TECHNICAL DOCUMENT

HELICSwin.Net 1.3

User manual

Superceded by v 1.3.8

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This document of the European Centre for Disease Prevention and Control (ECDC) was written by Carl Suetens and edited by Keith Hodson.

The software package described in this document is version 1.3 of HELICSwin.Net.

Superceded by v 1.3.8

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Contents

Abbreviations

AU	Antimicrobial use
HAI	Healthcare-associated infections
HWN	HELICSwin.Net
ICT	Information and communications technology
ICU	Intensive care unit
PPS	Point prevalence survey
SSI	Surgical site infections
TESSy	The European Surveillance System

Superceded by v 1.3.8

1 Introduction

HELICSwin.Net (referred to in this document as HWN) is a software application developed for the manual entry of data collected during the ECDC point prevalence survey (PPS) of healthcare-associated infections (HAI) and antimicrobial use (AU) in acute care hospitals.

HWN enables local users, typically in a hospital, to collect PPS data at the hospital and ward levels; these data are stored internally by HWN, but the data can be exported to other applications in a variety of formats, including formats compatible with Microsoft Access (.mdb) and Microsoft Excel (.csv; comma-separated values).

For nominated representatives of the EU Member States only, a TESSy-compatible format is provided to facilitate the importation of data to The European Surveillance System (TESSy) database.

1.1 Intended users and purpose

The document is intended for hospital staff who use HWN to collect or administer data collected during the ECDC point prevalence survey of healthcare-associated infections and antimicrobial use in acute care hospitals. This document describes the HWN v1.3 user interface and provides users with step-by-step instructions in its use. It also provides conceptual information about data storage.

1.2 Related documents

For information about how to complete the forms in this application, please refer to the following documents:

European Centre for Disease Prevention and Control. Point prevalence survey of healthcare-associated infections and antimicrobial use in European acute-care hospitals – protocol version 4.3. Stockholm: ECDC; 2012.

- Protocol version 4.3; full-scale survey and code book. ECDC_HAI_AU_PPS_prot_codebook.
- Forms V4.3 ECDC_HAI_AU_PPS_forms_v4_3.ppt (master copies of data collection forms – for duplication)

These documents are available on the ECDC internet site at:
http://www.ecdc.europa.eu/en/activities/surveillance/HAI/about_HAI-Net/Pages/PPS.aspx.

ECDC Portal > English > Activities > Surveillance > Healthcare-associated Infections Surveillance Network (HAI-Net) > About the network > Point prevalence survey (PPS)

The aforementioned documents can also be accessed from within the software (see below). Some of the fields in the software refer to the PPS validation protocol, which can be accessed on the HAI-Net extranet (password protected). The PPS validation protocol can also be requested from ECDC at hainet@ecdc.europa.eu.

1.3 Background

The name HELICSwin.Net originates from the Microsoft Access application HELICSWin developed by the former European HELICS (Hospitals in Europe for Infection Control through Surveillance) network for the surveillance of HAI. HWN was originally developed as part of an ECDC contract for further hospital software support for the European surveillance of HAI, which included HELICSwin for the surveillance protocols 'Surveillance of healthcare-associated infections in intensive care units (ICU)' and 'Surveillance of surgical site infections (SSI)'. Unlike HELICSwin however, HWN is a standalone application developed in Microsoft .NET Framework. It does not require Microsoft Access to be installed on the computer, but it does however require Microsoft .NET Framework version 3.5.

HWN was developed by the ICT department of the Scientific Institute of Public Health, Brussels, Belgium under contract ECD.2218 and its amendment ECD.2764 until September 2011. In September 2011, the further development of HWN was transferred to ECDC (Epidemiological Tools Section).

1.4 Technology

HELICSwin.Net is a standalone application developed in Microsoft .NET Framework. Data are stored in a .mdb file that is compatible with Microsoft Access. This file is stored on the computer on which HWN is installed.

Users should also note that:

- HWN is supplied free of charge and can be freely distributed to participating hospitals;
- the text displayed on the data entry forms can be translated to meet the language requirements of the participating hospitals.
- HWN can be installed and run from a server, but simultaneous users are not supported, i.e. only one user can run the software at a time.
- Unlike earlier versions of HWN, the current version does not require Microsoft Access to be installed on the computer on which it runs.

1.5 Helpdesk

For any questions, please refer to your national PPS coordinating centre (usually HAI surveillance coordinating centre) that may refer questions to hainet@ecdc.europa.eu or post them on the HAI-Net extranet Q&A forum at https://extranet.ecdc.europa.eu/HAINet/default.aspx when necessary.

1.5.1 Feedback

ECDC welcomes any feedback from users to help us to improve future versions of this software and documentation. Please send your comments to the Helpdesk.

1.6 HWN versions

HWN has been published in four incremental versions: 1.0, 1.1, 1.2, and the current version 1.3.

Note: Data stored in the current version (1.3) are not directly compatible with earlier versions. This means that you cannot load collected data from earlier versions into this version. Any transfer of data must be done manually or programmatically, using your own in-house custom program.

Some of the key features in v1.3 are:

- keyboard shortcuts (for example, **Ctrl**+**N** to create a new record, and **Ctrl**+**S** to save a record);
- data quality checks (validation) during data entry;
- a separate data quality check function, for example before export;
- printable search lists for all levels;
- antimicrobial brand lookup tool;
- translation possible for all forms, messages and different kinds of controls;
- integration of PPS validation protocol variables;
- TESSy export for Standard and Light Protocol;
- improved speed;
- application was converted from Microsoft Visual Basic .NET to Microsoft Visual C# .NET;
- integrity of the database ensured, which means, for example, that when a user changes the ward ID or survey date, the corresponding data in the underlying records (for example *patient data*) is automatically updated.

2 Installation

This section describes the installation requirements and procedures.

2.1 Installation requirements

The following requirements must be met on the PC on which you are installing the HWN software:

- Personal computer running Windows XP or later.
- Microsoft .NET Framework 3.5 (or later) already installed (see below).
- To install HWN you must have administrator rights on your PC.
- You do not need administrator rights to run the application once it is installed.

Although the HWN database (HELICSWinNet.mdb) is in Microsoft Access format, you do not need Microsoft Access installed on your computer. You can open the database files in Microsoft Access, but you can also use other compatible software such as Microsoft Excel.

To check whether .NET 3.5 is installed on your PC
In Windows XP, do the following:

- Click **Start** > **Settings** > **Control panel.** The control panel opens.
- Click **Add or remove programs** and wait until the installed programs list is populated.
- Scroll down the list to the Microsoft entries.
- If Microsoft .NET Framework 3.5 SP1 is in the list, it is installed.
    - If the correct version of .NET is not installed, the included setup.exe file installs it for you, although you must have administrator rights on your computer.
    - Note: If you do not have administrator rights on your computer, contact your system administration for further help.

Alternatively, to install .NET Framework 3.5 see download and instructions at:
http://www.microsoft.com/downloads/en/details.aspx?familyid=333325fd-ae52-4e35-b531-508d977d32a6&displaylang=en.

2.2 Installation files

The application comes a compressed (.zip) file HWNv1_3_x.zip, which contains the full application. The 'x' in the filename refers to the latest build of the software. New builds may be published on the ECDC website, e.g. after bug fixes.

HWNv1_3_x.zip
Administrator rights are required. Installs HWN and Microsoft. NET Framework 3.5 if needed. The zip file contains:

- Setup.exe
- HelicsWinNet.msi

To install the software, extract the files from HWNv1_3_x.zip, run setup.exe and follow the instructions.

- The default installation directory is C:\HWN1.3.
- Previously installed data and versions v1.1 or v1.2 (for example, in directory C:\HWN) will not be overwritten.

After installation, the programme directory contains the following database files:

- HELICSWinNet.mdb: the empty HWN database (Microsoft Access format): most important file of the application; contains all entered data; it is recommended to make a regular backup of this file.
- Reference.mdb: database containing values and labels (Microsoft Access format).
- Translation.mdb (formerly *traduction.mdb*): database containing translation data (Microsoft Access format).

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Important:

The software must be installed to a path (folder) to which the user has write access (for example, C:\HWN1.3), otherwise save errors may occur.

Any existing data will be overwritten when copying new .mdb files!

If applicable, make a backup of your existing data first: HELICSWinNet.mdb for the PPS database, translation.mdb for translations.

Warning:

Changing the structure of any of the .mdb databases may cause the programme to stop working.

2.3 Network installation

You can also install HWN on a network drive in the hospital from where users can run the application. Users must have write access to the installation folders.

Network installation is recommended when data need to be entered from different wards: this is preferred to having to work with multiple local ward copies (and databases) because there is no easy way to merge data into a single database for the hospital as a whole.

Also, it is not possible to enter data from two or more computers simultaneously into the same database.

3 Getting started

To launch the software, open installation folder (default: HWN1.3) and run the file HELICSwinNet.exe.

1. From your desktop, click:

    Start > **My Computer** > **System** (C:) > **HWN1.3** > **HelicsWin.Net.exe**

    The splash screen appears:
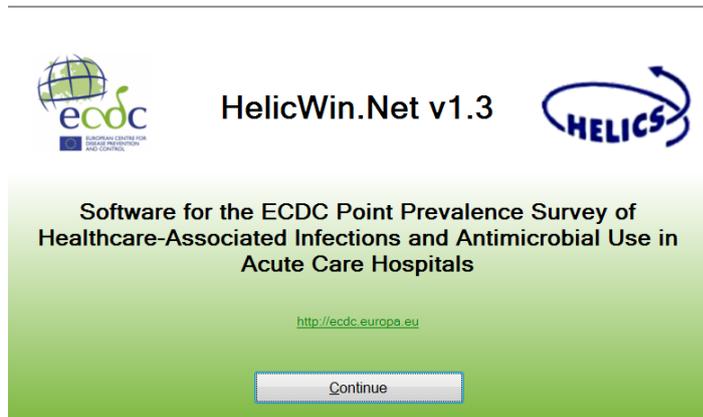
2. Click **Continue** to go to the first (login) form.

If you do not already have any hospitals defined, you have to define one now.

3. Click the yellow **Add new item** icon +. The fields in the upper part of the form open for editing.

4. Enter the hospital code – as provided by your national HAI surveillance/PPS coordinating centre – and the hospital name.

5. Select your country from the drop-down list.

6. Enter the password **helics**. Note: You can change this later on under **Settings**.

7. Click the ⚏ icon to save the data. Alternatively, use the keyboard shortcut **Ctrl**+**S**.

8. Click **Login**.

Note: If you received a version with a separate language file (Translation.mdb) you may also be able to choose a different language at this stage. The default selection is English.

3.1 Creating a shortcut to HWN

Optionally, you can create a shortcut to the application and put it on your desktop. You then simply click the shortcut on your desktop to start HWN.

To create a shortcut to HWN on your desktop

1. Open the folder **C:\HWN1.3**

   If the file is on a server, you have to locate the folder HWN1.3 (or whatever the installing person called it) on the server.

2. Right-click on the filename **HelicsWin.Net.exe**, and select **Create Shortcut**.

   The shortcut is created in the current folder:
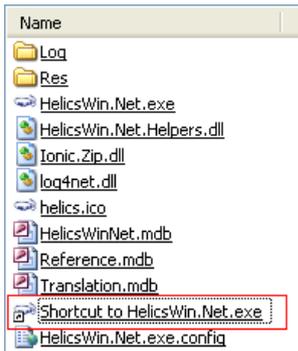
3. Select the shortcut, copy it (**Ctrl**+**C**) and paste it (**Ctrl**+**V**) on your desktop. From now on you can you can simply click the shortcut to open the HWN application.

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4 Working with HWN forms

In HWN you enter your data in a series of forms. These forms have standard features, such as labelled text boxes, drop-down lists, and option buttons to help you become familiar with the user interface so that you can enter your data quickly and accurately.

General guidelines

Caution:

Always create a new empty record first.

Each time you log in, the software opens the first record in the database. Therefore, if you start entering data without creating a new empty record, the first record will be overwritten when data are saved!

1. Use the toolbar to perform basic tasks:
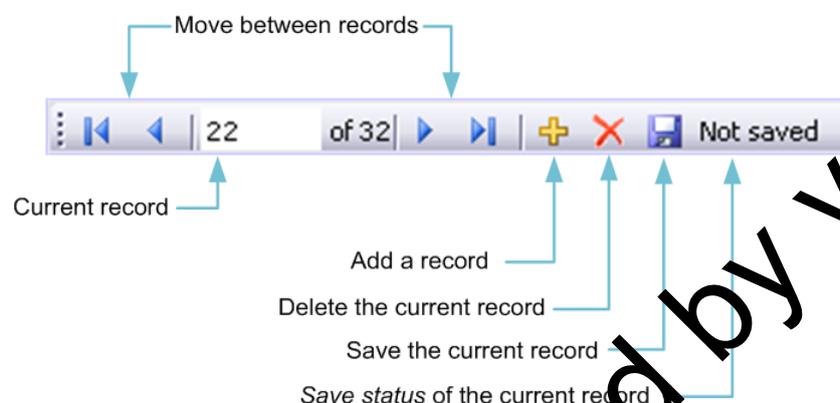
The following table describes these functions.

Icon	Function	Description
22 of 32	Current record	Indicates which record is currently open for editing.
I◀ ◀ ▶ ▶I	Move between records	Use the **Backwards**◀ and **Forwards** ▶ buttons on the toolbar to move one record at a time; alternatively, type **Ctrl + left and right arrow**, or use **Back** I◀ and **Forward** ▶I to go the start or end of a record, respectively.
+	Add a record	On all data entry forms, first click the yellow **Add item** icon + to activate the relevant input fields. Click to add a new record. Make sure the current record is saved first before creating a new record. Alternatively, type **Ctrl**+**N** to create a new record.
✖	Delete the current record	Most deletions are preceded by a warning. However, if you deleted a record by mistake, exit the programme without saving and re-start HWN to undo the deletion. Click the **save icon** 🖫 to delete the record permanently. Note that if you delete a record (for example, a ward) with dependent records (for example, patient records), all the dependent records will be deleted.
Not saved	*Save status* of the current record	The **Not saved** indicator text appears whenever you have changed data in a data record but have not yet saved it. This indicator disappears as soon as you save the record, and reappears if you make any changes until you save the record again.
🖫	Save the current record	The **Not saved** indicator disappears. Alternatively, type **Ctrl**+**S** to save the current record.

2. Keyboard shortcuts

Keyboard shortcut	Action
Ctrl + Left arrow	Previous record
Ctrl + Right arrow	Next record
Ctrl + N	New record
Ctrl + S	Save record
Ctrl + D	Delete record

3. Data quality checks and data entry validation:

When a record is saved, the programme performs some validation checks on the data before actually saving. There are two types of validation in HWN:

- **Error:** mandatory fields are left blank or have been assigned impossible values: the relevant fields appear in red, and you cannot save the data.
- **Warning:** required fields are left blank or are impossible; the concerned fields will appear in blue, saving is possible.

Note: Not all validation rules are implemented at data entry; some more complex rules are implemented only during data quality check; see below.

4.1 Understanding reported errors

The application checks the data you supply as soon as you attempt to save them. The application generates a mini report in the form of a message, which lists any errors it discovered. The purpose of this check is to help you get your data right.

The following figure shows a selection of possible error messages that could appear when you save a record in the **Hospital data** form. Note that in this case, there are three errors and the application is not able to save the data until these errors are corrected.

Figure 1. **Example of errors and warnings**
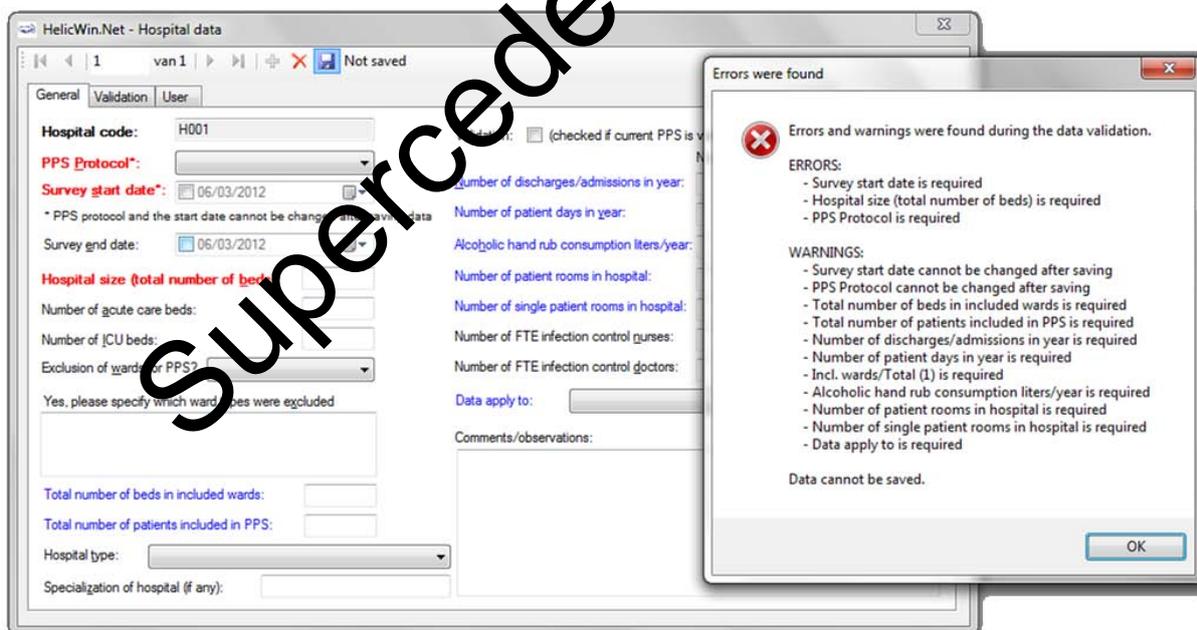
- The default buttons in the warning messages – for example, **Yes** and **No** buttons – are displayed in the language of the installed Windows operating system.
- General appearance of data forms: directly underneath the toolbar, the selected hospital code is displayed.
- Tabbing: keyboard tabbing first follows the order of input fields, then focus will shift to the toolbar.
- You have to enter most categorical variables through drop-down lists (starting with blank line), so that you can enter only a predefined value from the list.

