Features, key achievements and perspectives of the Global-PPS on AMC and HAI - Towards a promising synergy between WHO-PPS and Global-PPS

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ICAN25
29 June – 2 July 2025 • CTICC, Cape Town

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

Global-PPS – Birth

The 4th Edition of the World HAI Forum on HAI and Antimicrobial Resistance – June 2013 Annecy, France

bioMérieux funding

University of Antwerp, Belgium
→ European Surveillance of Antimicrobial Consumption (ESAC-PPS)

Antimicrobial Resistance and Prescribing in European Children (ARPEC-PPS)

First worldwide Global-PPS 53 countries 335 hospitals

Expansion network

2006 - 2007 - 2008 - 2009 | **2010 - 2011 - 2012** | **2013** | **2014** | **2015** | **2016-2017**

European funding

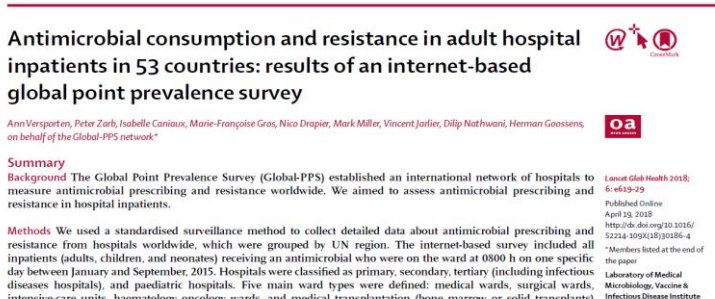
- Amadeo B. et al, *JAC* 2010,
- Zarb P. et al, *JAC* 2011, *Drugs* 2011, *CMI* 2012, *Drugs Aging* 2012.

- Versporten A. et al, PIDJ 2013, JAC 2016;
- Jafar Soltani et al, Erciyes Med J. 2019.
- Hufnagel M. et al, JPID. 2018
- ….

G-PPS Protocol development

Development Web-based tool Global-PPS pilot (33 hosp)

Any hospital admitting inpatients is welcome to participate



Antimicrobial consumption and resistance in adult hospital inpatients in 53 countries: results of an internet-based global point prevalence survey

Ann Versporten, Peter Zarb, Isabelle Caniaux, Marie-Françoise Gros, Nico Drapier, Mark Miller, Vincent Jarlier, Dilip Nathwani, Herman Goossens, on behalf of the Global-PPS network*

Summary

Background The Global Point Prevalence Survey (Global-PPS) established an international network of hospitals to measure antimicrobial prescribing and resistance worldwide. We aimed to assess antimicrobial prescribing and resistance in hospital inpatients.

Methods We used a standardised surveillance method to collect detailed data about antimicrobial prescribing and resistance from hospitals worldwide, which were grouped by UN region. The internet-based survey included all inpatients (adults, children, and neonates) receiving an antimicrobial who were on the ward at 0800 h on one specific day between January and September, 2015. Hospitals were classified as primary, secondary, tertiary (including infectious diseases hospitals), and paediatric hospitals. Five main ward types were defined: medical wards, surgical wards,

