



# ICAN25

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# Outpatient Global-PPS

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@Global-PPS

@GlobalPPS\_comm

[www.global-pps.com](http://www.global-pps.com)



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

# Agenda

- Methods of the outpatient module
- Ongoing research
- Degree of participation



# Methods of the outpatient module



# Which settings?

A method to measure antimicrobial use in outpatient settings:



## Hospital departments:

*E.g.:* → Emergency  
→ Outpatient  
→ Day surgery



## Outpatient clinics

*E.g.:* → Dental clinics  
→ Ambulatory surgery centers



## Primary or community healthcare centres

*E.g.:* → General Practitioner practice  
→ Healthcare practice

**Note: Pharmacies cannot use the outpatient Global-PPS**



# Inclusion criteria



All (out)patients seen in  
your survey



NOT admitted as inpatients &  
DO NOT require overnight stay



All patients seen in consultation  
for any reason



Selection of patients is  
NOT permitted



**Important exception:** Include all patients seen in emergency/observation wards, but collect an additional variable for these: admission status.



# Antimicrobials to include - type



**Antibacterials for systemic use**  
(ATC J01)



**Antimycotics & antifungals for systemic use**  
(ATC J02)



**Drugs for the treatment of tuberculosis**  
(ATC J04)



**Antibiotics used as intestinal anti-infectives**  
(ATC A07AA)



**Antiprotozoa used as antibacterials, derivatives of nitroimidazole**  
(ATC P01AB)



**Antivirals for systemic use**  
(ATC J05)



**Antimalarials**  
(ATC P01B)



Topical antimicrobials are excluded from the survey

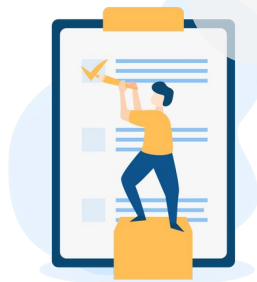


# How to collect the data?

## On paper forms

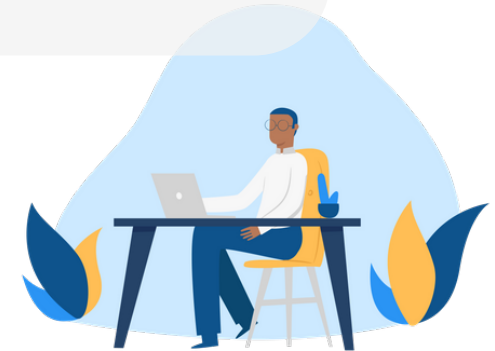
Printing and filling out the:

1. Unit description sheet
2. Patient file (denominators and numerators data)



## In the web-based tool

Validation & generating your reports in the Global-PPS program:  
[https://app.globalpps.uantwerpen.be/globalpps\\_webpps/](https://app.globalpps.uantwerpen.be/globalpps_webpps/)



# Support for after the survey



Excel file with raw results



One-point feedback report in PDF



Merged feedback report in PDF



Interactive feedback dashboard online



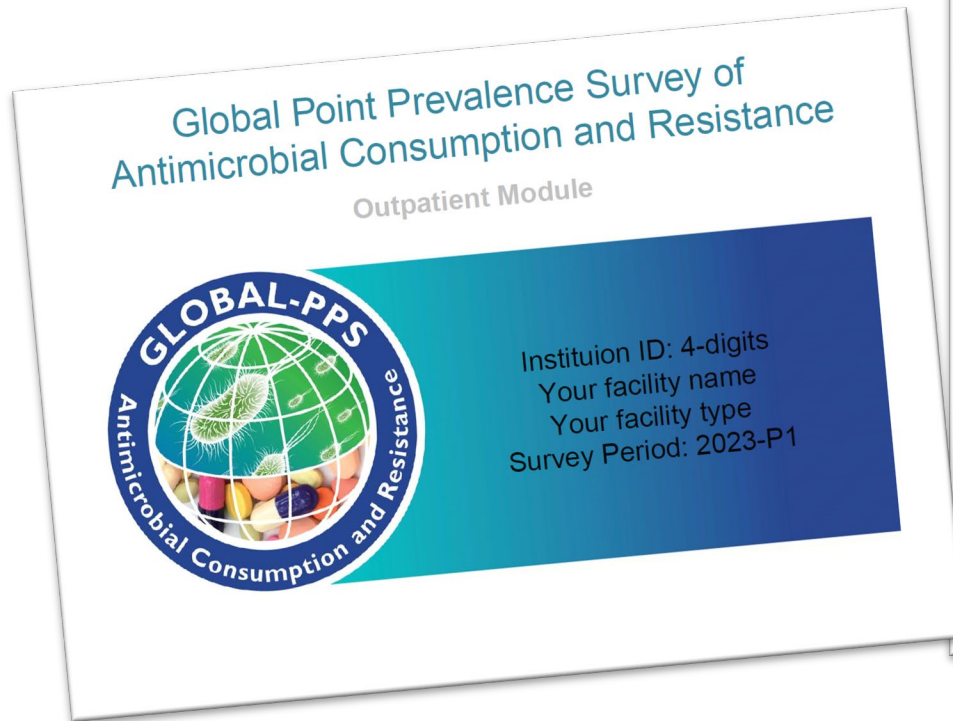
All available at [www.global-pps.com](http://www.global-pps.com) or within the application







# One-point feedback report in PDF



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Proportional antibiotic use ATC4 level – adult	19	Guideline compliance – child	45





