

AMC Tool User Manual

Arno Muller
version 1.5

Overall description

AMC Tool is designed for the calculation of antimicrobial consumption data expressed in number of packages into number of DDDs at the substance level.

User interface

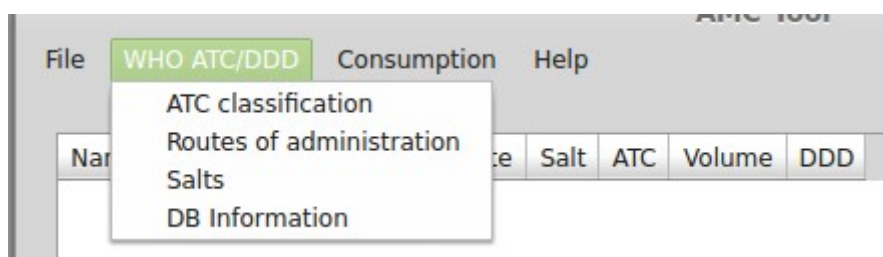
The interface of the programme is split into two main components:

- the ATC/DDD index component
- the consumption calculation component

The WHO ATC/DDD index and AMC Tool database component

This component provides information about the WHO ATC/DDD index. In addition it provides information about the codes for routes of administration and salts defined by AMC Tool. Information about the version of the AMC Tool database is also available.

To select the component, click on the “WHO ATC/DDD” entry of the menu.



The ATC/DDD index page

To access the ATC/DDD index page, click on the “ATC classification” entry. AMC Tool will display the list of ATC groups, subgroups and substances that AMC Tool supports.

Any other groups or substances not listed will not be accepted by AMC Tool.

The AMC Tool routes of administration page

To access the AMC Tool routes of administration page, click on the “Routes of administration” entry. A list of routes of administration will be displayed including code, name, corresponding

ATC/DDD index codes and top route.

AMC Tool defines a list of routes of administration and for each of them the corresponding ATC/DDD codes. During data entry, the user must use these AMC Tool codes otherwise it will generate an error message.

The AMC Tool salts page

To access the AMC Tool salts page, click on the “Salts” entry. A list of salts will be displayed including the code, name and corresponding ATC/DDD index codes.

AMC Tool defines a list of salts and for each of them the corresponding ATC/DDD codes. During data entry, the user must use the AMC Tool codes otherwise it will generate an error message.

AMC Tool defines a default salt 'XXXX'. Whenever no salt is provided during data entry, internally AMC Tool will affect the salt XXXX.

The AMC Tool internal database page

To access the AMC Tool internal database page, click on the “DB information” entry. Basic information about the internal database will be displayed.

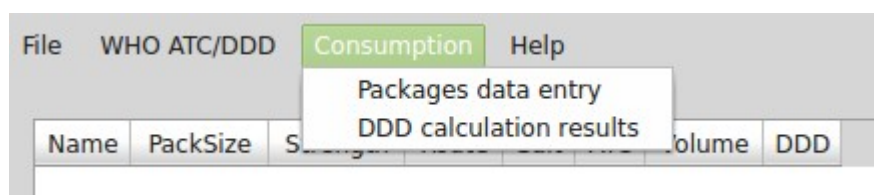
AMC Tool stored the information about the ATC/DDD index and its own codes for route of administration and salt into an internal database. This page provides information about this internal database such as the version of the ATC/DDD index included in the programme and the date the internal database was created.

The consumption calculation component

This component provides the functionality for processing the antimicrobial consumption data.

