Global-PPS Protocol

OUTPATIENT MODULE

Latest update: May 2026

www.Global-PPS.com

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The Global-PPS is coordinated by the University of Antwerp and supported by bioMérieux

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1. General information about this protocol

The protocol sometimes refers to the data collection forms and appendices. These documents are all available as separate documents to this protocol (see **§1.1 Outpatient forms**).

We update our protocol incidentally to adapt to the feedback we receive. Please find all changes since the release of the outpatient module in May, 2023, under **§1.2 Changes in the protocol versions**.

1.1 Outpatient forms

The data collection forms and appendices are available as separate documents to this protocol. In total, there are three different forms

- The **unit form** — ***print 1x for each unit***
- The **outpatient form** — ***print 1x for each patient***
- **Short outpatient form** for patients ***not on antimicrobials*** — ***print 1x for every 5 patients***

Please note: You can use the **outpatient form** for patients on antimicrobials and patients not on antimicrobials. For the latter, you do not have to fill in the entire form. Therefore, you can also opt for the **short outpatient form**, where you can fill in 4 patients (not on antimicrobials) on 1 single form.

All forms are available for download under https://www.global-pps.com/documents/

- The **unit form** and the **outpatient form** are available in the same document: ***Data collection forms Global-PPS outpatient module***

- **Short outpatient form** for patients ***not on antimicrobials*** is available in a separate document: ***Short version G-PPS data collection forms for outpatients not on antimicrobials***

1.2 Changes in the protocol versions

May 2026 version of protocol:

- Addition of several variables:
  (1) *Reference guidelines*, with options 'Local', 'AWaRe', 'Unknown'

- Changes in several variables:
  The values 'Biomarker' and 'POCT/RDT/Malaria microscopy' for the variable *Ordered test* are changed to 'Lab-testing versus' and 'Point-of-Care test'.

  The variable *Cultures taken before start antimicrobial*, is split up in two variables: (1) *Which type of culture*?, with two extra values: 'Urine' & 'Cerebrospinal fluid', and (2) *When taken*?, with three values: before or after start of the antimicrobial, and unknown.

  Treatment based on biomarker data is changed to: *Treatment based on infection parameter data (e.g. biomarker/other lab analysis)*. If yes, one extra value is added: 'Urinalaysis (dipstick, microscopy)'.

  Treatment based on POCT/RDT/malaria microscopy is changed to: *Treatment based on specific antigen testing.* The options are 'PCR/molecular assay', 'Antigen test', 'Microscopy', 'Unknown'.

  Several variables are now optional:
  (1) The variable *Total number of prescribers on the unit* is now optional
  (2) Result of the infection parameter data is now optional.
  (3) Result of the treatment based on specific antigen testing is now optional.

August 2025 version of protocol:

- Addition of open fields in the data collection forms to enable customizable data collection

May 2025 version of protocol:

- Addition of new variable to make a clearer distinction between surgical and medical units:
  (1) Day surgery

August 2024 version of protocol:

- Addition of new variable measuring the quality of prescriptions:
  (1) Cultures taken before start antimicrobial

May 2024 version of protocol:

- Addition of new variables measuring the quality of prescription:
  (1) Ordered test
  (2) Penicillin allergy
  (3) If prescription was ongoing/switched, where was it obtained
  (4) Reason documented in notes
  (5) Route of administration according to guidelines

- Adaptation of existing variables:

For the variable *Presenting symptoms*, some additional symptoms have been added and others adapted

Serum lactate is added as an option to *Treatment based on biomarker*
Malaria microscopy is added as an option to *Treatment based on POCT/RDT*
Up to 3 POCT/RDTs can now be selected

For the variable *Underlying morbidity*, some additional morbidities have been added and others adapted.

November 2023 version of protocol:

- Clarification of exclusion criteria

2. Background and aims

The **Global Point Prevalence Survey** (Global-PPS or G-PPS) provides a simple, freely available web-based tool to measure and monitor antimicrobial prescribing in institutions worldwide. The Global-PPS has established a global network of institutions conducting point prevalence surveys and provides quantifiable measures to assess and compare quantity and quality of antimicrobial prescribing in inpatient and outpatient adults, children and neonates worldwide.

The Global-PPS was first piloted in 2014, with worldwide studies conducted in 2015[1] and 2017. Since 2018, three survey periods a year are available. The Global-PPS is coordinated at the University of Antwerp, Belgium and sponsored through an unrestricted grant given to them annually by bioMérieux.

This outpatient Global-PPS protocol is produced thanks to the cooperation of several Global-PPS participants . Their valuable comments and recommendations were taken into account when drafting this protocol. For the first time, it is also possible to monitor antimicrobial prescribing among patients in outpatient care facilities using the method of a point prevalence survey. This protocol is an extension of the existing Global-PPS protocol to monitor inpatients.

The outpatient module offers a trustworthy way to collect antimicrobial use data in outpatients in high- as well as low- and middle- income countries. Participating institutions receive extensive, high-quality information about prescribing patterns in their outpatient units.

