



Global-PPS on Antimicrobial Consumption and HAI Surveillance in African countries.

Harmonisation Trajectory between Global-PPS and WHO-PPS



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30 June 2025



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

Agenda

- Introduction of the Global-PPS
- Some few Global-PPS results for Africa
- Harmonisation trajectory of Global-PPS and WHO-PPS

What are we talking about?



- A **standardized Survey** on :
 - Antimicrobial Consumption
 - Healthcare Associated Infections
 - Antimicrobial Resistance
 - Quality Indicators
 - Link with IPC



The Lancet Global Health
Volume 6, Issue 6, June 2018, Pages e619-e629



<https://www.global-pps.com/>

- Developed and piloted in 2014
- Since 2015 : Any hospital admitting patients is welcome to participate

Articles

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

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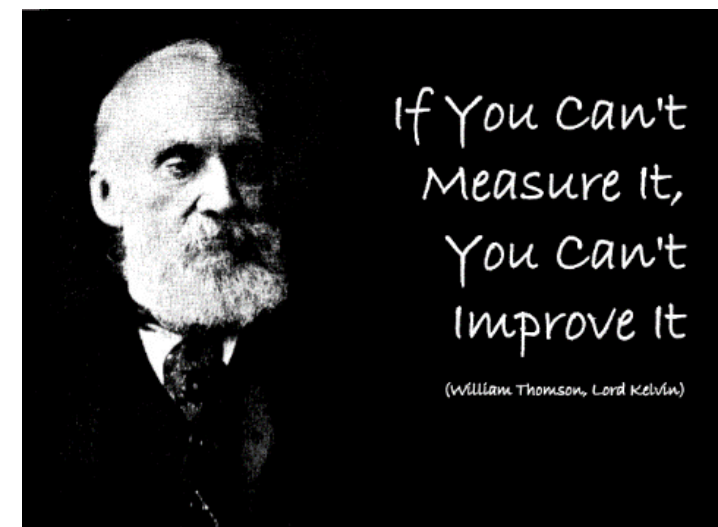
Why a Global-PPS ?



- 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**.



Why a Global-PPS ?



(Lord Kelvin, 1824-1907)

Targets for Global Action to Address AMR

THE 2024 LANCET SERIES ON ANTIMICROBIAL RESISTANCE (AMR) PROPOSES ACHIEVABLE GLOBAL TARGETS TO ENSURE SUSTAINABLE ACCESS TO EFFECTIVE ANTIBIOTICS.

BY 2030, RELATIVE TO 2019, AIM FOR:

10%
REDUCTION IN
MORTALITY FROM
AMR



20%
REDUCTION IN
INAPPROPRIATE
ANTIBIOTIC USE IN
HUMANS



30%
REDUCTION IN
INAPPROPRIATE
ANTIBIOTIC USE
IN ANIMALS



ONEHEALTH
TRUST

TARGET - Reduction in inappropriate antimicrobial use

September 26, 2024
by [Samantha Serrano](#)

The 2024 Lancet Series on antimicrobial resistance (AMR) proposes **achievable global targets** to ensure sustainable access to effective antibiotics

Where conducting the Global-PPS?



- In healthcare settings
 - Hospitals
 - Any institution providing healthcare
 - Inpatient module + optional HAI module
 - Outpatient module



WHO conducts the survey?



- Healthcare professionals
 - Medical doctors, Infectiologists, microbiologists, pharmacists, nurses, datanurse, medical technologists, ...

HOW: A Point Prevalence Survey



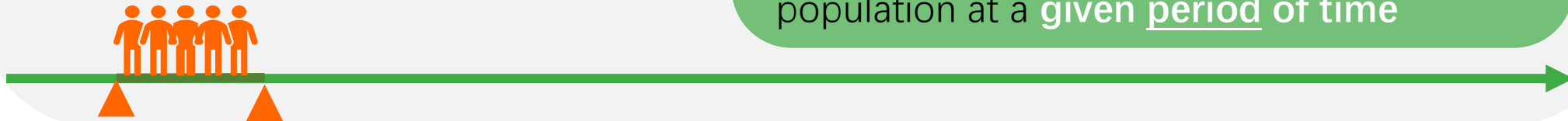
Incidence: number of new cases over a period of time



Point prevalence: number of cases in a population at a given point of time



Period prevalence: number of cases in a population at a given period of time



Point Prevalence Survey (PPS) =
“Collection of data used to identify the number of people with a disease or condition at a **specific point in time.**” CDC definition