- You can access fields with keyboard shortcuts made up of the **Alt** key and the underlined letter on the field label. For example, if you type **Alt**+**P** in the hospital form, the focus moves to the **PPS Protocol** field.
- Once the focus is on the field, type the first letter of the required value, for example, **S** for Standard Protocol. Alternatively, you can select the value from the drop-down list.

4.2 Using the Main menu

Use the main menu to open the main data entry forms for the different data levels of the PPS. These forms are arranged in hierarchical order, based on hospital-, ward-, and patient-level data.


Button	Actions(s)
Hospitals	Opens the Login form and allows you to define more than one hospital. This may be useful in a hospital trust or organisation because you can enter the data for different hospitals (sites) in the same database. This feature also enables national or regional coordinating centres to enter data centrally for different hospitals into a single database.
Hospital data	Enter data from the hospital questionnaire.
Wards definition	Define all ward ID codes (abbreviated names) and, optionally, full names.
Ward data	Ward PPS date and denominator data. For each ward, enter the date the PPS was performed and the ward specialty. For the LIGHT protocol: also enter the denominator data.
Patient data	Enter demographic data for the patient and additional risk factors in the Standard Protocol. From the patient form, you can also access the healthcare-associated infection form and/or antimicrobial use form through separate buttons.
Data quality check	Analyze the data and report any missing or impossible values, and missing records. The checks performed here (for example, cross-checks between different data levels) go beyond the validation checks that take place automatically when individual records are saved.
Data export	Exporting data as (i) raw data (as stored in the HelicsWinNet.mdb access format database), with or without user or validation variables, or as (ii) CSV (comma separated text) files in ECDC's TESSy CSV format (always without user variables).

Button	Actions(s)
Settings	From this form you can: • change your password; • specify how HWN sorts lists that contain data values (for example, antimicrobials sorted by ATC5 code or alphabetically by antimicrobial agent); • translate labels on HCW forms: This feature enables you to translate labels on data fields and controls, such as tabs and buttons. You can access text definitions for all labels on the forms/validation messages and translate them into any language. You can also rename user field labels so that additional local or national data collection modules can be implemented. The system also checks problems in the translation files, such as the accidental deletion of labels, and fixes inconsistencies automatically; • reset window sizes to their original value; and • define the level of detail of error logging (for debugging of HWN issues).
About HelicsWin.net	Current installation and corresponding build details.
Quit	Shuts down the programme.

4.3 Data hierarchy

Data in HWN is stored hierarchically, with the hospital at the top and patient data at the bottom.

Figure 2. Data hierarchy
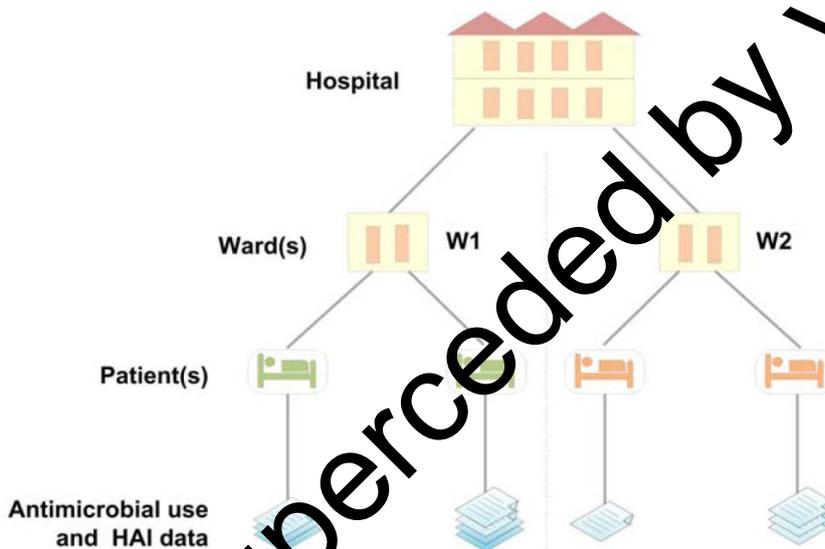
One consequence of the HCW data hierarchy is that if you delete a definition at one level, you automatically delete the data at the lower levels that depend on that definition. For example, if you delete a ward definition (W2), all data belonging to patients in that ward are also deleted.

HWN warns you before it deletes anything, but you need to be vigilant to ensure that you do not lose your work or that of others.

**Figure 3. Data hierarchy – warning message**
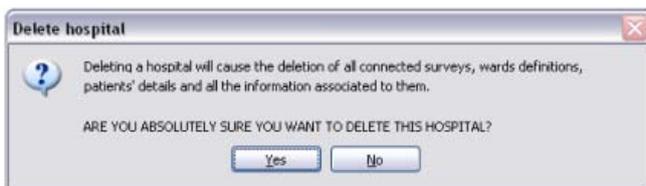
Figure 4. Data hierarchy – the effect of deleting a ward definition
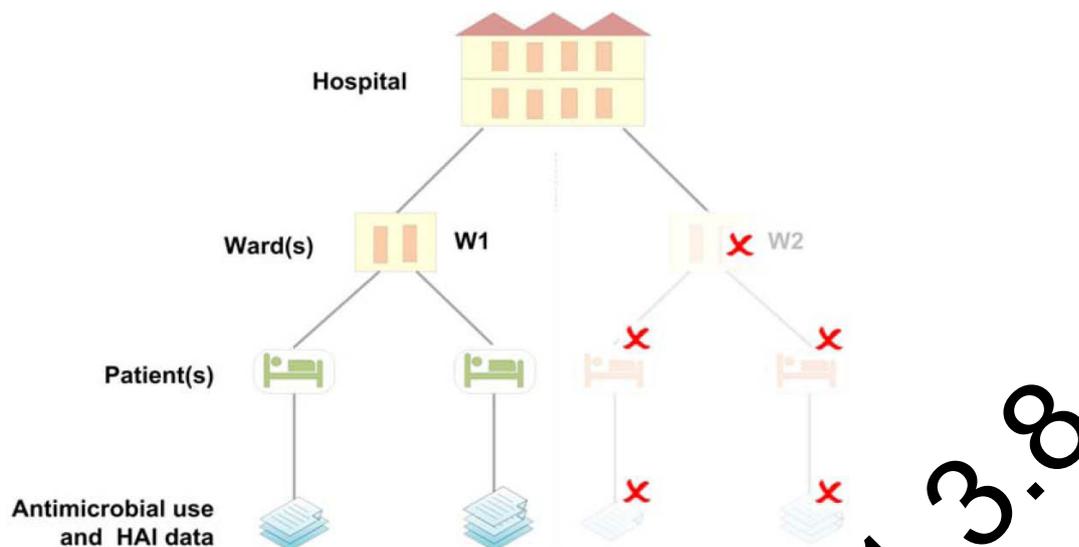
Furthermore, if you delete the whole hospital record, you would delete all the related ward and patient data as well.

4.4 Defining hospital data

The hospital data is the first level of the PPS dataset. You have to enter the following mandatory variables before you can proceed to the other forms.

- start date hospital survey;
- PPS protocol; and
- hospital size.

You can enter only one hospital record per hospital per survey (PPS). This is a unique record that is defined internally as follows:

[Hospital code] + [Date the current PPS started in the hospital]

To define a hospital record

1. Open the **Main menu** form and click **Hospitals**. The **Hospitals** form opens.
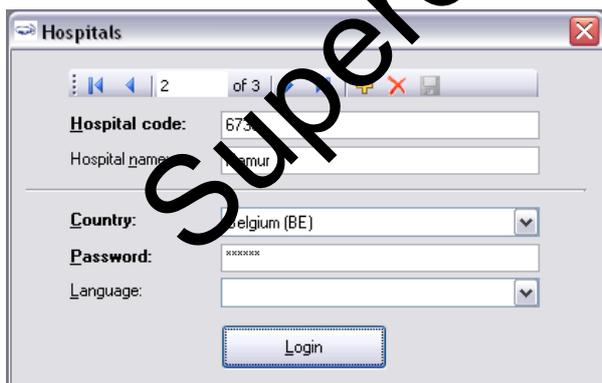
2. Click the **+** icon on the toolbar. The **Hospital code** and **Hospital name** fields clear.

3. Enter the new hospital code and name.

4. If necessary, enter your country, password, and language.

5. Click the save 🔹 icon. The hospital record is added to the internal database. From now on, you can access this record from this form through the Forwards ▶ and Backwards ◀ buttons on the toolbar.
   The **Main menu** form opens.
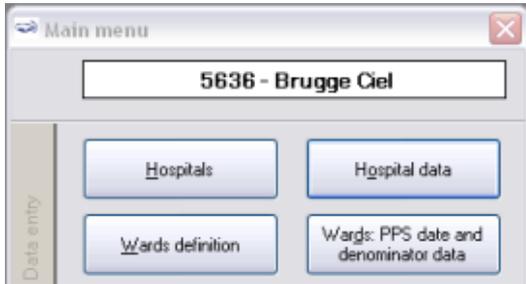
6. Click **Hospital data**. The **Hospital data** form opens (for the hospital you have selected).

7. If not already open, click the **General** tab.

8. In the **General** tab. click the **Add item** icon ✚ to open this form for editing.
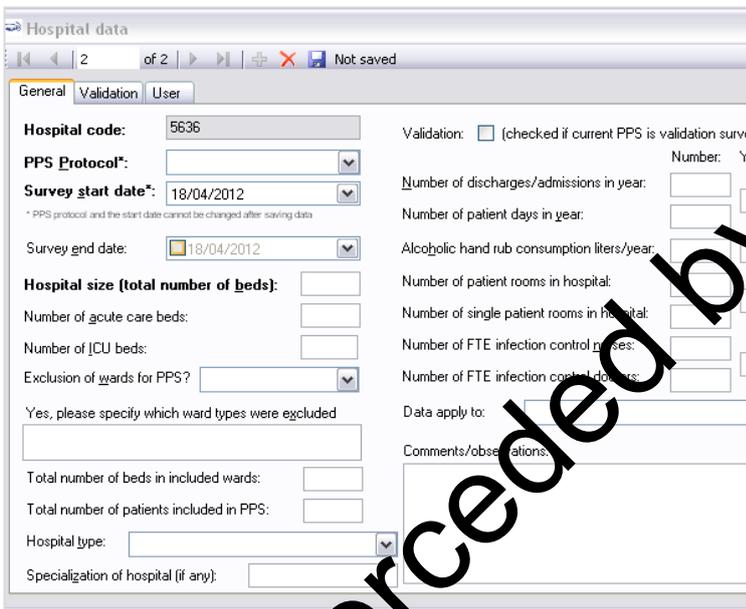
9. Specify values for the following mandatory fields (indicated by asterisks*):

PPS Protocol	You can choose either Standard or Light. Note that you cannot add Light Protocol data records to a PPS data collection defined to use the Standard Protocol, and vice versa.
Survey Start Date	The start and end dates of the survey entered in the hospital data form are used to define the (reporting) periods in the export form.
Hospital size	If, for reasons of confidentiality, the exact number of hospital beds cannot be given, enter the number of beds **rounded up** to the nearest 50.

Warning:

You cannot change the variables **Start date hospital survey** and **PPS protocol** after you have saved them.

Before entering any data, make sure that the start date of the hospital PPS is earlier than any ward survey date. If you need to change a hospital survey start date, you will have to contact your national or regional PPS coordinator.

You can enter the remaining data now or leave it for later.

10. Click the **Save** icon 🖫.

11. Click the **Validation** tab. The **Validation** page opens. This page enables you to supply additional data if the current PPS data are collected during a validation survey of the primary PPS data. If this is not the case, you can leave it blank.

12. Click the **User** tab. The **User** page enables you to access the user fields. You can change the labels on these fields using the translation function in **Settings**.

13. Click **Define data collectors.** In this form you can define:
Hospital data collectors (HDC): ID Code, Position (function) and Survey-related task. Later on, you can assign the ID Code for the data collectors to the ward (see the User tab in **Wards: PPS date and denominator data** form). These data are optional and are not part of the PPS protocol.
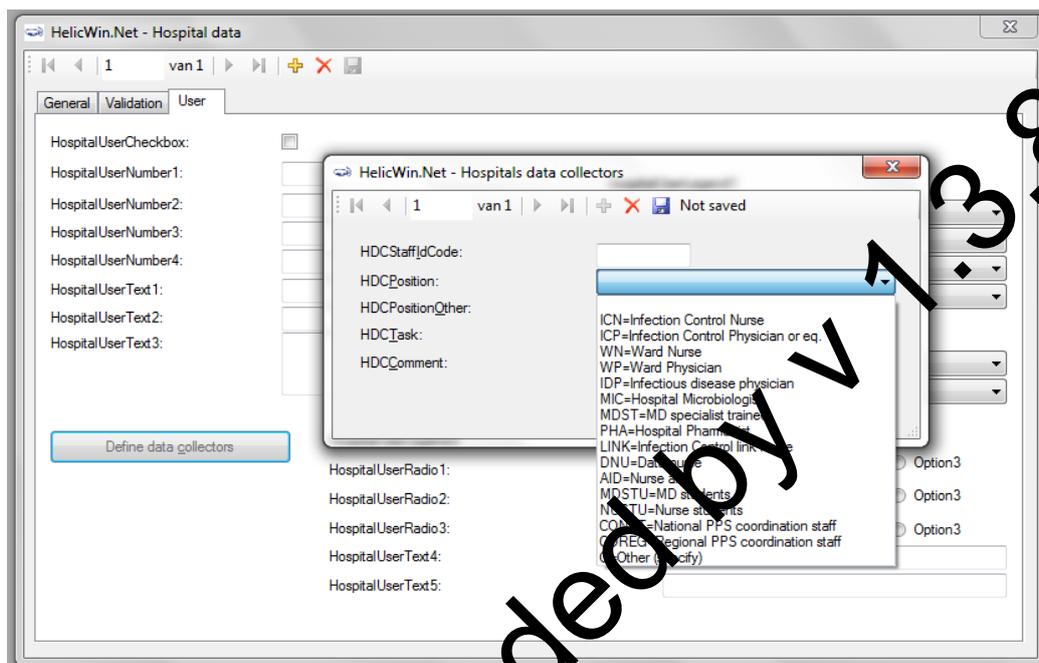
4.5 Defining wards

HWN enables you to define wards (units) to be included in the point prevalence survey. For each ward in the hospital, you have to enter an abbreviated name (the Unit ID or code) that will be used in all levels of the database and, optionally, a full ward name.

To create a ward definition
1. Open the **Main menu** in HWN, click **Wards definition**. The **Wards** form opens showing the current hospital code.

2. Click the **Add item** icon + or press **Ctrl+N**. The **Wards** page opens for editing.

3. In the **Ward names** field, specify the abbreviated Ward name (up to 20 characters) or a Ward ID.

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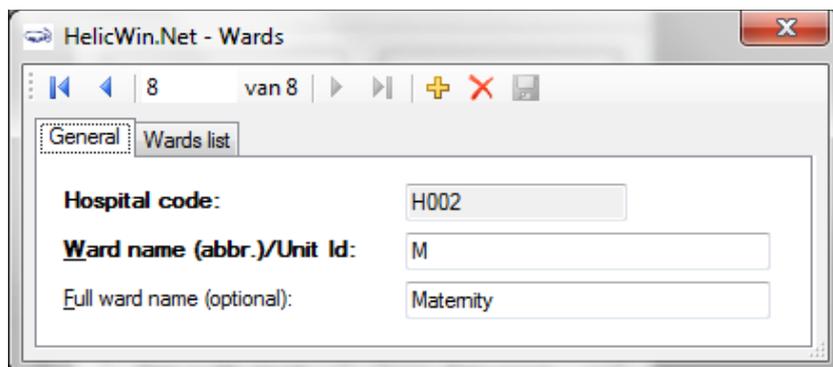
You cannot enter same Unit ID twice. The ward list can be used for different hospital surveys within the same hospital.

4. Optionally, specify the full (expanded) name of the ward in the **Full ward name** field.

5. Click the **Save** icon 🔲 or press **Ctrl**+**S**.

6. Click **Wards list** tab to view all the wards for which a record has been created.
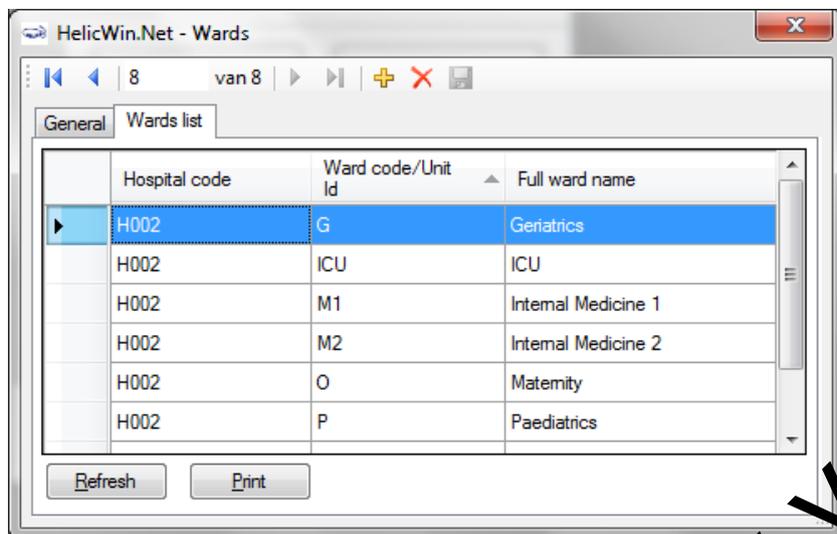
7. To see all the entries, you can enlarge the window with your mouse or you can use the scroll bars. The ward specialty is defined in the Wards PPS date and denominator data form (because it may change from one PPS to another).