Please find below our aims (**§2.1 Main aims**) and core benefits to participants (**§2.2 Core benefits**).

2.1 Main aims

The main aims of the outpatient Global-PPS, is to aid and support participants in the following:

- Surveillance of performance indicators and ***identify targets for quality improvement of antimicrobial prescribing*** → ***identify burden***
- Designing tailor-made interventions to ***promote prudent use of antimicrobials*** → ***change practice***
- Assessing the ***effectiveness of such interventions***, through repeated PPS → ***measure impact***

The Global-PPS tool supports the concept of simplicity and feasibility by providing a user-friendly hands-on tool that can be repeated easily to support stewardship programs.

2.2 Core benefits

- The web-based tool supports **real-time data collection**, is **easy to use**, requires minimal training, speeding up and simplifying data entry;
- The institution (hospital or healthcare facility**)** will be able to download a **real-time one-point report** which can be used for local communications and presentations (since 2024);
- There is evidence of consistency and reproducibility with the data entry using this tool;
- Participation in the survey has **encouraged thorough engagement and feedback**, enhancing communication between prescribers and the local infectious diseases colleagues;
- The Global-PPS **enables sharing of best practices** and **raises awareness of inappropriate antimicrobial prescribing** with broad adaptability and suitability for a range of healthcare resource settings.

[1] Versporten A, Zarb P, Caniaux I, Gros MF, et al. Antimicrobial consumption and resistance in adult hospital inpatients in 53 countries: results of an internet-based global point prevalence survey. Lancet Glob Health. 2018;**6**:e619-e629.

3. Methods and protocol specifics

The Global-PPS outpatient module is a cross-sectional survey, collecting outpatient antimicrobial prescribing information in a short period. For more details, please read below our §3.1 Inclusion and exclusion criteria, §3.2 Timeframe of surveillance and §3.3 Denominator and numerator data.

3.1 Inclusion and exclusion criteria

In the Global-PPS outpatient module, it is very important to survey units where outpatients are seen. More detailed inclusion criteria for the unit (§3.1.1 Unit-level criteria), patient (§3.1.2 Patient-level criteria) and antimicrobial prescription (§3.1.3 Antimicrobial-level criteria) can be found below.

3.1.1 Unit-level criteria

The following units/departments and institutions (hospital or healthcare facility) can be monitored using the Global-PPS outpatient module:

- **Emergency**, **outpatient departments** and **day surgery departments** of hospitals
- **Outpatient clinics** or **out-of-hospital clinics** such as primary care clinics, urgent care clinics, ambulatory surgery centres including day surgery units not requiring overnight admission or stay.
- **Primary healthcare centres** or **community health centres for outpatients** that:
  - → have a limited number of inpatients beds available, and/or
  - → have observation beds for patients not staying overnight, or
  - → have no inpatients or observation beds available.

Important: **All outpatient units or rooms** within the participating facility should preferably included if you participate for the very first time in the outpatient Global-PPS, in order to create a baseline for your antimicrobial prescribing patterns.

Please survey the units **for at least 4 hours** (see also: §3.2 Timeframe of surveillance). You can survey different units on different days.

3.1.2 Patient-level criteria

Include **all outpatients** seen in your survey. In the Global-PPS, we define outpatients as:
´Patients who visit a healthcare facility for diagnosis or treatment but ***do not stay overnight***. Their visits include regular check-ups, minor surgeries, routine tests and certain therapies like dialysis.'

Important: **Selecting patients** (based on clinical signs, symptoms, or diagnosis) **is not allowed!**

Important exception: Patients on specific units such as **emergency units** (wards) or **observation units** (wards) should also be included if they are still present on the unit and occupying a bed during the timeframe of surveillance on the day of the PPS.

For these patients, an outpatient form should be completed as well, with an additional variable: *admission status*. These patients should be included because it can be difficult to distinguish 'true' inpatients and outpatients in these wards.

3.1.3 Antimicrobial-level criteria

Include all **newly prescribed** (during the survey), **ongoing** and **switched antimicrobial prescriptions**. An ***ongoing or switched antimicrobial*** is an antimicrobial that was prescribed prior to the study, and ***was not stopped during the survey***. This includes antimicrobials that are taken e.g. every 48 hours (even if the patient did not take the antimicrobial on the day of the survey).

Include all of the following antimicrobial types (according to the WHO ATC classification[2]):

- ***Antibacterials for systemic use***: J01
- ***Antimycotics and antifungals for systemic use***: J02 & D01BA (including griseofulvin and terbinafine)
- ***Drugs for treatment of tuberculosis***: J04A (these are the antibiotics as well as all other drugs to treat tuberculosis)
- ***Antibiotics used as intestinal anti-infectives***: A07AA
- ***Antiprotozoals used as antibacterial agents, nitroimidazole derivatives:*** P01AB
- ***Antivirals for systemic use***: J05
- ***Antimalarials***: P01B

The list of all included antimicrobials is available at www.global-pps.com/documents, which contains all substances with their route of administration. If an antimicrobial is not present in this list, please contact global-pps@uantwerpen.be.