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**

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



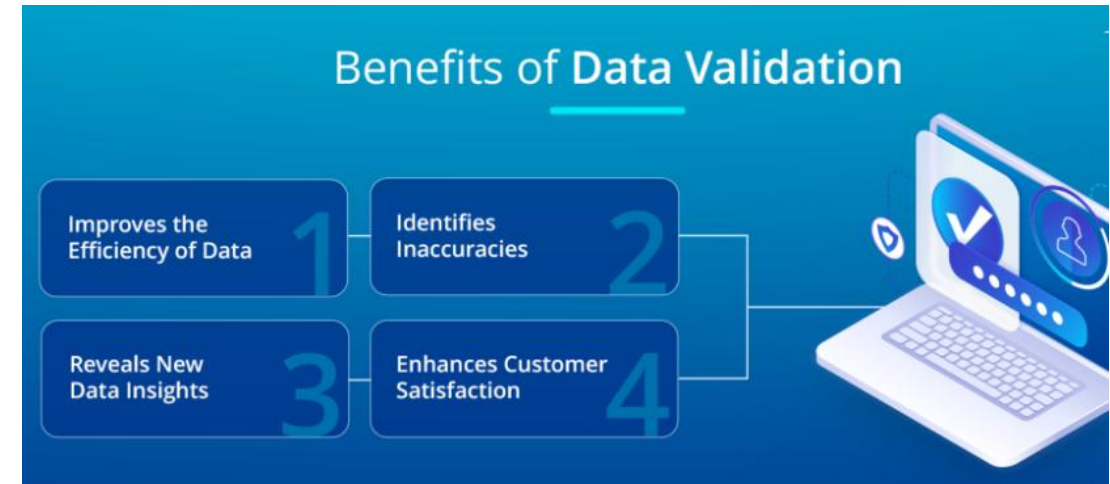
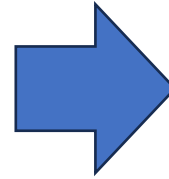
Measure impact