# One-point feedback report in PDF

## Antimicrobial prevalence per age group (adult, child, neonate)

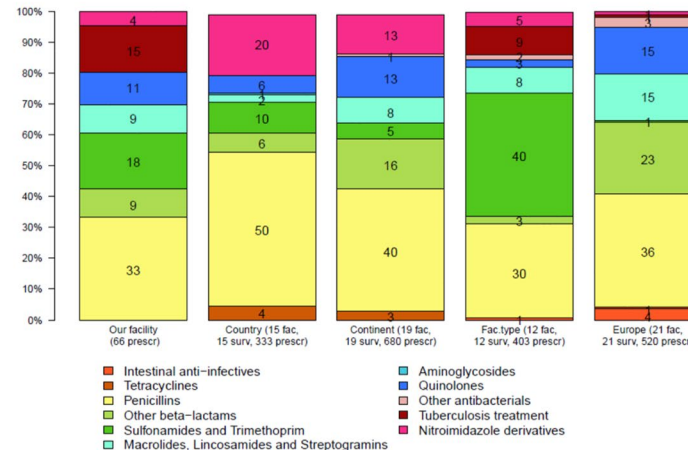
	Total	Adult	Child	Neonate
<b>Our facility 2023-P1</b>				
patients (N)	207	150	51	6
treated patients (%)	34.3	32.7	41.2	16.7
<b>Country</b>				
patients (N)	46			
treated patients (%)	63			
<b>Continent</b>				
patients (N)	180			
treated patients (%)	37			
<b>Facility type</b>				
patients (N)	20			
treated patients (%)	97			
<b>Europe</b>				
patients (N)	551			
treated patients (%)	11			

Patients (N) = number of patients  
Treated patients (%) = 100\*(number of patients

Country: Your country ; Continent: Your co

Adults are over 18 years old. Children are 1 month

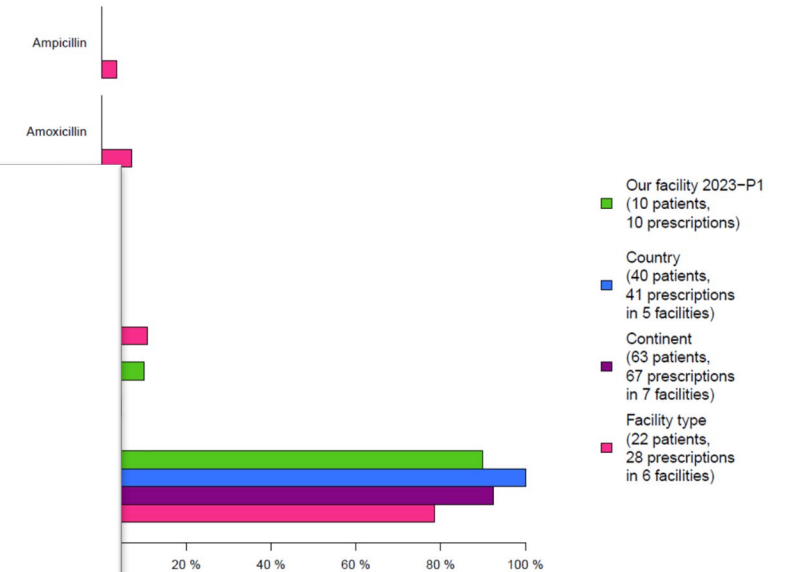
## Overall proportional antibiotic use (% of prescriptions)



Percentage of antibacterials for systemic use (ATC J01, P01AB, A07A, J04A) at ATC3 level (pharmacological subgroup).  
Proportional antibiotic use below 0.5% is not reported. fac = facilities, surv = surveys, prescr = prescriptions.

Country: Your country; Continent: Your continent; Facility type: Your facility type

## Top 5 most frequently used antimicrobials (% prescriptions) for Malaria



Antimicrobials (ATC5, substance level) for Malaria at facility level, supplemented with the most used at country, continental and facility type level if they do not fall within top 5 of the facility. Selection on diagnostic code is Malaria;  
Your country; Continent: Your continent; Facility type: Your facility type





# Interactive feedback dashboard online

Scroll  
down to  
*Outpatients*

**Inpatients**

- Participation
- AMU prevalence
- Proportional use
- Quality Indicators
- Surgical prophylaxis duration
- Top 10 Antimicrobials
- AWaRe

**Outpatients**

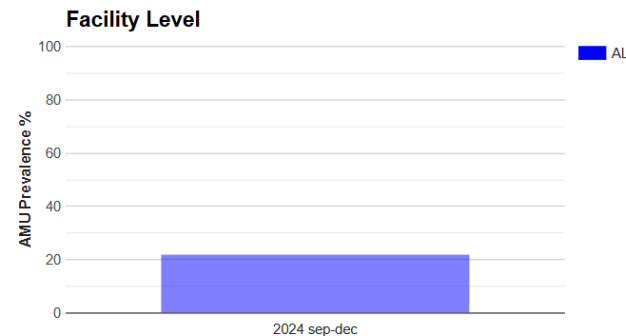
- AMU prevalence

## Antimicrobial use (AMU) prevalence by unit

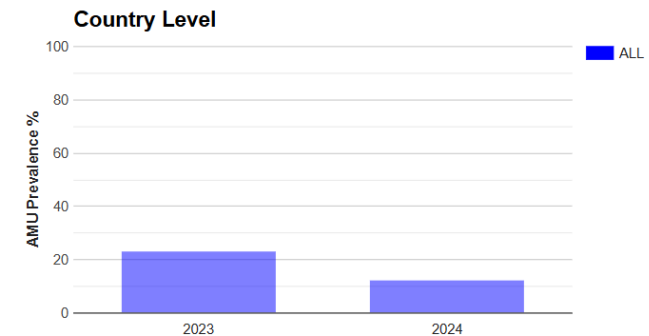
<b>Years of survey (multiple selection) *</b> <input type="text" value="2023"/> <input type="text" value="2024"/> <input type="button" value="x"/>	<b>Units to display (multiple selection)</b> <input type="text" value="Please select..."/>	<b>Antimicrobial groups (multiple selection)</b> <input type="button" value="Select All"/> <input type="text" value="Please select..."/>
<b>Age groups (multiple selection)</b> <input type="button" value="Select All"/> <input type="text" value="Please select..."/>	<b>Sex (multiple selection)</b> <input type="button" value="Select All"/> <input type="text" value="Please select..."/>	<b>Ordered tests</b> <input type="button" value="Select All"/> <input type="text" value="Please select..."/>