Important: **Exclude** antimicrobials for **topical use!**

3.2 Timeframe of surveillance

For the timing of the survey, please consider both the period, i.e. the month or season (see **§3.2.1 Period of surveillance**), and timeslot, i.e. the day of the week and hour of the day (see **§3.2.2 Timeslot of surveillance**), as both factors can influence the antimicrobial prescribing patterns that you measure.

3.2.1 Period of surveillance

Data should be collected within three predefined timeframes a year:

- **January-April**
- **May-August**
- **September-December**

Data collection should be finished within the period it was started. Preferably, complete the data collection within a few weeks from the start, to minimize differences in antimicrobial prescribing patterns related to seasonal changes.

Important: Units can be surveyed multiple times within a survey (which differs with the inpatient module)

[2] WHO's Anatomical Therapeutic Chemical (ATC) Classification. https://atcddd.fhi.no/atc_ddd_index/

3.2.2 Timeslot of surveillance

Survey your unit or room on a **day that represents your usual practice**, such as a regular week day. If you choose a holiday or a day in the weekend, you might measure antimicrobial prescribing practices that differ from your usual practice, and therefore could not be generalized for a longer period.

Survey your unit **for at least 4 hours**, to capture a sufficient number of patients with antimicrobial prescriptions that are representative of your setting. Sometimes, you might need to survey for a longer period of time, for example a full day or a couple of days, to capture this sufficient number of patients.

Sufficient number of patients: It is important that you capture a 'sufficient number of patients' to represent your usual setting. We do not specify a minimum number of patients to collect, this **depends on what is feasible in your setting and the aim of your survey**.

For example, for an initial survey to familiarize yourself with the method, you can capture less patients than when you want an in-depth analyses to develop targets to improve the quality of antimicrobial prescribing in your facility.

Please keep in mind that the more patients (with antimicrobial prescriptions) you capture, the more representative this sample is for your setting.

3.3 Denominators and numerator data

In the Global-PPS, antimicrobial prevalences are calculated using numerator and denominator data. For the outpatient Global-PPS, these data are collected at patient-level (which differs compared with the inpatient module):

- **The denominator** = the total number of patients seen in the survey.

  This is collected by asking general information for each patient seen in the survey (see **§4.2.1 General patient information**).

- **The numerator** = the total number of patients receiving an antimicrobial prescription in the survey
  This is collected by asking more detailed information for each patient on antimicrobials in the survey (see **§4.2.2 Detailed patient information** and **§4.2.3 Antimicrobial treatment information**).

4. Data collection forms

Two methods of data collection are possible:

- **Data collection on paper forms, before entry in the online tool**
  Please print all forms as described in §1.1 Outpatient forms.

- **Direct data entry in the online tool**
  Please make sure all data are readily available, because you need to complete the full unit and patient forms before being able to save them. Find more information in §5. Data entry and §User manuals & Tutorial videos.

4.1 The Unit form

The Unit form contains all the following variables. All variables marked with * are mandatory:

- **Date of survey***: The **date** on which the unit, or room belonging to the unit, is surveyed: dd/mm/yy

- **Auditor code**: The code, initials or else, of the person completing the form. This can be used to help adding or correcting entered data, or to track possible bias linked to the auditor.

- **Institution name***: Name of the institution (hospital or healthcare facility)

- **Unit name***: Unique name of the unit/department/ward.

- **Room name**: Unique_name of the room belonging to a particular unit. Of note, a unit can have several rooms. Define these uniquely!

- **Unit Type of specialty***: Defines the most appropriate type of outpatient unit. Select only one type. The complete list is available in the outpatient data collection forms, p. 1, and in this protocol under §5.2 Prepare the department list.

- **Day surgery***: Defines whether surgical procedures are taking place in the unit during the surveillance. If no surgical procedures take place during the survey, but pre- or post-operation consultations are held, then please choose 'No' for this variable.

- **Total number of prescribers on the unit/room during defined timeslot of the survey**: Count the number of doctors, nurses, pharmacists and/or others who were prescribing the antimicrobials to the outpatients during the timeslot of the survey. Fill in the number 0 if (one of these) prescribers are not present during the timeslot of the survey. Fill in 0 if the healthcare professionals were present, but not prescribing antimicrobials.

- **Timeslot of data gathering on the day of the survey*:** Specify the approximate starting time and ending time (in hours and minutes AM or PM) on the day of the survey. The unit must be ***surveyed for at least 4 hours or about half a day***, unless the duration of the consultation session is shorter, then survey for the whole session duration. Preferably start the survey at the beginning of the session.