Global-PPS surveillance tool in a nutshell



All hospitals worldwide can participate – voluntary basis

Benefits : Real-time data collection and feedback

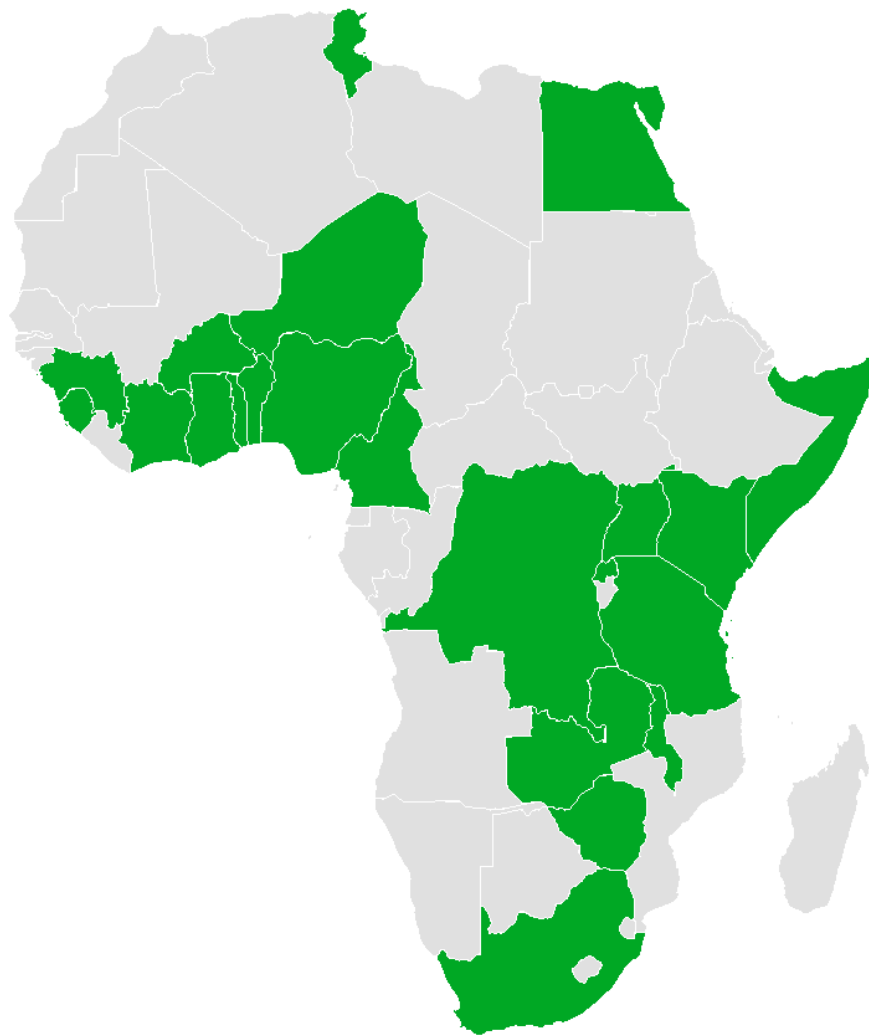


➤ Instruction manuals, Tutorial video's; Training webinars : <https://www.global-pps.com/events/>



- 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)

Degree of participation Global-PPS 2015-2025



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



Antimicrobial prevalence varies between 23 African countries, years 2015-2025 (as of 20-06-'25)

