells, they must first be joined together (concatenated) prior to populating the NAUSP template. In this example, we need to concatenate columns D, E & F.

Select the column to the right of where you would like a new column inserted by clicking on the Column Letter (e.g. “B” below). Under the “Insert” menu, select “Insert Sheet Columns”.

In the first row of the newly created column (or formula bar), we want to end up with the text =CONCATENATE(E3,” “,F3,” “,G3). Please note that there is a space between the inverted commas to allow a space between the content of the cells once joined.

This can be entered manually by typing in the cell reference (E3, F3, G3) or clicking on each cell in the correct order with a comma, inverted comma, space, inverted comma, comma between the cell references.

Select the newly populated cell and hover over the bottom right corner until the cursor/pointer changes to a small black + symbol. Click and hold the left mouse button and drag down the empty cells to copy the formula. They will populate when you release the mouse.
The end result should look similar to the example below (with your data, of course).

You can then select the required information (Product & Qty) to transfer into the NAUSP template.

> If you do not put a space between the inverted commas in `=CONCATENATE(E3," ",F3," ",G3)` the end result will read ACICLOVIR250mg/10mLINJ and will not be recognised by the database as a known drug.

> The joining process occurs in the exact order the cells are entered into the formula. For example `=CONCATENATE(G3," ",E3," ",F3)` will return the result INJ ACICLOVIR 250mg/10mL. While this data should be accepted by the database, it is confusing and does not look neat.
### Appendix 2 – OBD template

<table>
<thead>
<tr>
<th>Ward Code</th>
<th>NAUSP Specialty</th>
<th>Jan-17</th>
<th>Feb-17</th>
<th>Mar-17</th>
<th>Apr-17</th>
<th>May-17</th>
<th>Jun-17</th>
<th>Jul-17</th>
<th>Aug-17</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Medical</td>
<td>85</td>
<td>97</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>B</td>
<td>Medical</td>
<td>154</td>
<td>140</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>D</td>
<td>other nonICU</td>
<td>88</td>
<td>101</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>E</td>
<td>other nonICU</td>
<td>78</td>
<td>94</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>G</td>
<td>other nonICU</td>
<td>21</td>
<td>54</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>H</td>
<td>Surgical/Orthopaedic</td>
<td>68</td>
<td>65</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I</td>
<td>Obstetrics/Gynaecology</td>
<td>44</td>
<td>47</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>J</td>
<td>ICU</td>
<td>157</td>
<td>66</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total NAUSP beds</td>
<td>595</td>
<td>664</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

**Excluded wards:**
- Ward C: Paediatrics
- Ward F: neonatal/SCU
- Ward J: Psych
- Ward K: HITH

**NAUSP OBDs:**
- ICU
- Haematology/Oncology
- High Dependency Unit
- Medical
- Surgical/Orthopaedic
- Respiratory
- Vascular
- Obstetrics/Gynaecology
- Other nonICU

**Total NAUSP beds (check this matches ward totals)**: 595, 664, 0, 0, 0, 0, 0, 0

---

**Legend**

<table>
<thead>
<tr>
<th>Ward Name</th>
<th>Description</th>
<th>NAUSP Specialty</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Medical</td>
<td>Medical</td>
</tr>
<tr>
<td>B</td>
<td>Medical</td>
<td>Medical</td>
</tr>
<tr>
<td>C</td>
<td>Paeds</td>
<td></td>
</tr>
<tr>
<td>D</td>
<td>Cardiac Care Unit</td>
<td>other nonICU</td>
</tr>
<tr>
<td>E</td>
<td>Short Stay</td>
<td>other nonICU</td>
</tr>
<tr>
<td>F</td>
<td>Neonatal/Special Care Nursery</td>
<td>other nonICU</td>
</tr>
<tr>
<td>G</td>
<td>Emergency</td>
<td>other nonICU</td>
</tr>
<tr>
<td>H</td>
<td>Surgical</td>
<td>Surgical/Orthopaedic</td>
</tr>
<tr>
<td>I</td>
<td>Maternity</td>
<td>Obstetrics/Gynaecology</td>
</tr>
<tr>
<td>J</td>
<td>Adult Psych Acute</td>
<td></td>
</tr>
<tr>
<td>K</td>
<td>Hospital in the Home</td>
<td>ICU</td>
</tr>
</tbody>
</table>

**NAUSP Specialties**
- ICU
- Haematology/Oncology
- High Dependency Unit
- Medical
- Surgical/Orthopaedic
- Respiratory
- Vascular
- Obstetrics/Gynaecology
- Other nonICU

---

- List the wards that comply with NAUSP inclusions and their corresponding specialty. If a ward does not match a specialty, assign “other nonICU”.
- By listing your hospital’s excluded wards, we can cross-check OBD and drug usage data and ensure no excluded wards are mistakenly included in the drug usage upload file.
- The total cell will turn green if the total matches the sum of all wards. (This check is to ensure any beds that do not fall under a specialty are assigned to "Other nonICU")
Appendix 3- Example of how to extract NAUSP data from iPharmacy®

The following information has been kindly provided by one of the hospitals that contribute to the NAUSP program. It details how they extract their antimicrobial usage data and prepare it for submission to the NAUSP portal (hospital and ward information have been de-identified). Please note that the steps below may differ from those required at your hospital (especially if you are using a different dispensing system). Please contact the NAUSP Helpdesk (Health.NAUSPhelp@sa.gov.au) if you have any questions about data extraction at your hospital.