This component contains two pages:

- the data entry page
- the DDD results page

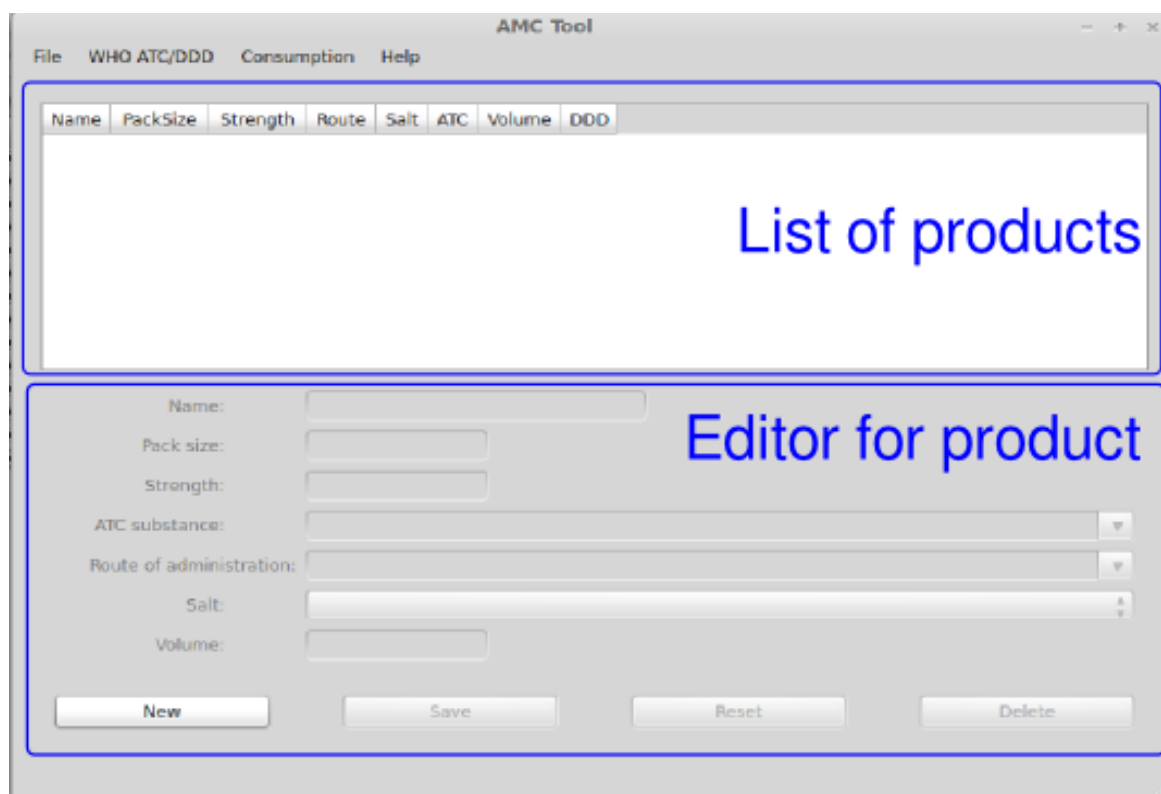


The data entry page

To access the data entry page, click on the “Package data entry” entry.

The data entry page is split into two parts:

- on the top the list of already entered package data
- on the bottom, the editor for package data



The list of products

The list of products table displays the recorded products data as a table, one line corresponding to one product. It is possible to modify a product of the list by double clicking on it.

The product editor

The bottom part of the page is the editor used to add a new product, to modify or delete a existing record.

To add a new product, click on the “New button”, it will activate the fields of the editor. Fill in the different information and then click on the “Save” button. If there is no error, the new product will be added to the list of products in the top table.

If any error occurred, a red asterisk will be displayed in front of the corresponding field. When no DDD exists for the combination of ATC substance, route of administration and salt, a message will be displayed that no DDD calculation will be performed, still AMC Tool will accept the product. In the table, in the column “DDD”, no DDD will be displayed for the product.

To modify or delete a recorded product, double click on the corresponding row in the table. The editor will be filled in with the data of the product. After the changes have been made, click on the “Save” button to save the changes. You can reset the product to its original data by clicking on the “Reset” button.