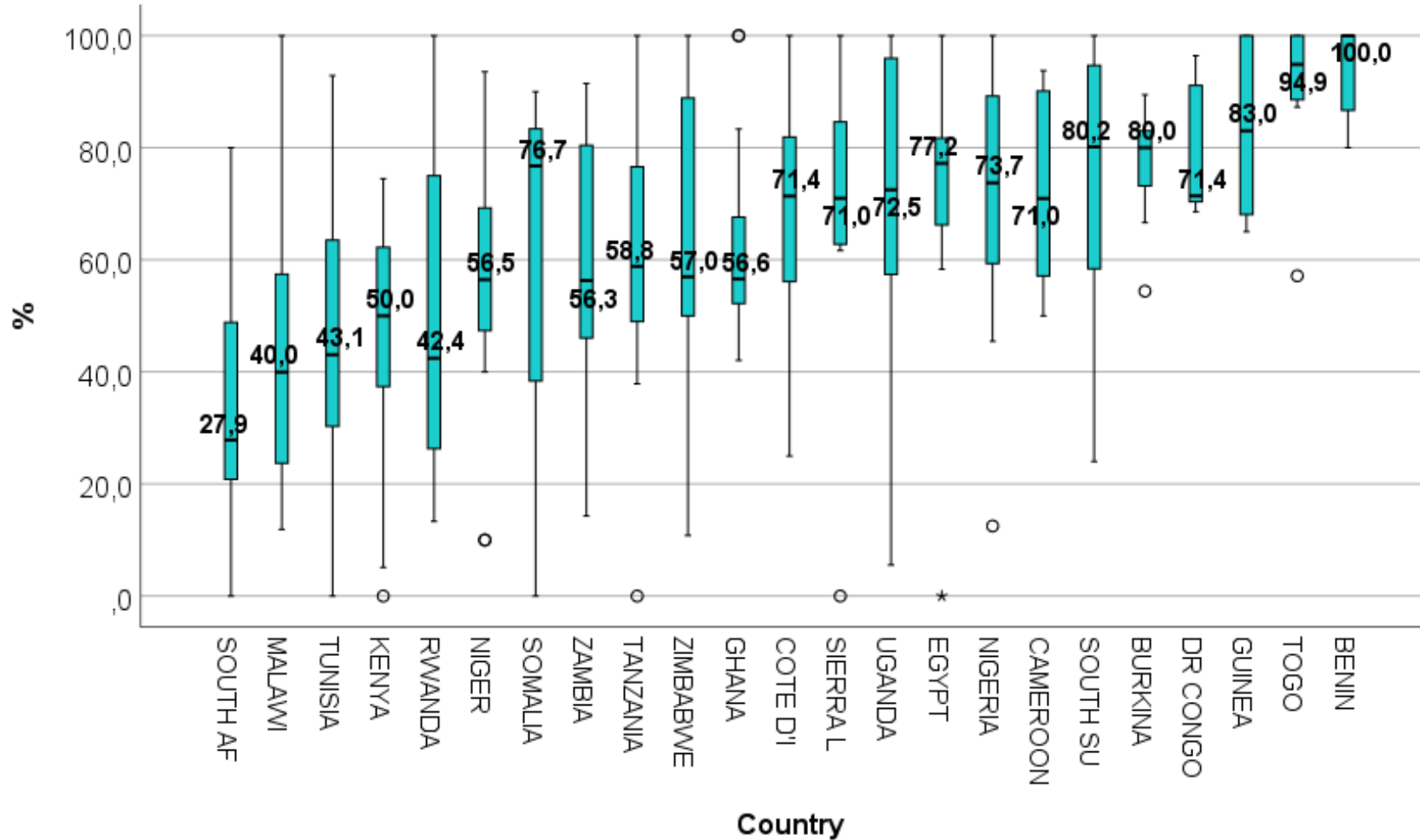


Table: crude prevalence
Graph: adjusted by ward type

Country	N Patients	Antimicrobial prevalence (%)
SOUTH AFRICA	27,021	32.2
MALAWI	9,125	35.1
RWANDA	369	39.3
KENYA	4,737	44.6
TANZANIA	3,036	45.7
TUNISIA	999	46.5
ZIMBABWE	803	51.6
ZAMBIA	5,766	52.3
GHANA	8,474	55.7
NIGER	1,031	57.7
UGANDA	3,368	65.6
SOMALIA	64	65.6
NIGERIA	19,121	67.1
CAMEROON	879	67.7
EGYPT	6,306	68.4
COTE D'IVOIRE	740	69.3
GUINEA	1,114	69.7
SIERRA LEONE	629	70.0
SOUTH SUDAN	1,169	72.4
BURKINA FASO	994	73.3
DR CONGO	149	81.2
BENIN	101	87.1
TOGO	713	89.2
Total	96708	50.6

Top antibiotics prescribed in African hospitals; 2015-2025 (%)



	Ceftriaxone	Metronidazole	Gentamicin	Amoxicillin enz. inh.	Ciprofloxacin	Amoxicillin	Ampicillin	Cefuroxime	Cefotaxime	Benzylpenicillin	Ampicillin/ enz. inh.	Cloxacillin
BENIN (N=148)	26,4	18,2	10,1	15,5	6,8	8,8	8,2		1,4			
BURKINA FASO (N=1078)	32,7	18,6	11,1	8,8	1,3	3,0	8,6		6,9	0,3		0,6
CAMEROON (N=1152)	19,7	13,6	16,9	13,5	1,6	2,8	4,7	2,8	3,7	0,9	0,9	1,3
COTE D'IVOIRE (N=873)	32,0	16,3	15,9	3,0	1,1	12,4		0,2	6,4			
DR CONGO (N=179)	8,9	20,7	2,2		16,8	20,1	11,7					13,5
EGYPT (N=7163)	18,5	9,5	2,1	3,5	2,5	0,4	1,8		12,2	0,5	11,4	
GHANA (N=9155)	13,9	19,4	4,7	10,9	7,1	5,1	2,7	10,1	2,2	1,3		0,6
GUINEA (N=1508)	25,7	18,2	14,5	2,5	3,2	3,7	19,7		0,9	0,5		0,3
KENYA (N=3439)	26,2	17,9	8,2	3,0	1,2	4,1	0,1	2,6	0,1	7,4		
MALAWI (N=6394)	37,9	20,0	13,4	0,3	1,8	3,4	0,8		0,2	15,7		0,5
NIGER (N=819)	43,0	18,6	8,5	5,6	4,6	7,6	1,8		2,8		0,1	
NIGERIA (N=23534)	19,6	24,2	5,0	6,4	6,9	3,7	0,6	6,6	1,3	0,2	0,7	0,1
RWANDA (N=384)	17,8	13,5	4,0	1,8	6,0	1,4	3,1	0,3	22,7			3,1
SIERRA LEONE (N=721)	30,0	20,1	6,7	7,8	3,3	7,4	4,2	0,6	2,4			0,3
SOUTH AFRICA (N=11633)	11,5	7,2	5,4	18,8	2,5	6,6	7,4	0,7	1,1	0,7	0,4	2,4
SOUTH SUDAN (N=1109)	32,7	9,2	8,3	7,1	0,7	6,1	8,6		1,5	0,3		5,1
TANZANIA (N=2502)	26,5	20,2	13,6	1,2	3,8	2,9	7,9	0,5	0,4	0,4	0,2	0,7
TOGO (N=855)	25,3	17,4	9,4	7,2	9,9	16,5	3,2		3,7	0,4		
TUNISIA (N=700)	0,3	10,7	3,0	24,1	9,4	1,0	0,3		15,6			0,1
UGANDA (N=5259)	28,9	23,8	12,6	0,3	2,1	1,1	9,4	0,8	2,7	0,7	0,2	0,8
ZAMBIA (N=5245)	31,7	23,4	6,7	0,1	4,8	4,7	0,2	0,6	4,3	9,1		6,1
ZIMBABWE (N=764)	21,5	21,7	11,4		2,0	6,9	0,4			20,4		8,8
Total (N=84,777)	21,7	18,3	7,6	6,9	4,4	4,0	3,3	3,2	2,7	2,6	1,2	1,1



ACCESS antibiotic



Watch Antibiotic



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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**?