1. Log into iPharmacy® and click on Crystal Reports

2. Click on Infrequently Used Reports folder and then OK

3. Locate the report that your hospital uses to provide data to NAUSP and click on it. This report should count inpatient dispensings and distributions. See example below to guide that the correct categories are included in your report.
Note: The screen grab above is illustrative only to show users the types of categories they may have in iPharmacy. Users should select those applicable for their NAUSP crystal report.

4. Enter the details for the report you want to generate — i.e. which facility location and what month
5. This report should come up

6. Click on the export icon (2nd from the left) and save as excel file to wherever you like
7. Open the excel file
8. Delete all columns except ‘Ward’, ‘Drug’ and ‘Total’, and delete the first rows up to ‘Ward’, ‘Drug’ and ‘Total’. Make a note of which letter these columns are to speed up the process in the future.

9. Make a table and insert a blank column between ward and drug – this is to facilitate matching the format of the NAUSP template as the new blank column will become the speciality column.

10. In the ward column – deselect all wards and then select the ones that are reported to NAUSP.

11. Open the standard NAUSP excel template from the previous month – change the month on the 3rd row and then save as the new month with the correct name format e.g. SEA_2017_10. If this is your first submission use the standard NAUSP excel template from the NAUSP website.

12. Copy and paste the excel data from your original exported excel file into the formatted NAUSP excel file.
13. Populate the Specialty column with appropriate NAUSP speciality relating to the ward from which the data is referring to (Intensive Care Unit (ICU), High Dependency Unit (HDU), Respiratory, Haematology/Oncology, Other non-ICU or Total)

14. Save and close the excel file

15. It is suggested that files are saved in an appropriate location and kept for 2 years for future reference.

16. Go to the NAUSP portal home page to begin the process of data upload.

See section 5. Uploading data to the portal for further information on data preparation and uploading to the NAUSP portal.
Appendix 4 – Example of rate calculation output

Case study:
Hospital X (SA) wants to compare their usage of aminoglycosides to an aggregate of usage in other SA hospitals. The criteria for the rate calculation will be similar to this:

Rate calculation output

> **Sheet 1** of the spreadsheet outlines the rate calculation details for your reference.

For example, if trends in usage of aminoglycosides are required, the summary sheet may look like this:

<table>
<thead>
<tr>
<th>Details</th>
<th>Criteria</th>
<th>Data Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rate Name</td>
<td>NAUSP_aaminoglycosides_lookup</td>
<td></td>
</tr>
<tr>
<td>Date Range</td>
<td>01 Jan 2016 - 01 Dec 2016</td>
<td></td>
</tr>
<tr>
<td>Measure</td>
<td>DDD</td>
<td></td>
</tr>
<tr>
<td>Denominator</td>
<td>OBD</td>
<td></td>
</tr>
<tr>
<td>Location</td>
<td>Total</td>
<td></td>
</tr>
<tr>
<td>Benchmarking</td>
<td>South Australia</td>
<td></td>
</tr>
<tr>
<td>J01GB06</td>
<td>amikacin</td>
<td></td>
</tr>
<tr>
<td>J01GB03</td>
<td>gentamicin</td>
<td></td>
</tr>
<tr>
<td>J01GB01</td>
<td>tobramycin</td>
<td></td>
</tr>
<tr>
<td>Contributors</td>
<td>Combined</td>
<td></td>
</tr>
<tr>
<td>Antibiotics</td>
<td>Separate</td>
<td></td>
</tr>
<tr>
<td>Moving Average</td>
<td>3 Periods</td>
<td></td>
</tr>
<tr>
<td>Date Produced</td>
<td>31 Jul 2018</td>
<td></td>
</tr>
<tr>
<td>Period Type</td>
<td>Monthly</td>
<td></td>
</tr>
</tbody>
</table>

> **Sheet 2** displays usage rates for Hospital X in both DDDs and grams. RateMA refers to the moving average, and will differ from the rate if you selected 3 or 5 periods. A 3 month moving average (RateMA) is an
average of the rate from the month preceding, the current month and the month following. For the example above, output could appear as follows:

> Sheets 3 (and beyond) contain rate calculations for any comparator groups you selected. The data contained in these sheets represent the aggregate figures within the comparator group. In the example above, the benchmarking group includes all SA hospitals. The quantities, denominators and rates are the aggregate (sum) of use in approximately 20 hospitals.