4.6 Specifying the PPS date, specialty and denominator data for each ward

For each ward (unit) included in the PPS, you need to choose the ward and the date the PPS was performed in that ward. In principle, a ward should be surveyed on a single day. However, you can enter more than one survey date for the same ward. The ward survey date and specialty are mandatory in both the Light and Standard Protocols.

To specify PPS date, specialty and denominator data

1. Open the **Main menu** in HWN, and click **Wards PPS date and denominator data**. The **Wards** form opens showing the current hospital code.

2. Click the **Add item** point, or press **Ctrl**+**N**. The **Wards: PPS date and denominator** page opens for editing.
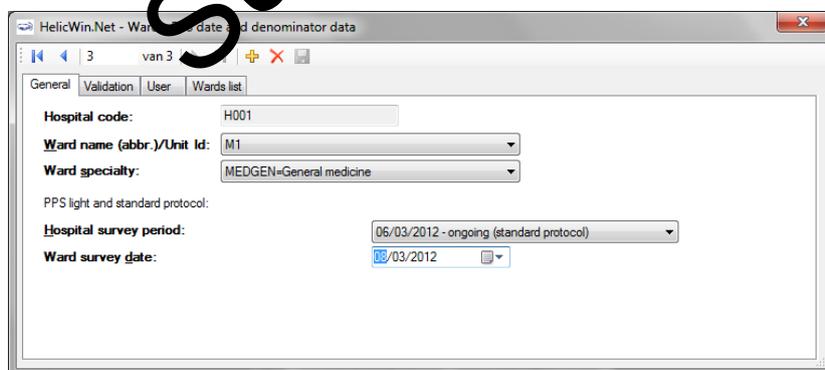
You cannot change the hospital code from this form.

3. For each ward (unit) included in the PPS, choose the ward specialty from the drop-down list and enter the date the PPS was performed in that ward. A ward survey should be completed within a single day, but if that is not possible, you can enter the other date(s) for the same ward on this form.

4. Click the **Save** icon 🔳 or press **Ctrl**+**S**.

5. To start entering patient data in the Standard Protocol, exit this form and click **Patient/Antimicrobial Use/HAI** data in the **Main menu** form.

Light Protocol

The following instructions apply to the Light Protocol only.

1. In the Light Protocol, the form has an additional mandatory field, **Total number of patients in ward** and a button to enter the denominator data by specialty.
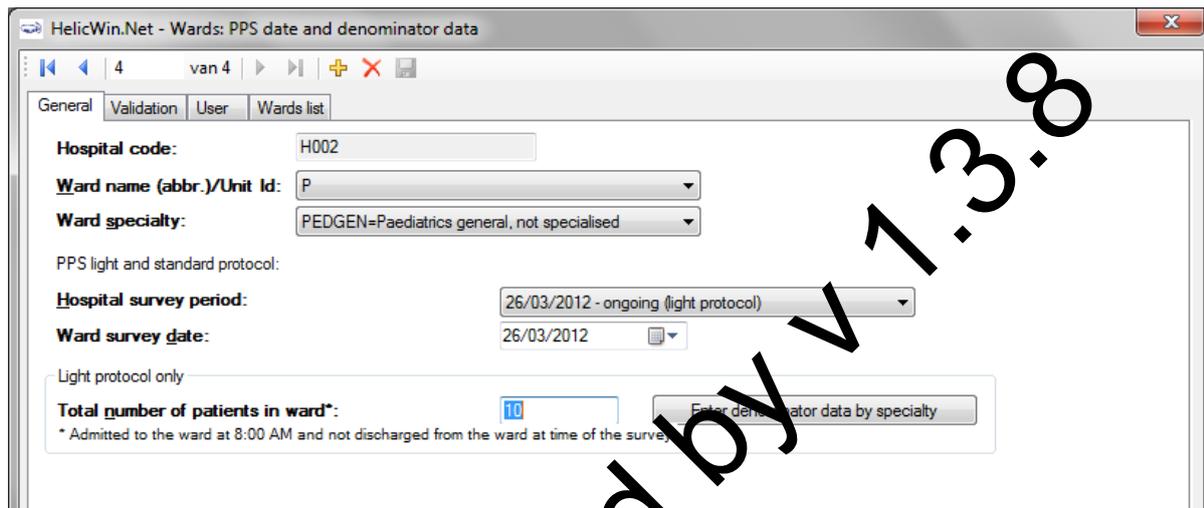
2. Collect denominator data (total number of included patients) for the entire ward and for each consultant/patient specialty separately (using the button **Enter denominator data by specialty**).
   The **Light: consultant/patient speciality denominator data form** opens.
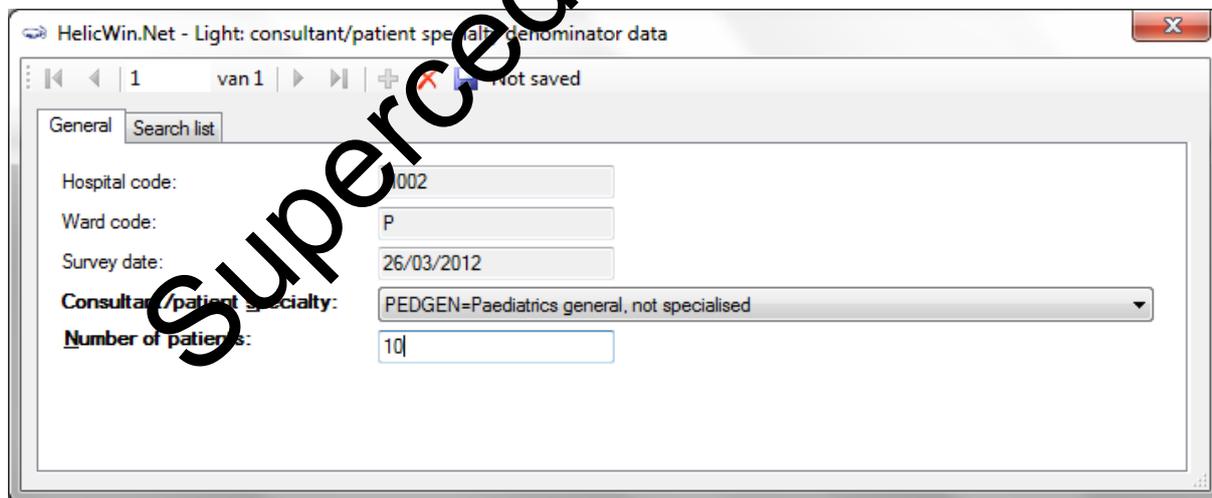
3. Enter the number of patients for each specialty. The sum of the consultant/patient specialty denominators should be equal to the field **Total number of patients in ward**. This is verified in the **Data Quality Check**, not at data entry.

> ## Warning:
>
> In the Light Protocol, denominator data by ward AND by consultant/patient specialty are mandatory. If the detailed denominator data by consultant/patient specialty are not known, enter at least one record with the total number of patients (using the unit specialty instead). Also make sure that the list of consultant/patient specialties entered in this form includes all the consultant/patient specialties that are used in the patient/AM/HAI form afterwards (this is verified by the data quality check before data export as well).

4. You can use the Search lists both at the ward-PPS level and at the detailed denominator data level. The following figure shows the list of wards.
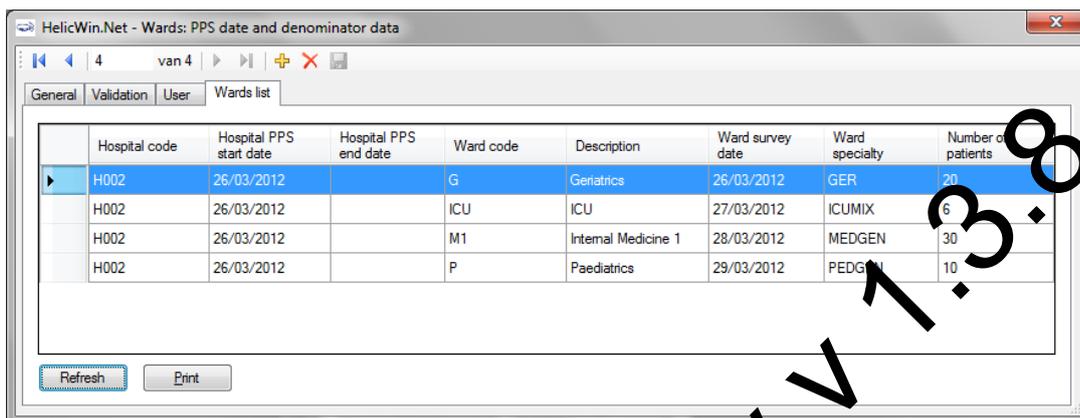
5. Additionally you can access ward user variables by clicking the User tab.
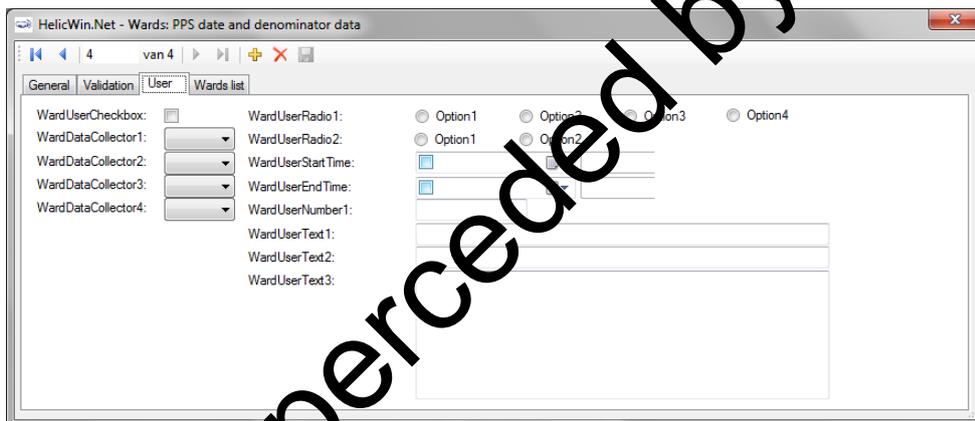
4.7 Specifying HAI and antimicrobial use data for patients

How you enter these data depends on the protocol being used:

- In the **Light Protocol** (unit based), you have to enter data (upper part of the form only) only for patients with an antimicrobial and/or a healthcare-associated infection. Therefore, in the Light Protocol, you must have at least one antimicrobial use or HAI record for each patient.
- In the **Standard Protocol** (patient based), enter all the patient data for all patients (with or without HAI and/or antimicrobial use). Additional risk factors (not applicable to the Light Protocol) appear once you select the ward.

To enter patient use data for HAI and AM

1. In the **Main menu** form, click the button **Patient/Antimicrobial use/HAI data**.

2. The **Patients | Risk factors** form opens at the **General** (tab) page.
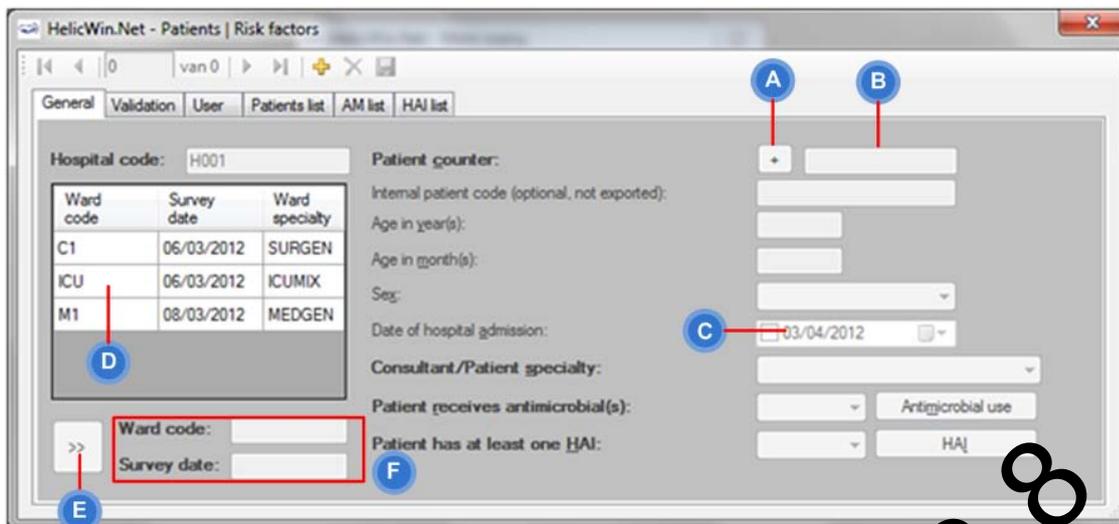
3. Click **(A)** to increment the counter for the next patient number, or **(B)** to enter the number manually. The patient counter defines a unique record within the hospital (not within the ward). The patient counter is an anonymous patient identifier (that is, it is not the true patient number), and it can contain only numbers; characters are not allowed.

4. Optionally, you can enter an additional patient identifier in the field **Internal patient code**. This field is for local (hospital) use only and this value must never be included in the export file sent to the regional, national or EU level, in particular if it contains the true patient hospital identifier.

5. Select the check box **(C)** to confirm the proposed date or select the date from the calendar pop-up. The date of hospital admission defaults to the ward survey date once the ward is selected. If this is not the correct date, select the actual admission date from the calendar.

6. Select the ward code (ID) from the **Ward** list **(D)**, and then click the transfer button **(E)** to update the **Ward code** and **Survey date** fields **(F)**. Only wards for which survey date and ward specialty were previously entered appear in the Ward list.

7. Complete the remaining fields as necessary. Note that bold field labels denote mandatory fields.

8. If you are using the Standard Protocol complete the additional risk factors that appear when the ward is selected.

9. You can skip the Validation tab. PPS validation is in principle performed by an external validation team trained by the national/regional PPS coordinating centre. There is no need for data collectors to use this page.

10. Click the **User** tab to access the user variables.
Note: You can change the labels of the fields using the translation function in **Settings**.

11. Use the **Patient** page to access search lists for patients, antimicrobial use (AM list), and healthcare-associated infections (HAI list).
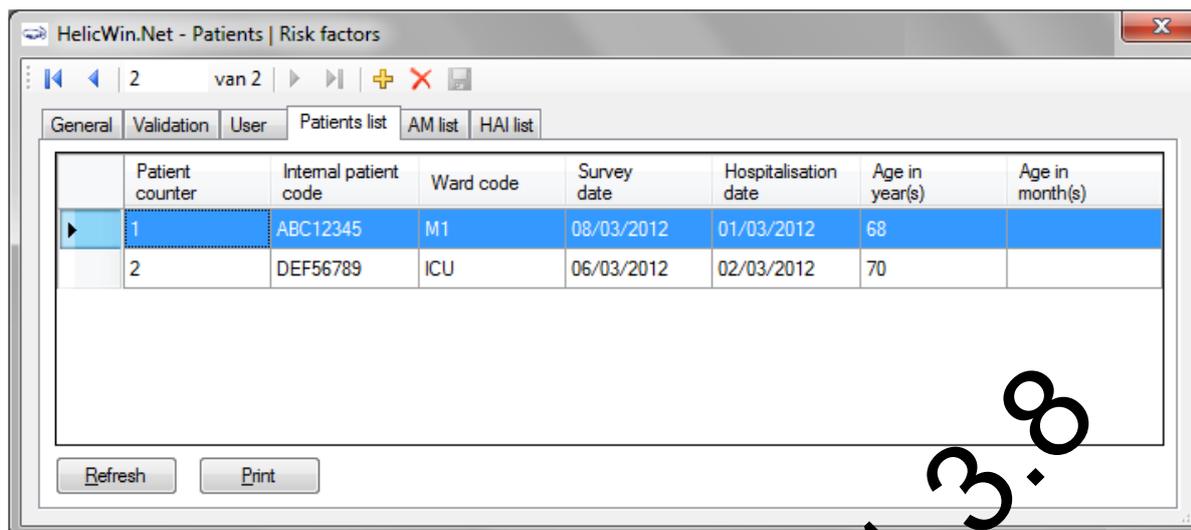
12. Click **Refresh** to show the latest added records.