Lancet Glob Health 2018; 6: e619–29

Published Online April 19, 2018 http://dx.doi.org/10.1016/S2214-109X(18)30186-4

*Members listed at the end of the paper

Laboratory of Medical Microbiology, Vaccine & Infectious Disease Institute

Global-PPS – How we've grown

Renewed website 7 languages
www.global-pps.com/

Reinforcement Global-PPS team

1st worldwide Global-PPS 53 countries 335 hospitals

Expansion network

Coordination team

Development HAI module Launch Sept'19

Communication capacity

IT capacity

Protocol development Sept'22 Test Outpatient module

Extension G-PPS tool May '23 Worldwide launch Outpatient module

2014 2015 2016-2017 2018 2019 2020 2021 2022 2023 2024 2025

G-PPS Pilot

3 surveys/ year

COVID-19 pandemic

Drop participation

Recovery participation

Kick-off drive-AMS

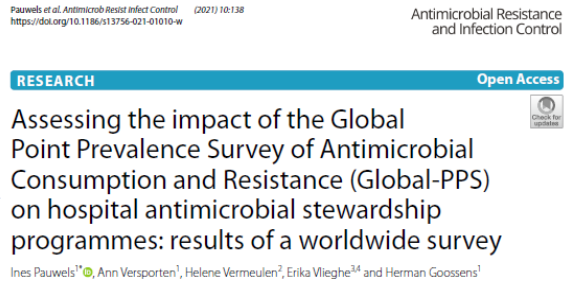
Launch qualitative research

Any institution/hospital/PHC admitting outpatients is welcome to participate

Start collaboration
MSF
CwPAMS

Launch ADILA
Launch Pfizer outpatient project
SPARC-PPS

Launch G-PPS survey
focus on AMS : barriers/facilitators


Pauwels et al. Antimicrob Resist Infect Control (2021) 10:138
https://doi.org/10.1186/s13756-021-01010-w

Antimicrobial Resistance and Infection Control

RESEARCH Open Access

Assessing the impact of the Global Point Prevalence Survey of Antimicrobial Consumption and Resistance (Global-PPS) on hospital antimicrobial stewardship programmes: results of a worldwide survey

Ines Pauwels[1*], Ann Versporten[1], Helene Vermeulen[2], Erika Vlieghe[3,4] and Herman Goossens[1]

Why a Global-PPS ?

- Global-PPS complies with WHO global action plan on antimicrobial resistance.
- Global-PPS meets its strategic objectives:
  - ➢Improve **awareness** and understanding of antimicrobial consumption and resistance
  - ➢Strengthen **knowledge** through surveillance and research
  - ➢instrumental in planning and supporting **national & local stewardship interventions**
  - ➢Enhance **appropriate use** of antimicrobials
  - ➢Reduce the **incidence of infection**
  - ➢Ensure sustainable investment in countering **antimicrobial resistance**.

Aims Global-PPS

Identify burden

Determine variation in **drug, dose & indications** of antimicrobial prescribing

Create a "longlist" **quality indicators for prudent AM prescribing** which includes metrics, targets & risk factors for HAI

Change practice

Help design feasible, tailored **stewardship interventions**

Measure impact

Assess effectiveness of **interventions** through repeated G-PPS

Global-PPS surveillance tool in a nutshell

Free standardized method and web-based tool for data entry, validation & feedback reporting

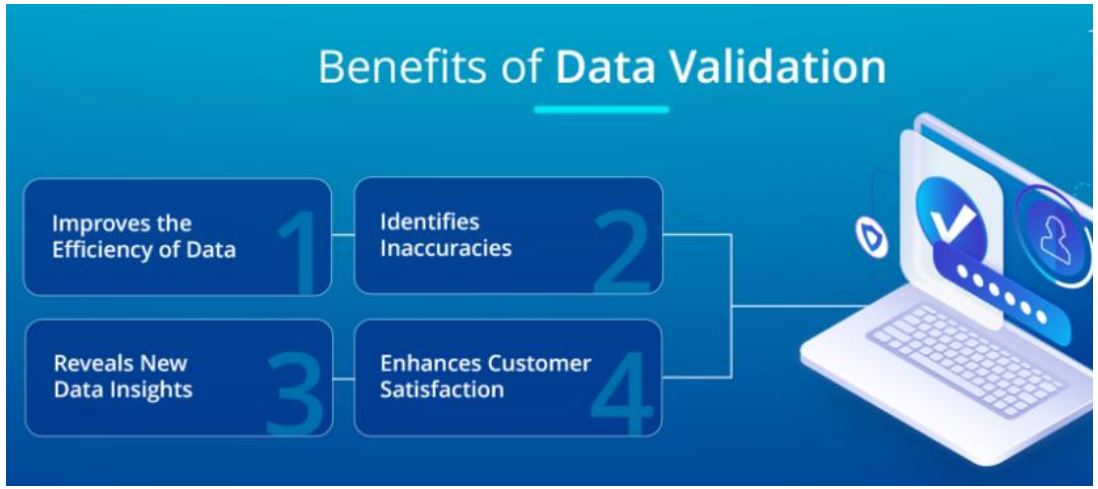
Adheres with data confidentiality principles

