Global Point Prevalence Survey of Antimicrobial Consumption and Resistance

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Laboratory of Medical Microbiology
Vaccine & Infectious Disease Institute
University of Antwerp

BIOMÉRIEUX

Supporting healthcare professionals
in the fight against resistance

Disclosures
Global PPS, a strong partnership

Disclosures: "bioMérieux is the sole private sponsor of the GLOBAL Point Prevalence Survey. The Global-PPS is also funded by a personal Methusalem grant to Herman Goossens of the Flemish government.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."

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Outline

- Introduction to PPS

- Support: method – tool

- Communication : various ways !
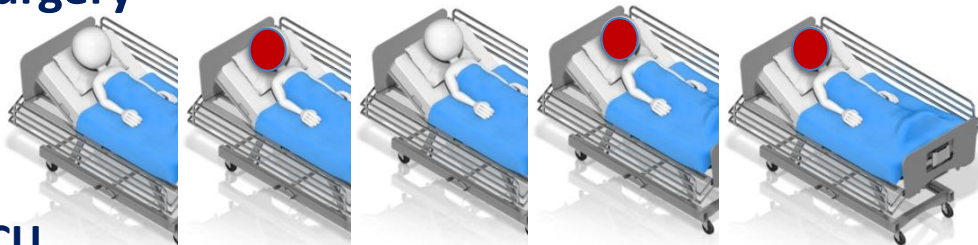
- Networking : seek support for your efforts

- Discussion

Surveillance

If You Can't Measure It, You Can't Improve It

(William Thomson, Lord Kelvin)
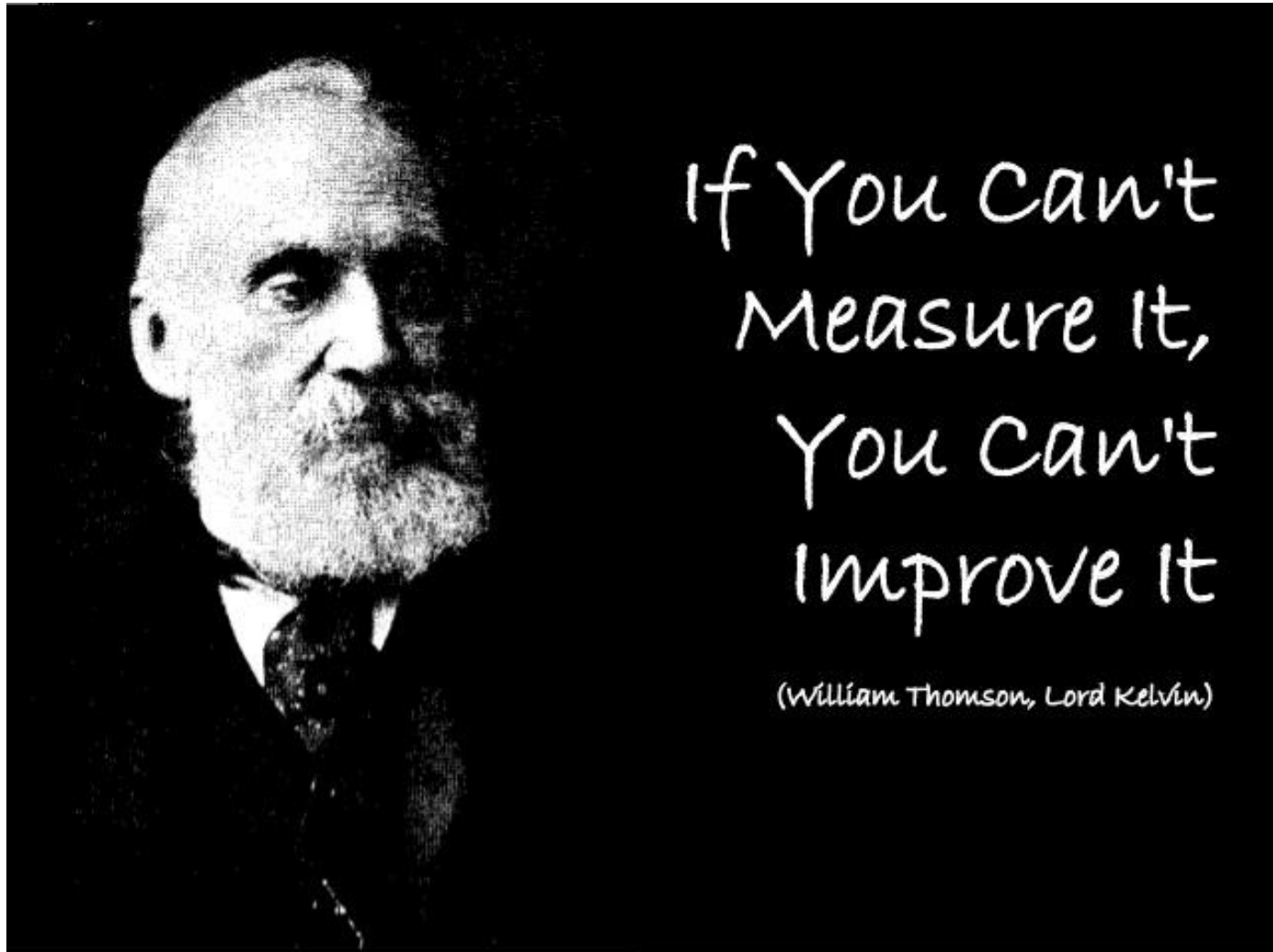
(Lord Kelvin, 1824-1907)

Point Prevalence Survey
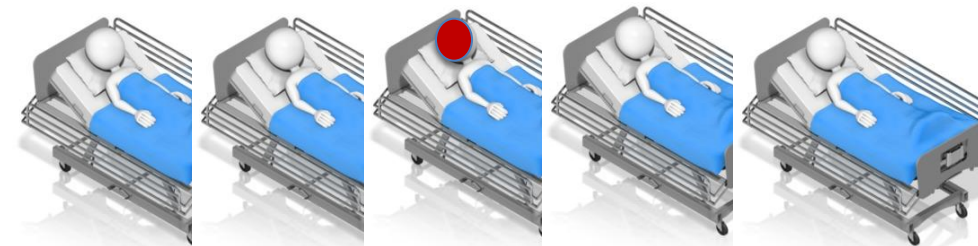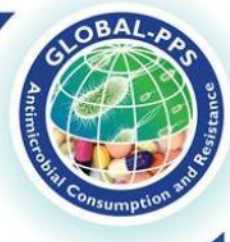
Surgery