### Chart Results AMU Prevalence



Export



Export





# Interactive feedback dashboard online

Scroll  
down to  
Outpatients

**Inpatients**

- Participation
- AMU prevalence
- Proportional use
- Quality Indicators
- Surgical prophylaxis duration
- Top 10 Antimicrobials
- AWaRe

**Outpatients**

- AMU prevalence

## Antimicrobial use (AMU) prevalence by unit

Years of survey (multiple selection) \*

\* 2023
\* 2024

Units to display (multiple selection)

\* Emergency (EM)
\* General Internal Medicine Mixed (GM)

Antimicrobial groups (multiple selection)

Please select...

Age groups (multiple selection)

Please select...

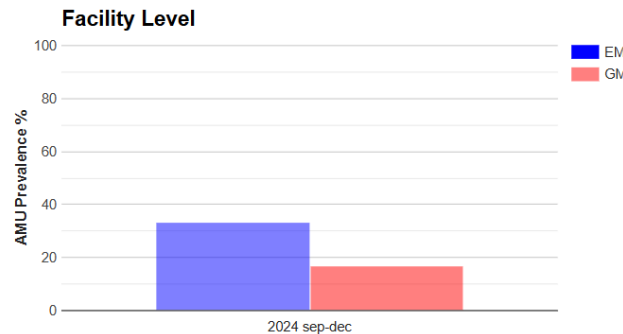
Sex (multiple selection)

Please select...

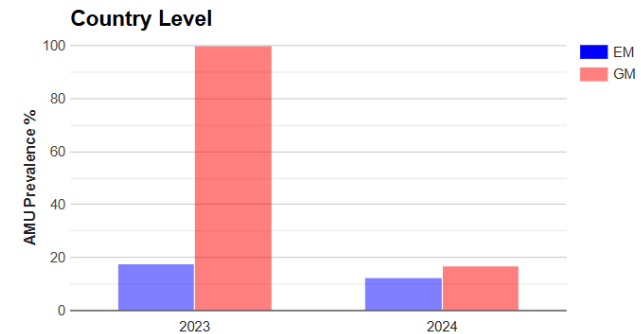
Ordered tests

Please select...

### Chart Results AMU Prevalence



Export



Export



# Ongoing research

# Evaluation questionnaire



Questionnaire with **34 questions on user experiences**, including questions on:



Organisation  
of the PPS



Satisfaction with  
aspects of the  
tool



Barriers to  
conducting the  
PPS



Sent to all (African) participants of the outpatient Global-PPS with finished or ongoing data entry