Simple & fast benchmarking
Hospital, country, hospital type, region, EU benchmarking results

Sustainability - build up & remain owner of your own database & follow-up prescribing patterns over time

All hospitals worldwide can participate – volontary basis

Benefits : Real-time data collection and feedback



- Instruction manuals, Tutorial video's; Training webinars : https://www.global-pps.com/events/

- Own raw data supplemented with standardized variables (Excel)
- One-point and merged feedback with benchmark (pdf)
- Interactive feedback reporting dashboard with benchmark (G-PPS application)

Antimicrobial quality indicators obtained from Global-PPS

- Prevalence of antimicrobial use
- Classes of antimicrobials being used: **broad spectrum or narrow spectrum**?
- **Ratio Access-Watch** (AWaRE) antibiotics
- **Indications** for antimicrobials: community- or hospital-acquired infections, medical or surgical prophylaxis?
- Antibiotics agents are being used for **particular infections and for SP** ?
- Are there **local guidelines** missing for certain indications?
- Are the antimicrobials prescribed according local guidelines?
- Has a clear **reason for prescription** been recorded?
- Has a clear **duration of treatment** or **stop date** been recorded?
- Duration of antibiotics for surgical prophylaxis?
- Antimicrobial treatment **targeted**?

From Global-PPS to Antimicrobial Stewardship (AMS)

Provides insight into your institution's antimicrobial prescribing patterns

Evaluate your antimicrobial stewardship activities

- Repeated PPS measurements to assess effectiveness of your interventions

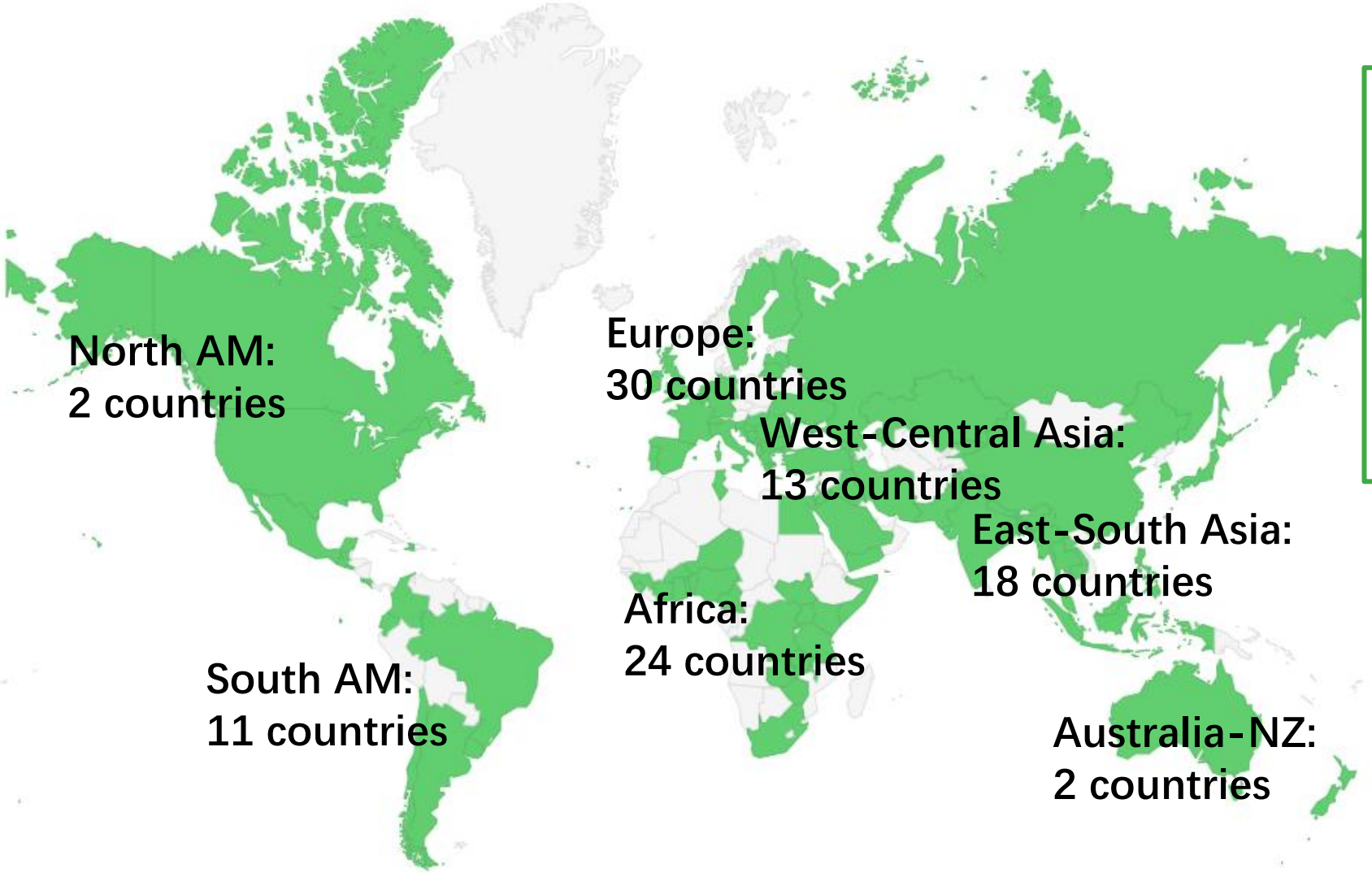
Create awareness on appropriate antimicrobial prescribing