ICU

Medicine

Other wards

"one-day" cross-sectional PPS (each ward within the hospital surveyed <u>one once</u>)

Global PPS background

- **Extension of Point Prevalence Surveys (PPS) to assess antimicrobial prescribing practices in European hospitals**
  - **ESAC-PPS in 2006, 2008, 2010**
  - **ARPEC-PPS 2011, 2012 (children and neonates)**
  - **Global-PPS in 2015, 2017**

- **Outcome of the 4th session of the World HAI/Resistance Forum on healthcare-associated infections and antimicrobial resistance, June 2013 - Annecy, France**

  http://www.biomerieux.com/en/4th-world-hai-forum-antimicrobial-resistance

Ansari et al., Clin Infect Dis, 2009; Zarb et al., J Antimicrob Chemother, 2010;
Amadeo et al,. J Antimicrob Chemother 2010
Versporten et al., PIDJ, 2013; Versporten et al., JAC, 2015

Global PPS Evolution

- 2014 (pilot)
- 2015
  - 335 hospitals
  - 53 countries
  - 6 continents
- 2017
  - Over 400 hospitals
- 2018
  - Possibility to join 3 different time periods
    - January – April; May – August; September - December

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*

Global-PPS purpose

- **Monitor rates of antimicrobial prescribing and resistant bugs** in the hospital

- **Benchmark** between hospitals, countries, regions

- **Identify** targets to improve quality of antimicrobial prescribing

- **Help** designing hospital interventions to promote prudent antimicrobial use (Antibiotic Stewardship) and improve patient health

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

- **Increase public health capacity**

http://www.global-pps.com/ourproject/

Organization at hospital level

- **Creation of multidisciplinary team**

- **Allocation of local Global-PPS administrator – a lead**

- **Ethics approval if necessary**

- **Guarantee of data privacy**
  - **Hospital names will never be revealed in any report or publication unless official written approval (e.g. as co-author for peer reviewed article)**

  - **Completely anonymous patient data-entry**

- **Data are property of the respective hospital**

- **Publication policy available on request**

- **Get in touch :** global-pps@uantwerpen.be

Outline

- Introduction to PPS

- Support: method – tool

- Communication : various ways !

- Networking : seek support for your efforts

- Discussion

What do we offer: Full support to hospitals

o Supply of materials to conduct the survey

  ➢ Translated protocol or data collection forms
     (English, French, other 6 languages)
  ➢ The antimicrobial list following the WHO ATC/DDD classification system (excel file) (ref: https://www.whocc.no/)
  ➢ PPT slides on the method used (EN, FR)
  ➢ The Frequently Asked Questions list
  ➢ The IT-manual
  ➢ Global-PPS poster and leaflet : promote the study in the participating hospital (different versions, easy to translate)

  Available at http://www.global-pps.com/

o Help desk, people at University of Antwerp (Coordination, IT, statistics, administrative support): global-pps@uantwerpen.be

o All of the above = freely available

Departments concerned

- **All wards (units/departments) of the hospital are to be included only once !**
  - ➤ **We have foreseen three surveillance periods in 2018:**
    - **Jan-April 2018**
    - **May-August 2018**
    - **September-December 2018**
- **Data collection is done on a weekday, not on the weekend or a holiday.**
- **Surgical departments are not to be surveyed after a weekend or holiday in order to allow retrospective data collection on surgical prophylaxis.**

Predefined ward categorization

Adult departments	Paediatric departments
AMW (Adult Medical Ward)	PMW (Paediatric Medical Ward)
HO-AMW (Haematology-Oncology AMW)	HO-PMW (Haematology-Oncology PMW)
T-AMW (Transplant (BMT/solid) AMW)	T-PMW (Transplant (BMT/Solid) PMW)
P-AMW (Pulmonary AMW)	
ASW (Adult Surgical Ward)	PSW (Paediatric Surgical Ward)
AICU ([Adult] Intensive Care Unit)	PICU (Paediatric Intensive Care Unit)

Neonatal departments
NMW (Neonatal Medical Ward)
NICU (Neonatal Intensive Care Unit)

Global-PPS data collection, entry and management

1. **Data collection on paper forms :**
    - **Department (Ward) form (denominator data)**
    - **Patient form (numerator data)**

2. **Web-based data entry, verification, validation and reporting with the help of the Global-PPS program.**

URL:

http://app.globalpps.uantwerpen.be/globalpps_webpps/

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Global Point Prevalence Survey (2018 GLOBAL-PPS)

Ward Form

Please fill in one form for each ward included in the PPS

Date of survey (dd/mm/year)	_____15_____ / ___03___ / _____2018_____
Person completing form (Auditor code)	Ann
Hospital name	UZA
Ward Name	Hemato -D4

| **Department Type:** Place a tick against the type of department | **Paediatric departments:**
☐ **PMW** (Paediatric Medical Ward)
X **HO-PMW** (Haematology-Oncology PMW)
☐ **T-PMW** (Transplant (BMT/Solid) PMW)
☐ **PSW** (Paediatric Surgical Ward)
☐ **PICU** (Paediatric Intensive Care Unit)
Neonatal departments:
☐ **NMW** (Neonatal Medical Ward)
☐ **NICU** (Neonatal Intensive Care Unit) | **Adult departments:**
☐ **AMW** (Adult Medical Ward)
☐ **HO-AMW** (Haematology-Oncology AMW)
☐ **T-AMW** (Transplant (BMT/solid) AMW)
☐ **P-AMW** (Pneumology AMW)
☐ **ASW** (Adult Surgical Ward)
☐ **AICU** ([Adult] Intensive Care Unit) |

Denominator Data

Mixed Department	X Yes ☐ No		
Activity: Tick as appropriate. ➤ In case of mixed departments, tick all the encountered activities/specialities	X **Medicine**	X **Surgery**	☐ **Intensive Care**
Total number of admitted patients on the ward present at 8.00 am on day of PPS split up by activity. ➤ For mixed departments, fill the total number of patients corresponding to each of the encountered activities.	12	3	
Total number of beds on the ward present at 8:00 am on day of PPS split up by activity. ➤ For mixed departments fill in the total number of beds corresponding to each of the encountered activities.	15	5	

Include only inpatients "admitted before 08:00 hours" on the day of the PPS !