<table>
<thead>
<tr>
<th>Month</th>
<th>Rate</th>
<th>Data Included</th>
<th>Comparator Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jan</td>
<td>0.105</td>
<td>NA</td>
<td>SA hospitals</td>
</tr>
<tr>
<td>Feb</td>
<td>0.105</td>
<td>NA</td>
<td>SA hospitals</td>
</tr>
<tr>
<td>Mar</td>
<td>0.105</td>
<td>NA</td>
<td>SA hospitals</td>
</tr>
<tr>
<td>Apr</td>
<td>0.105</td>
<td>NA</td>
<td>SA hospitals</td>
</tr>
<tr>
<td>May</td>
<td>0.105</td>
<td>NA</td>
<td>SA hospitals</td>
</tr>
<tr>
<td>Jun</td>
<td>0.105</td>
<td>NA</td>
<td>SA hospitals</td>
</tr>
<tr>
<td>Jul</td>
<td>0.105</td>
<td>NA</td>
<td>SA hospitals</td>
</tr>
<tr>
<td>Aug</td>
<td>0.105</td>
<td>NA</td>
<td>SA hospitals</td>
</tr>
<tr>
<td>Sep</td>
<td>0.105</td>
<td>NA</td>
<td>SA hospitals</td>
</tr>
<tr>
<td>Oct</td>
<td>0.105</td>
<td>NA</td>
<td>SA hospitals</td>
</tr>
<tr>
<td>Nov</td>
<td>0.105</td>
<td>NA</td>
<td>SA hospitals</td>
</tr>
<tr>
<td>Dec</td>
<td>0.105</td>
<td>NA</td>
<td>SA hospitals</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Month</th>
<th>Rate</th>
<th>Data Included</th>
<th>Comparator Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jan</td>
<td>0.105</td>
<td>NA</td>
<td>SA hospitals</td>
</tr>
<tr>
<td>Feb</td>
<td>0.105</td>
<td>NA</td>
<td>SA hospitals</td>
</tr>
<tr>
<td>Mar</td>
<td>0.105</td>
<td>NA</td>
<td>SA hospitals</td>
</tr>
<tr>
<td>Apr</td>
<td>0.105</td>
<td>NA</td>
<td>SA hospitals</td>
</tr>
<tr>
<td>May</td>
<td>0.105</td>
<td>NA</td>
<td>SA hospitals</td>
</tr>
<tr>
<td>Jun</td>
<td>0.105</td>
<td>NA</td>
<td>SA hospitals</td>
</tr>
<tr>
<td>Jul</td>
<td>0.105</td>
<td>NA</td>
<td>SA hospitals</td>
</tr>
<tr>
<td>Aug</td>
<td>0.105</td>
<td>NA</td>
<td>SA hospitals</td>
</tr>
<tr>
<td>Sep</td>
<td>0.105</td>
<td>NA</td>
<td>SA hospitals</td>
</tr>
<tr>
<td>Oct</td>
<td>0.105</td>
<td>NA</td>
<td>SA hospitals</td>
</tr>
<tr>
<td>Nov</td>
<td>0.105</td>
<td>NA</td>
<td>SA hospitals</td>
</tr>
<tr>
<td>Dec</td>
<td>0.105</td>
<td>NA</td>
<td>SA hospitals</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Month</th>
<th>Rate</th>
<th>Data Included</th>
<th>Comparator Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jan</td>
<td>0.105</td>
<td>NA</td>
<td>SA hospitals</td>
</tr>
<tr>
<td>Feb</td>
<td>0.105</td>
<td>NA</td>
<td>SA hospitals</td>
</tr>
<tr>
<td>Mar</td>
<td>0.105</td>
<td>NA</td>
<td>SA hospitals</td>
</tr>
<tr>
<td>Apr</td>
<td>0.105</td>
<td>NA</td>
<td>SA hospitals</td>
</tr>
<tr>
<td>May</td>
<td>0.105</td>
<td>NA</td>
<td>SA hospitals</td>
</tr>
<tr>
<td>Jun</td>
<td>0.105</td>
<td>NA</td>
<td>SA hospitals</td>
</tr>
<tr>
<td>Jul</td>
<td>0.105</td>
<td>NA</td>
<td>SA hospitals</td>
</tr>
<tr>
<td>Aug</td>
<td>0.105</td>
<td>NA</td>
<td>SA hospitals</td>
</tr>
<tr>
<td>Sep</td>
<td>0.105</td>
<td>NA</td>
<td>SA hospitals</td>
</tr>
<tr>
<td>Oct</td>
<td>0.105</td>
<td>NA</td>
<td>SA hospitals</td>
</tr>
<tr>
<td>Nov</td>
<td>0.105</td>
<td>NA</td>
<td>SA hospitals</td>
</tr>
<tr>
<td>Dec</td>
<td>0.105</td>
<td>NA</td>
<td>SA hospitals</td>
</tr>
</tbody>
</table>
For more information

National Antimicrobial Utilisation Surveillance Program
Communicable Disease Control Branch
11 Hindmarsh Square
Adelaide SA 5000
Telephone: 1300 232 272
Email: Health.NAUSHelp@sa.gov.au

Public-I1-A2
Version 2.3