- Communicate PPS results to everyone involved (clinicians, pharmacists, nurses, management…)

The drive-AMS project

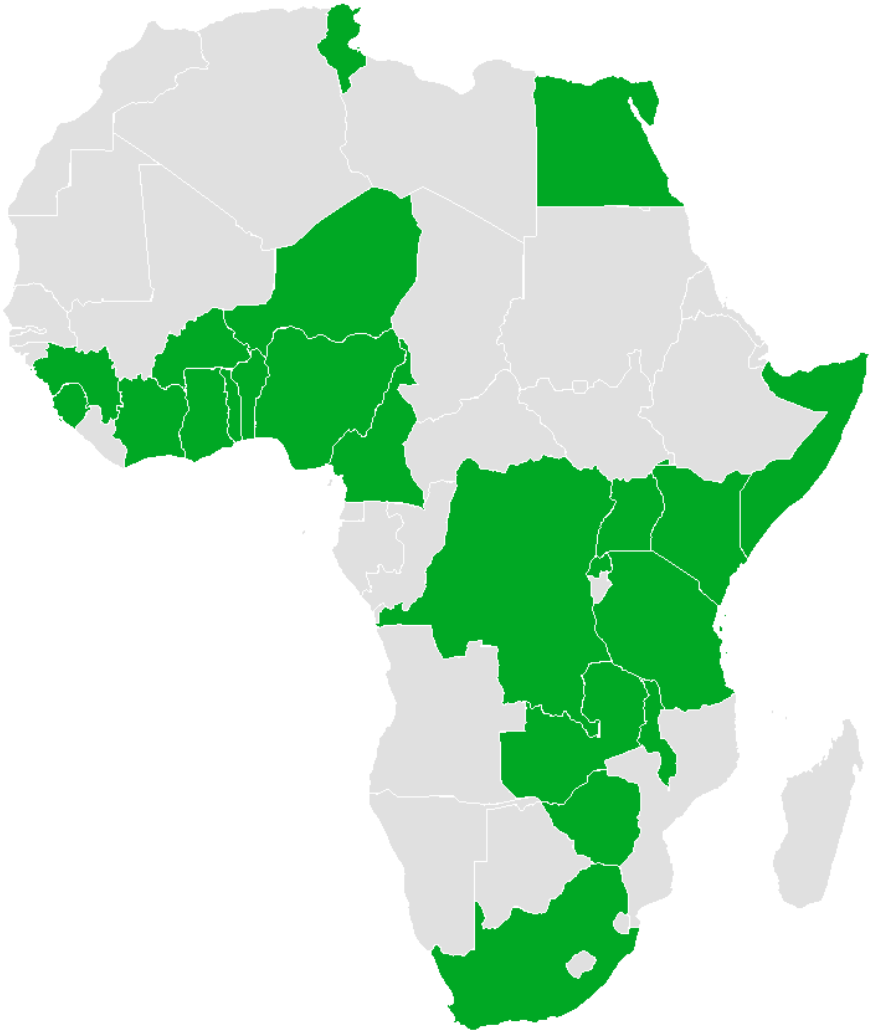
- Collaboration with Radboudumc and four European partner countries: Greece, Lithuania, Portugal, & Romania
- Data-driven, behavioural change approach to implementing AMS
- Global-PPS also involved in African countries (ICARS)