Description of ward :
* Total N of inpatients present on the ward before 8:00 am and
* Total N of beds on the ward at 8:00 am on the day of the survey.

Numerator – Inclusion criteria

Patients

Include all in-patients receiving an "active/ongoing" antimicrobial prescription at 8 am on the day of survey

In practice, this means 1) For an observed national average antimicrobial prevalence rate of 29% and 2) For a hospital with on average 500 admitted inpatients a day;

The number of inpatients for which one need to collect detailed data will be on average 145 inpatients for the entire hospital.

Numerator – Inclusion criteria

- **Definition of an antimicrobial agent – Which one and when to include ?**
  - **Prescribed** at 8 am the day of the survey
  - Include active and ongoing antimicrobials: include an ongoing antimicrobial prescribed e.g. 3 times/week but not on the day of the survey

- **Antimicrobials under surveillance** (according to WHO ATC classification; this is done automatically during data-entry by the Global-PPS programme)
  - Antibacterials for systemic use: J01
  - Antimycotics and antifungals for systemic use: J02 and D01BA
  - Antibiotics and other drugs used for treatment of tuberculosis: J04A
  - Antibiotics used as intestinal anti-infectives: A07AA
  - Antiprotozoals used as antibacterial agents, nitroimidazole derivatives: P01AB
  - All antivirals : J05
  - Antimalarials: P01B

- **Antimicrobials for topical use are excluded**

Exclusion criteria : to be applied in the numerator and denominator

- **Day hospitalizations and ambulatory care patients**
- **Patients admitted to the ward after 8 am on the day of the survey**

➢ **Those patients are NOT counted in the numerator nor in the denominator!**

Essential data to collect: numerator

At the patient level:

- **Age, gender and weight**
- **Treatment based on biomarker; which one (CRP, PCT or other lab-based biomarker), type of sample and most relevant value**

At the antimicrobial prescription level:

- **Antimicrobial agent/s (substance level - generic name)**
- **Dose per administration - N doses/day - route of administration**
- **Reasons for treatment (anatomical site of infection) What the clinician intends to treat !**
- **Indication for therapy (Community Acquired or Healthcare Associated Infection; Medical or Surgical Prophylaxis)**

Essential data to collect: numerator

At the level of the antimicrobial prescription, next:

- **Quality indicators**
  - Reason for therapeutic or prophylactic prescription written in notes?
  - Stop and review date of prescription written in notes?
  - Prescription compliant with local guidelines?

- **"Empiric" or "Targeted" treatment**

- **If targeted: complete microbiology data (if one of the following):**
  - MRSA
  - Methicillin-resistant coagulase-negative staphylococci
  - VRE
  - ESBL-producing Enterobacteriaceae
  - 3rd generation cephalosporin resistant Enterobacteriaceae non-ESBL producing or ESBL status unknown
  - Carbapenem-resistant Enterobacteriaceae
  - ESBL-producing nonfermenting Gram-negative bacilli
  - Carbapenem-resistant nonfermenting Gram-negative bacilli
  - MDR organisms

Reporting in case of product combination

Combinations of an antibiotic and an enzyme inhibitor:

- Ampicillin and enzyme inhibitor: **report only ampicillin dose**
- Amoxicillin and enzyme inhibitor: **report only amoxicillin dose**
- Ticarcillin and enzyme inhibitor: **report only ticarcillin dose**
- Piperacillin and enzyme inhibitor: **report only piperacillin dose**
- Imipenem and enzyme inhibitor: **report only imipenem dose**
- Panipenem and betamipron: **report only panipenem**

Examples:

Augmentin® 1.2g IV → 1g (amoxicillin) + 200mg (clavulanic acid): **report only 1 g**

Piperacillin® 4.5g IV → 4g (piperacillin) + 500mg (tazobactam), **report only 4 g**

Other combinations of multiple antimicrobial substances:

Sulfamethoxazole and Trimethoprim: report total amount of both sulfamethoxazole and trimethoprim

Example:

Cotrimoxazole 960mg: (sulfamethoxazole 800mg + trimethoprim 160mg), report 960mg

See antimicrobial list

GLOBAL-PPS PATIENT Form (Please fill in one form per patient on antimicrobial treatment/prophylaxis)

Ward Name/code	Activity [1] (M, S, IC)	Patient Identifier [2]	Survey Number [3]	Patient Age [4]			Weight In kg, 2 decimals	Gender M or F
				Years (if ≥ 2 years)	Months (1-23 month)	Days (if <1 month)		
Hemato – D4	M	12345678		16			51.5	M

Antimicrobial Name [5]		1. Meropenem		2. Co-trim		3.	4. Amikacin	5.
Single Unit Dose [6]	Unit (g, mg, or IU) [7]	770	mg	480				
Doses/ day [8]	Route (P, O, R, I) [9]	3	P	1				
Diagnosis [10] (see appendix II)		Sepsis		MP		Sepsis		
Type of indication [11] (see appendix III)		HAI2		MP		HAI2	HAI2	
Reason in Notes (Yes or No) [12]		No		No		No	No	
Guideline Compliance (Y, N, NA, NI) [13]		N		Y		Y	Y	
Is a stop/review date documented?(Yes/No)		No		No		No	Yes	
Treatment (E: Empirical; T: Targeted)		T		E		T	T	
The next section is to be filled in only if the treatment choice is based on microbiology data (Treatment=targeted) AND the organism is one of the following								
MRSA (Yes or No) [14]						Yes		
MRCoNS (Yes or No) [15]								
VRE (Yes or No) [16]								
ESBL-producing Enterobacteriaceae (Yes or No) [17]		Yes					Yes	
3rd generation cephalosporin resistant Enterobacteriaceae non-ESBL producing or ESBL status unknown (Yes or No)								
Carbapenem-resistant Enterobacteriaceae (Yes or No) [18]								
ESBL-producing non fermenter Gram-negative bacilli (Yes or No) [19]								
Carbapenem-resistant non fermenter Gram-negative bacilli (Yes or No) [20]								
Targeted treatment against other MDR organisms (Yes or No) [21]								

Treatment based on biomarker data (Yes or No)	X Yes – 0 No				
If yes, which biomarker (CRP, PCT or other) [22]	CRP	Type of biological fluid sample (Blood/urine/other)	Blood	Most relevant value of biomarker on the day of the PPS	
				Value	Unit (in µg/L, mg/L, ...) [23]
				215	mg/L

Numerator Data

Appendix II - Diagnostic codes (what the clinician aims at treating)