13. Click any column header in the first row change the sort order of the list.

14. Click **Print** to print the list. In **Print options**, select the fields and rows to be printed.
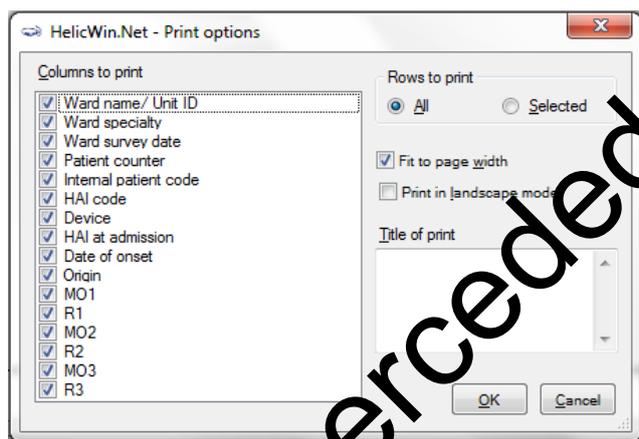
4.8 Antimicrobial use data and HAI data

The antimicrobial use and HAI data can be accessed only from the patient form.

Button	Activated when the field...	is set to:
Antimicrobial use	Patient receives antimicrobial(s) on the survey date	Yes
Healthcare-associated infections	Patient has ≥ 1 active infection on the survey date	Yes

Notes:

- No warning message is given if any of these fields are set to **Yes** and the corresponding AU/HAI data are not entered in the AU/HAI forms. Such errors are reported only in the data quality check.
- In the analysis, for example, in the reports generated by ECDC after upload to the TESSy database, prevalence results take into account only records for which HAI/AU-specific data were entered.

4.8.1 Antimicrobial use data

A unique antimicrobial record is defined by the fields in bold:

- A unique combination of the ATC5 code + route + indication + diagnosis site (for treatment only – otherwise code NA=not applicable). This means that it is possible to enter the same antimicrobial agent for more than one indication, for the treatment of more than one infection site, or for more than one route in the same patient. Deduplication of the data will be done at the analysis level as necessary.

The following figure shows the **Antimicrobial use** form.
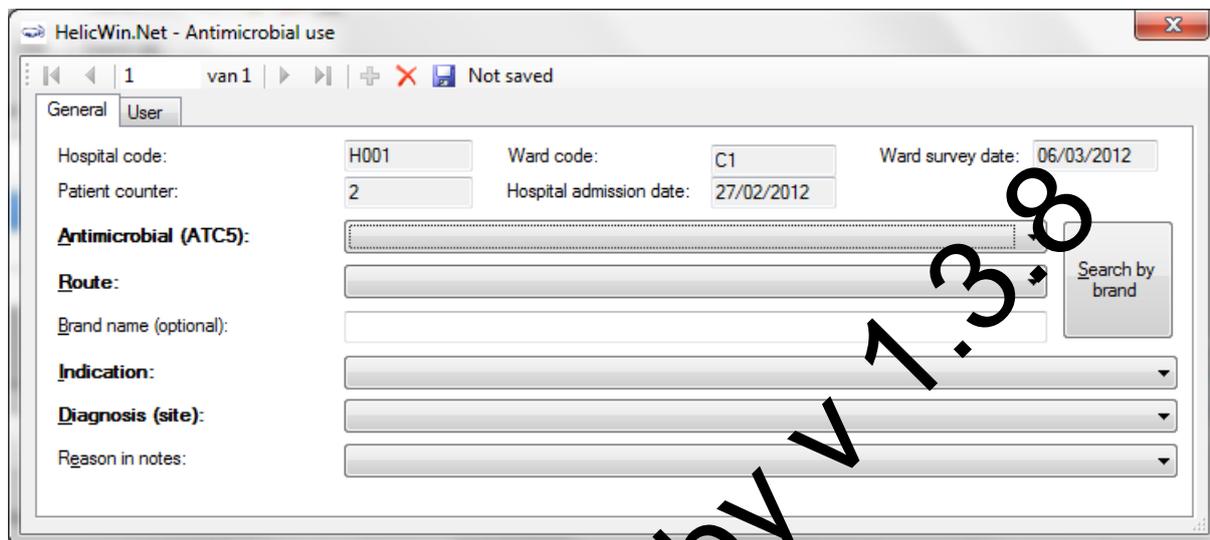
To enter antimicrobial use data

1. Specify values for the required fields, Antimicrobial (ATC5), Route, Indication, and Diagnosis.

2. Optionally specify a brand name.

3. Click **Search by brand t**o lookup antimicrobial agents and ATC5 codes from a list of commercial brand names. The ATC5 code and route are entered automatically when a commercial product is selected. The following screenshot shows the Antimicrobial brand lookup tool.
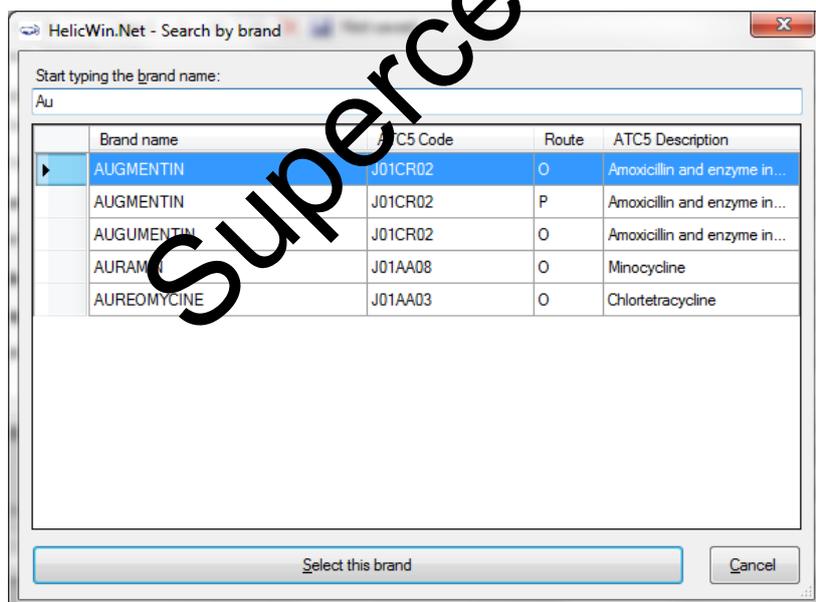
4. Click (select) the required brand from the list, and then click **Select the brand**. You return to the **Antimicrobial use** form.

5. Click the **User** tab to access the **Antimicrobial use user variables.** The **Antimicrobial Use** form opens.

Note: If necessary, you can use the Translation function in **Settings** to change the labels of the fields to your language.

4.8.2 Healthcare-associated infection data

In the HAI form, a unique record is defined by the case definition code. The same HAI case definition code cannot be reported twice in the same patient, even with a different date of onset, because this is not possible according to the ECDC-PPS protocol. In fact, even the same infection site should not be allowed, but currently the programme looks only at the case definition codes as such.

For example, a PN1 and a PN4 should not be reported in the same patient. Similarly, related codes for the same site should not be reported. For example, a PN1–5 should not be reported together with a NEO-PNEU (the latter has priority in neonates); a BSI should not be reported together with a NEO-CNSB or NEO-LCBI, and so on.

The figure below shows the healthcare-associated infection (HAI) form.
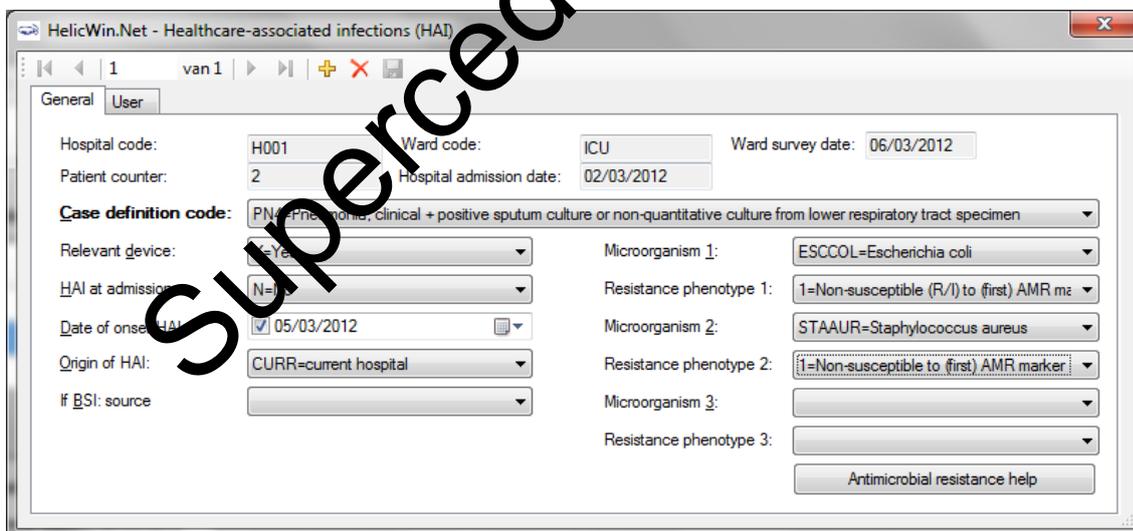
- Note that the date of onset of the HAI should be specified only if the HAI was not present at admission, that is, date of onset ≥ date of hospital admission.
- The resistance markers (phenotypes) do not have labels, depending on the microorganism.

To view antimicrobial resistance markers and edit HAI user variables

1. View the antimicrobial resistance marker table from the protocol by clicking **Antimicrobial resistance help**.
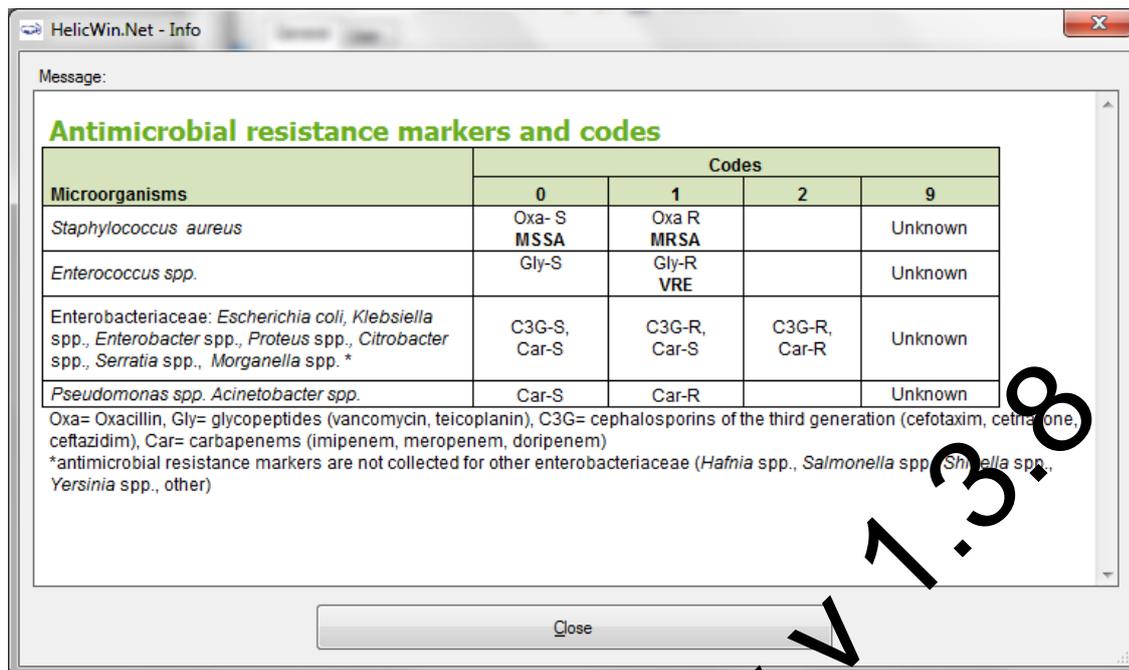
2. View or edit the HAI user variables on the **User** page.
   You can change the labels on the fields using the translation function in **Settings**.
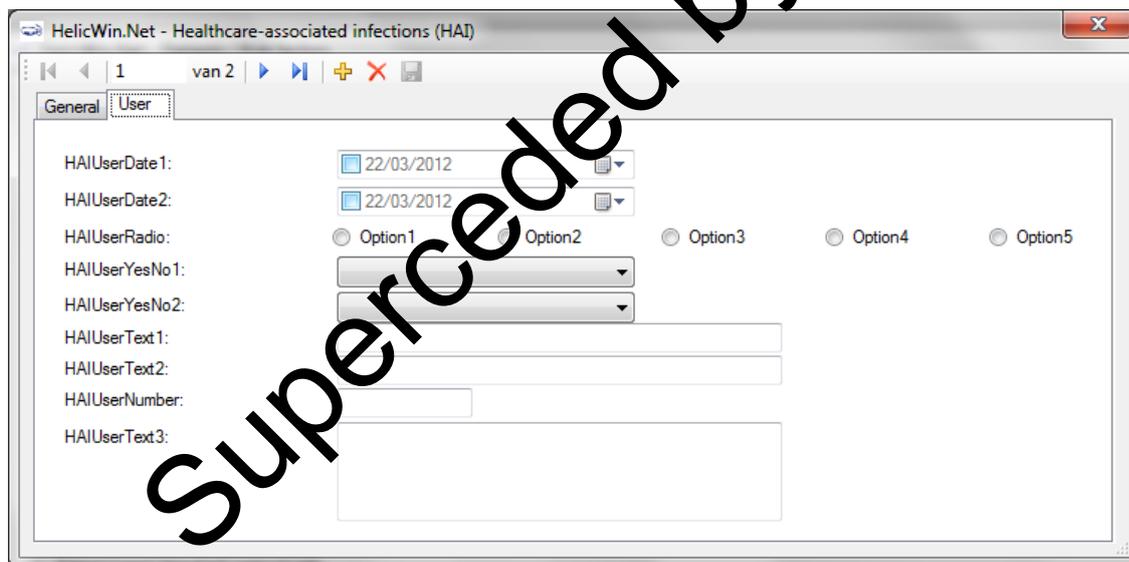
4.9 Validation forms

The **Validation pages** (tabs) in the hospital data, ward PPS data and patient/AM/HAI data forms are used only if the current survey is a validation study of the primary PPS for the hospital (validation checkbox in hospital data form checked).

PPS validation is in principle performed by an **external validation team** trained by the national/regional PPS coordinating centre. Please refer to the ECDC PPS validation protocol for more details; the protocol is available on request from hainet@ecdc.europa.eu. The objective of the validation study is to assess the sensitivity, specificity and reproducibility of the data collected in the ECDC PPS.

The following screenshot shows the **Validation tab** and validation variables at the patient form level.
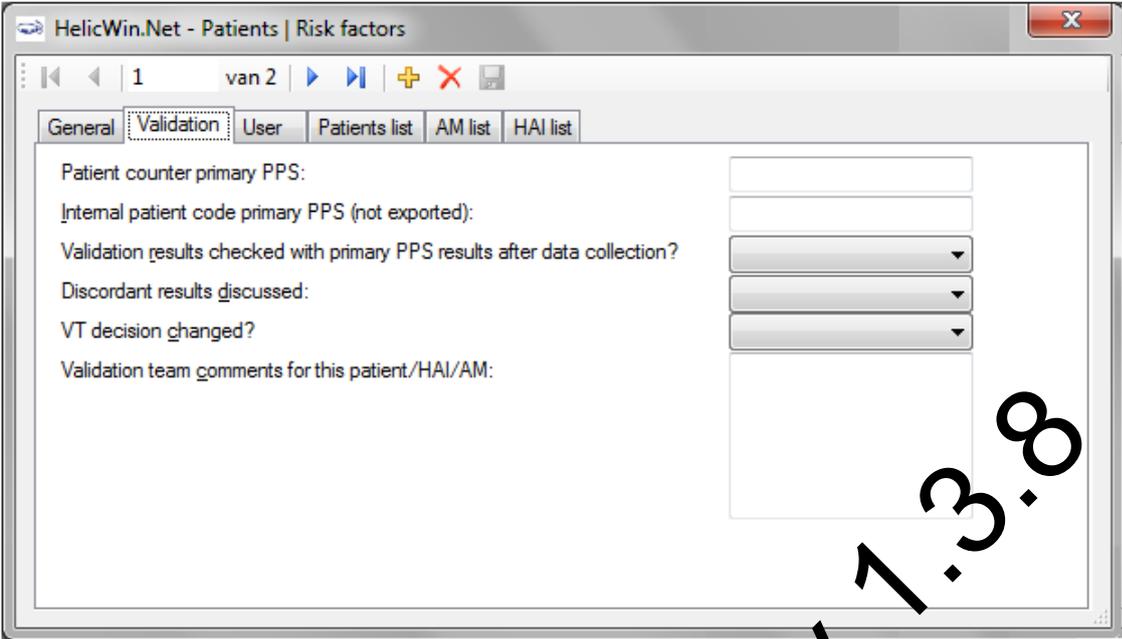
5 Checking data quality

Although validation checks are implemented during data entry, these checks do not pick up all possible problems. A further level of checking – in addition to the HWN validation rules that are applied during data entry – is essential to avoid issues with the data later on. For this reason you need to perform a data quality check on your data *before* you export it from HWN.

Errors detected by the data quality check (but not detected on data entry) include the following:

- The variable *Patient receives antimicrobial(s)* (has_amu in HelicsWin.Net) has the value *Yes*, but there is no antimicrobial use data reported in the antimicrobial use form.
- The variable *Patient has at least one HAI* (has_hai in HelicsWin.Net) is recorded as *Yes*, but there is no healthcare-associated data reported in the HAI form.
- In the Light Protocol only:
  - A warning is generated if the user did not report denominator data by consultant/patient speciality for a given ward survey.
  - An error is generated if the total of the denominator data by consultant/patient speciality does not equal the value of *Total number of patients in ward* for a given ward survey.
  - An error is generated if the consultant/patient specialty of a patient does not have a corresponding consultant/patient specialty record at the ward level.