Degree of participation to the Global-PPS



- 2015: 53 countries
  2025: 100 countries
- 2015: 335 unique hosp.
  2025: >1600 unique hosp.
- 2015: 100.600 patients
  2025: >690.000 patients

Degree of participation Global-PPS 2015-2025



- 23 African countries
  (with validated data as of 20 June ‘25)
- 423 hospitals
- 673 validated surveys

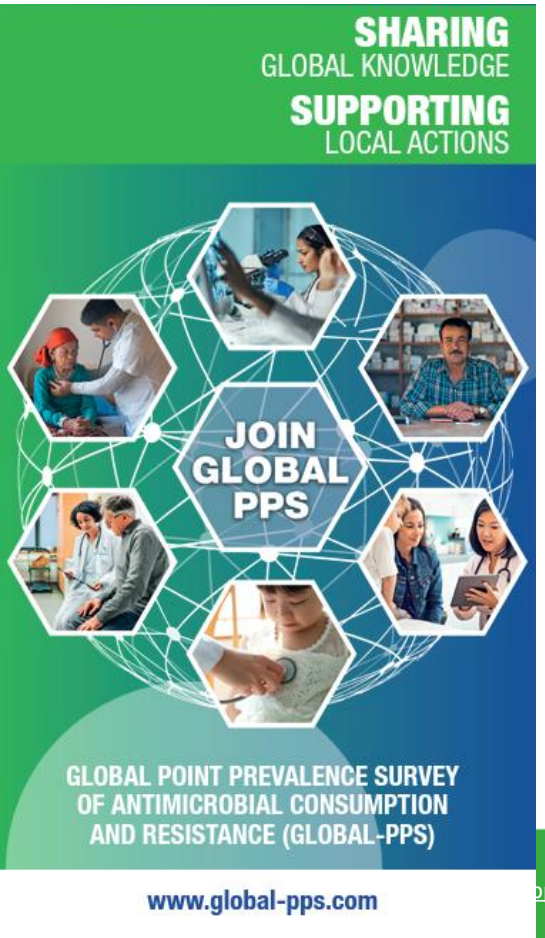
Importance of networking and communication