# Evaluation survey - demographics



**33 (33.7%)**  
participants



**19 (57.7%)**  
facilities/networks



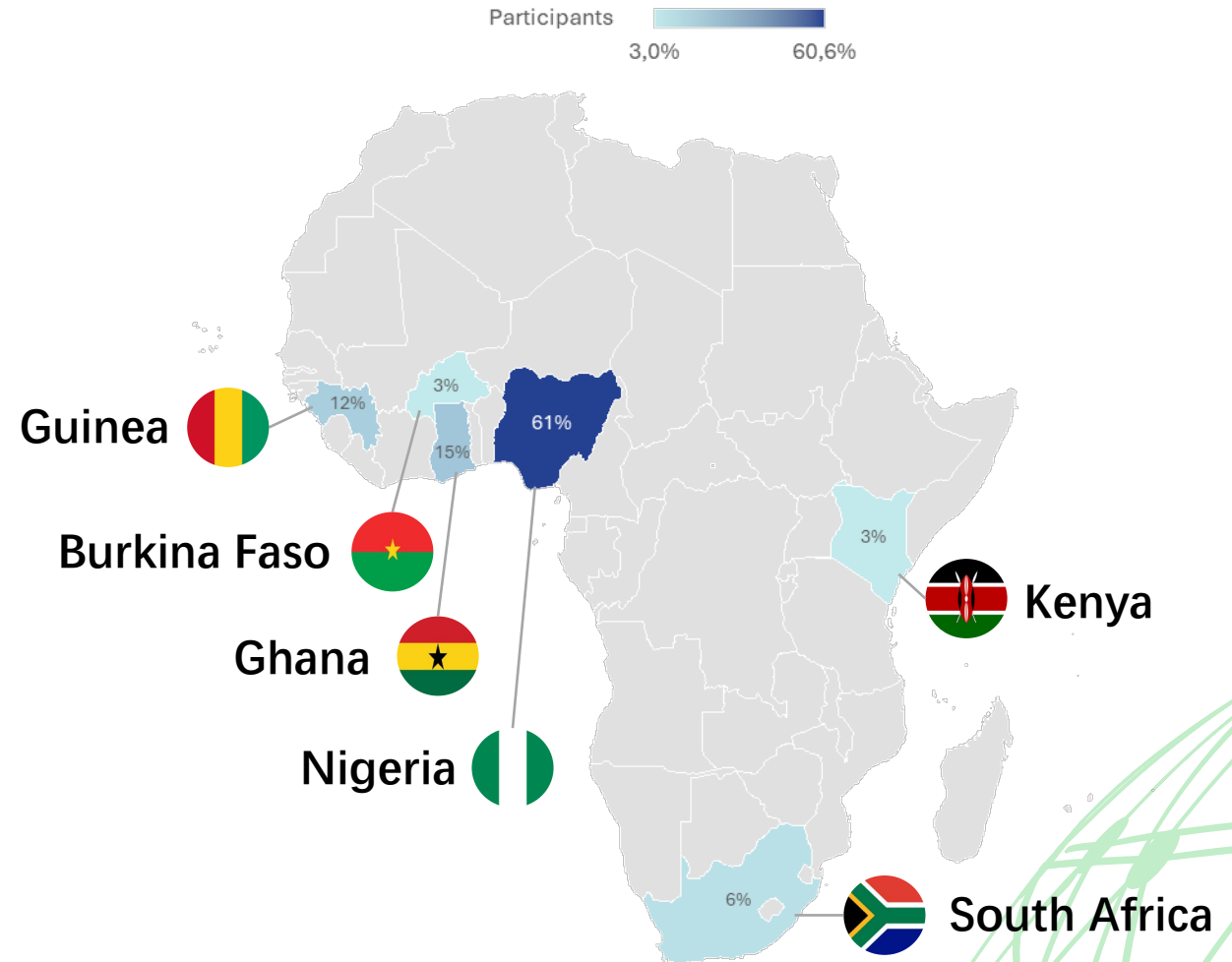
**Mostly from West Africa**

Nigeria (61%), Ghana (15%)  
Guinea (12%)



**Mostly tertiary hospitals**

42% tertiary hosp., 21%  
primary/secondary hosp.,  
37% PHCs/outpatient clinics



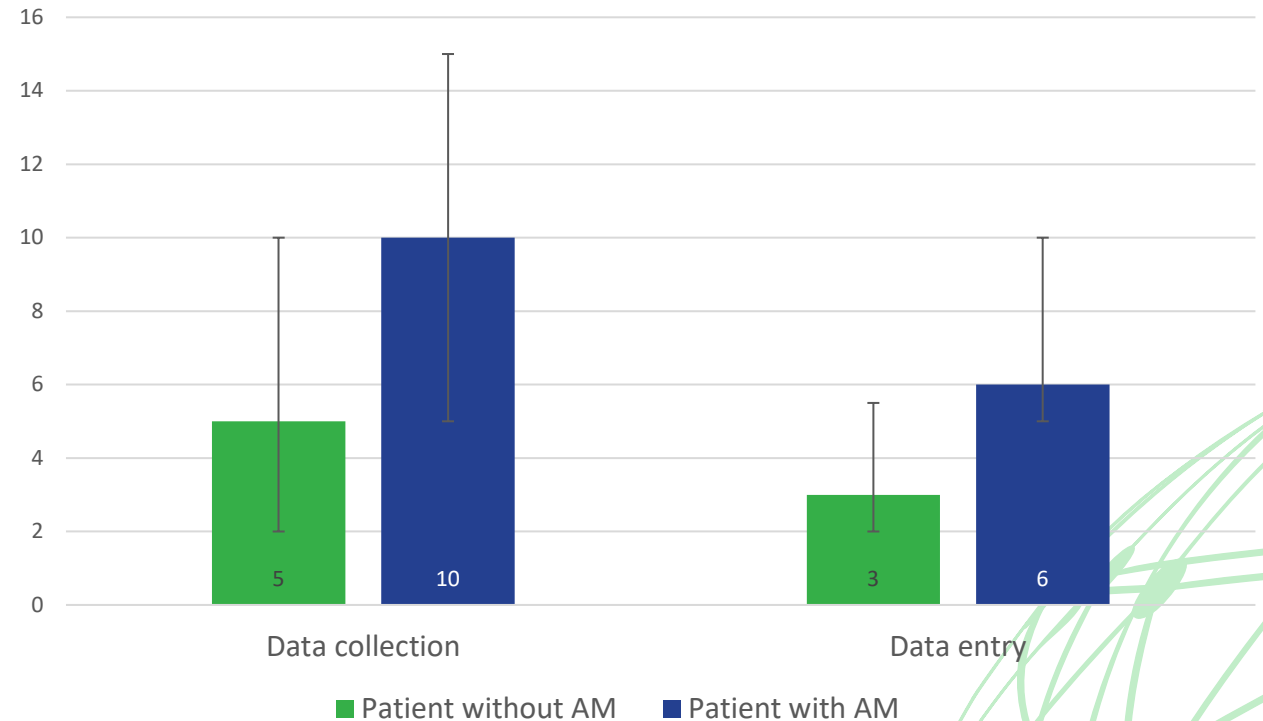
# Evaluation survey - organization



Most data was collected **on paper** (according to 29 (88%) respondents)