To run a data quality check

1. Click **Data quality** check in the **Main menu** window. The Data quality check form opens.
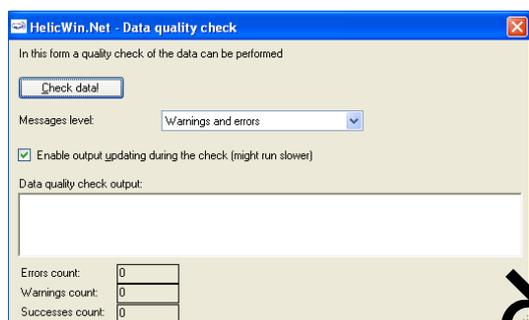
2. In the **Messages level** field, select *Warnings and errors* (recommended).

3. Deselect **Enable updating during the check** (recommended).

4. Click **Check data**. When the processing has finished, the resulting messages are displayed in the data quality check output text box, and a (colour-coded) breakdown of the error, warning, and success counts are shown underneath.
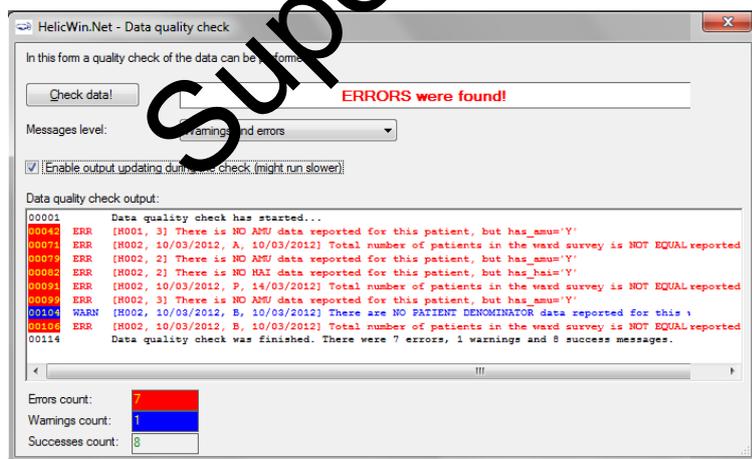
6 Exporting data

Before exporting the PPS data, always perform a data quality check and correct any data errors that you find. The export function includes an export function for the original Access database file HELICSWinNet.mdb (compressed in a ZIP file) and an option to export the TESSy .csv format.

6.1 Exporting data from the Access database

You can export data from the HWN Access data files as a ZIP file.

To export data in Microsoft Access format

1. In the **Main menu** form, click **Data Export**. The **Export** form opens, by default with the **Access database** page open.

2. Click the **Path** button (no label but situated to the right of the **Path** field) to locate the folder to which you want to send the exported file, and then press **OK**. For example, to use the folder C:\HWN1.3\Export, go to the folder C:\HWN1.3, and create the folder **Export** manually.

3. In the **Protocol** field, select the protocol(s) for the file to export.

4. In the data grid, select the code(s) and survey dates for the hospital survey(s) for which you are exporting the data. More than one hospital survey can be selected at once. Make sure that the PPS start and end dates are defined in the hospital data form.

5. Use the checkboxes to specify one or more inclusion criteria: validation variables, user variables, hospital name, and optional patient codes (for both primary and validation data). Because some of these variables may contain confidential information, they are not exported by default. If a checkbox is left unchecked, the corresponding variables will be empty in the export file.

6. Click **Export the Access database**.
    HNW now generates a ZIP file containing the exported database file **HELICSWinNet_export.mdb**.
    The ZIP file is date and time stamped; the file name format is: **HWN_yyyymmdd_hhmmss.zip**

7. In the **Access database** page, click **Open** to view the contents of the folder you have exported your file to.

6.2 Exporting data to TESSy

You can also export data for a given hospital and a given PPS to a TESSy .csv file. TESSy (The European Surveillance System) is ECDC's online system for the upload and analysis of communicable disease data from different surveillance networks and can only be accessed by nominated national/regional contact points. The format of the exported data is defined in the protocol and in the supporting documents on the TESSy website at https://tessy.ecdc.europa.eu/TessyWeb.

Some variables need to be added to the TESSy format, such as the data source (usually the national surveillance institute) or the network ID (e.g. if there is more than one surveillance network for the same disease in the same country). Although you can enter values for the variables DataSource and NetworkID before exporting the data, in general, this information is not known at the hospital level, in which case these variables should be left empty.

To export data in TESSy format

1. In the **Main menu** form, click **Data Export**. The **Export** form opens.

2. Click the **TESSy export** tab to open the corresponding page.

Values for national and some hospital variables are not included in the first-level export file (1.HAIPPS.csv). The following values should be completed by the national/regional PPS coordinating centre before uploading to TESSy HAIPPS: DataSource, NetworkID, HospitalLocation (NUTS1 code) and SampleHospital (which specifies whether a hospital belongs to a national sample for the PPS).

The freeware tool *csvde* is recommended for implementing these conversions.

3. Click the **Path** button (no label, but situated to the right of the **Path** field) to locate the folder to which you want to send the exported file, and then press **OK**.

4. For example, to use the folder **C:\HWN1.3\Export**, go to the folder **C:\HWN1.3** and create the folder **Export** manually.

5. In the **Protocol** field, select the protocol for the file to export.

6. In the data grid, select the code for the hospital for which you are exporting the data. Make sure that the start and end dates are defined for your PPS.

7. Click **Export for TESSy**. The .csv export may take some time to finish. HWN generates the following five files:

Standard Protocol:

- HAIPPS.csv
- HAIPPSPT.csv
- HAIPPSPTAM.csv
- HAIPPSPTINF.csv
- HAIPPSPTINFRES.csv

Light Protocol:

- HAIPPSLIGHT.csv
- HAIPPSLIGHTDENO.csv
- HAIPPSLIGHTDENOAM.csv
- HAIPPSLIGHTDENOINF.csv
- HAIPPSLIGHTDENOINFRES.csv

The numbers at the beginning of the file names designate the level of the data in the hierarchical database; for example the first-level 1.HAIPPS.csv file contains the hospital data.

Please note that the filenames neither contain a hospital code nor a time stamp, so when data are exported for a second hospital, any previous TESSy export .csv files in the same directory will be overwritten. It is recommended that you compress the files in a .zip file (with the name of the hospital included in the filename) before sending the data to the national/regional PPS coordinating centre. It is also recommended to transfer the TESSy export files together with the Access database export file.

6.2.1 Conversion to TESSy .csv using Stata

Alternatively, Stata conversion programmes are available from ECDC for national PPS coordinating centres in order to convert both Standard and Light Protocol access data to TESSy .csv files. These conversion programmes require user input which can only be completed by the national coordinating centre.

Recommendation: Transfer the TESSy export files together with the Access database export file to your national/regional PPS coordinating centre.

7 Modifying settings

You can modify basic settings in HelicWin.NET to suit your own personal preferences. Things you can modify include:

- your password;
- how drop-down lists are sorted;
- whether the text on the user forms is translated;
- the overall layout and size of the windows and forms; and
- the level of logging (automatic recording of your actions).

You can access all these facilities from the **Settings** form.

To open the Settings form

1. Log in to HWN. The **Main menu** form opens.

2. Click **Settings**. The **Settings** form opens; by default the **General** tab is displayed.

7.1 Changing your log-in password

You can replace your existing password with a new one from the **General** tab in the **Settings** form. However, you need to know your existing password to be able to replace it.

> ### Important!
>
> If you forget your password, you will not be able to recover it and the application will remain locked. Resetting your password is possible, but requires contacting your national PPS coordinating centre.

To change your log-in password

1. In the **Main menu** form, click **Settings**. The **Settings** form opens; by default the **General** tab is displayed.

2. In the **Current password** field, type your existing password.

3. In the **New password** field, type your new password, and then type it again the **Retype new password field**.

4. Click **Change password** to implement the change.

7.2 Sorting drop-down lists

You can change the sorting order of certain drop-down lists, namely:

List	Options
Antimicrobial use	Sort by description Sort by code (alphabetically)
HAI – Case Definition	Sort by protocol Sort by code (alphabetically)
Ward and patent – Speciality	Sort by protocol Sort by code (alphabetically)
Yes/No/Unknown fields	Sort No/Yes/Unknown Sort Yes/No/Unknown Sort by code (alphabetically)

To change sort order for drop-down lists

1. In the **Main menu** form, click **Settings**. The **Settings** form opens.
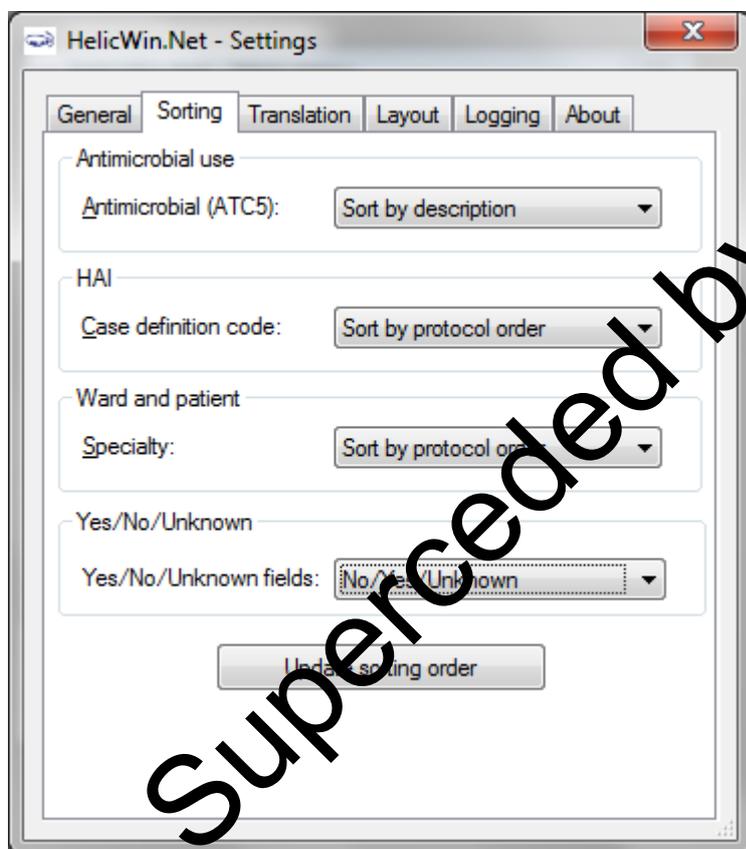
2. Click the **Sorting** tab.

3. For each section on this form, select your preference for the sorting order.

4. Click **Update sorting order**. The preferences you have set are now available in the software application.

7.3 Translating the text shown in user forms

HWN is very flexible when it comes to translation. If there is no available language file for your language, you can translate the texts manually from the default language, which is English.

Any translation customizations you implement apply only to your current PC. However, it is possible to export a language translation file to run any other PC running HWN v1.3.

Recommendation:

To avoid duplication of work, translations are best performed at the national level. The national PPS coordinating centre can then distribute the Translation.mdb database to the hospitals. Hospital users should simply overwrite the existing Translation.mdb file in the folder were HWN v1.3 is installed (default=C:\HWN1.3\).

ECDC invites users and coordinating centres who have made a translation to send their zipped translation file **Translation.mdb** to hainet@ecdc.europa.eu. In this way, a central language database can be made available to all users.

The items that can be translated include:

- labels on the forms;
- buttons;
- form titles; and
- error and warning messages.

To translate the default labels to your language

1. In the HNW **Main menu** form, click **Settings**, and then click the **Translation** tab. The **Translation** page opens.
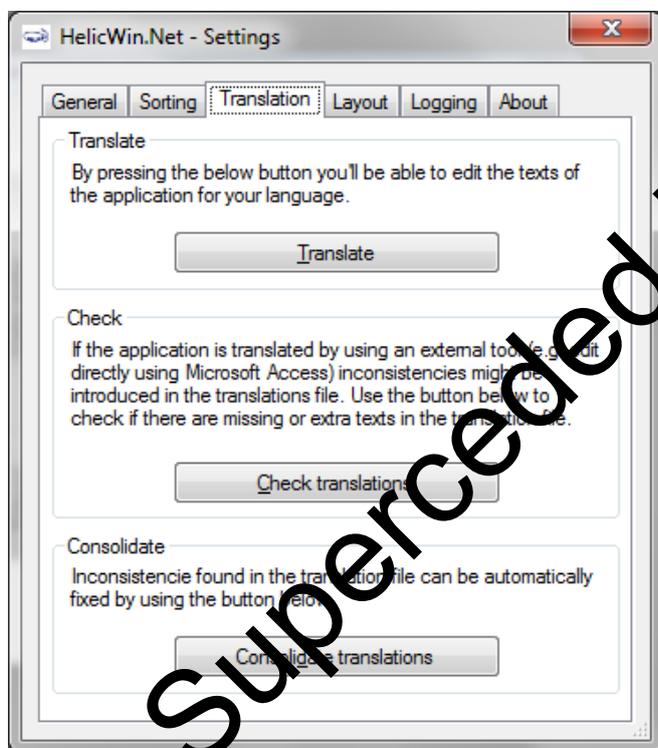
2.   Click **Translate**. The translation form opens.
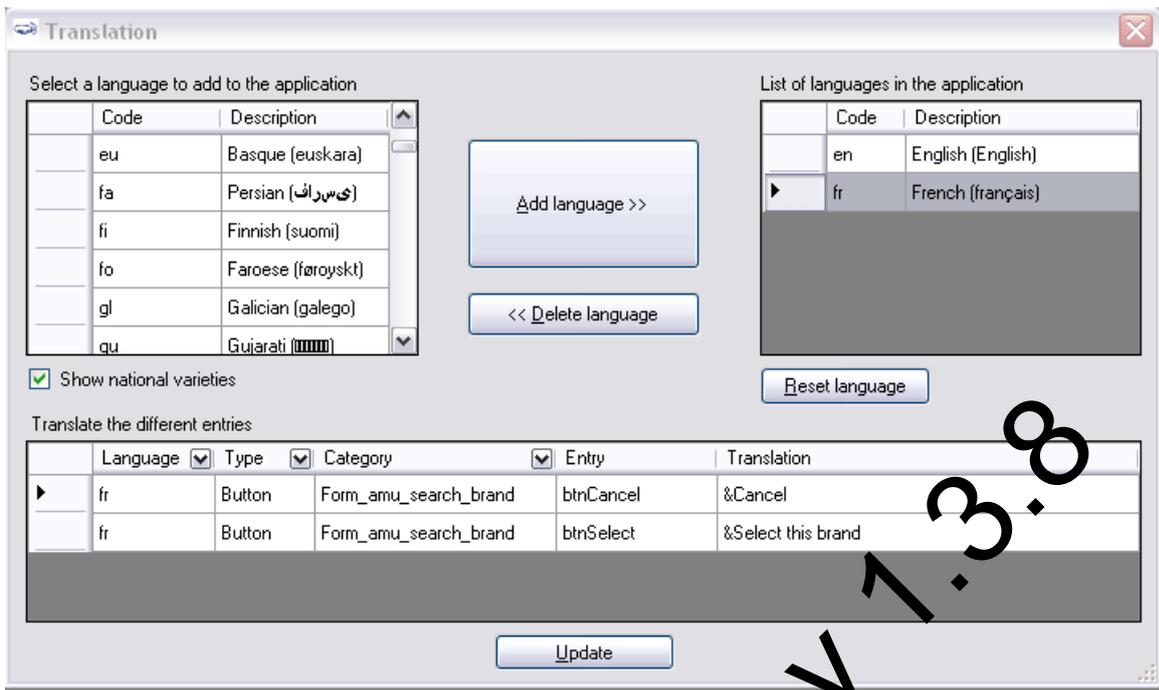
3.   In the **Select a language...** list, select the target language, for example **fr − French (français)**.
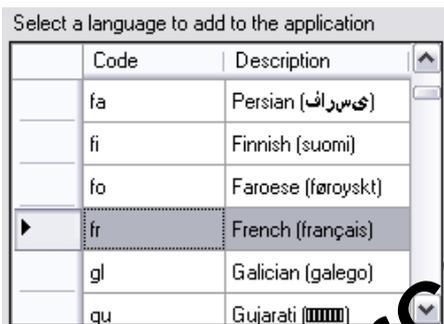
4.   Click **Add language**. The selected language is added to the list under **List of languages in the application.**

5.   Select the new language from this list. The selection indicator ▶ points to the selected language.
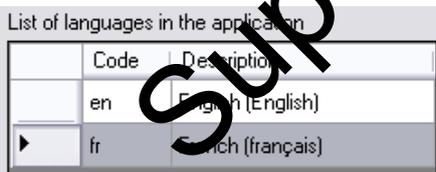
The labels for the foreign language are shown in the **Translate the different entries** grid at the bottom of the form. The entries in the **Translate** column are initially simply the English labels, and you must translate them one by one.

6.   You can make the data easier to manage if you apply filters to the column headers to reduce the number of items visible in the table, for example:
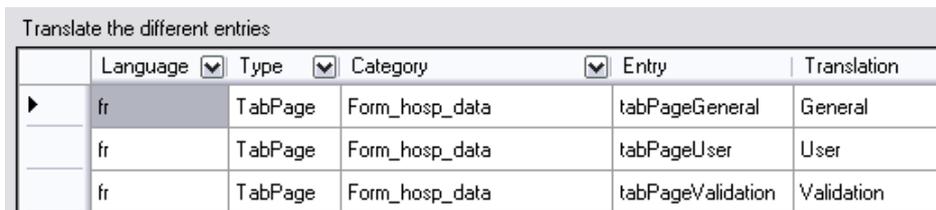
You can filter each column just as would do in Excel or Access, by clicking the down arrow, and making a selection.