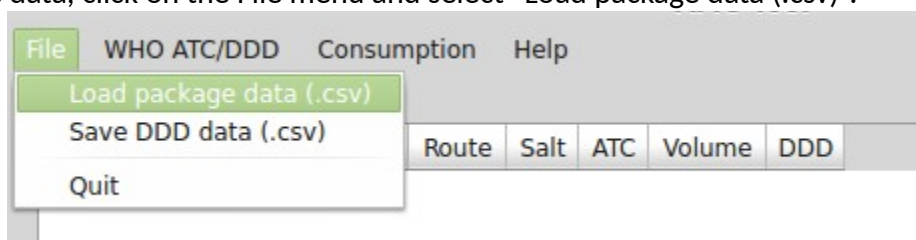
To delete the product, click on the “Delete” button.

Importing product data

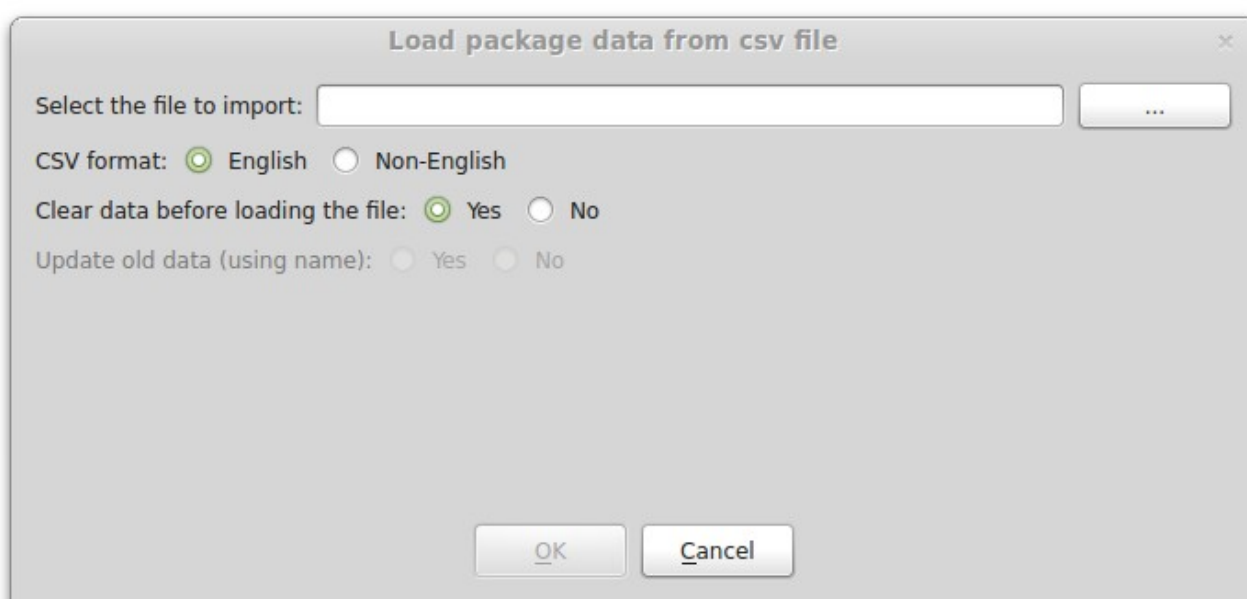
AMC Tool can import data using a csv file. The csv file must be in the correct standardised format (see chapter on data entry).

Reading csv data

To import the data, click on the File menu and select “Load package data (.csv)”.



A dialog will open asking for the file, the format of the csv file, either English (field separator ',' and decimal separator '.') or non-english (field separator ';' and decimal separator ','). Additionally, the dialog asks for if data previously entered either manually or imported should be kept or deleted before the new data are imported.



Data import

During the reading of the data, AMC Tool validates each row of the file. After that step, AMC Tool will display the result of the data reading in a new panel. The panel displays on the top the name of the csv file and if any general error occurred (e.g. incorrect format...). In the centre, the results of each row is displayed as a table. The read value for each column is displayed and in addition, the line number and the status of the row (OK: no error, INFO: useful information but no problem, ERROR: the row contains error). The corresponding cell is also highlighted and if the cursor is moved over the cell, a tool tip explaining the issue is displayed. The result of the validation can be exported into a csv file by clicking on the “Export processing results” button.