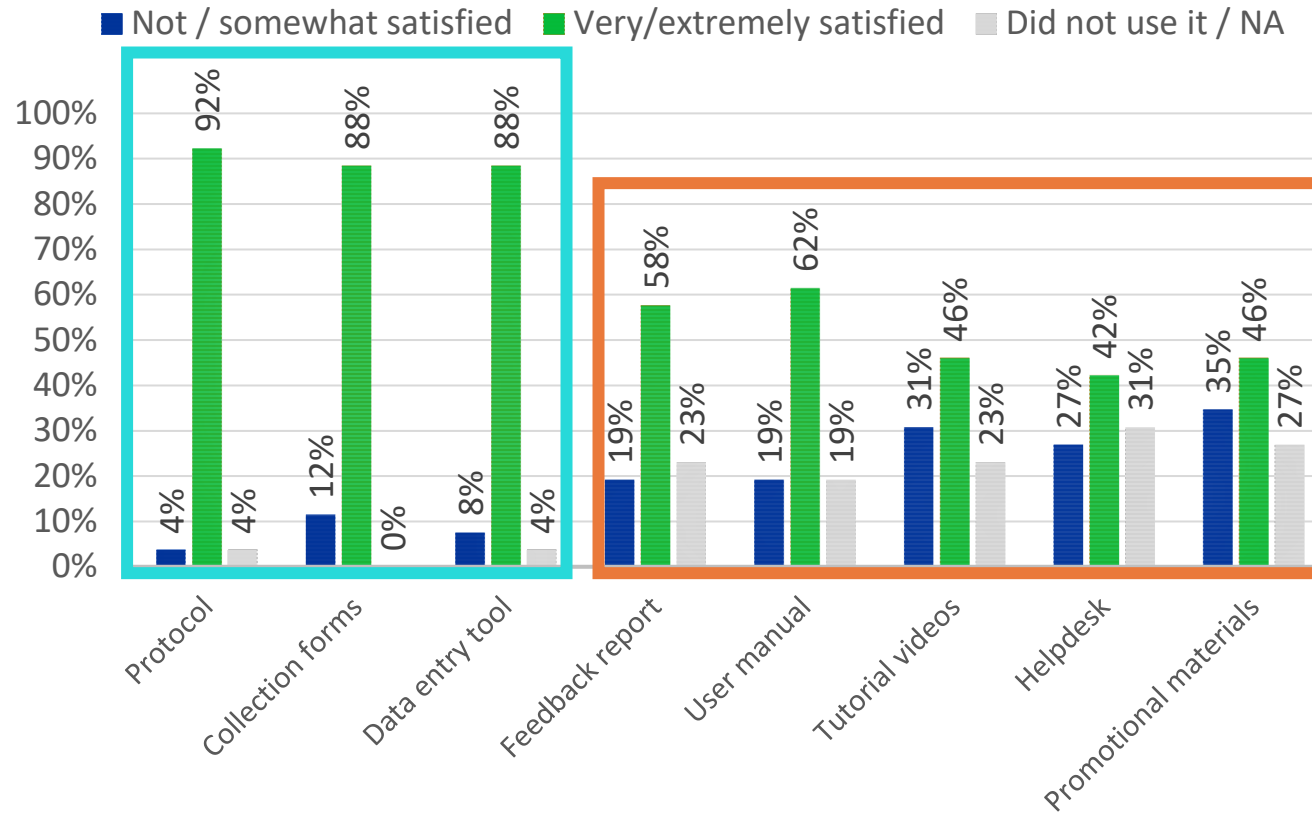


30 participants reported **median (IQR) time to collect/enter data** for 1 patient:





# Evaluation survey - satisfaction



Participant satisfaction (n=25)



>80% of respondents were satisfied with the protocol, data collection forms & online tool