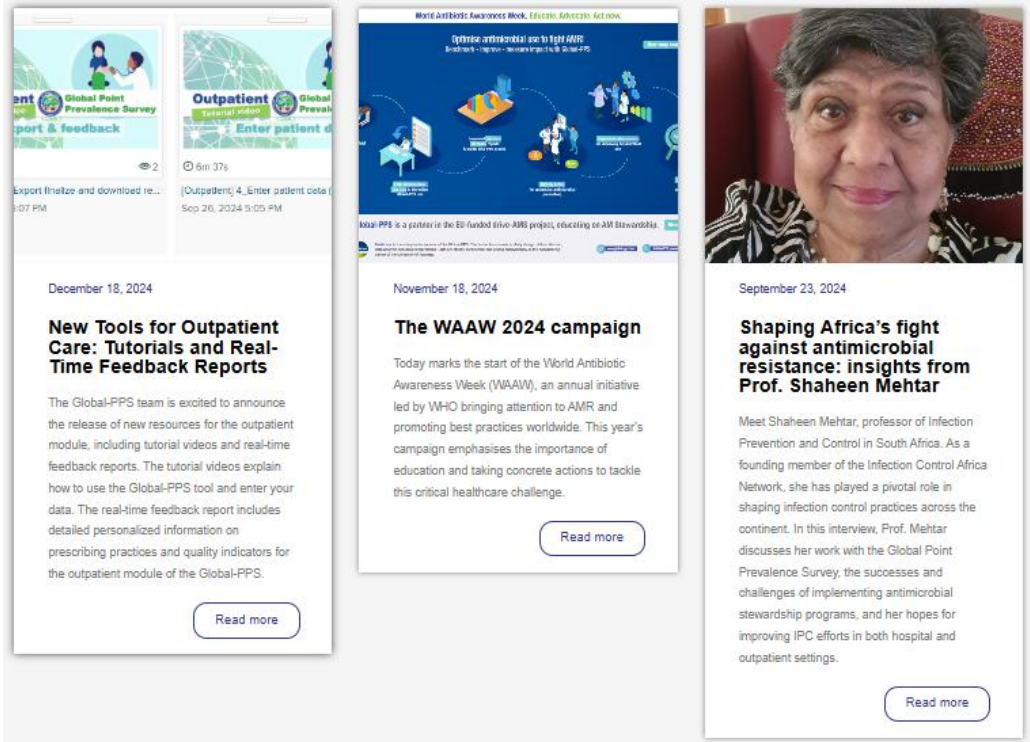
Enhance continued collaborations worldwide with international, national and local organizations.

- ✓Networks have grown (South Africa, Ghana)
- ✓Renewed collaboration with MSF (e.g. South Soudan)
- ✓Collaboration WHO-PPS with G-PPS

Global-PPS website : www.global-pps.com

- Central hub for information, regularly updated
- 6 different languages
- Instrumental in disseminating info to relevant stakeholders
  - https://www.global-pps.com/timeline/
  - FAQ list : https://www.global-pps.com/faq/
  - Regular organized free Global-PPS webinars
  - Protocols
  - 2 Selections of Publications
  - Leaflets
  - Testimonials
  - > 50 news articles
  - >110 abstracts/posters
  - > 50 scientific publications
  - Videos and other communications





Thanks to the continued financial support from bioMérieux

Disclosures: "bioMérieux is the sole private sponsor of the Global-PPS. The funder has no role in study design, data collection, data analysis, data interpretation, or writing the report. Data are strictly confidential and stored anonymous at the coordinating centre of the University of Antwerp, Belgium."

Harmonisation trajectory of Global-PPS and WHO-PPS on Antimicrobial Consumption, HAI and Resistance

Global-PPS (2014) and **WHO-PPS** (2019) : **parallel methodologies** yet **differences**

- Confusion / hesitance in hospitals worldwide
- Duplication of efforts

Aims :

- **Harmonization** to enable hospitals to participate in Global-PPS or WHO-PPS with a **single dataset**.
- Inform **jointly hospital-based tailored antimicrobial stewardship (AMS) interventions** to curb AMR worldwide.

