The 5x5 Antimicrobial Audit:
Guide to the DATA ENTRY & REVIEW SYSTEM

The Data Entry & Review System is a semi-automated MS Excel database created to assist audit sites in collating and managing their audit results. This system provides an option for storing audit information electronically, offers real-time control over data analysis and is able to generate statistics and graphs according to user preferences.

Ideal users of the Data Entry & Review System include those with at least a basic competency in MS Excel data entry and graphs. In order to ensure full functionality, the Data Entry & Review System is only appropriate for use in versions of MS Excel 2007 onwards.

Do you have a query about the Data Entry & Review System?

If you are having troubles with the Data Entry & Review System, discover a bug or would simply like more information about how it database works, please let us know via email
CEC-AMS@health.nsw.gov.au

DATA ENTRY

5x5 Antimicrobial Audit
DATA ENTRY FORM

Month	Ward	Date Audited	Daily Patient Number	Audit Record Number	Q1	Q2	Q3	Q4	Q5	Data Entry Complete?	Error Code	Comments?
Sep 13	M1	3/09/13	1	03091301	Yes	N/A	No	No	Yes	✓	OK	Yes
Sep 13	M1	3/09/13	2	03091302	No	Yes	No	Yes	N/A	✓	OK	No
Sep 13	M1	3/09/13	3	03091303	No	Yes	No	No	Yes	✓	OK	No
Sep 13	M1	3/09/13	4	03091304	No	Yes	Yes	N/A	N/A	✓	OK	Yes
Sep 13	M1	3/09/13	5	03091305	Yes	N/A	No	Yes	N/A	✓	OK	No

The *DATA ENTRY* tab displays the main worksheet that is used to collate data for each of the audited patients. Each row represents one audit record, and users are required to enter in the ward, date of audit and daily patient number before selecting 'Yes', 'No' or 'N/A' for each of the 5 audit questions. Users may also choose to record whether or not comments were included on the data collection form.

The greyed out columns on this worksheet represent automatically generated data and cannot be modified. The audit record number is generated from the audit date and patient number, the 'Data Entry Complete?' column will display a green tick when all required data has been entered, and the 'Error Codes' column will display an error code if a fault has been detected.
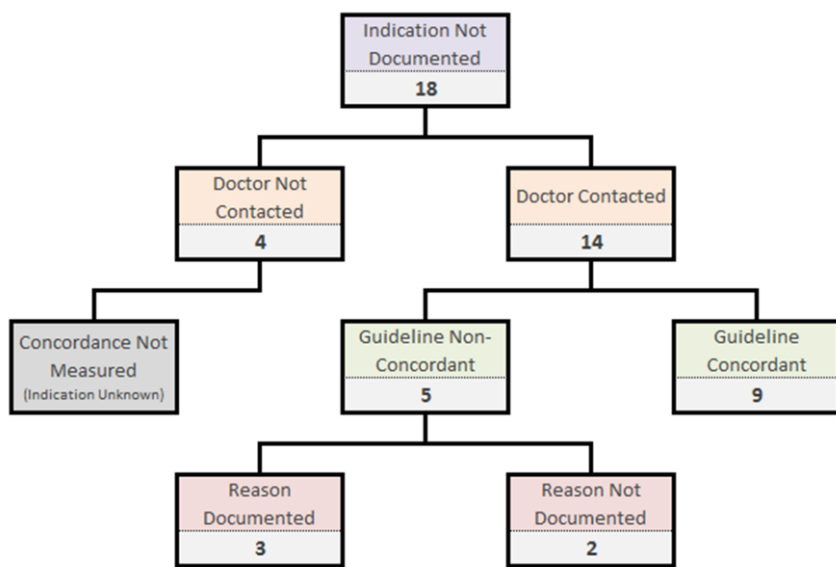
Tabulated Results

Under the *Tabulated Results* tab, users are required to enter a date range for the data they would like to review, and may choose to stipulate a particular ward if data has been collected from different areas. The tables listed will then automatically update based on the date and location parameters provided.

This worksheet presents raw numerical data on both indication documentation and concordance with guidelines, as well as proportional data by groups and/or as a percentage of the total number of patients.