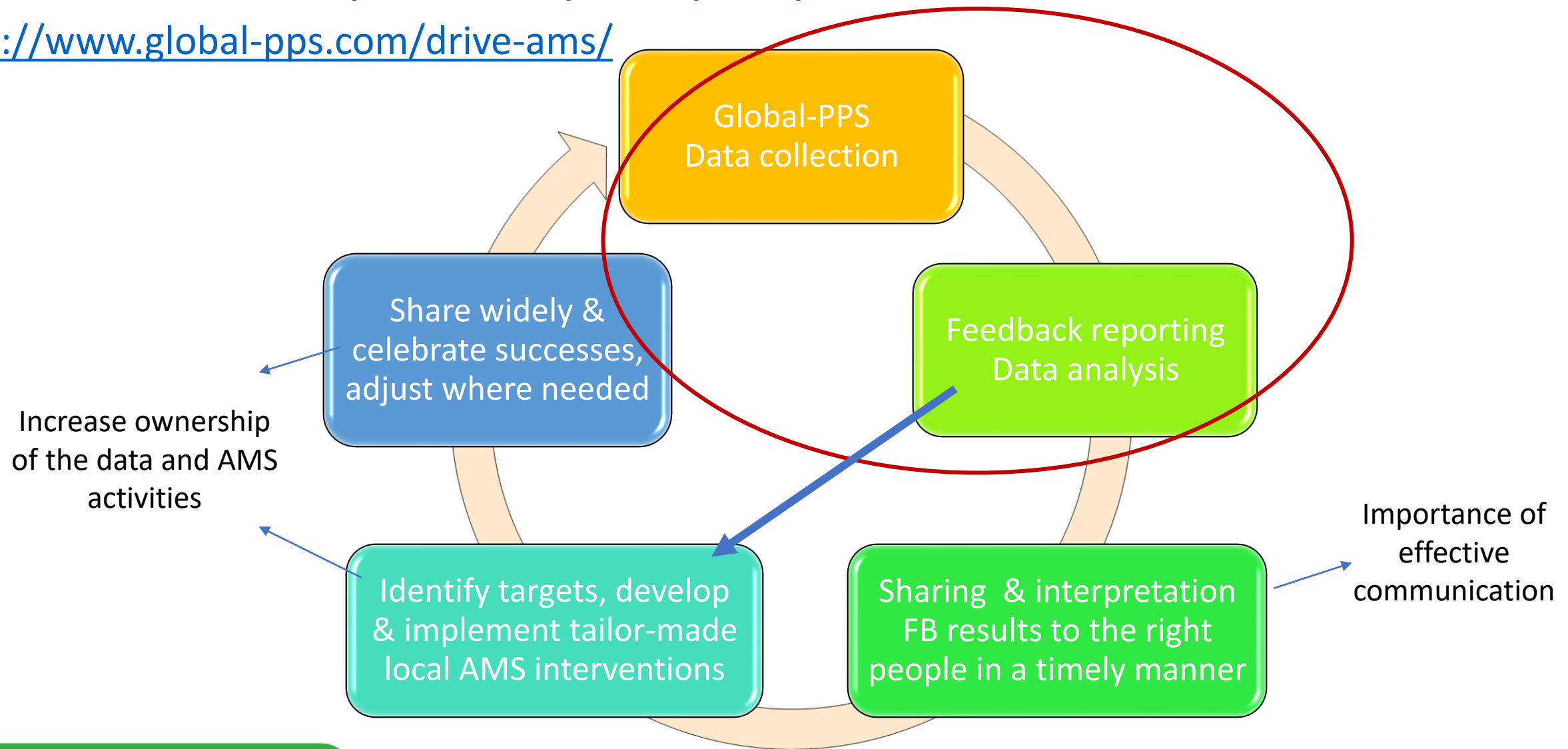
Where to get started?