4.2 The Patient form

The Patient form contains three different sections:

1. §4.2.1 General patient information — for ***all patients seen during the timeslot*** of survey (=denominator)
2. §4.2.2 Detailed patient information
3. §4.2.3 Antimicrobial treatment information

} ***for each patient on antimicrobials*** (=numerator)

Important: Each part of the form allows the addition of custom data in open fields. Please do not enter personal or identifiable information in these fields.

4.2.1 General patient information

The 'General patient information' part of the Patient form contains all the following variables. All variables marked with * are mandatory:

- **Unit (Name/code)***: This is the unique ***name of the unit*** studied. This name is selected using the drop-down list in the Global-PPS tool, as this outpatient unit name has been defined during the preparation of the department list at institutional level (see §5.2 Prepare the department list)
- **Room (Name/code):** This is the ***unique name of a room*** within the unit. If the unit does not contain separate rooms, please use the same room name for all patients or leave the room name blank. *Optional field.*
- **Unique Patient Identifier***: This is a unique number allowing local tracing at patient-level for any clarifications (e.g. the clinical record/note number, sequential number). This information will not (and cannot) be reported or submitted in the Global-PPS database.
- **Survey Number***: It's a unique non-identifiable number generated by the Global-PPS tool for each patient record. Please ensure that the person entering the data online ***writes down this number immediately when it is generated by the tool as it will not be displayed again***. This number identifies the patient uniquely in the Global-PPS database, and starts with OP-[number]. Important, this number will be generated when all data has been correctly entered online and will be given to you after clicking: Save and add new patient registration Only then, the patient is stored in the database!
- **Patient age group***: This is the age category of the patient. Choose one of three options: **adults** (≥18 years old), **child** (≤17 years old) or **neonate** (≤30 days old).
- **Sex***: This is the sex of the patient. Choose one of three options: **Male**, **Female** or **Unknown**.
- **Ordered test***: This indicates whether any laboratory testing or Point-of-Care test (POCT) was ordered for this patient for the ***same presenting complaints***. This is independent of whether the results were available yet and whether the treatment was based on these tests. The test can be ordered on the same day as the visit, or a few days before if the patient had visited this institution for the same complaints before, as long as those tests were ordered for the same complaints. Choose one of the options: **Lab-testing**, **Point-of-Care test**, **Unknown**, or **None**.
- **Admission status***: For **emergency and observation units**, it is requested to also register patients who slept overnight due to specific reasons, e.g. they are waiting for transfer to another institution

or ward and are still present during the timeslot of survey (see §3.1.2 Patient-level criteria). For these specific units only, the ***status of admission needs to be recorded "as decided during the 4-hour survey period (see timeslot)"***. There are 5 possibilities:

→ **already admitted** = decision of admission is taken
→ **suspected admission** = awaiting for admission, final decision not yet taken
→ **referral other institution**
→ **home**
→ **Unknown** (UNK)

- **Presenting symptoms or reason of consultation on the day of the survey*:** These are the presenting symptoms of a patient on the day of the survey. Choose at least 1 and maximum 6 symptoms (see outpatient data collection form, page 2).

4.2.2 Detailed patient information

The 'Detailed patient information' part of the Patient form must be completed **only if the patient had a new/ongoing/switched antimicrobial prescription during the survey**. This form contains all the following variables. All variables marked with * are mandatory:

- **Age**: Three fields, one for the year, one for the month and one for the days, are available. ***Only one of these fields needs to be completed as follows:*** (*optional*)
  → If ≤ 30 days old, write the exact numbers of days.
  → For patients older than 1 month and younger than 2 years, fill in month field. (e.g. 19 months)
  → If the patient is at least 2 years old, then only the year field is to be recorded.

- **Current weight**: Write the ***current weight in Kg*** with one decimal number (*optional)*

- **Birth weight**: Write the ***birth weight in Kg*** with one decimal number. ***Only for neonates*** *(optional)*

- **Cultures taken*:** Choose '**Yes**', '**No**' or '**Unknown**'. It refers to whether a was taken before an antimicrobial was administered to the patient. If yes, specify which type of culture was taken: '**Blood**', '**Urine**' or '**Other**', and specify when the culture was taken: '**Before start antimicrobial**', '**After start of the antimicrobial**' or '**Unknown**'.

- **Treatment based on infection parameter data*:** Choose '**Yes**' or '**No**'. It refers to whether or not infection parameter results, like biomarker or WBC results, are used to initiate the antibiotic treatment. If yes, next lines should also be completed with 5 possible answers (report the most relevant one):
  → **CRP** = in case the treatment is based on results of CRP (*C-reactive protein)*
  → **PCT** = in case the treatment is based on results of PCT (*procalcitonin*)
  → **WBC** = in case the treatment is based on elevated white blood cell count. *Normal number* of WBCs in the *blood* is ± 4,500 to 11,000 WBCs per microliter.
  → **Serum lactate** = in case the treatment is based on Arterial or Venous Blood Gas lactate. Normal range in adults: 0.5-2.2 mmol/L for venous blood; 0.5-1.6 mmol/L for arterial blood.
  → **Urinalysis** = in case treatment is based on urinalysis, e.g. (1) urine dipstick tests for presence of nitrites or leukocyte esterase, or (2) microscopy for abundance of leukocytes or presence of bacteria.