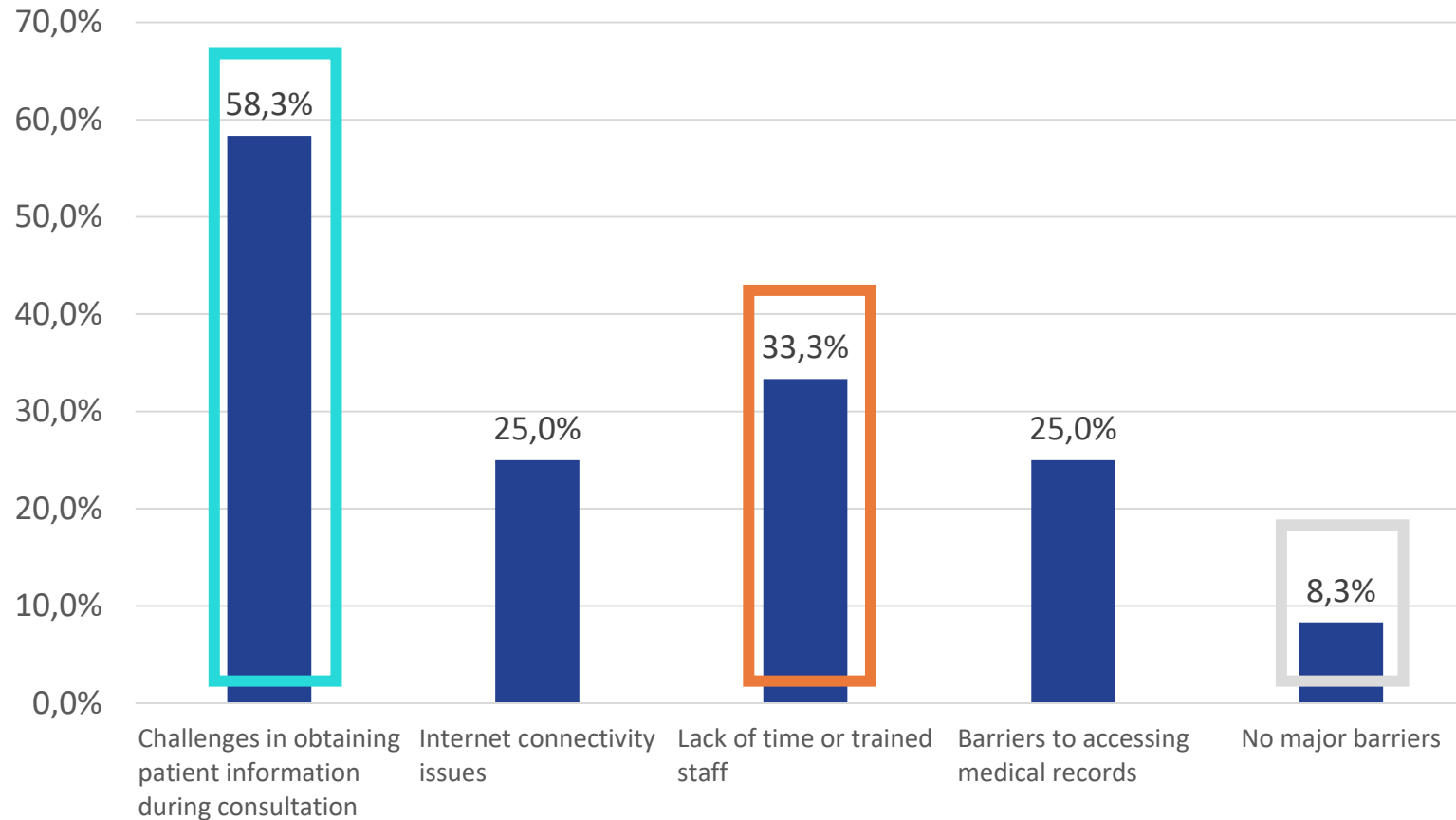


40-60% of respondents were satisfied with other supporting materials (tutorial videos, etc.)



# Evaluation survey - barriers

Encountered barriers among facilities (n=12)\*

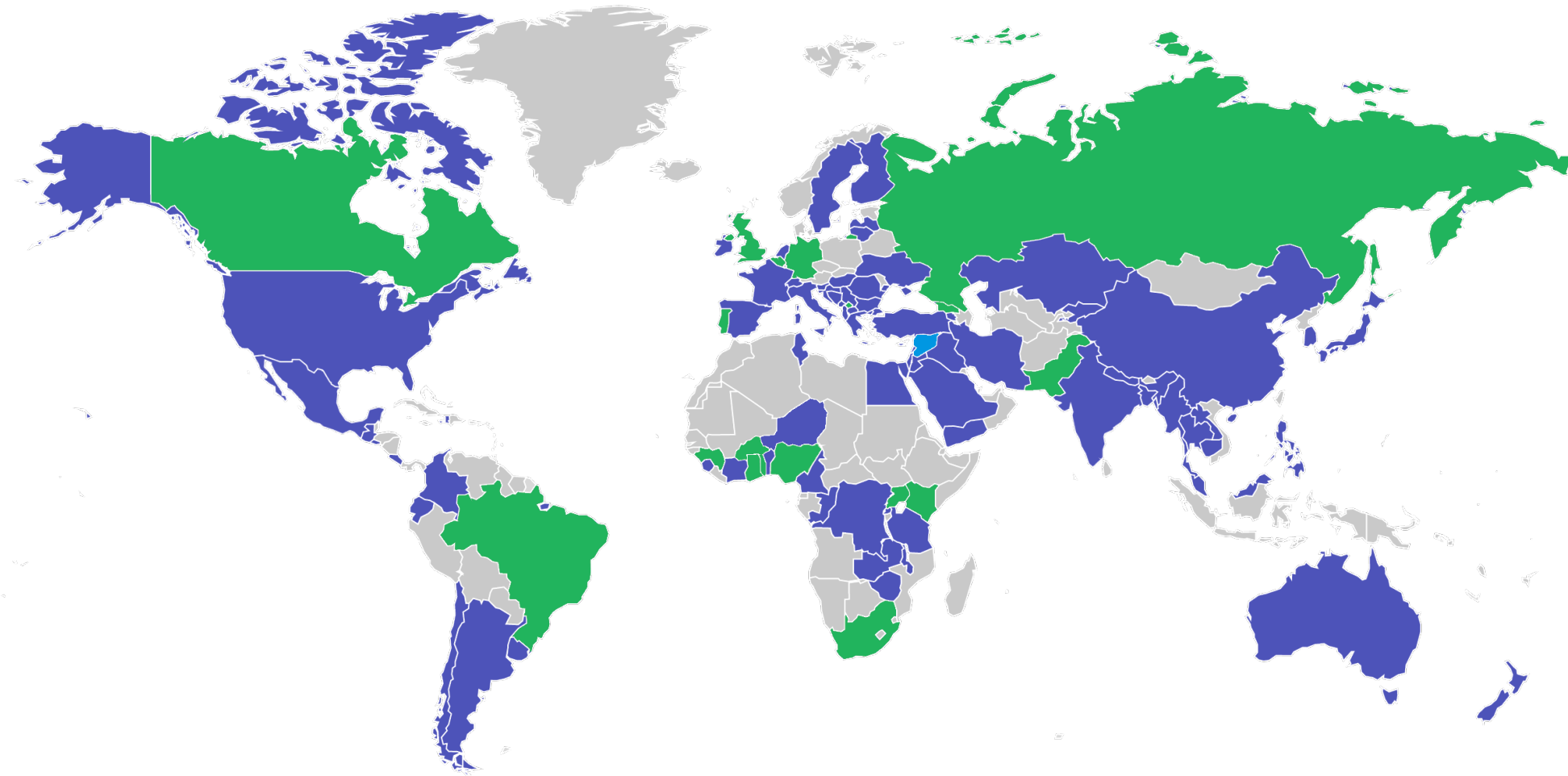


No issues with obtaining ethical approval or institutional approval were reported

\* The median answer was taken in case of multiple responses from 1 facility/network. If there was a tie, the barrier was considered present

# Degree of participation

# Participation in outpatient module



■ Outpatients & inpatients

■ Inpatients

■ Outpatients



Our sincerest thanks & gratitude to all  
participants in the questionnaire &  
outpatient Global-PPS!