Site	Codes	Examples
CNS	Proph CNS	Prophylaxis for CNS (neurosurgery, meningococcal)
	CNS	Infections of the Central Nervous System
EYE	Proph EYE	Prophylaxis for Eye operations
	EYE	Therapy for Eye infections e.g., Endophthalmitis
ENT	Proph ENT	Prophylaxis for Ear, Nose, Throat (Surgical or Medical prophylaxis SP/MP)
	ENT	Therapy for Ear, Nose, Throat infections including mouth, sinuses
RESP	Proph RESP	Pulmonary surgery, prophylaxis for Respiratory pathogens e.g. fo
	LUNG	Lung abscess including aspergilloma
	URTI	Upper Respiratory Tract viral Infections including influenza but not EN
	Bron	Acute Bronchitis or exacerbations of chronic bronchitis
	Pneu	Pneumonia or LRTI (lower respiratory tract infections)
	TB	Pulmonary TB (Tuberculosis)
CVS	Proph CVS	Cardiac or Vascular Surgery, endocarditis prophylaxis
	CVS	CardioVascular System infections: endocarditis, endovascular prosthesis or device e.g pacemaker, vascular graft
GI	Proph GI	Surgery of the Gastro-Intestinal tract, liver or biliary tree, GI prophylaxis in neutropaenic patients or hepatic failure
	GI	GI infections (salmonellosis, *Campylobacter*, parasitic, *C.difficile*, etc.)
	IA	Intra-Abdominal sepsis including hepatobiliary, intra-abdominal abscess *etc.*
SSTBJ	Proph BJ	Prophylaxis for SST, for plastic or orthopaedic surgery (Bone or Joint)
	SST	Skin and Soft Tissue: Cellulitis, wound including surgical site infection, deep soft tissue not involving bone e.g., infected pressure or diabetic ulcer, abscess
	BJ	Bone/Joint Infections: Septic arthritis (including prosthetic joint), osteomyelitis
UTI	Proph UTI	Prophylaxis for urological surgery (SP) or recurrent Urinary Tract Infection (MP)
	Cys	Lower UTI
	Pye	Upper UTI including catheter related urinary tract infection, pyelonephritis
GUOB	Proph OBGY	Prophylaxis for OBstetric or GYnaecological surgery
	OBGY	Obstetric/Gynaecological infections, Sexual Transmitted Diseases (STD) in women
	GUM	Genito-Urinary Males + Prostatitis, epididymo-orchitis, STD in men
No defined site (NDS)	BAC	Bacteraemia with no clear anatomic site and no shock
	SEPSIS	Sepsis, sepsis syndrome or septic shock with no clear anatomic site
	Malaria	
	HIV	Human immunodeficiency virus
	PUO	Pyrexia of Unknown Origin - Fever syndrome with no identified source or site of infection
	PUO-HO	Fever syndrome in the non-neutropaenic Haematology–Oncolgy patient with no identified source of pathogen
	FN	Fever in the Neutropenic patient
	LYMPH	Infection of the lymphatics as the primary source of infection e.g.suppurative lymphadenitis
	Other	Antibiotic prescribed with documentation for which there is no above diagnosis group
	MP-GEN	Drug is used as Medical Prophylaxis in general, without targeting a specific site, e.g. antifungal prophylaxis during immunosuppression
	UNK	Completely Unknown Indication
	PROK	Antimicrobial (e.g. erythromycin) prescribed for Prokinetic use
Neonatal	MP-MAT	Drug is used as Medical Prophylaxis for MATERNAL risk factors e.g. maternal prolonged rupture of membranes
	NEO-MP	Drug is used as Medical Prophylaxis for NEWBORN risk factors e.g. VLBW (Very Low Birth Weight) and IUGR (Intrauterine Growth Restriction)

Diagnostic codes

Following anatomical site of infection

For each site choose between:
- Therapeutic
- Prophylactic
  - Surgical
  - Medical

Specific codes for neonates are available

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APPENDIX III - Type of Indication

CAI Community acquired infection	Symptoms started <48 hours from admission to hospital (or present on admission).
HAI Healthcare-Associated Infection ➤ Symptoms start **48 hours after admission** to hospital	**HAI1** Post-operative surgical site infection (within: 30 days of surgery OR; 1 year after implant surgery)
	HAI2 Intervention related infections including CR-BSI, VAP and C-UTI
	HAI3 *C. difficile* associated diarrhoea (CDAD) (>48 hours post admission or <30 days after discharge from previous episode.
	HAI4 Other hospital acquired infection (includes HAP, etc)
	HAI5 Infection present on admission from another hospital (patient with infection from another hospital)
	HAI6 Infection present on admission from long-term care facility (LTCF) or Nursing Home*.

SP Surgical prophylaxis	**SP1** Single dose	**SP2** one day	**SP3** >1 day

For **surgical patients**, administration of prophylactic antimicrobials **should be checked in the previous 24 hours** in order to encode the duration of prophylaxis as either one dose, one day (= multiple doses given within 24 hours) or >1 day.

See more explanation in **protocol page 6 and 7** !

MP Medical prophylaxis	For example long term use to prevent UTI's or use of antifungals in patients undergoing chemotherapy or penicillin in asplenic patients *etc*.
OTH Other	For example erythromycin as a motility agent (motilin agonist).
UNK	Completely unknown indication

Select 1 possibility for each reported antimicrobial

Type of indication

- Community acquired
- Nosocomial
- Prophylaxis
  – Surgical
  – Medical
- Other

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Global-PPS data collection, entry and management

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   – Department (Ward) form (denominator data)
   – Patient form (numerator data)

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URL:

http://app.globalpps.uantwerpen.be/globalpps_webpps/

Web-Based Data Entry (English)

Register each institution one by one.
Ensure that the correct institution is activated during data entry (see black bar at the top of the page)

First define 'each' department within the hospital; these will appear later in the drop-down list during entry of survey data

code	name	description	paediatrics	used	action
ICU	aquila	adult ICU 1	true	true	edit / delete
mixed surgery	vulture	surgery-5th floor	false	false	edit / delete
onco-dep1	hawk	onco-hemato, first floor	false	true	edit / delete
onco-dep2-C	owl	children onco-hemato-2nd floor	true	true	edit / delete
pn3	magpie	pneumo service 3	false	true	edit / delete
NICU3	finch	NICU level 3 - 1st floor	true	true	edit / delete
C1	testje-voor 2017	surgery - floor 1	false	false	edit / delete
neo	Test2	neo-NICU3	true	true	edit / delete
ICU-5	ICU-5	ICU 5th floor -unit 5	false	true	edit / delete
neonatal	GNMW		true	true	edit / delete
C3	Pneumologie - C3	pneumologie	false	true	edit / delete
D1	kindafdeling1	medicine	true	true	edit / delete