- **Type of biological fluid sample*:** choose between '**Blood**', '**Urine**' or '**Other**'.

Complete if available also the ***most relevant value close to the start of the antibiotic treatment*** (numeric optional field) in **mg/L**, **µg/L**, **ng/L**, **mg/dL**, **ng/dL**, **ng/mL**, **µg/mL**, **nmol/L**. In thousand per microliter (µL) for WBC count.
For conversion calculator see: http://unitslab.com/node/67 (CRP), http://unitslab.com/node/103 (procalcitonin) and https://unitslab.com/node/152 (serum lactate).

- **Treatment based on specific pathogen testing***: Tick '**Yes**' or '**No**'. It refers to whether laboratory tests or Point-of-Care tests are used to initiate the antibiotic treatment. If yes, specify **up to 3 types of tests and pathogens** (report the most appropriate one):
  → **Type of test**: Choose '**PCR / molecular assay**', '**Antigen test**', '**Microscopy**' or '**Unknown**'.
  → **Target pathogen**: Choose from the following list of available pathogens:

Type of test	Target pathogen		
• PCR / molecular assay • Antigen test • Serology test • Microscopy (e.g. Gram stain) • Unknown	• Dengue • Group B Streptococcus • HIV • Hepatitis B • Legionella • Malaria	• PCR / molecular assay • Antigen test • Serology test • Microscopy (e.g. Gram stain) • Unknown	• Dengue • Group B Streptococcus • HIV • Hepatitis B • Legionella • Malaria

- **Underlying morbidity***: Refers to underlying morbidities a patient has at time of the survey. Select at least 1 and maximum 3 choices (see list outpatient data collection form, page 2).

4.2.3 Antimicrobial treatment information

The 'Antimicrobial treatment information' part of the Patient form must be completed **only if the patient had a new/ongoing/switched antimicrobial prescription during the survey**. This form contains all the following variables. All variables marked with * are mandatory:

- **Antimicrobial Drug Name**: This is the generic name (e.g. amoxicillin and beta-lactamase inhibitor and not Augmentin®). Exclude antimicrobials for topical use applied on the skin/eye/ear etc. ATC codes are automatically added in the tool following the ATC classification system of the WHO Collaborating Centre for Drug Statistics (https://www.whocc.no/atc_ddd_index/). See **§3.1.3 Antimicrobial-level criteria** for antimicrobials to include.

- **Prescription/course**: Choose: '**New**' = first prescribed on the day of the survey, '**Ongoing**' = prescribed prior to the survey and not stopped during the survey, or '**Switch**' = switched from an already existing antimicrobial prescription.

- **If ongoing/switch, where was the prescription obtained?**: This refers to where the original prescription was obtained for patients who visited your institution with already an antimicrobial prescription. Tick '**Here**', '**Other healthcare facility**', '**Pharmacy**', '**Self-administered**', '**Else**' or '**Unknown**'.

- "**Single Unit Dose**" **and** "**Unit**" **of Dose**: Administered dose is the actual prescribed single unit dose per administration, expressed in mg, g, IU or MU. Provide number of times/day given in next variable (doses/day)

Combinations of two active ingredients: For combination of **two or more active ingredients** as antimicrobial agents, like sulfamethoxazole and trimethoprim, the t**otal content should be entered** in Global-PPS tool. For example, sulfamethoxazole 200 mg/trimethoprim 40 mg will be recorded as 240 mg.

Combinations with enzyme inhibitors: For combination with **one active ingredient** as the main antimicrobial agent, like penicillins with beta-lactamase inhibitors, only the **content of active ingredient** should be recorded and entered in the Global-PPS tool. E.g. amoxicillin and beta-lactamase inhibitor 500/125 (amoxicillin 500 mg and clavulanic acid 125 mg as potassium salt) should be entered as 500 mg. Important: this must still be recorded as amoxicillin and beta-lactamase inhibitor and NOT amoxicillin!

Other examples: (https://atcddd.fhi.no/ddd/list_of_ddds_combined_products/)

- J01CR01 Ampicillin and beta-lactamase inhibitor: report only ampicillin dose
- J01CR02 Amoxicillin and beta-lactamase inhibitor: report only amoxicillin dose
- J01CR03 Ticarcillin and beta-lactamase inhibitor: report only ticarcillin dose
- J01CR05 Piperacillin and beta-lactamase inhibitor: report only piperacillin dose

- **Doses per Day**: This refers to the number of actual prescribed doses per 24 hours. This can be calculated by: ***N doses / N days***, e.g. 1 dose per 2 days = 0.5 dose per day. For example every 6 hours = 4 doses/day, every 8h = 3 doses/day, every 12h = 2 doses/day, every 16h = 1.5 doses/day, every 36h = 0.67 doses/day, every 48h = 0.5 doses/day, and every 72h = 0.33 doses/day.