Harmonisation trajectory of Global-PPS and WHO-PPS – Methodology –

2024: Start collaboration on joint methodology and interoperable PPS approach : scope, common goals, differences in methodologies, services and possible adjustments to reach harmonization

Ongoing steps:

- **Explore in-depth differences** between the two systems
- Obtain one **common protocol** and **data collection templates**
- Define governance

Harmonisation trajectory Global-PPS and WHO-PPS – Results –

Main differences identified:

1) Regulatroy scope
2) Survey initiation and frequency
3) Amount of detailed patient characteristics
4) Antimicrobials studied
5) Tools for data entry and validation
6) Feedback reporting and training
7) Data ownership
8) Outpatient module for the Global-PPS only

Harmonisation trajectory of Global-Point Prevalence Survey (Global-PPS) and WHO-PPS on Antimicrobial Use, HAI and Resistance

ESCMID Global 2025 (poster E0220)

Ann Versporten[1], Arno Muller[2], Martina Escher[2], Ines Pauwels[1], Deborah Tong[2], Annelies Boven[1], Verica Ivanovska[2], Benedikt Huttner[2], Erika Vlieghe[1,3]
[1]University of Antwerp, Global Health Institute, Belgium; [2]WHO Geneva, Switzerland; [3]University Hospital Antwerp, Belgium
Contact : global-PPS@uantwerpen.be / glass-amc@who.int

BACKGROUND & OBJECTIVES

A Point Prevalence Survey (PPS) is used for the assessment of antimicrobial use (AMU) and healthcare Associated Infections (HAI) in healthcare settings worldwide.

- **Global-PPS** (2014) and **WHO-PPS** (2019) have developed **parallel methodologies,** yet **differences exist** which involve challenges in a time of constrained public health investments:
  - confusion / hesitance in hospitals worldwide
  - duplication of efforts
- **Aim : Harmonization between Global-PPS and WHO-PPS** that would enable hospitals to participate in Global-PPS or WHO-PPS with a single dataset.
  - inform **jointly hospital-based tailored antimicrobial stewardship (AMS) interventions** to curb AMR worldwide.

METHODS

- **2024:** Start with a series of online **meetings between scientific and operational teams** from Global-PPS and WHO-PPS.
  - Evolve towards a **joint methodology** : describing actual scope, aims of both PPSs, methodologies and services offered in both systems.
  - **Interoperable** PPS approach : defining common goals, differences and possible adjustments to reach harmonization.
- **Step 1**: **Explore in-depth differences** between the two systems and obtain one common protocol and data collection templates.
  - Iterative process: implementation of harmonization steps to progressively achieve an interoperable PPS system.
- **Step 2**: Update web-based application and obtain exchanged web-based data involving technical IT expertise.
- **Next steps**: Develop coordinated feedback reporting, governance, data sharing process, communication,...

RESULTS : comparing Global-PPS and WHO-PPS data collection systems for inpatients

Main differences identified: 1) survey initiation and frequency, 2) amount of detailed patient characteristics, 3) antimicrobials studied, 4) tools for data entry and validation, 5) availability of feedback reporting and training, 6) data ownership, 6) outpatient module available for the Global-PPS only.