If no error occurred during the reading of the csv file, data can be imported by clicking on the “Record data” button. The DDD calculation results page is displayed with the imported data. You can go back to the data entry page to add new or modify existing records.

Processing results

Filename: /home/arnaud/developpement/tpg/phenocens/test/test_cons4.csv

General errors:

General information

Filter rows:

☒ All ☐ Info ☐ Errors

LINE	STATUS	PRODUCT_NAME	ACK_SIZE_VALU	ACK_SIZE_UNIT	ENGTH_NUM_VA	ENGTH_NUM_U	ENGTH_DENOM_V
0	ERROR	test product 6	10	I	1	UD	
1	OK	test product 7	5	I	1	MU	
2	INFO	test product 8	10	I	300	mg	

Parsed rows results

Record data

Export processing results

ENGTH_DENOM_V	ENGTH_DENOM_U	ATC5	ROUTE	SALT	VOLUME	DDD
		J01EE01c	P	XXXX	411	
		J01CE01	P	XXXX	10	8.333333333...
		J01CA04	IS	XXXX	174	

M_	ATC5	ROUTE	SALT	VOLUME	DDD
	J01EE01c	P	XXXX	411	
	J01CE01				
	J01CA04				

The variable ATC5 (J01EE01c) is not a valid ATC code.

The DDD has not been calculated because it depends of a variable which is not valid.

The DDD calculation results page

To access the DDD calculation results page, click on the "DDD results" entry.

The DDD calculation results page is split into two parts:

- on the top the results of the DDD calculation by ATC groups and routes displayed as a tree.
- on the bottom, the editor for denominator data

AMC Tool

File WHO ATC/DDD Consumption Help

DDD calculated by ATC groups

Code	Name	Level	Route	DDD
• A	ALIMENTARY TRACT AND METABOLISM	1		0
• D	DERMATOLOGICALS	1		0
▢ J	ANTIINFECTIVES FOR SYSTEMIC USE	1		4309600.0
▢ J01	ANTIBACTERIALS FOR SYSTEMIC USE	2	○	4309600.0
▢ J01A	TETRACYCLINES	3	○	4309600.0
▢ J01AA	Tetracyclines	4	○	4309600.0
J01AA01	Demeclocycline	5		0
▢ J01AA02	Doxycycline	5		4309600.0
J01AA03	Chlortetracycline	5	○	0
J01AA04	Lymecycline	5		0

Bed-days Population

Number of beds

Number of days

Occupancy rate

Editor for denominator

Number of bed-days

The DDD results

The DDD results are shown as a hierarchical tree based on the ATC/DDD index. To expand the nodes, click on the box in front of the ATC groups.

The denominator editor

AMC Tool can manage two denominators: a number of bed-days (preferred indicator used in hospital settings) and a number of inhabitants per day (preferred indicator used in the community).

To enter a denominator, select the type of denominator by clicking on the respective tab, either "Bed-days" or "Population".

For the "Bed-days" editor, it is possible to enter directly the number of bed-days in the corresponding field or to enter the number of beds, days and occupancy rate (between 0 and 1) and AMC Tool will calculate the number of bed-days.

For the "Population" editor, it is possible to enter directly the number of inhabitants per day in the corresponding field or to enter the number of inhabitants and days and AMC Tool will calculate the number of inhabitants per day.

When clicking on the "Apply denominator" button, AMC Tool will compute either DDD per 100 bed-days or DDD per 1000 inhabitants per day depending of the selected denominator.

Export of the DDD results

To export the DDD results, click on the file menu and select the “Save DDD data” entry. Provide a filename to record the data and AMC Tool will save the data into the corresponding csv file. The newly created file can be open in any spreadsheet application.

Data entry

Data entry consists in providing product data to AMC Tool. AMC Tool provides two means to provide product data. First, data can be entered manually using the product editor, second data can be recorded in a standardised csv file, AMC Tool can read this file and automatically populate the table of products with the file's data.