And a big thank you for your attention!

# Posters at ICAN 2025



**BACKGROUND & OBJECTIVES**  
Though inappropriate antimicrobial prescribing and poor adherence to malaria treatment guidelines are known contributors to global antimicrobial resistance, data on actual prescribing practices are still lacking. We aimed to measure outpatient antimicrobial prescribing in healthcare facilities (HCF) in Lagos, Nigeria.

**METHODS**  
The outpatient module of the Global-PPS was conducted among five primary healthcare centres (PHC), three general hospitals (GH) and one tertiary care hospital (TCH) in Lagos from 2023 to 2024 using repeated surveys. Data collected included details on the antimicrobial agents, reasons and indications for treatment and several quality indicators. A web-based application was used for data entry and validation ([www.global-pps.com](https://www.global-pps.com)).

**RESULTS**  
**Antimicrobial information**  
Patient characteristics: 7724 patients, 4540 males (58.7%), 2530 females (32.3%).

The overall prevalence of antimicrobial prescribing was 15.8%, with significantly higher rates observed in PHCs (42.8%) and among children (22%) (Figure 1). A total of 1,456 antimicrobials were prescribed, the majority being artemisinin-based combination therapies (ACTs), which accounted for 74.5% (N = 1,048) (Figure 2). Among patients prescribed at least one antimicrobial, 45.7% were also prescribed antibiotics. Quality indicators showed that most antimicrobials prescribed included a documented reason and duration, and malaria testing was high among patients in PHCs (Table 1). However, inappropriate prescribing was noted at the GH and TCH where patients received antimicrobials despite negative malaria test results or the absence of any malaria test.

Table 1: Quality indicators for antimicrobial prescribing

	PHC	GH	TCH	Total
Number of antimicrobials prescribed	N = 944	N = 492	N = 40	N = 1,476
Reason in notes	884 (93.6%)	379 (77.2%)	35 (87.5%)	1,301 (88.6%)
Oral route	475 (50.3%)	414 (84.3%)	37 (92.5%)	926 (62.9%)
Duration written	925 (97.9%)	566 (115.0%)	35 (87.5%)	1,526 (103.4%)
Patients prescribed at least one antimicrobial	N = 767	N = 468	N = 39	N = 1,274
Malaria test	641 (83.6%)	58 (12.4%)	4 (10.3%)	703 (55.1%)
Malaria microscopy	473 (61.7%)	38 (7.9%)	4 (10.3%)	515 (40.3%)
Malaria antigen test	188 (24.5%)	20 (4.3%)	2 (5.1%)	210 (16.4%)
Patients prescribed an antimicrobial without malaria test	209 (27.3%)	340 (72.6%)	35 (87.5%)	584 (45.7%)
Patients prescribed an antimicrobial with a negative malaria test	89 (11.6%)	31 (7.9%)	4 (10.3%)	135 (10.6%)
Patients prescribed at least one antimicrobial and antibiotic	440 (57.4%)	111 (23.6%)	8 (20.5%)	559 (43.7%)

PHC = Primary Healthcare Centre, GH = General Hospital, TCH = Tertiary Care Hospital



**CONCLUSION**  
A high rate of antimicrobial prescribing was observed in PHCs, particularly among children, with frequent use of penicillin amoxycillin. While malaria testing rates were relatively high in PHCs, inappropriate prescribing persisted—patients at the GH and TCH often received antimicrobials despite negative or absent malaria test results. To address these gaps, a quality improvement project has been launched in Lagos to strengthen antimicrobial stewardship, promote appropriate use of antimicrobials and antibiotics, and ultimately improve patient outcomes.

**References**  
1. Global-PPS. The outpatient module of the Global-PPS identifies key action points for antimicrobial stewardship among healthcare facilities in Lagos, Nigeria. *Antimicrobial Consumption and Resistance*. 2024;1(1):1-10. <https://doi.org/10.1016/j.amcr.2024.100001>



**BACKGROUND & OBJECTIVES**  
Most antimicrobial stewardship programmes in Africa have focused on inpatients. We aimed to measure outpatient antimicrobial prescribing practices among different types of healthcare facilities in Burkina Faso, Nigeria, and Togo.

**METHODS**  
The Global-PPS outpatient module was conducted in primary healthcare centres (PHC), general and tertiary care hospitals. Basic patient details were gathered for all individuals attending the outpatient setting (denominator). Detailed information covered antimicrobial prescribing and quality indicators (numerator). A web-based application was used for data-entry, validation and feedback reporting ([www.global-pps.com](https://www.global-pps.com)).

**RESULTS**  
Patient characteristics: 659 patients, 418 males (63.4%), 232 females (35.2%).  
Nigeria: 557 patients (84.4%), 241 males (43.1%), 316 females (56.9%).  
Togo: 206 patients (31.1%), 127 males (61.6%), 79 females (38.4%).

The overall prevalence of antimicrobial prescribing was highest in Burkina Faso (53.2%), followed by Togo (30.4%) and Nigeria (31.3%), with significantly elevated rates observed in PHCs and among children across all three countries (Figure 1). Malaria was the most frequently reported indication for antimicrobial use, regardless of country (Table 1). However, instances of inappropriate prescribing were identified, including the use of antibiotics for upper respiratory tract infections (URTI) and unknown indications. The five most commonly prescribed antimicrobial agents are presented in Figure 2.