Each department "must have a unique name"

Activate your survey:
Go to Surveys/Available and select the appropriate Survey
For subsequent data-entry go to Surveys/Subscribed and click "select" for the appropriate Survey

Home   User Management▾   My institutions▾   Departments▾   **Surveys**▾   Methodology   My profile▾

Ward form

Available
Subscribed

| date of survey | 13/06/2018 | 📅 |

Wards
New Ward...

| auditor code | ann | | | 11453 |

Patients
New Patient...

| Ward name | vulture |

Export
Longitudinal Feedback

| Ward code | mixed surgery |

Import

| Ward description | surgery-5th floor |

Define your denominators by ward, one by one.

☐ Paediatric department

| Department type: | Adult Surgical Ward ▾ |

You will only be able to enter detailled patient data after completing the denominators in the ward form

Activity   ☑ Medicine   ☑ Surgery   ☐ Intensive Care

Total number of admitted patients is the count of all patients present on the day of the PPS at 8am; these are patients on antimicrobials + those who are **NOT** on antimicrobials.

| Total number of admitted patients | 5 | 11 | IC. Patients |

| Total number of beds | 5 | 15 | IC. Beds |

Save

For combination products with an enzyme inhibitor: report ONLY the dose of the main antibiotic substance, NOT the enzyme inhibitor

Patient Form

Ward name	Activity (M, S, IC)	Survey Number	Patient Age			Weight in Kg	Gender M or F
			Years	**Months**	**Days**		
hawk	M	surveyNumber	40	age	age	78	[M]-Male

Antimicrobial Name	Amoxicillin and enzyme inhibitor
Single Unit Dose	1 **Unit (g, mg, or IU)** g
Doses/day	3 **Route (P, O, R, I)** [P]-Parenteral
Diagnosis	[Pneu] - Pneumonia or LRTI (lower res…
Indication	[CAI] - Community acquired infection
Reason in Notes	Yes
Guideline Compliance	[Y]-Yes
Is a stop/review date documented	No
Treatment	[E]-Empirical reset
Treatment based on biomarker data	No reset

Save PatientForm   Add another antimicrobial

Patient form

antimicrobial	single unit dose	doses/day	route	diagnosis	indication	Guideline Compliance	action

Welcome Ann Versporten, current survey: 2018 Global-PPS (May - Aug)   current institution: University Hopsital of Antwerp

Home   User Management ▾   My institutions ▾   Departments ▾   Surveys ▾   Methodology   My profile ▾

Patient Form saved successfully

Note down the number on you paper forms. The number is displayed once (and only) after the patient data has been recorded in the online database.

Surveynumber : 11597-1-78147

Continue...

Survey number is provided after saving the patient onto the Global-PPS tool
Do not forget to write down this number on the paper form !

Feedback of results to the sites

- **Extraction of your own raw data allowing in-depth verification and analysis of your hospital results (excel file)**

- **Comprehensive feedback report ready to use for local presentations comparing the hospital results to average results for the country (if at least 3 participating hospitals) and region (continental results)**

- **Sites participating to multiple surveys receive a longitudinal feedback report integrating all time points (2015, 2017, three surveys in 2018)**

- **Anonymous feedback available at http://www.global-pps.com/documents/)**

Antimicrobial prevalence in adult wards

|	Total	AMW	HO–AMW	T–AMW	P–AMW	ASW	AICU
Our hospital							
patients (N)	286	153	0	0	0	115	18
treated patients (%)	45.5	34.6	0	0	0	56.5	66.7
Country							
patients (N)	2504	1333	57	0	0	888	226
treated patients (%)	36.9	31.9	17.5	0	0	39.2	62.8
Continent							
patients (N)	4122	1942	92	41	8	1571	468
treated patients (%)	36.7	31.8	28.3	65.9	50	37	55.1
Hospital type							
patients (N)	4069	1910	92	41	8	1571	447
treated patients (%)	36.7	31.8	28.3	65.9	50	37	55.5
Europe							
patients (N)	54690	29625	1947	192	1878	18084	2964
treated patients (%)	31.9	26.1	40.6	74.5	52	33.4	59.3

Patients (N) = number of admitted adults.
Treated patients (%) = 100*(number of adults treated with at least one antimicrobial/number of admitted adults).

Cl : Continent: South America ; Hospital type: Tertiary hospital

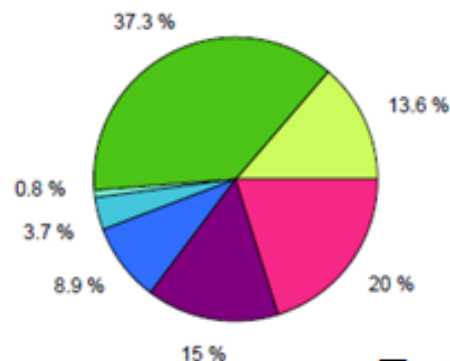**Example of Feedback**

Overall proportional antibiotic use (2017)
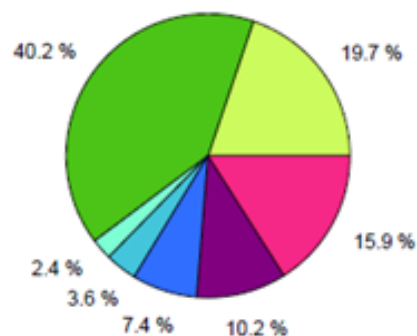