Examples:

To show only the tab names in the **Hospitals form**: Click the down arrow to the right of **Category** and select **Form_hosp_data** from the list.
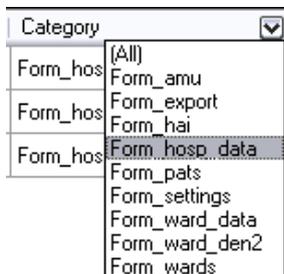
To show only the tab names in the **Hospitals form**: Expand the **Type** column header and select TabPage.

7. In the translation column, replace the English text, for example 'Cancel' with the corresponding text in your language, for example, 'Annuler' in French.

8. Repeat these steps for all labels in the user interface that you want to change.

Keyboard shortcuts

Where necessary, add the coding for shortcut keys by prefixing the shortcut character with an ampersand character (&).

For example, if you have a button with the text 'Annuler' (Cancel) and you want **Alt**+**A** as the keyboard shortcut, you would use the following text in the Translation column: **&Annuler**. This would be displayed on the button as **Annuler**.

In the French language version, pressing **Ctrl**+**A** now closes the form without saving.

9. Restart the application after each update, but when you login, select the target language, i.e. the language you are translating into (for example French).

7.3.1 Translation with Microsoft Access

Alternatively, you can use Microsoft Access to produce foreign language versions of HWN. This is done by directly editing HWN's translation file (**Translation.mdb**).

To translate HWN labels in Microsoft Access

1. In HWN, open the **Translation form**, and add the language you want to translate to the list **List of languages in the application.** Repeat steps 1 to 5 in the procedure *To show translated labels for your language*.

2. Click **Update** and then close HWN. This ensures that the labels for your language will be available in Access. Only when you close HWN are the changes to the translation file saved.

3. In Microsoft Access, open the file **Transaction.mdb**. This file is located in the installation folder, which by default is **C:\HWN1.3**.

4. Open the table **tbl_translation**.

5. Filter the **Language** column to show only entries for your language (for example, 'fr' for French).
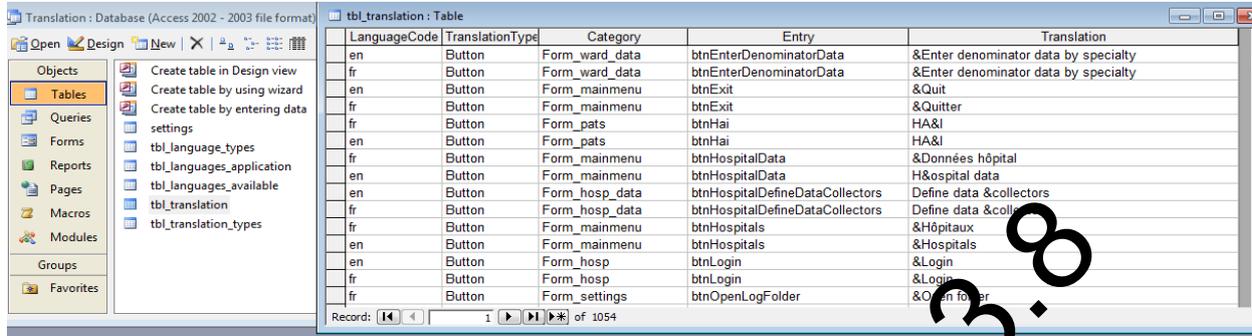
7.3.2 Creating and translating keyboard shortcuts

All user forms display text characters preceded by '&' (ampersand character) as underlined; HWN automatically assigns a keyboard shortcut to this combination: *Alt+underlined_character*. The behaviour for each control type is as follows:

Control type	Behaviour
Field	Cursor moves into the field
Button	Same as clicking the button
Tab	Same as clicking the tab

The characters preceded by '&' do not need to be the same as in the English version. Also, if a shortcut character is duplicated in the same string, only the first control is activated by the shortcut.

To test your changes, click **Update**, close and restart the program; then select the new language in the log-in form.
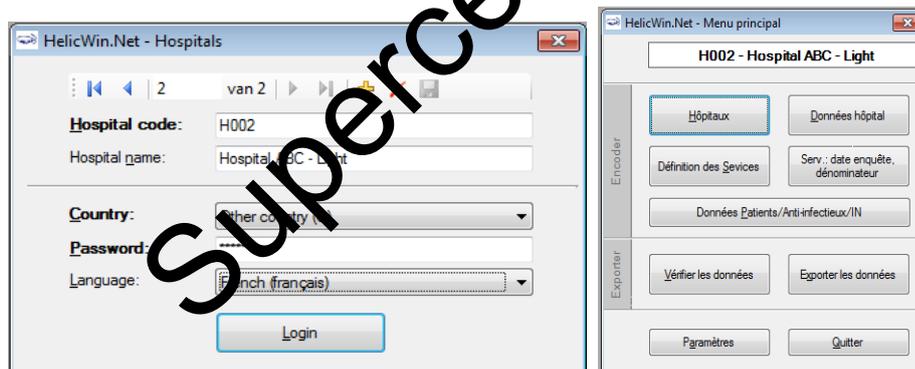
7.3.2.1 Translating keyboard shortcuts

When you switch to another language, the original keyboard shortcuts are no longer available because the text will have changed. Therefore, you need to implement the translations for the keyboard shortcuts, using shortcut characters that are appropriate for your language.

The following screenshot shows that a shortcut (prefixed with a '&' character) has changed after translation: Instead of using **Alt**+**W** (as in English) to open the **Ward definition** form, you now use **Alt**+**S** to open the corresponding in the translated version.

The name of the form that opens has been translated to **Définition des services**.
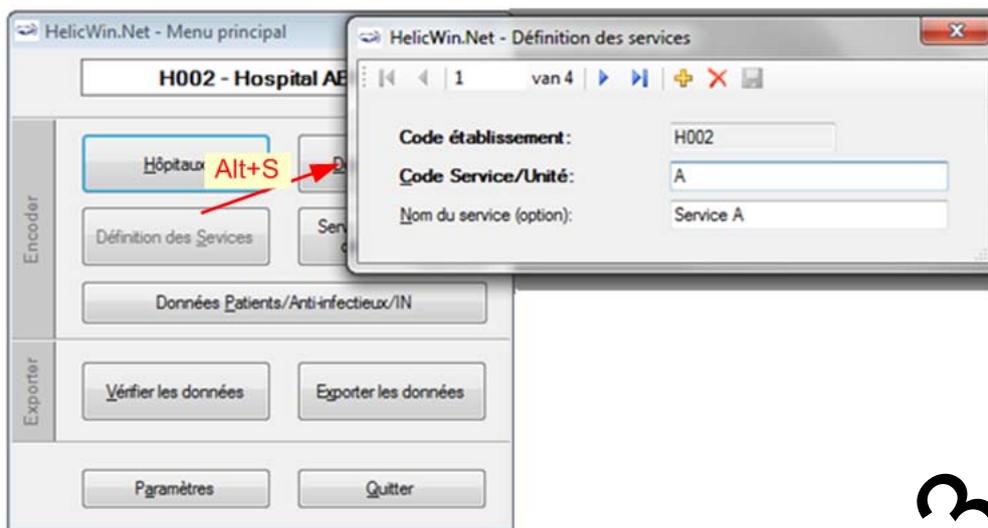
7.3.3 Translating drop-down list items

The labels in the drop-down lists are not stored in the file Translation.mdb, and therefore you cannot find them in the Translation form. These labels are stored in a separate database file, **Reference.mdb**, and can be translated using Microsoft Access.

The lists are stored like this:

To translate the labels:
1. Make a copy of the file called **Reference.mdb** and rename it **Reference_fr.mdb** (where _fr is the code of the target language, in this case French).

2. Change the values in the Description field, for example from 'Unknown' to 'Inconnu'.

Warning

Do not change the values of any code (for example, 'UNK') in **Reference.mdb**. If you do, the application may not work properly. This will also cause problems when you upload data to TESSy (nationally nominated users only.)

Superceded by v 1.3.8

7.4 Resetting form layout options

If you change the size or the position of the windows, HWN remembers the windows settings the next time HWN is launched. If you want to reset the size and position of all HWN windows to their original values, use the **Layout** tab in the **Settings** form.
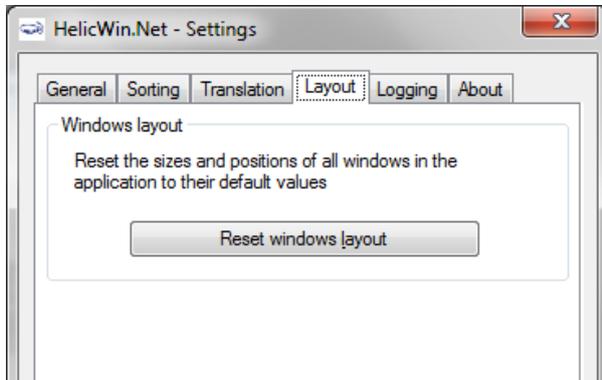
7.5 Log file for debugging

Each session of HWN v1.3 is logged so potential issues can be easily diagnosed. You can set the logging level to produce logs at different levels of detail. The log files are saved in the **Logs** folder in the HWN installation folder. If, for example, the logging level is set to **Trace**, three files are generated each day: one verbose, one with warnings only, and one with errors only. Using these files can save you a lot of debugging time if the application crashes at the user level.
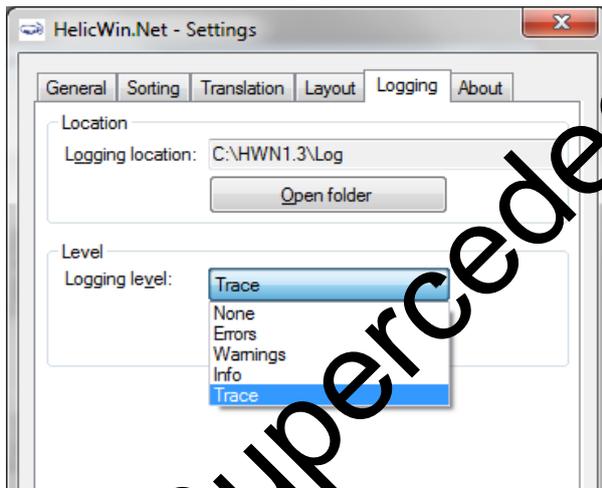
7.6 About HelicsWin.Net – Helpdesk support

The **About** tab in the settings window shows the software build version and date, provides information on support and access to the ECDC PPS protocol, the forms, the HWN manual, and the end user license agreement (also shown before installing the software).

Support for HelicsWin.Net is provided at the national level by the national/regional PPS coordinator, who may refer questions to ECDC by posting them on the HAI-Net extranet or sending an email to HAINET@ecdc.europa.eu.
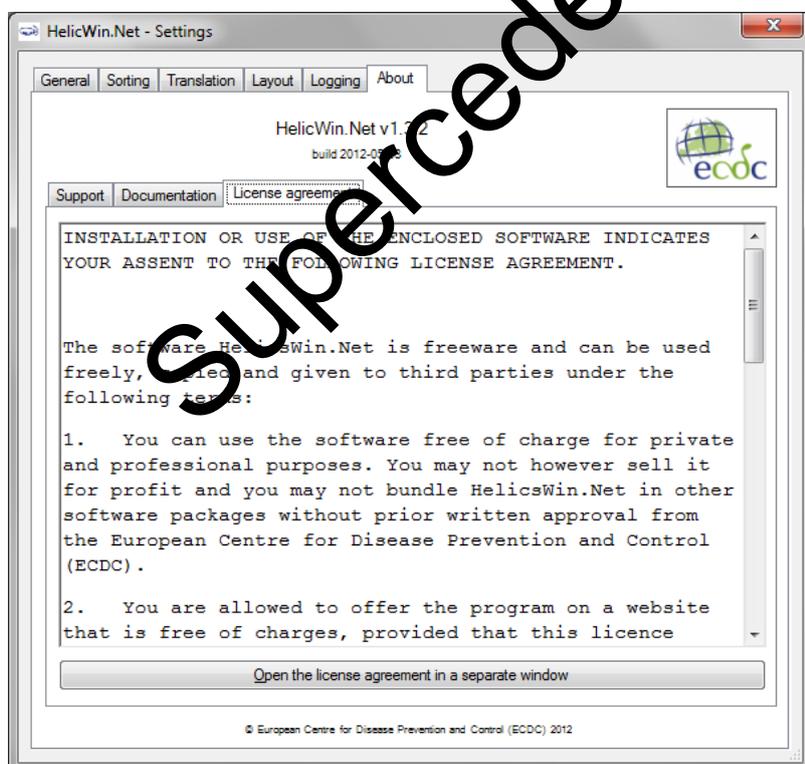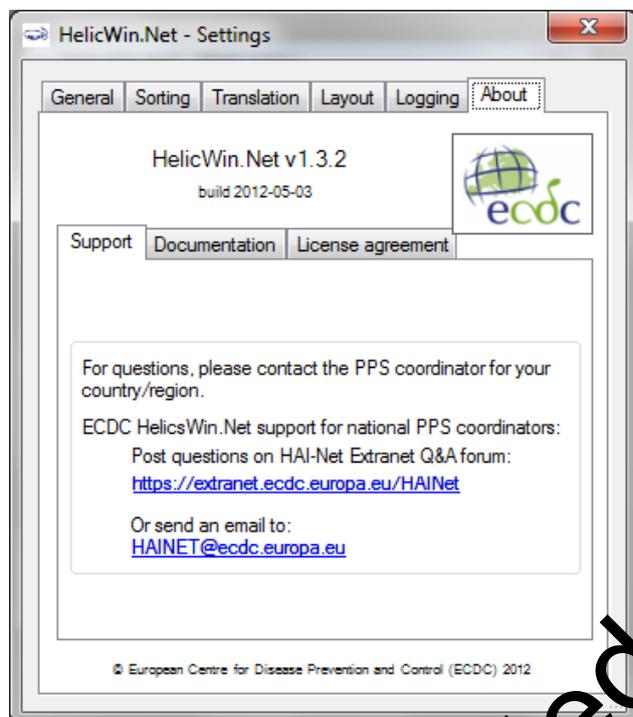
8 Accessing HWN database files

The database files used to store your data and settings are accessible to anyone who has access to the PC on which the application is installed.

8.1 Structure of the HELICSwinNet.mdb database

Data in the **HELICSwinNet.mdb** database are stored in Microsoft Access 2000 format. The file is located in the same folder/directory where HWN was installed. For data transfer to the national PPS coordinating centre, this file can be sent by email, preferably after compression and password protection.

If you open the file in Microsoft Access, you can see tables and data as shown below:
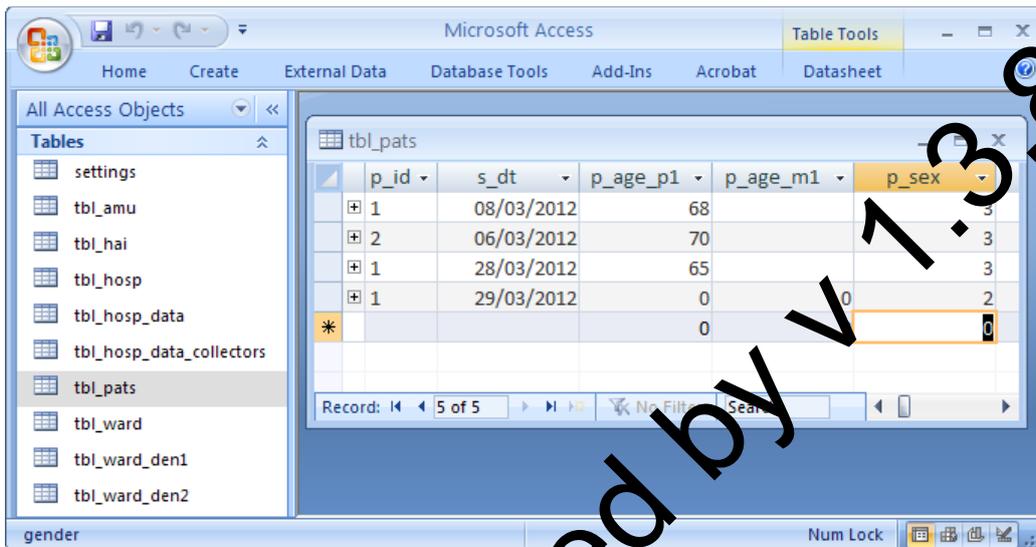
Relationships
You can view the relationships between the tables in the HELICSWinNet.mdb database by using standard Access tools.
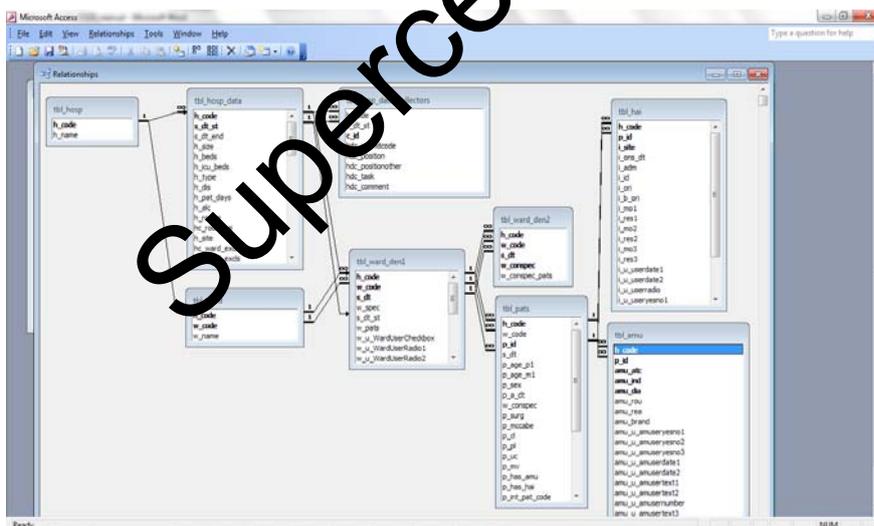
8.2 HelicsWin.Net variables and values

The internal data structure of the PPS database in HWN differs from the TESSy database. The variable names and code values stored in the database are also different. The internal code values of HWN are stored in the **Reference.mdb** database.