- **Route**: Route of Administration. Five routes of administration are included: **Oral=O**, **Intravenous and intrathecal and intraperitoneal=P**, **Intramuscular=IM**, **Rectal=R**, **Inhalation=I**. For analyses intravenous, intrathecal and intramuscular are all parenteral use (=P).

- **Prescribed / intended duration in N days or UNK**: This refers to number of days the antimicrobial is prescribed. Specify the number of days (if it exceeds 100 days, please write down 100 days).

- **Clinical diagnosis**: This is the reason to treat the patient (see appendix I, page 4 of outpatient data collection forms). Select ***ONLY ONE*** of the possibilities. If more categories are possible, write the one most applicable. Request additional information from doctors, nurses or pharmacists if needed.

- **Type of indication**: Refers to whether it concerns therapeutic treatment (**Community Acquired Infection=CAI or Healthcare-Associated Infection=HAI**) or prophylactic use (**Medical or Surgical prophylaxis**). The indication should be obtained from ward staff if missing (See appendix II, page 5 of outpatient data collection forms for available codes).

  Intended duration for surgical prophylaxis: The **intended duration** of antibiotics for surgical prophylaxis can be filled in as (1) **one-dose (SP1)**, (2) **one day (=multiple doses given in one day, SP2)**, or (3) **>1 day (SP3)**.

- **Reason in notes**: Refers to whether ***the reason for the antimicrobial treatment was recorded*** in the (notes of the) patient file. Tick '**Yes**', '**No**', '**Not assessable**'.

- **Local guidelines exist**: This refers to (e.g. local/national/WHO) ***guidelines used in the institution***. Choose **Y=Yes**; **N=No** guidelines for the specific indication; **NI=No Information** because diagnosis/indication is unknown; **U=Unknown**.

- **Reference guideline**: This refers to which guideline is used for this patient. Choose '**Local**', '**AWaRe**' (for the WHO AWaRe handbook), or '**Unknown**'. **Important!** This may differ per patient, depending on which indications are covered by different guidelines.

- **Guideline compliance**: depending on whether a local guideline exist, four additional variables can be completed, about guideline compliance according to:
  → the ***type or choice of the antimicrobial***
  → the ***dosing***
  → the ***duration of the therapy/prophylaxis***
  → the ***route of administration***
  Tick : **Y=Yes**, compliant to the guideline; **N=Not compliant** to the guideline; **NI=Not indicated** because the choice of drug is not compliant according to guideline; **U=Unknown**.

5. Data entry

All data need to be entered in the online tool:
https://app.globalpps.uantwerpen.be/globalpps_webpps/

Before you start entering your data, some preparatory works needs to be completed, including registration of your account (and additional users) and registration of the institution, all described below in **§5.1 Register, login and create your institution**.

Furthermore, all departments need to be entered (see **§5.2 Prepare the department list**) and the appropriate survey period must be selected (see **§5.3 Select your survey period**) before you can start entering unit and patient data (see **§5.4 Enter unit and patient data**).

More information needed?: Detailed instructions on how to add extra users, what to do if you lost your login, how to change your password, or how to enter departments, select your survey and enter unit and patient data, can all be found in the user manuals (see §User manuals & Tutorial videos)

5.1 Register, login and create your institution

5.1.1 Participate for the first time?

If your institution participates for the first time, you need to register and create your institution in the online tool. Once you register your account, make sure you confirm your registration by following the instructions in the confirmation mail.

Important: The person who creates the institution in the Global-PPS tool, automatically becomes the **local administrator**. Please make sure the correct person creates the institution. Made a mistake? Please contact Global-PPS@uantwerpen.be

All hospitals, outpatient clinics and primary healthcare centers or other healthcare facilities seeing outpatients can participate. When **registering your institution**, you need to select an ***institution type***:

- **Primary hospital**: often referred to as a district hospital or first-level referral. The hospital has ***few specialities***, mainly internal medicine, obstetrics-gynaecology, paediatrics, and general surgery, or only general practice; limited laboratory services are available for general, but not for specialized pathological analysis. Often corresponds to general hospital without teaching function.
- **Secondary hospital**: often referred to as provincial hospital. A hospital ***highly differentiated by function with five to ten clinical specialities*** including some haematology, oncology, renal and ICU beds; takes some referrals from other (Primary) hospitals. Often corresponds to general hospital with teaching function.
- **Tertiary hospital**: often referred to as central, regional or tertiary-level hospital. A hospital ***with highly specialized staff and technical equipment***, e.g., ICU, Haematology, Transplantation, cardio-thoracic surgery, neurosurgery and specialized imaging units; clinical services are highly differentiated by function; provides regional services and regularly takes referrals from other (primary and secondary) hospitals. Often correspond to University hospital.

- **Specialized hospital**: ***Single clinical specialty***, possibly with sub-specialties; highly specialized staff and technical equipment.