Our hospital (N= 170 treated patients)
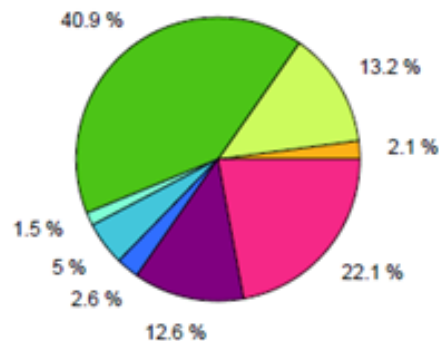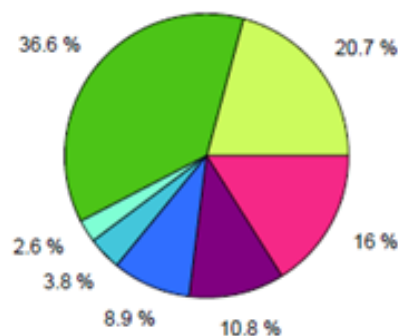
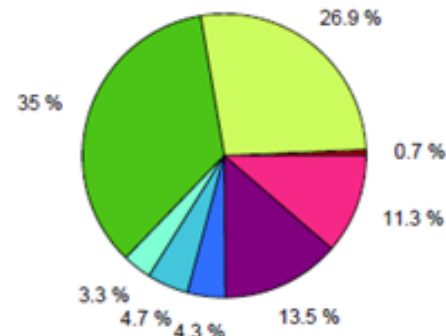**Country (n= 9 hospitals)**

Example of Feedback

Africa

Tertiary care hospitals Africa

Continent (n= 30 hospitals)

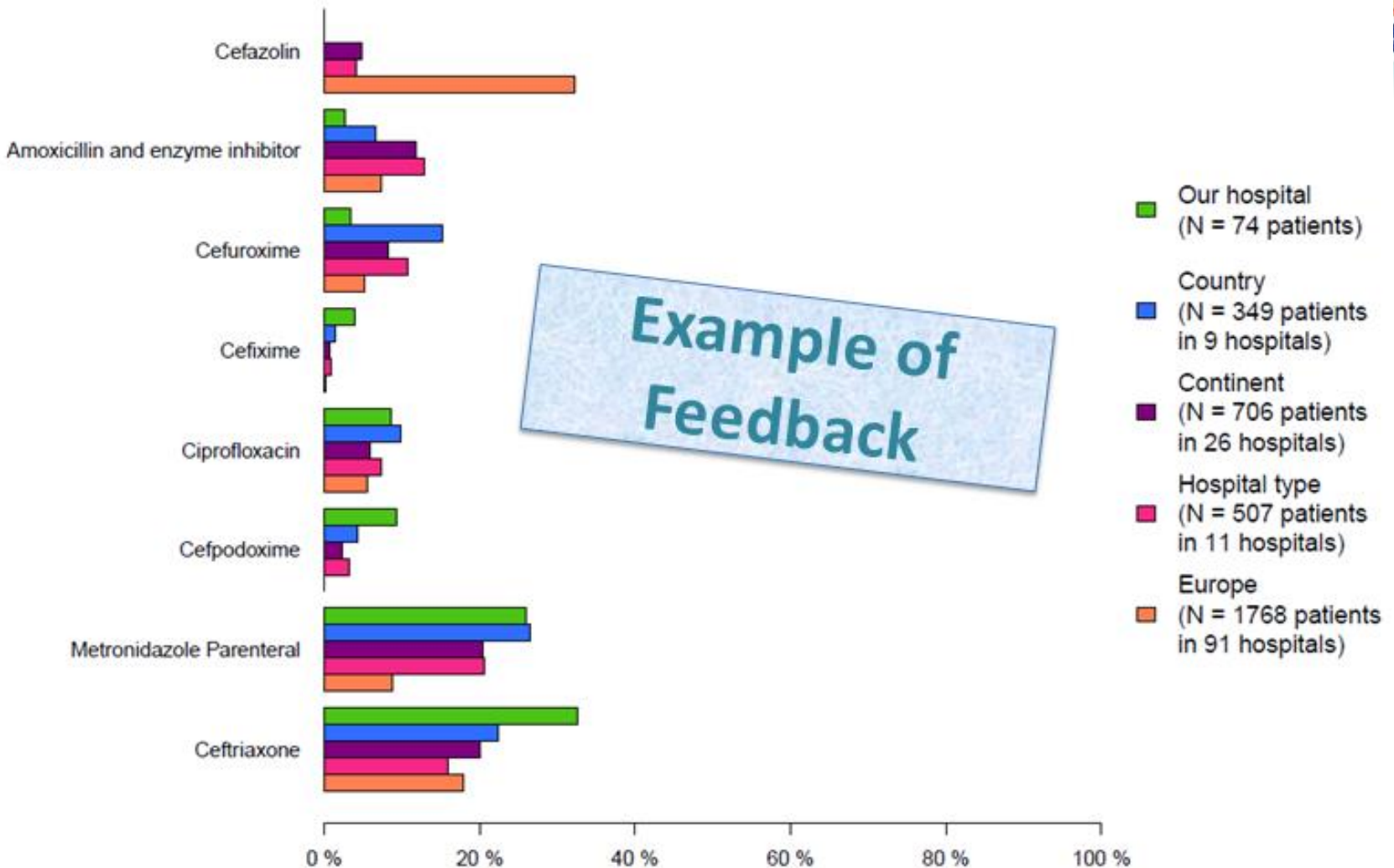**Hospital type (n= 12 hospitals)**

Europe (N= 102 hospitals)

Legend:
- Tetracyclines
- Amphenicols
- Penicillins
- Other beta-lactams
- Sulfonamides and Trimethoprim
- Macrolides, Lincosamides and Streptogramins
- Aminoglycosides
- Quinolones
- Other antibacterials

Percentage of antibacterials for systemic use (ATC J01) at ATC3 level (pharmacological subgroup). Proportional antibiotic use below 0.5% is not reported. ICU patients refers to patients treated on an ICU department recorded with activity IC.

Country: ; Continent: Africa ; Hospital type: Tertiary hospital If there are less than three participating hospitals, results are not reported.

38

Top 5 most frequently used antibiotics for surgical prophylaxis in adults and children (2017)

Our hospital
(N = 74 patients)

Country
(N = 349 patients in 9 hospitals)

Continent
(N = 706 patients in 26 hospitals)

Hospital type
(N = 507 patients in 11 hospitals)

Europe
(N = 1768 patients in 91 hospitals)

Example of Feedback

Top 5 most prescribed antibacterials for systemic use (ATC code J01) for surgical prophylaxis use at hospital level, supplemented with the most prescribed antibiotics at country, continent and hospital type level if they do not fall within the top 5 of the hospital. Selection on indication = SP; All patients are included with exception of patients admitted on NMW and NICU.

Continent: Africa ; Hospital type: Tertiary hospital
there are less than three participating hospitals, results are not reported.