Data-driven AMS : Using PPS to establish a continuous, sustainable cycle for quality improvement.



<https://www.global-pps.com/drive-ams/>





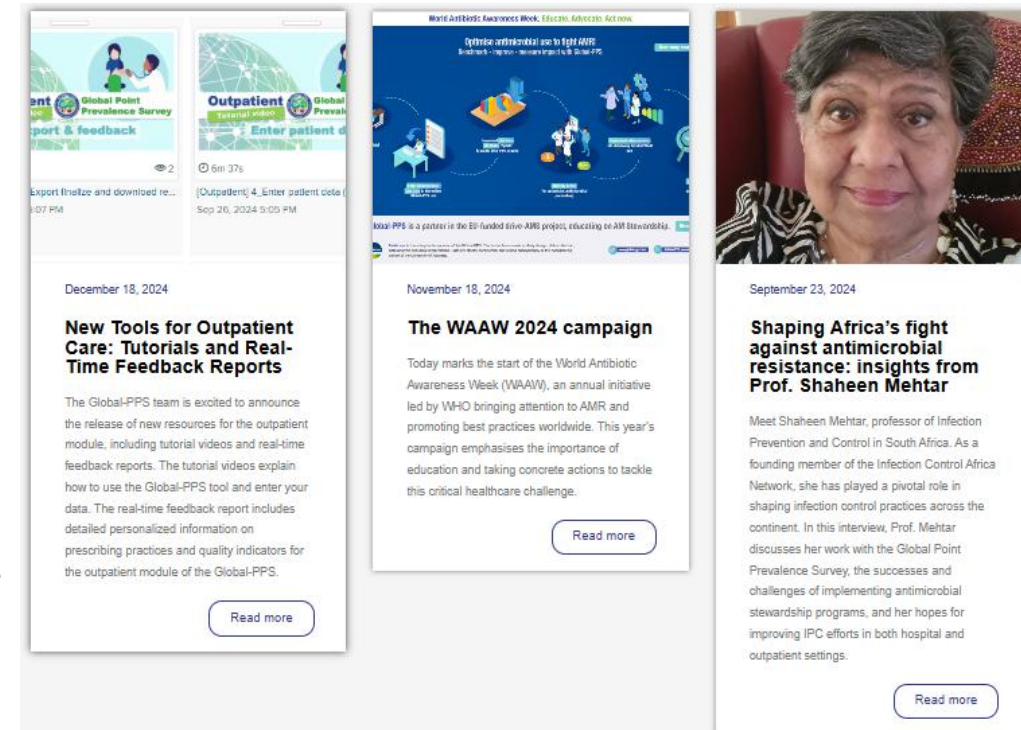
The drive-AMS project



- Collaboration with Radboudumc and four European partner countries: Greece, Lithuania, Portugal, & Romania
- Data-driven, behavioural change approach to implementing AMS
- Collaborations within the network
 - bridging research interests between participants & institutions
 - sharing of knowledge and experiences
- Drive-AMS also involved in African countries (ICARS)

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

- Central hub for information, communication & networking
- 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





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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) Regulatory 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

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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.
Antimicrobials (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.

Disclosures: bioMérieux is the sole industrial partner of the Global-PPS. The company has no role in study design, data collection, data analysis, data interpretation, or writing the report. Data are strictly confidential and stored anonymously at the coordinating centre of the University of Antwerp.



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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,...

Discussion - What have we learned ?

- A PPS is a **simple method** to obtain insight in antimicrobial prescribing practices in healthcare facilities in a **feasible and sustainable** way.
 - Link with HAI, IPC, resistance
- Global-PPS is **widely used in African hospitals**
 - High overall antimicrobial prescribing rates (crude prevalence from 32% - 89%)
 - High Watch prescribing (Ceftriaxone)
 - High use of Metronidazole (Access)
- Hospitals use PPS data to guide quality improvement (see next presentations)
 - Several QIs obtained from a PPS
 - Data-driven AMS
- **Future work with WHO to harmonize protocols** using a PPS on antimicrobial prescribing, HAI and resistance

PPS planning 2025 and beyond

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

- Collaboration
- Complementarity
- Networking
- Standardisation
- Simplicity
-



- Hundreds of healthcare professionals who voluntarily collect and submit data globally
- The Global-PPS coordination team



Thank
~ you

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