Important: **Please check whether your facility has participated before! All your data must be entered under the same registration.** If you are unsure, please contact Global-PPS@uantwerpen.be.

5.1.2 Participated before?

If your institution has participated before, please **login with your existing account**. New participants belonging to an institution that has participated before, can be added to this user by the local admin. If the local administrator is no longer working at the institution, or lost their login, please contact Global-PPS@uantwerpen.be.

5.2 Prepare the department list

If you participate for the first time, make sure you add all departments. If your institution has participated before, you need to update the departments (when necessary).

Each department must be entered manually in the Global-PPS tool, with the following information (mandatory variables are marked with *):

- **Unique name of the department***: Enter a name for your department
- **Code and description**: This can help you describe your department in more detail
- **Patient care type***: Choose 'Outpatients' for outpatient departments/units
- **Specialty type***: Choose between the following 25 outpatient specialties (choose the most appropriate option):

☐ EM (**Emergency**)	☐ GM (**General (Internal) Medicine mixed**)[1]	☐ HCP (**Healthcare Practice**)
☐ OB (**Observation**)	☐ SM (**Surgical Mixed**)	☐ GP (**General Practitioner practise**)
☐ RESP (Respiratory)	☐ HO (Haematology-Oncology)	☐ MAL (Malnutrition)
☐ ID (Infectious disease)	☐ PLAS (Plastic Reconstructive Surgical)	☐ NM (Neonatal Medical)
☐ HIV/TB (HIV-Tuberculosis)	☐ ORT (Orthopaedic)	☐ ANC (Antenatal care)
☐ REN (Nephrology-urology)	☐ ENT (Ear Nose and Throat)	☐ GYN (Gynaecology)
☐ DIAL (Dialyses)	☐ EYE (Ophthalmology)	☐ OBST (Obstetrics)
☐ GAS (Gastroenterology)	☐ ENDO (Endoscopy)	☐ DEN (Dental Clinic)
	☐ STI (Sexually Transmitted Infection)	

5.3 Select your survey period

Select the appropriate survey period in which you collected your data:

- January-April
- May-August
- September-December

Choose which modules you want to participate in (inpatient, inpatient+HAI module, outpatient).

5.4 Enter unit and patient data

After preparing your departments and choosing a survey period, you can start entering unit and patient data. Make sure each patient is entered in the correct unit.

Important: Denominators for the outpatient module are collected by collecting **data for all patients regardless of antimicrobial prescription**. More detailed data is collected for the numerator, i.e. **all patients who receive an antimicrobial prescription**. This is an important difference with the inpatient module!

5.5 Export raw data & download report

At any time during or after data entry, it is possible to download a Microsoft Excel® file with all raw data. This can help you verify the entered data for missingness & correctness. If you have access to multiple institutions, it is additionally possible to download a merged Excel file, containing raw data of multiple institutions.

Important: Each row corresponds to one antimicrobial prescription, or to a patient without any antimicrobial prescriptions. Hence, patients with multiple antimicrobial prescriptions, are presented on multiple rows.

After data entry and finalizing your data entry (please consult our §User manuals & Tutorial videos), you can download one of our pre-analysed reports:

- **One-point feedback report**: containing detailed information of your institution in one survey
- **Merged feedback report**: containing detailed information of >1 institutions in one survey

5.6 Technical support

The Global-PPS Coordinating Centre & Technical Support team at the University of Antwerp provides a help desk for software or any other issues encountered and/or questions during the data collection and data entering (global-pps@uantwerpen.be). The team is constantly available for general queries about the project.

The Global-PPS tool https://app.globalpps.uantwerpen.be/globalpps_webpps/ offers:

- ***internal checks*** to avoid invalid or erroneous figures (e.g. for out-of-range values)
- boxes popping up to ***guide you with data entry***
- help functions which provide ***supplementary information*** on each screen
- Help pages, ***User manuals***, ***FAQ page*** (see §More questions for us?).

Web page layout for the forms is similar to the paper version. Regular backups of the database will guarantee the integrity of data. The software and database are hosted on a server at the University of Antwerp in Belgium, Europe. The Global-PPS team can provide more details on ensured data protection and safeguarding (contact global-pps@uantwerpen.be) .

6. Getting started

Before conducting the Global-PPS in your institution, you need to organise a multidisciplinary team to help you conduct the survey (see §6.1 Organise a multidisciplinary team). In some settings, you need clearance from an ethical committee to conduct the survey (see §6.2 Ethical approval).

6.1 Organise a multidisciplinary team

6.1.1 Participate for the first time?

The healthcare facilities are invited to create a ***multidisciplinary team of colleagues familiar with reading patient notes and having adequate knowledge on local guidelines***.

A ***local administrator*** has to be assigned and he/she will be the main contact person for the Global-PPS Coordinating Centre & Technical Support team at the University of Antwerp, Belgium. The local administrator is responsible for:

- the online registration of the institution (hospital or healthcare facility)
- entering patient-specific data into the Global-PPS tool
- the data validation
- the production of the local feedback reports

Extra hospital users may, however, be registered within the Global-PPS tool in order to help the local administrator with data entry (see our user manuals, §User manuals & Tutorial videos).