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Antibiotic quality indicators – adult wards (2017)

	Hospital		Country		Continent		Hospital type		Europe	
	N	%	N	%	N	%	N	%	N	%
Medical										
Reason in notes	74	96.1	281	66.3	649	61.6	401	66.8	3834	80.6
Guidelines missing	66	85.7	271	63.9	429	40.7	167	27.8	832	17.5
Guideline compliant	3	37.5	17	48.6	221	65.0	151	68.9	2232	74.2
Stop/review date documented	75	97.4	129	30.4	238	22.6	126	21.0	1650	34.7
Surgical										
Reason in notes	173	100.0	658	80.3	1015	65.7	744	66.3	2767	72.8
Guidelines missing	169	97.7	553	67.5	739	47.8	485	43.2	735	19.3
Guideline compliant	0	0.0	29	45.3	242	54.3	180	56.6	1619	67.8
Stop/review date documented	173	100.0	357	43.6	505	32.7	380	33.9	1552	40.9
ICU										
Reason in notes	4	100.0	20	76.9	139	42.2	61	33.2	878	69.0
Guidelines missing	4	100.0	6	23.1	71	21.6	40	21.7	361	28.4
Guideline compliant	0	0.0	2	66.7	100	69.9	60	75.9	459	77.5
Stop/review date documented	4	100.0	6	23.1	48	14.6	8	4.3	340	26.7

Need to develop antibiotic guidelines !

Antibiotic quality indicators by activity (medical, surgical, ICU) for patients admitted on adult wards receiving antibacterials
for systemic use (ATC J01).
− For reason in notes and stop/review date documented: Count at antibacterial level.
− For guidelines missing: Count on NA (= no local guidelines for the specific indication) at patient level and diagnosis over total scores
for this indicator.
− For guideline compliance: Count at patient level and diagnosis for compliance = yes or no only. For combination therapy with >1 antibiotic:
if 1 antibiotic by diagnosis is not compliant, this combination therapy as a whole for this diagnosis will be counted as non−compliant.
If there are less than three participating hospitals, results are not reported.

Duration of surgical prophylaxis in adults and children (2017)
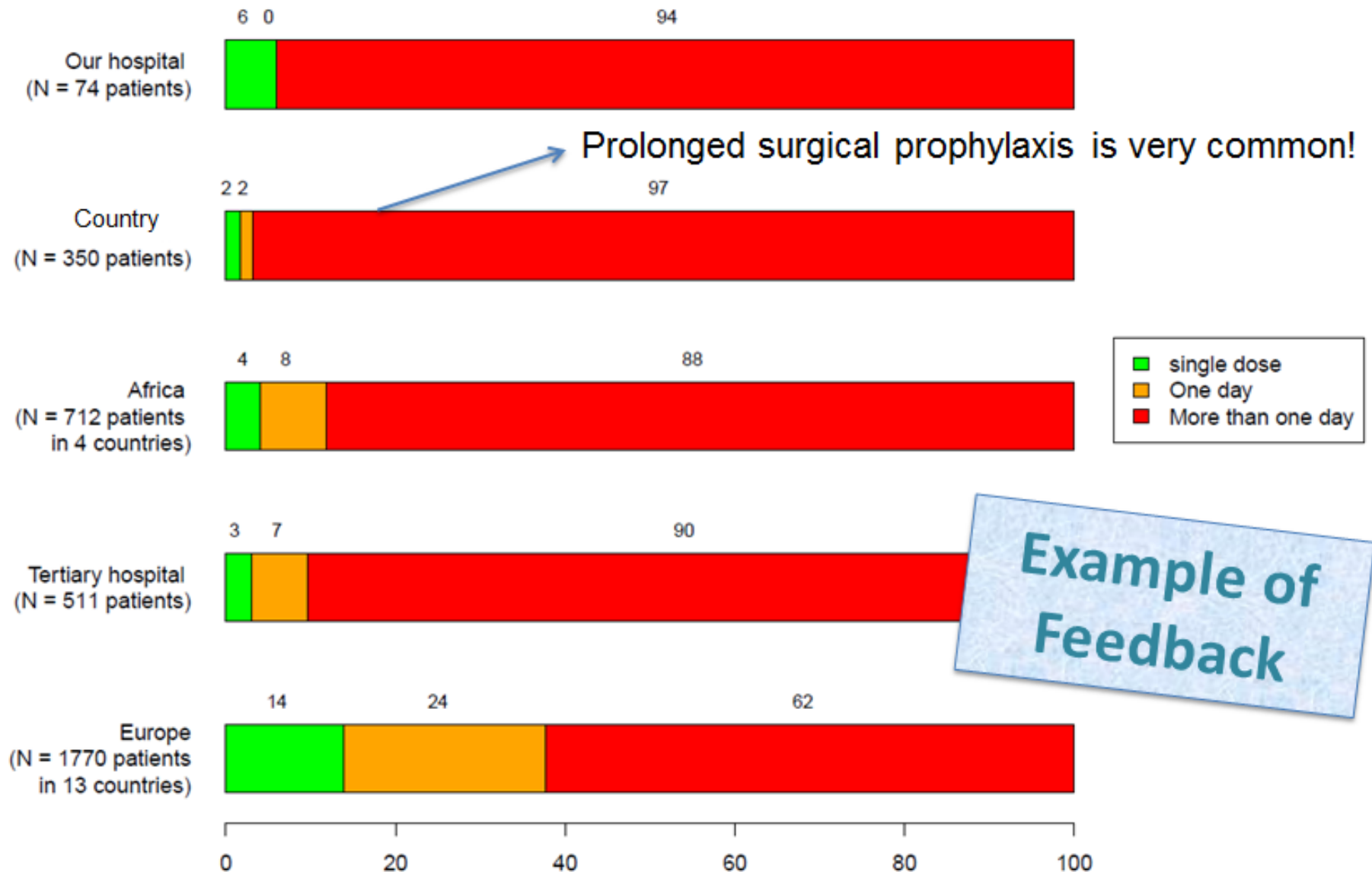
Type of antibiotic treatment by activity

	Hospital		Country		Continent		Hospital type		Europe	
	N	%	N	%	N	%	N	%	N	%
All patients										
Empiric	100	86.2	855	71.1			1316	68.7	12580	73.6
Targetted	16	13.8	348	28.9					4509	26.4
Medical										
Empiric	29	78.4	346	68.1	566	69.1				
Targetted	8	21.6	162	31.9	253	30.9	248	30.7		
Surgical										
Empiric	54	91.5	321	77.9	453	73.3	452	73.3	2968	72.9
Targetted	5	8.5	91	22.1	165	26.7	165	26.7	1106	27.1
ICU										
Empiric	17	85.0	188	66.4	312	62.4	304	62.0	1363	62.8
Targetted	3	15.0	95	33.6	188	37.6	186	38.0	808	37.2

Example of Feedback

Selection on antibiotic treatments (prophylactic prescribing is excluded) by activity.
N = number of antibiotics (J01) included per type of treatment and activity (medical, surgical, ICU).