The product record

The product data contains the following field:

- the name of the product
- the package size of the product, either the number of items or of millilitres in one package
- the strength, either as content of one item or concentration
- the ATC substance
- the route of administration
- the associated salt (only relevant of erythromycin and methenamine as defined in the ATC/DDD index)
- the volume (number of packages used during the reporting period)

Name of the product

The name of the product as free text.

Package Size

The size of the product's package as measurement units.

The package size can be expressed as item or millilitre.

The item (i) corresponds to one item in the package and could be one tablet, one capsule, one vial...

For instance:

- a box containing 10 tablets will be reported with a package size of 10i (10 items)
- a box containing 1 vial will be reported with a package of 1i (1 item)

The millilitre (ml) is used when the strength of a product is expressed as a concentration (e.g. g/ml).

For instance:

- a box containing 1 bottle of 60 ml and with a strength expressed as 75mg/5ml will be reported with a package size of 60ml (60 millilitres)

Strength

The content of substance of one item when the package size is expressed in items or the concentration of substance when the package size is expressed in millilitres.

The strength as content can be expressed using two families of unit:

- the gram, including gram (g) and milligram (mg)
- the international unit, including international unit (IU) and millions of international units

(MU).

For instance:

- a box of tablets with each individual tablet containing 1.5 g of active substance will be reported as 1.5g (1.5 gram)
- a box of capsules with each individual capsules containing 3 MU will be reported as 3MU (3 millions of international units)

The strength as concentration uses the same units as as content for the numerator and the millilitre as unit for the denominator.

For instance:

- a bottle having a strength expressed as 75mg/5ml will be reported as 75mg/5ml
- a bottle having a strength expressed as 100000IU/ml will be reported as 100000IU/1ml

Manual data entry

Refer to the product editor paragraph of the user interface chapter.

Automatic data entry

AMC Tool can read a standardised csv file containing product data and automatically insert all the products in the product table.

AMC Tool standardised csv file for product data

The format of the csv file is derived from the structure of the product data.

Field	Description	Type	Value	Example
PRODUCT_NAME	Name of the product	Text	Free text	
PACK_SIZE_VALUE	Value of the package size	Number	positive number	If the package size is 5i, then report 5
PACK_SIZE_UNIT	Unit of the package size	Coded value list	g, mg, IU, MU or ml	If the package size is 5i, then report i
STRENGTH_NUM_VALUE	Value of strength as content or value of the numerator as concentration	Number	positive number	If the strength is 2g, then report 2 If the strength is 1.25MU/5ml, then report 1.25
STRENGTH_NUM_UNIT	Unit of the strength as content or unit of the numerator as concentration	Coded value list	g, mg, IU, MU	If the strength is 2g, then report g. If the strength is 1.25MU/5ml, then report MU
STRENGTH_DENOM_VALUE	Value of of the denominator as concentration	Number	positive number	If the strength is 1.25MU/5ml, then report 5
STRENGTH_DENOM_UNIT	Unit of the denominator as concentration	Coded value list	ml	If the strength is 1.25MU/5ml, then report ml
ATC5	Code of the substance in the ATC/DDD index	Coded value list	Valid ATC code at 5th level (substance level)	If the substance is amoxicillin, then report J01CA04. Refer to the ATC/DDD index for code assignment.
ROUTE	Route of administration	Coded value list	Valid AMC Tool codes for route of administration	If the route of administration is inhalation powder, then report IP
SALT	Salt associated with the active substance. Only refer to erythromycin and methenamin	Coded value list	Valid AMC Tool codes for salts	If the substance is methenamine and the associated salt is hippurate,

Field	Description	Type	Value	Example
	(see ATC/DDD index)			then report HIPP
VOLUME	Number of packages to be reported for the product	Integer	Positive integer	If the number of packages used is 5789, then report 5789

Table 1: AMC Tool standardised csv product data format

Importing data into AMC Tool

Refer to the paragraph Importing data of the user interface chapter.