For a description of the HWN variable names and the corresponding TESSy variables, see Section 9: List of variables in HWN and TESSy.

The following screenshot shows the internal code values in HWN as stored in **Reference.mdb** (ID field).
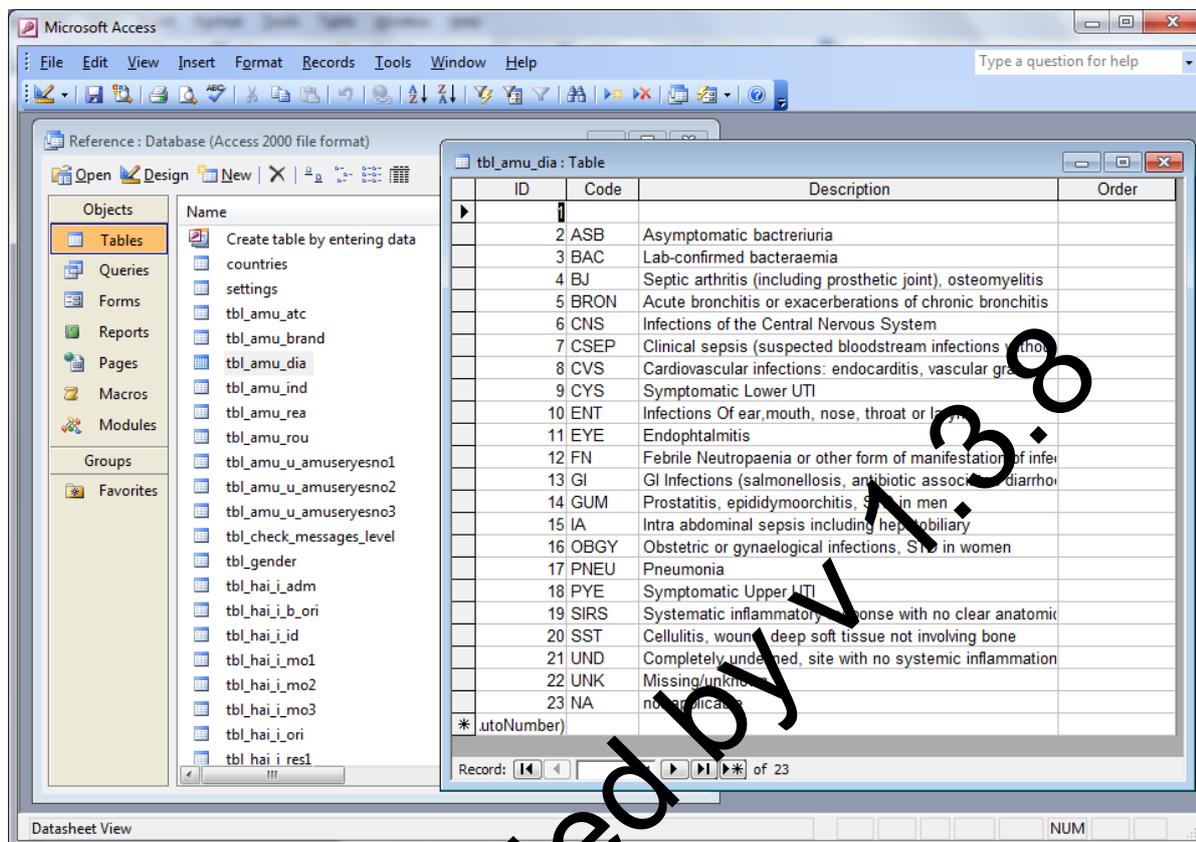
8.3 ODBC access to HELICSWinNet.mdb database

In order to access the database directly with Stata for data analysis or data conversion to TESSy (a file conversion utility for Stata is available on the ECDC extranet) you must define the **HELICSWinNet.mdb** database as an ODBC Data Source.

To define HELICSWin.Net.mdb database as an ODBC data source
Use the Windows program 'ODBC Data Source Administrator' to define an ODBC data source. The instructions below are for Windows XP but similar for Windows 7.

1. In Windows XP, click **Start** > **Settings** > **Control Panel** > **Administrative Tools** > **Data Sources ODBC**. The **ODBC Data Source Administrator** dialog box opens.

2. Click **Add.**

3. Select the driver: **Microsoft Access Driver** (*.mdb). For accessing a 32-bit access driver in 64-bit Windows 7, run c:\windows\sysWOW64\odbcad32.exe

4. Click **Finish.**

5. In the window **ODBC Microsoft Access Setup**, define the following values
    Data Source Name   HWN
    Description   HELICSWin.Net database

6. Click **Select,** then select HELICSWinNet.mdb in the folder where HELICSWin.Net was installed (e.g. C:\HWN1.3).

7. Click OK twice.
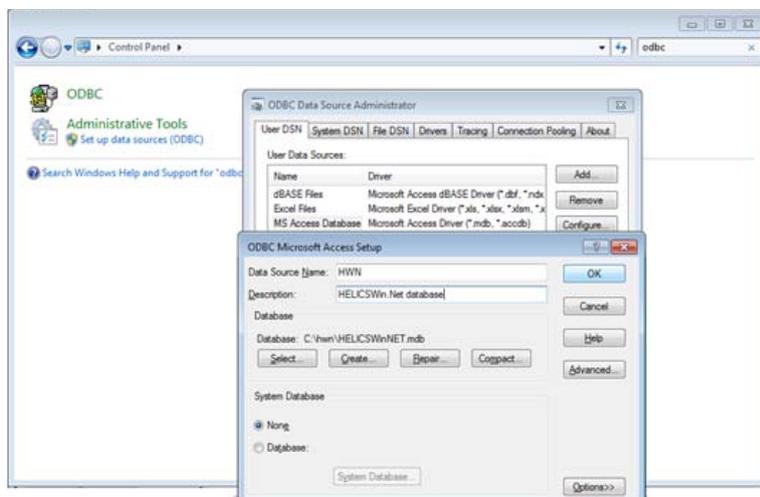
To open the database in Stata:
Type **odbc query HWN**, then click a table to load.

9 List of variables in HWN and TESSy

The table below lists the variable names used in the HELICSWinNet.mdb database, together with the corresponding field and record type in TESSy. For the value labels of the variables in HelicsWin.Net, refer to the file **Reference.mdb**.

HWNtable	HWNvarname	TESSy Record Type	TESSy Varname	Description	Access Export	TESSy Export
Hospital data	PPS protocol variables					
tbl_hosp	h_code	HAIPPS	HospitalId	Unique identifier/code for each hospital – should remain identical in different PPS periods	Yes	Yes
tbl_hosp	h_name	-	-	Name of the hospital	Optional	No
-	-	HAIPPS/~LIGHT	RecordId	Unique identifier for this hospital-PPS within each network. A unique record is defined by a combination of [NetworkId] + [HospitalId] + [DateUsedForStatistics]	No	Yes
tbl_hosp_data	h_type_pps	HAIPPS/~LIGHT	RecordType	HAIPPS/HAIPPSLIGHT standard/light	No	Yes
-	-	HAIPPS/~LIGHT	Subject	Disease to report	No	Yes
-	-	HAIPPS/~LIGHT	DataSource	The data source (surveillance system) that the record originates from	No	Yes
-	-	HAIPPS/~LIGHT	ReportingCountry	The country reporting the record.	No	Yes
-	-	HAIPPS/~LIGHT	DateUsedForStatistics	Date point prevalence survey was started in current hospital.	No	Yes
-	-	HAIPPS/~LIGHT	NetworkId	Unique identifier for each network, selected and generated at the national level. Can be omitted if the hospital identifiers are unique within the reporting country/data source.	No	Yes (empty)
tbl_hosp_data	h_code	HAIPPS/~LIGHT	HospitalId	Unique identifier/code for each hospital, selected and generated at the national level; should remain identical in different surveillance/PPS periods/years.	Yes	Yes
tbl_hosp_data	s_dt_st	HAIPPS/~LIGHT	DateOfHospitalStartPPS	Date point prevalence survey was started in current hospital.	Yes	Yes
tbl_hosp_data	s_dt_end	HAIPPS/~LIGHT	DateOfHospitalEndPPS	Date point prevalence survey was ended in current hospital.	Yes	Yes
tbl_hosp_data	h_size	HAIPPS/~LIGHT	HospitalSize	Total number of beds in the hospital or rounded down to the closest 100 beds.	Yes	Yes
tbl_hosp_data	h_beds	HAIPPS/~LIGHT	NumHospitalAcuteBeds	Number of acute care beds in the hospital or rounded down to the closest 100 beds.	Yes	Yes
tbl_hosp_data	h_icu_beds	HAIPPS/~LIGHT	NumHospitalICUBeds	Number of intensive care beds in hospital.	Yes	Yes
tbl_hosp_data	h_beds_pps	HAIPPS/~LIGHT	NumHospitalSurveyBeds	Total number of beds in wards included in PPS.	Yes	Yes
tbl_hosp_data	h_pats_pps	HAIPPS/~LIGHT	NumHospitalSurveyPatients	Total number of patients included in the PPS.	Yes	Yes
tbl_hosp_data	h_type	HAIPPS/~LIGHT	HospitalType	Hospital type	Yes	Yes
tbl_hosp_data	h_type_spec	HAIPPS/~LIGHT	HospitalSpecialization	Specialisation of hospital (if any)	Yes	Yes
-	-	HAIPPS/~LIGHT	HospitalLocation	Region as NUTS-1 code where hospital is located.	No	Yes (empty)
tbl_hosp_data	h_dis	HAIPPS/~LIGHT	NumHospitalDischarges	Number of discharges per year in hospital	Yes	Yes
tbl_hosp_data	h_pat_days	HAIPPS/~LIGHT	NumHospitalPatientDays	Number of patient days per year in hospital	Yes	Yes
tbl_hosp_data	h_dis_y	HAIPPS/~LIGHT	YearOfHospitalDenom	Year for number of discharges and patient days	Yes	Yes

HWNtable	HWNvarname	TESSy Record Type	TESSy Varname	Description	Access Export	TESSy Export
Hospital data	PPS protocol variables					
tbl_hosp_data	h_dis_spec	HAIPPS/~LIGHT	HospitalDenomSpec	Specification for the number of discharges and patient days	Yes	Yes
tbl_hosp_data	h_alc	HAIPPS/~LIGHT	NumAlcoholHandRubLiters	Litres of alcohol hand rub consumed per year	Yes	Yes
tbl_hosp_data	h_alc_y	HAIPPS/~LIGHT	YearOfAlcoholHandRub	Year for alcohol hand rub consumption	Yes	Yes
tbl_hosp_data	h_alc_spec	HAIPPS/~LIGHT	AlcoholHandRubSpec	Specification for alcohol hand rub consumption	Yes	Yes
tbl_hosp_data	h_rooms	HAIPPS/~LIGHT	NumHospitalRooms	Total number of rooms in hospital	Yes	Yes
tbl_hosp_data	hc_rooms_si	HAIPPS/~LIGHT	NumHospitalSingleRooms	Total number of single rooms in hospital	Yes	Yes
tbl_hosp_data	h_rooms_y	HAIPPS/~LIGHT	YearOfHospitalRooms	Year for number of rooms	Yes	Yes
tbl_hosp_data	h_rooms_spec	HAIPPS/~LIGHT	HospitalRoomsSpec	Specification for number of rooms	Yes	Yes
tbl_hosp_data	h_fte_icnu	HAIPPS/~LIGHT	NumInfControlNursesFTE	Full-time equivalent infection control nurses	Yes	Yes
tbl_hosp_data	h_fte_icmd	HAIPPS/~LIGHT	NumInfControlDoctorsFTE	Full-time equivalent infection control doctors	Yes	Yes
tbl_hosp_data	h_fte_ic_y	HAIPPS/~LIGHT	YearOfInfControlStaff	Year for infection control staff data	Yes	Yes
tbl_hosp_data	h_fte_ic_spec	HAIPPS/~LIGHT	InfControlStaffSpec	Specification for number of infection control staff FTEs	Yes	Yes
tbl_hosp_data	h_site	HAIPPS/~LIGHT	HospitalDataType	Hospital type to which PPS data applies	Yes	Yes
tbl_hosp_data	hc_ward_excl	HAIPPS/~LIGHT	ExclusionOfWards	Were any wards excluded from the hospital sample?	Yes	Yes
tbl_hosp_data	hc_ward_excls	HAIPPS/~LIGHT	ExclusionComment	Specify which wards were excluded	Yes	Yes
-	-	HAIPPS/~LIGHT	SampleHospital	Hospital is part of national sample	Yes	Yes
tbl_hosp_data	hc_comm	HAIPPS/~LIGHT	HospitalComment	Free comments from hospital (also for validation if applicable)	Yes	Yes
Hospital data	Validation variables					
tbl_hosp_data	h_validation	HAIPPS	To be defined	Current hospital PPS is a validation survey	Optional	No
tbl_hosp_data	h_v_prim_h_code	HAIPPS	To be defined	Hospital code primary PPS	Optional	No
tbl_hosp_data	h_v_prim_s_dt_st	HAIPPS	To be defined	Date start primary PPS	Optional	No
tbl_hosp_data	h_v_sampling	HAIPPS	To be defined	Sampling validation survey	Optional	No
Hospital data	User variables					
tbl_hosp_data	h_u_hospitalusercheckbox	-	-	Checkbox (Y/N)	Optional	No
tbl_hosp_data	h_u_hospitalusernumber1	-	-	Numeric	Optional	No
tbl_hosp_data	h_u_hospitalusernumber2	-	-	Numeric	Optional	No
tbl_hosp_data	h_u_hospitalusernumber3	-	-	Numeric	Optional	No
tbl_hosp_data	h_u_hospitalusernumber4	-	-	Numeric	Optional	No
tbl_hosp_data	h_u_hospitalscale1	-	-	Numeric scale 1–5, dropdown	Optional	No
tbl_hosp_data	h_u_hospitalscale2	-	-	Numeric scale 1–5, dropdown	Optional	No
tbl_hosp_data	h_u_hospitalscale3	-	-	Numeric scale 1–5, dropdown	Optional	No
tbl_hosp_data	h_u_hospitalscale4	-	-	Numeric scale 1–5, dropdown	Optional	No
tbl_hosp_data	h_u_hospitalscale5	-	-	Numeric scale 1–5, dropdown	Optional	No
tbl_hosp_data	h_u_hospitalscale6	-	-	Numeric scale 1–5, dropdown	Optional	No
tbl_hosp_data	h_u_hospitalusertext1	-	-	Free text	Optional	No

HWNtable	HWNvarname	TESSy Record Type	TESSy Varname	Description	Access Export	TESSy Export
Hospital data	PPS protocol variables					
tbl_hosp_data	h_u_hospitalusertext2	-	-	Free text	Optional	No
tbl_hosp_data	h_u_hospitalusertext3	-	-	Free text	Optional	No
tbl_hosp_data	h_u_hospitaluserradio1	-	-	Radio button (numeric 1–3)	Optional	No
tbl_hosp_data	h_u_hospitaluserradio2	-	-	Radio button (numeric 1–3)	Optional	No
tbl_hosp_data	h_u_hospitaluserradio3	-	-	Radio button (numeric 1–3)	Optional	No
tbl_hosp_data	h_u_hospitalusertext4	-	-	Free text	Optional	No
tbl_hosp_data	h_u_hospitalusertext5	-	-	Free text	Optional	No
"_collectors	h_code	-	-	Link to hospital data table, hospital ID	Yes	No
"_collectors	s_dt_st	-	-	Link to hospital data table, date of start PPS in hospital		No
"_collectors	c_id	-	-	Unique ID data collector		No
"_collectors	hdc_staffidcode		-	ID code/abbreviated name (for example, initials) of data collector (VT or PPS team, as appropriate)		No
"_collectors	hdc_position	-	-	Position/function/profession of data collector		No
"_collectors	hdc_positionother	-	-	Specify position/function if other		No
"_collectors	hdc_task	-	-	Task for PPS: involved in data collection/data entry/both		No
"_collectors	hdc_comment	-	-	Comment for current data collector		No
Ward data	PPS protocol variables					
-	-	HAIPPSLIGHT$DENO	RecordId (light)	Unique identifier for each record within the file (level of hierarchy). A unique record is defined by combination of ParentId + UnitId + PatientSpecialty	No	Yes
-	-	HAIPPSLIGHT$DENO	ParentId (light)	Identifies the record (which RecordId Hospital) in the parent record type that the record refers to = HospitalId + DateUsedForStatistics	No	Yes
		HAIPPSLIGHT$DENO	RecordType	HAIPPSLIGHT$DENO	No	Yes
tbl_ward	h_code		-	Hospital ID (link with hospital level, tbl_hosp_data)	Yes	Yes
tbl_ward	w_code	HAIPPSLIGHT$DENO	UnitId	Ward name (abbr.)/Unit Id	Yes	Yes
tbl_ward	w_name	-	-	Full ward name (optional)	Yes	Yes
tbl_ward_den1	h_code	-	-	Hospital ID (link with hospital level, tbl_ward)	Yes	Yes
tbl_ward_den1	w_code	-	-	Unit ID (link with tbl_ward)	Yes	Yes
tbl_ward_den1	s_dt	HAIPPSLIGHT$DENO	DateOfSurvey	Date PPS was carried out in this ward	Yes	Yes
tbl_ward_den1	w_spec	HAIPPSLIGHT$DENO	UnitSpecialty	Specialty of the Unit (Ward)	Yes	Yes
tbl_ward_den1	s_dt_st	-	-	Date start PPS in hospital (link with hospital level, tbl_hosp_data)	Yes	No
tbl_ward_den1	w_pats	HAIPPSLIGHT$DENO	NumUnitDenom	Total number of patients admitted to the ward before 8 a.m. and not discharged from the ward at the time of the survey	Yes	Yes
tbl_ward_den2	h_code	-	-	Hospital ID (link with tbl_ward_den1)	Yes	Yes
tbl_ward_den2	w_code	-	-	Unit ID (link with tbl_ward_den1)	Yes	Yes
tbl_ward_den2	survey date	-	-	Date PPS was carried out in this ward (link with tbl_ward_den1)	Yes	Yes