6.1.2 Participated before?

Please involve your previously established ***multidisciplinary team*** when conducting this survey. Moreover, you need to get in touch with the ***already existing local administrator*** for your institution.

Important: Enter your outpatient antimicrobial prescribing data to the **already existing database for your institution**, because this is the only way to get access to all previously entered data for your institution, which will allow you to retrieve longitudinal feedback reports, including previously entered data. In this way, all antimicrobial use data will be entered in one single database for your institution including both inpatient and outpatient data.

If the local administrator is not known or you do not know whether the institution participated in the Global-PPS before, please get in touch with global-pps@uantwerpen.be.

6.2 Ethical approval

For approval by ethical committee & privacy legislation requirements, the Global-PPS Coordinating Centre & Technical Support team can provide, on request, a data privacy excerpt that can be submitted to institutions ethical committees if needed. Further, depending on the local setting and mode of data collection, a patient informed consent form or other common form may be required. Please note that the aim is to collect complete data within the defined timeframe of at least 4 hours (see §3.2.2 Timeslot of surveillance), sample-based data collection should be avoided. For more information contact global-pps@uantwerpen.be.

7. Data Management, Privacy & Publication

Please read below our additional information about data privacy (**§7.1 Data privacy**), data ownership (**§7.2 Data ownership**) and our publication policy (**§7.3 Publication policy**).

7.1 Data privacy

A ***sequence number*** is assigned to each institution (hospital or healthcare facility) after registration in the Global-PPS tool. Institution names will never be revealed in any report or publication without approval from the participant (e.g. for peer-reviewed articles).

Patients are completely pseudonymized in the Global-PPS tool. Every patient record will be given a unique non-identifiable survey number. This number is automatically generated by the software application, based on several internal codes. This number identifies the patient uniquely in the Global-PPS database. For more information, consult the data privacy excerpt (contact global-pps@uantwerpen.be).

7.2 Data ownership

Data are the ***property of the respective institution***. Entered inpatient and/or outpatient data remain available to the institution at all times.

The Global-PPS Coordinating Centre & Technical Support team at the University of Antwerp, Belgium is ***guardian of the data within the database***;

- They will analyse the data and program the automatic reports. These analyses and reports are property of the Global-PPS;
- They facilitate country- and/or region-specific analyses.

For more information, consult the data privacy excerpt (contact global-pps@uantwerpen.be).

7.3 Publication policy

The Global-PPS Coordinating Centre & Technical Support team looks for opportunities for dissemination and encourages country-specific analyses. For publications at national or regional level, participants need to comply with the publication strategy as designed by the Global-PPS Coordinating Centre & Technical Support team. The publication strategy will guide you on how to proceed. The publication policy is available at www.global-pps.com/documents.

More questions for us?

If you have any more questions for us, please take a look at the following things:

1. Questions about the **tool**, e.g. how to register, login, enter data, or download your report? Please take a look at **§User manuals & Tutorial videos**.

2. Questions about the **methodology** and how to **get started**? Please consult our ***Frequently Asked Questions*** (https://www.global-pps.com/faq/) list or our ***documents*** (https://www.global-pps.com/documents/).

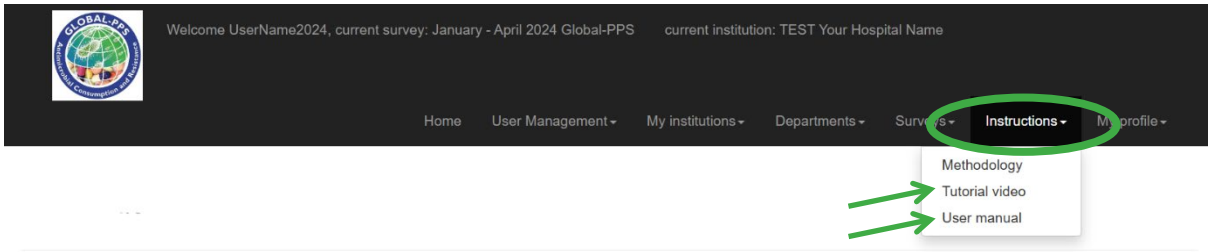
   If your answer is not there, please contact us at global-pps@uantwerpen.be

3. Questions about our **publication policy**, **ethical approval**, etc.? Please take a look at **§6.2 Ethical approval** and **§7.3 Publication policy**. Still have questions? Please contact us global-pps@uantwerpen.be

User manuals & Tutorial videos

If you have any questions about data entry, please consult our user manuals and tutorial videos! Go to "**Instructions**" and:

→ "**User manual**" to take a look at our user manuals for the Inpatient and Outpatient modules
→ "**Tutorial videos**" to watch short instruction videos on registering, logging in, adding users and all details for data entry.



Thank you for your support and good luck with the Global-PPS!