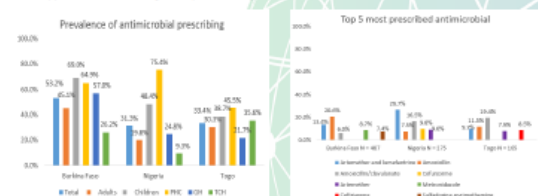


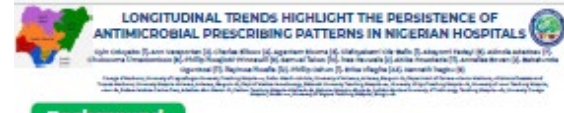
Figure 1: Antimicrobial Prevalence (%) by country, age group and type of healthcare facility. PHC = Primary Healthcare Centre, GH = General Hospital, TCH = Tertiary Care Hospital.

Table 1: Five most common diagnosis to be prescribed an antimicrobial by country

Diagnosis	N (%)	Diagnosis	N (%)	Diagnosis	N (%)
Malaria	327 (28.9%)	Malaria	58 (42.2%)	Malaria	27 (20.0%)
Other	125 (10.9%)	URTI	28 (12.1%)	URTI	22 (16.8%)
Unknown	71 (6.2%)	Septic	20 (8.6%)	Septic	11 (8.4%)
Prophylaxis	20 (1.8%)	Unknown	19 (8.2%)	Unknown	11 (8.4%)
Pneumonia	21 (1.8%)	GI	13 (5.6%)	GI	9 (6.9%)

URTI = Upper Respiratory Tract Infection, GI = Gastrointestinal, Septic = Septicemia, Unknown = Unknown indication

**CONCLUSION**  
Antimicrobial prescribing rates were high in PHCs, particularly among children, with malaria identified as the most common indication across all countries. Inappropriate prescribing was observed, including the use of antibiotics for upper respiratory tract infections (URTI) and cases with unknown indications. Ongoing quality improvement initiatives in the three countries are focused on strengthening antimicrobial stewardship and promoting better patient outcomes.



**Background**  
Nigerian hospitals have been participating in the Global-PPS since 2018, with increasing engagement over time. We aimed to assess whether overall improvements in antimicrobial use (AMU) patterns occurred over time.

**Methodology**  
We analysed an extended Global-PPS data from 10 Nigerian hospitals, representing all the geographical areas that participated for at least four consecutive years, with a minimum of nine years between 2018 and 2023. Descriptive analysis examined annual trends in patient and antimicrobial characteristics, with a focus on possible improvements in AMU quality indicators.

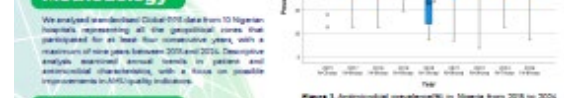


Figure 1: Antimicrobial prevalence (%) in Nigeria from 2018 to 2023, based on combined results from 10 participating hospitals.

**Results**  
Ten tertiary care hospitals conducted 78 surveys, including 16,802 patients admitted on adult and 8,208 on child wards of which 45.8% (7,673) and 71.9% (7,019) received an antimicrobial respectively. A decline in AMU was observed during the COVID-19 period in 2020, followed by a steady increase thereafter (Figure 2). On average, 8340 was 38% higher in male children (range 7.4% to 30.7%). Microbiological (oral or parenteral) remained the most prevalent antibiotic (22.8%), followed by penicillin (18.9%). The indicators for use and appropriate dose were documented in 45.6% and 41.9% of prescriptions, respectively, with the same while guidelines were written in 58.2%, compliance with availability guidelines was observed in 69% of prescriptions (Figure 2).

**Discussion**  
No major or sustained improvements in prescribing patterns were observed over the years. A detailed hospital-level analysis is needed to identify potential areas for improvement, with an emphasis on finding findings to antimicrobial stewardship efforts. Over time all 10 hospitals participated, multiple times, these data offer valuable insights into usage trends over time.

Figure 2: Quality indicators of appropriate antimicrobial prescribing in 10 Nigerian hospitals, years 2018-2023.

**References**  
1. Adekunle AO, Olayinka AT, Ingle NJ, Venguer A, Comans N, Hoogstraaten P, et al. A Point Prevalence Survey of Antimicrobial Prescribing in Four Nigerian Tertiary Hospitals from 2017-2018. *Antimicrobial Consumption and Resistance*. 2020;1(1):1-10. <https://doi.org/10.1016/j.amcr.2020.100001>



**Objectives**  
The outpatient Global-PPS is the first freely available, standardised tool for monitoring global outpatient antimicrobial use.

**Design**  
In October 2024, a detailed evaluation questionnaire was sent to all (active) users containing 34 questions about their experience.

**Prepare & conduct the PPS**  
**Data-entry & feedback**  
**Evaluation**



**Results**  
**Participation**  
33 (33.7%) participants  
19 (57.7%) facilities/networks  
42% tertiary hosp., 21% primary/secondary hosp., 37% PHC/outpatient clinics

**Reported barriers**  
No major barriers  
Barriers to accessing medical records  
Lack of time or trained staff  
Internet connectivity issues  
Challenges in obtaining patient information during consultation

**User satisfaction**  
>80% of respondents were satisfied with the protocol, data collection forms & online tool  
40-50% of respondents were satisfied with support materials (tutorial videos, etc.)  
(n=25)

**Conclusion**  
A standardised tool for antimicrobial use surveillance was developed. Evaluation among participants revealed a high degree of satisfaction, though extra support seem needed to decrease the effort, train staff and expand custom feedback.