HWNtable	HWNvarname	TESSy Record Type	TESSy Varname	Description	Access Export	TESSy Export
Hospital data	PPS protocol variables					
tbl_ward_den2	w_conspec	HAIPPSLIGHT$DENO	PatientSpecialty	Consultant/Patient specialty	Yes	Yes
tbl_ward_den2	w_conspec_pats	HAIPPSLIGHT$DENO	NumSpecialtyDenom	Number of patients in ward for this consultant/patient specialty	Yes	Yes
Ward data	Validation variables					
tbl_ward_den1	w_v_included	To be defined	To be defined	Patients included for validation survey	Optional	No
tbl_ward_den1	w_v_timing	To be defined	To be defined	Timing of validation survey	Optional	No
tbl_ward_den1	w_v_methodology	To be defined	To be defined	Validation method (blinded/unblinded)	Optional	No
tbl_ward_den1	w_v_comments	To be defined	To be defined	Comments validation at ward level	Optional	No
Ward data	User variables					
tbl_ward_den1	w_u_WardUserCheckbox	-	-	Checkbox (Y/N)	Optional	No
tbl_ward_den1	w_u_WardUserRadio1	-	-	Radio button (numeric 1–4)	Optional	No
tbl_ward_den1	w_u_WardUserRadio2	-	-	Radio button (numeric 1–)	Optional	No
tbl_ward_den1	w_u_WardUserStartTime	-	-	Date/time	Optional	No
tbl_ward_den1	w_u_WardUserEndTime	-	-	Date/time	Optional	No
tbl_ward_den1	w_u_WardUserNumber1	-	-	Numeric	Optional	No
tbl_ward_den1	w_u_WardDataCollector1	-	-	Ward data collector one (list defined in hospital data)	Optional	No
tbl_ward_den1	w_u_WardDataCollector2	-	-	Ward data collector 2	Optional	No
tbl_ward_den1	w_u_WardDataCollector3	-	-	Ward data collector 3	Optional	No
tbl_ward_den1	w_u_WardDataCollector4	-	-	Ward data collector 4	Optional	No
tbl_ward_den1	w_u_WardUserText1	-	-	Free text	Optional	No
tbl_ward_den1	w_u_WardUserText2	-	-	Free text	Optional	No
tbl_ward_den1	w_u_WardUserText3	-	-	Free text	Optional	No
Patient data	PPS protocol variables					
		HAIPPS$PT	RecordId (standard)	Unique identifier for each record within the file (level of hierarchy). A unique record is defined by a combination of [Parent Id]+[PatientCounter]	No	Yes
		HAIPPS$PT	RecordType	Structure and format of the data. This field is only used with the TESSy .csv format.	No	Yes
		HAIPPS$PT	ParentId (standard)	Identifies the record (which RecordId) in the parent record type that the record refers to. Defined as [Network Id]+[HospitalId]+[DateUsedForStatistics]	No	Yes
tbl_pats	h_code	-	-	Hospital ID (link with tbl_ward_den1)	Yes	Yes
tbl_pats	w_code	HAIPPS$PT	UnitId	Abbreviated Unit Name	Yes	Yes
tbl_ward_den1	w_spec	HAIPPS$PT	UnitSpecialty	Specialty of the Unit (Ward)	Yes	Yes
tbl_pats	s_dt	HAIPPS$PT	DateOfSurvey	Date PPS was carried out for this patient (in this ward/unit)	Yes	Yes
tbl_pats	p_id	HAIPPS$PT	PatientCounter	Numeric code for each patient, unique within hospital (not within one unit/ward). Anonymous code assigned by hospital to specify patient.	Yes	Yes

HWNtable	HWNvarname	TESSy Record Type	TESSy Varname	Description	Access Export	TESSy Export
Hospital data	PPS protocol variables					
tbl_pats	p_age_p1	HAIPPS$PT	Age	Age in years; for infants younger than 24 months, enter age in months as well	Yes	Yes
tbl_pats	p_age_m1	HAIPPS$PT	AgeMonths	Age of patient in months if less than two years of age	Yes	Yes
tbl_pats	p_sex	HAIPPS$PT	Gender	Gender of the patient.	Yes	Yes
tbl_pats	p_a_dt	HAIPPS$PT	DateOfHospitalAdmission	Date of admission in the hospital (current hospitalisation)	Yes	Yes
tbl_pats	w_conspec	HAIPPS$PT	PatientSpecialty	Specialty of patient or physician in charge of the patient, may differ from ward specialty	Yes	Yes
tbl_pats	p_surg	HAIPPS$PT	SurgerySinceAdmission	Patient has undergone surgery during current hospitalisation	Yes	Yes
tbl_pats	p_mccabe	HAIPPS$PT	McCabe	McCabe score	Yes	Yes
tbl_pats	p_cl	HAIPPS$PT	CVC	Patient has central vascular catheter in place on survey date.	Yes	Yes
tbl_pats	p_pl	HAIPPS$PT	PVC	Patient has peripheral vascular catheter in place on survey date.	Yes	Yes
tbl_pats	p_uc	HAIPPS$PT	UrinaryCatheter	Patient has indwelling urinary catheter in place on survey date	Yes	Yes
tbl_pats	p_mv	HAIPPS$PT	Intubation	Patient is under intubation with or without mechanical ventilation (endotracheal tube or tracheostomy) on survey date	Yes	Yes
tbl_pats	p_has_amu	HAIPPS$PT	ReceivesAntimicrobial	Patient receives antimicrobial agent (*former name p_abu*)	Yes	Yes
tbl_pats	p_has_hai	HAIPPS$PT	HasHAI	Patient has healthcare-associated infection (*former name p_has*)	Yes	Yes
Patient data	Validation variables					
tbl_pats	p_v_id_primary_pps	HAIPPS$PT	To be defined	Patient counter for this patient in the primary PPS database	Yes	No
tbl_pats	p_v_intpatcode	HAIPPS$PT	To be defined	Internal patient code primary PPS (not exported)	Yes	No
tbl_pats	p_v_checked	HAIPPS$PT	To be defined	Validation results checked with primary PPS results	Yes	No
tbl_pats	p_v_discussed	HAIPPS$PT	To be defined	Discordant results discussed	Yes	No
tbl_pats	p_v_changed	HAIPPS$PT	To be defined	Validation team decision changed after discussion	Yes	No
tbl_pats	p_v_comments	HAIPPS$PT	To be defined	Validation team comments for this patient/AM/HAI	Yes	No
Patient data	User variables			Pilot validation configuration		
tbl_pats	p_int_pat_code	-	-	Internal patient code (optional, not exported)	No	No
tbl_pats	p_u_checkbox	-	-	Checkbox (Y/N)	Optional	No
tbl_pats	p_u_number	-	-	Numeric	Optional	No
tbl_pats	p_u_start_time	-	-	Date/time	Optional	No
tbl_pats	p_u_end_time	-	-	Date/time	Optional	No
tbl_pats	p_u_useryesno1	-	-	Yes/No/Unknown dropdown list	Optional	No
tbl_pats	p_u_useryesno2	-	-	Yes/No/Unknown dropdown list	Optional	No
tbl_pats	p_u_text1	-	-	Free text	Optional	No
tbl_pats	p_u_text2	-	-	Free text	Optional	No
tbl_pats	p_u_text3	-	-	Free text	Optional	No
AM use data	PPS protocol variables					

HWNtable	HWNvarname	TESSy Record Type	TESSy Varname	Description	Access Export	TESSy Export
Hospital data	PPS protocol variables					
-	-	HAIPPSPTAM/ ~LIGHT$DENO$AM	RecordId	Unique RecordId (ParentId + ATCCode + AntimicrobialRoute+ AntimicrobialIndication + AntimicrobialDiagnosis)	No	Yes
-	-	HAIPPSPTAM/ ~LIGHT$DENO$AM	RecordType	HAIPPSPTAM (standard)/ HAIPPSLIGHT$DENO$AM (light)	No	Yes
-	-	HAIPPSPTAM/ ~LIGHT$DENO$AM	ParentId	Link to RecordId in previous level (standard: patient; light: ward denominator)	No	Yes
tbl_amu	h_code	-	-	Hospital ID (link with tbl_pats/ ward denominator data)	Yes	Yes
tbl_amu	p_id	~LIGHT$DENO$AM	PatientCounterAM	Patient counter (link with tbl_pats) – in TESSy format only included in light	Yes	Yes
tbl_pats	s_dt	-	-	Date PPS was carried out in the ward/unit (link with ward denominator data – light)	Yes	Yes
tbl_pats	p_age_p1	~LIGHT$DENO$AM	AgeAM	Age in years (light only)	Yes	Yes
tbl_pats	p_age_m1	~LIGHT$DENO$AM	AgeMonthsAM	Age in months when <2 yrs old (light only)	Yes	Yes
tbl_pats	p_sex	~LIGHT$DENO$AM	GenderAM	Gender of the patient (light only)	Yes	Yes
tbl_pats	p_a_dt	~LIGHT$DENO$AM	DateOfHospitalAdmissionAM	Date of admission in the hospital (light only)	Yes	Yes
tbl_pats	p_hai	~LIGHT$DENO$AM	HasHAIAM	Patient has healthcare-associated infection (light only)	Yes	Yes
tbl_amu	amu_atc	HAIPPSPTAM/ ~LIGHT$DENO$AM	ATCCode	Antimicrobial ATC5 code	Yes	Yes
tbl_amu	amu_rou	HAIPPSPTAM/ ~LIGHT$DENO$AM	AntimicrobialRoute	Route of antimicrobial administration	Yes	Yes
tbl_amu	amu_ind	HAIPPSPTAM/ ~LIGHT$DENO$AM	AntimicrobialIndication	Indication for antimicrobial use	Yes	Yes
tbl_amu	amu_dia	HAIPPSPTAM/ ~LIGHT$DENO$AM	AntimicrobialDiagnosis	Diagnosis group by anatomical site (for treatment only; NA otherwise)	Yes	Yes
tbl_amu	amu_rea	HAIPPSPTAM/ ~LIGHT$DENO$AM	ReasonInNotes	Reason for prescription in patients notes	Yes	Yes
tbl_amu	amu_brand	-	-	Antimicrobial commercial brand name (optional)	Yes	No
AM use data	User variables					
tbl_amu	amu_u_amuseryesno1	-	-	Yes/No/Unknown dropdown list	Optional	No
tbl_amu	amu_u_amuseryesno2	-	-	Yes/No/Unknown dropdown list	Optional	No
tbl_amu	amu_u_amuseryesno3	-	-	Yes/No/Unknown dropdown list	Optional	No
tbl_amu	amu_u_amuserdate1	-	-	Date/time	Optional	No
tbl_amu	amu_u_amuserdate2	-	-	Date/time	Optional	No
tbl_amu	amu_u_amusertext1	-	-	Free text	Optional	No
tbl_amu	amu_u_amusertext2	-	-	Free text	Optional	No
tbl_amu	amu_u_amusernumber	-	-	Numeric	Optional	No
tbl_amu	amu_u_amusertext3	-	-	Free text	Optional	No
HAI data	PPS protocol variables					
-	-	HAIPPSPTINF/ ~LIGHT$DENO$INF	RecordId	Unique RecordId (ParentId + InfectionSite)	No	Yes
-	-	HAIPPSPTINF/ ~LIGHT$DENO$INF	RecordType	HAIPPSPTINF (standard)/ HAIPPSLIGHT$DENO$INF (light)	No	Yes

HWNtable	HWNvarname	TESSy Record Type	TESSy Varname	Description	Access Export	TESSy Export
Hospital data	PPS protocol variables					
-	-	HAIPPSPTINF/ ~LIGHT$DENO$INF	ParentId	Link to RecordId in previous level (standard: link to patient = h_code+p_id; light: link to ward denominator = h_code+w_code+i_dt)	No	Yes
tbl_hai*	h_code	-	-	Hospital ID (link with tbl_pats)	Yes	Yes
tbl_hai	p_id	~LIGHT$DENO$INF	PatientCounter	Patient counter (link with tbl_pats) – (light only)	Yes	Yes
tbl_hai	i_dt	-	-	Date PPS was carried out in this ward/unit (link with ward denominator data in light)	Yes	Yes
tbl_pats	p_age_p1	~LIGHT$DENO$INF	Age	Age in years (light only)	Yes	Yes
tbl_pats	p_age_m1	~LIGHT$DENO$INF	AgeMonths	Age in months when <2 yrs old (light only)	Yes	Yes
tbl_pats	p_sex	~LIGHT$DENO$INF	Gender	Gender of the patient (light only)	Yes	Yes
tbl_pats	p_a_dt	~LIGHT$DENO$INF	DateOfHospitalAdmission	Date of admission in the hospital (light only)	Yes	Yes
tbl_pats	p_abu	~LIGHT$DENO$INF	ReceivesAntimicrobial	Patient receives antimicrobial agent (light only)	Yes	Yes
tbl_hai	i_site	HAIPPSPTINF/ ~LIGHT$DENO$INF	InfectionSite	Case definition code of HAI	Yes	Yes
tbl_hai	i_id	HAIPPSPTINF/ ~LIGHT$DENO$INF	InvasiveDevice	Relevant invasive device in 48 hours (7 days for UTI) preceding the infection.	Yes	Yes
tbl_hai	i_adm	HAIPPSPTINF/ ~LIGHT$DENO$INF	HAIAtAdmission	HAI was present at admission	Yes	Yes
tbl_hai	i_ons_dt	HAIPPSPTINF/ ~LIGHT$DENO$INF	DateOfOnset	Date of onset HAI	Yes	Yes
tbl_hai	i_ori	HAIPPSPTINF/ ~LIGHT$DENO$INF	HAIOrigin	Origin of the HAI	Yes	Yes
tbl_hai	i_b_ori	HAIPPSPTINF/ ~LIGHT$DENO$INF	BSIOrigin	Origin (source) of the bloodstream infection	Yes	Yes
-	-	~INFRES	RecordId		No	Yes
-	-	~INFRES	RecordType	HAIPPSPTINF$RES (standard)/ HAIPPSLIGHT$DENO$INF$RES (light)	No	Yes
-	-	~INFRES	ParentId		No	In prep.
tbl_hai	i_mo1	~INFRES	ResultIsolate	Microorganism one – translates to different structure in TESSy (one record per bug-drug combination)	Yes	In prep.
tbl_hai	i_res1	~INFRES	Antimicrobial + SIR	Antimicrobial resistance marker for microorganism one – see protocol for conversion of res AMR marker codes to bug-drug combinations	Yes	In prep.
tbl_hai	i_mo2	~INFRES	ResultIsolate	Microorganism two – translates to different structure in TESSy (one record per bug-drug combination)	Yes	In prep.
tbl_hai	i_res2	~INFRES	Antimicrobial + SIR	Antimicrobial resistance marker for microorganism two – see protocol for conversion of res AMR marker codes to bug-drug combinations	Yes	In prep.
tbl_hai	i_mo3	~INFRES	ResultIsolate	Microorganism three – translates to different structure in TESSy (one record per bug-drug combination)	Yes	In prep.
tbl_hai	i_res3	~INFRES	Antimicrobial + SIR	Antimicrobial resistance marker for microorganism three – see protocol for conversion of res AMR marker codes to bug-drug combinations	Yes	In prep.
HAI data	User variables			Pilot validation configuration		

HWNtable	HWNvarname	TESSy Record Type	TESSy Varname	Description	Access Export	TESSy Export
Hospital data	PPS protocol variables					
tbl_hai	i_u_userdate1	-	-	Date/time	Optional	No
tbl_hai	i_u_userdate2	-	-	Date/time	Optional	No
tbl_hai	i_u_userradio	-	-	Radio button (numeric 1–5)	Optional	No
tbl_hai	i_u_useryesno1	-	-	Yes/No/Unknown dropdown list	Optional	No
tbl_hai	i_u_useryesno2	-	-	Yes/No/Unknown dropdown list	Optional	No
tbl_hai	i_u_usertext1	-	-	Free text	Optional	No
tbl_hai	i_u_usertext2	-	-	Free text	Optional	No
tbl_hai	i_u_usernumber	-	-	Numeric	Optional	No
tbl_hai	i_u_usertext3	-	-	Free text	Optional	No

* Former name (before v1.3): tbl_inf