Date Range (Inclusive)	From	To
	1/09/13	31/10/13

	Indication Documented	TOTAL Indication Not Documented	Indication Not Documented	
			Dr Contacted	Dr Not Contacted
No. of patients	22	18	14	4
Out of (group)	40	40	18	18
% of Group	55.0%	45.0%	77.8%	22.2%

Indication Documentation from 01/09/2013 to 31/10/2013 (All Wards)

QUAH
Quality Use of Antimicrobials in Healthcare

The 5x5 Antimicrobial Audit is a component of the QUAH Antimicrobial Stewardship Toolkit
Based on Prescribing Indicators developed by the Scottish Antimicrobial Prescribing Group (SAPG)

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Audit Tree

The *Audit Tree* tab provides an alternative representation of the audit results, which might make proportions easier to understand and visualise for database users.

All cells on this tab are non-modifiable – the results presented in the audit tree are determined by the date and location parameters entered on the *Tabulated Data* tab.

Statements

STATEMENTS	
For the period of 01/09/2013 to 31/10/2013	
All Wards & Areas	

Indicator Results	**55.0% of patients receiving antimicrobial therapy had an indication clearly documented in the notes, chart or electronic medical record.**
	68.8% patients (with a known indication) received antimicrobial therapy that was either guideline concordant or guideline non-concordant with a documented reason.

The *Statements* tab automatically generates results statements that can be appropriated into feedback resources such as reports and presentations. The two key indicator results are provided, along with a range of other results statements based on both proportions and percentages.

All cells on this tab are non-modifiable – the results presented are determined by the date and location parameters entered on the *Tabulated Data* tab.

Run Charts (All) & Run Charts (By Ward)

These tabs use a semi-automated graphing function to present indicator results across a time sequence. Users may choose to review data from all wards on the *Run Charts (All)* worksheet or examine a particular ward of interest using the *Run Charts (By Ward)* worksheet.

In order to generate a run chart, the user needs to enter a start and end date into the corresponding cells, which will populate the grey table and automatically update the date range presented in the title of the chart. Users should then select an appropriate interval (weekly, fortnightly, monthly or quarterly) and adjust the chart's data range as needed. The simplest way to adjust the data range is to:

1. Click on the chart area. (Coloured squares should appear on the grey table, showing the user which data is currently included in the chart.)

2. Click and drag the corner of the coloured squares to include the preferred rows of data. The chart should update automatically.

In order to allow users to modify the chart parameters, the Run Chart worksheets are not locked or protected. Users will therefore need to be careful not to modify the formulae contained in the grey tables.
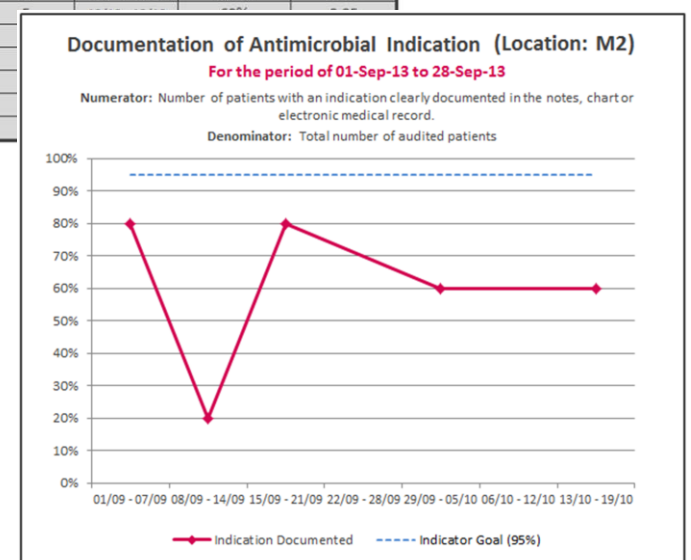
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5x5 Antimicrobial Audit: RESULTS FOR ALL WARDS
September 2013

55% of audited patients had an indication documented for their empirical antimicrobial therapy

Documentation of Antimicrobial Indication
Numerator: Number of patients with an indication documented in the notes, chart or electronic medical record.
Denominator: Total number of audited patients

Indication Documentation (%)

Indicator Goal (95%)