	Global-PPS	WHO-PPS
Regulatory scope	***Worldwide voluntary participation*** for single or network of hospitals.	***Nomination via Ministry of Health*** at regional, national and single hospital level.
Main aim	Surveillance antimicrobial use (AMU) / Data-driven sustainable capacity building on antimicrobial stewardship (AMS).	Surveillance AMU / Public Health to inform national AMS policies and hospitals AMS programmes.
Frequency, national sampling	***Maximum 3 surveys/year*** between Jan-April, May-August, September-December.	***Surveys at least every 2 years*** at supranational, national (pool of hospitals selected representatively or conveniently), and single hospital levels.
Modularity	Target ***any hospital or healthcare facility*** where patients are admitted: basic + optional HAI module targeting invasive devices.	Target ***healthcare facilities for acute care***: one main module with core and optional variables (process indicators and HAI)
Within hospital sampling	***No patient-level sampling***, but possibility to target selected ward types if repeated PPS.	***Sampling of patients*** for hospitals >500 beds while including all wards (1 out of 2/3 patients depending on hospital size).
Eligible patients	***Denominator***: 'all' inpatients at 8am in included wards on day of PPS. ***Numerator***: 'all' inpatients with ongoing antimicrobial (AM) prescription. Sampling at patient level not allowed to ensure comprehensive data coverage + avoid selection bias.	***Denominator***: sampled inpatients at 8am of included wards on day of PPS. ***Numerator***: sampled inpatients with an ongoing antibiotic prescription.
Collection detailed patient characteristics	***Only for inpatients on AM***. For all inpatients: details on indication (medical, surgical, ICU); for HAI module: use invasive devices.	Systematically collected ***for all eligible inpatients***: age/gender, admission date, underlying conditions and risk factors, use of invasive devices.
Animicrobials (AM) targeted	Antibiotics (J01, A07AA, P01AB), antimycotics (J02), antifungals (D01BA), antivirals (J05), anti-TB drugs (J04A), antimalarials (P01B)	***Antibiotics*** (J01, A07AA, P01AB)
Collection of detailed AM prescribing information	• ***Detailed AM data collection starts from AM prescription***, each linked to 1 diagnosis with unlimited number of AM for same or different diagnosis. • For each AM: dose, frequency, route of administration is reported.	• ***Detailed antibiotic data collection starts from indication*** with max of 4 indications, each assigned max 6 antibiotics. • One antibiotic can be linked to multiple indications. • For each antibiotic: dose, frequency, route of administration is reported.
Process quality indicators	• Include culture sample taken and which one, ***use of biomarker or WBC*** to guide therapy, reason in notes, surgical prophylaxis duration, guideline compliance (type), ***stop/review date***, missed doses, treatment type (targeted/empiric).	• Include culture sample taken and which one, reason in notes, surgical prophylaxis duration, and ***optionally oral switch***, parenteral type, missed doses, guideline compliance (type), treatment type (targeted/empiric), ***prescriber type***.
Data entry and feedback reporting	• ***Web-based application*** for data entry, validation, export of own raw data supplemented with ATC codes, AWaRE class, ... (Excel). • ***Real-time feedback reporting with benchmarking*** results at country, region & hospital type (Pdf + interactive feedback dashboard for customized analyses).	• Countries/hospitals build ***own data entry & analysis tool*** beside available ***WHO tool*** for data entry & analysis (***Excel***). • Online application for data entry/data upload, data validation, automatic reports and raw data download under development in DHIS2.
National form & hospital characteristics	• ***Geographical information*** reported during web-based data entry. • Infrastructure, policy and practice for diagnostic and antibiotic stewardship captured via ***hospital profile*** (structure indicators).	• ***Hospital profile***: Characterise national level surveys, captures infrastructure, policy and practice for diagnostic and antibiotic stewardship + several variables on hospital size (structure indicators).
Training & support	Regular ***training webinars*** on method and interpretation results, translated protocols and materials, FAQ and antimicrobial list, tutorial videos on data entry, ***helpdesk***.	Training through ***country visits + provided on demand***: data entry & analysis.

CONCLUSION

- Identified differences can be harmonized through (1) adaptations in both data collection systems and (2) the implementation of an interoperable IT infrastructure.
- Ultimately, harmonization simplifies data collection, entry, validation, feedback reporting and interpretation,
- A single unified method would enable hospitals and countries to focus on data-informed, contextualized AMS interventions.

Scan for more info on Global-PPS

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Data are strictly confidential and stored anonymously at the coordinating centre of the University of Antwerp.

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Presented at ESCMID Global 2025

Harmonisation trajectory of Global-PPS and WHO-PPS – Methodology –

Joint methodology and interoperable PPS approach

Future steps :

- Update web-based application and obtain exchanged web-based data involving technical IT expertise
- Develop coordinated feedback reporting, data sharing process, communication,...

Global-PPS planning 2025 and beyond

- **Three survey periods continue to be available:**
  - ✓ January - April / May - August / September – December
- Continuous improvements on **real-time feedback reporting**:
  - ✓ One-point and merged feedback reports (pdf)
  - ✓ Interactive, real-time, longitudinal feedback reporting dashboard

Inpatient Global-PPS protocol → Implementation new harmonized Global-WHO-PPS protocol in 2026

Outpatient Global-PPS protocol → See presentation Annelies Boven

Discussion : The way forward in support of AMS in African countries