x-axis: 01/09 - 07/09, 08/09 - 14/09, 15/09 - 21/09, 22/09 - 28/09, 29/09 - 05/10, 06/10 - 12/10, 13/10 - 19/10
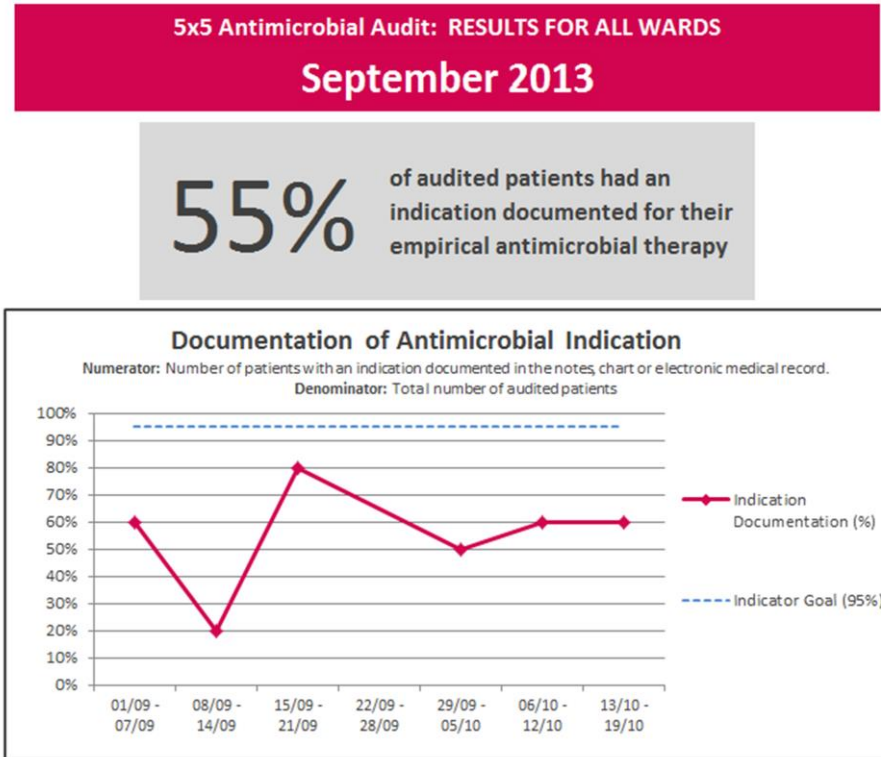
Poster (A4) & Poster (A3)

The *Poster (A4)* and *Poster (A3)* tabs allow users to generate a standard bulletin poster that presents monthly indicator results in a clear and engaging way. These posters are ideal visual tools to support the regular feedback of results at a unit level.

To create a poster, the user needs to specify the date of the first day of the month (and a ward, if required) in the table at the bottom of the worksheet. The poster heading and indicator results for the given month will be automatically adjusted. An appropriate Run Chart to accompany the indicator results needs to be generated by the user and pasted into position on the poster (the size and formatting of the run charts may need to be adjusted in order to fit the dimensions of the poster).

Error Codes

The *Error Codes* tab provides an explanation of the error codes that may appear on the DATA ENTRY worksheet. These codes are designed to ensure the data collation process is as accurate as possible, by highlighting illogical answer combinations and alerting the user to a likely problem in the recorded data. It is strongly advised that error codes are not ignored, as illogical answer combinations can alter the credibility of the data analysis process.

DATA ENTRY ERROR CODES

Code	Description
E1	A "Yes" answer for Q1 must have "N/A" for Q2, a "Yes" answer for Q3 must have "N/A" for both Q4 and Q5, and a "Yes" answer for Q4 must have "N/A" for Q5.
E2	A "No" answer for Q1, Q3 or Q4 must not be followed by "N/A" in the next question.
E3	A "No" answer for Q1 and Q2 must logically be followed by "N/A" in Q3, Q4 and Q5.
E4	A "Yes" answer for either Q1 or Q2 requires an active answer recorded for Q3.

Other tips for using the Data Entry & Review System

The more data you enter, the more useful the database will become.

Data analysis functions supported by the Data Entry & Review System are only as powerful as your sample size. Although it takes time to produce useful insights into prescribing practices, continuing to add data at a minimum rate of 5 patients per ward per week will mean the data accumulates quite quickly. After 3-6 months, users should be able to start identifying broad trends that may be used to inform local antimicrobial stewardship activities.

Don't be afraid to examine your data in other ways.

Audit sites are welcome to develop their own methods for collating and evaluating data. You may get ideas from looking at what sort of information prescribers are most interested in during feedback sessions and by talking to auditors about their own observations.

Designate a master copy and control accessibility

Having multiple copies of the Data Entry & Review System can cause problems, so it is best to have one master copy that is backed up to a secure location. Try to limit the amount of people who have access to the file, so that it is easier for one person to keep track of any changes or additions, and ensure that all those with access have adequate training in MS Excel operations and database principles.

Send your most up-to-date database file to the CEC each month (official pilot sites only)

The simplest way for pilot sites to submit their data to the CEC is to send in a copy of your Data Entry & Review System via email. Updated data will be added to that which is already stored by the CEC and is required to create reports at both a facility and state level.

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