Country: CL ; Continent: South America ; Hospital type: Tertiary hospital

Outline

- Introduction to PPS

- Support: method – tool

- Communication : various ways !
  - ➢ Local, national, International

- Networking : seek support for your efforts

- Discussion

Communication

- Local – hospital

- National/regional: local meetings, local congresses, MoH

- International : congresses, consolidation of data (ECCMID, ICAN)

This hospital is participating in a worldwide study:

'**The GLOBAL POINT PREVALENCE SURVEY**'
on Antimicrobial Consumption and Resistance

What is it all about ?

- **Data collection on antibiotic prescription patterns and resistance in the hospital**

- **Comparison of national and worldwide data**

- **Identification of feasible targets to improve antibiotic prescribing**

- **Combat antibiotic resistance**

Promote and get support for this study in your hospital, modify the posters available at http://www.global-pps.com/documents/ and poste them on walls in your hospital

Contact person: "enter name and/or department"

Communication plan example of Nigeria (ECCMID 2016)

- Disseminate findings at local levels
  - Hospital grand round
  - to disseminate PPS findings
  - Set up stewardship teams in various dept
  - Initiate writing of guidelines
  - Choose ASP strategies
- Encourage participation of more hospitals
- Call for awareness at the National level
  - Presentation of results at meetings

Lagos, Nigeria

- The hospital management officially sent an antibiotic policy based on our PPS data to all clinical departments

- The chosen stewardship strategy in the dept of Paediatrics (prospective audit and feedback) is being implemented now

- Dept of Surgery has inaugurated an antibiotic team and started writing guidelines

- A clinical meeting held in internal medicine to raise awareness

- Other departments are already sensitized and have given invitation to the hospital stewardship committee for interaction

The results of the 2015 Global-PPS have been communicated during various congresses.

An overview:

**DISSEMINATION
WWW.GLOBAL-PPS.COM/DISSEMINATION**

+ World HAI/Resistance Forum 2015

+ Infectious Diseases Society of America 2015

+ Baltic Paediatric Congress 2015

+ ECCMID Amsterdam 2016

+ AMMI Conference Canada 2016

+ Gulf Congress of Clinical Microbiology & Infectious Disease, May 2016, Dubai, UAE

+ Paediatric Infectious Diseases Meeting – ESPID 2016

+ The 10th International Congress on Clinical Microbiology in Sanandaj, Kurdistan, Iran

+ The Institut Pasteur International Network Symposium 2016, Paris, France

+ The 2017 BSAC Spring conference : The Global Challenge of Multi-drug Resistant Gram Negative Bacterial Infections

+ ECCMID congress, Vienna 2017

+ 10th European Congress on Tropical Medicine and International Health, Antwerp, Belgium, 2017

+ The 11th Professor Alborzi International Clinical Microbiology Congress, 21-23 November 2017, Shiraz, Iran

+ 29th international Congress of Pediatrics, 26-29 October 2017, Tehran, Iran

+ ECCMID Madrid 2018

+ Congreso SEIMC (Sociedad Española de Enfermedades Infecciosas y Microbiología Clínica), Bilbao, Spain, 2018

Global PPS 2015 and 2017

- **Final results presented during ECCMID 2016 and ECCMID 2018**
- **Global and local publications and communications on-going**
- **Brochure including all communications**

THE GLOBAL POINT PREVALENCE SURVEY
on Antimicrobial Consumption and Resistance

Results on the 2015 Global-PPS

Presentation and posters presented at ECCMID congress

9-12 April 2016
Amsterdam, The Netherlands

THE GLOBAL POINT PREVALENCE SURVEY
on Antimicrobial Consumption and Resistance

Results on the 2017 Global-PPS
Posters presented at the ECCMID congress

21-24 April 2018
Madrid, Spain

Outline

- Introduction to PPS

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- Communication : various ways !

- Networking : seek support for your efforts

- Discussion

Networking

- Regional coordinators !
  - Breng together new partners/participants
    - G-PPS expert from Singapore went to the Philippines to train a hospital network under lead of MoH
  - Possible overseas support (skype or other way of communication)

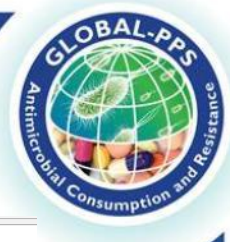www.global-pps.com/supporting-organizations/

- Contract signed with

  MEDECINS SANS FRONTIERES
  DOCTORS WITHOUT BORDERS

- University of Antwerp: connecting people

Networking : Global-PPS is first step towards effective stewardship

- Annual Global-PPS meeting at ECCMID
- New 2018: 3 grants from bioMérieux for training to the University of Antwerp, Belgium
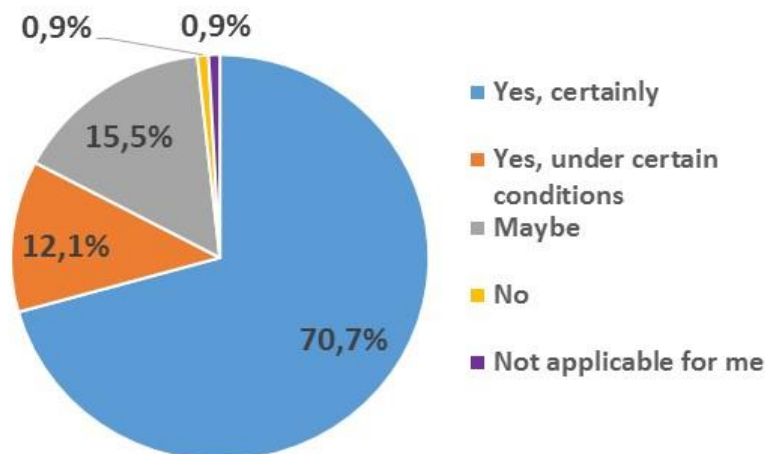
Networking

Outline

- Introduction to PPS

- Support: method – tool

- Communication : various ways !
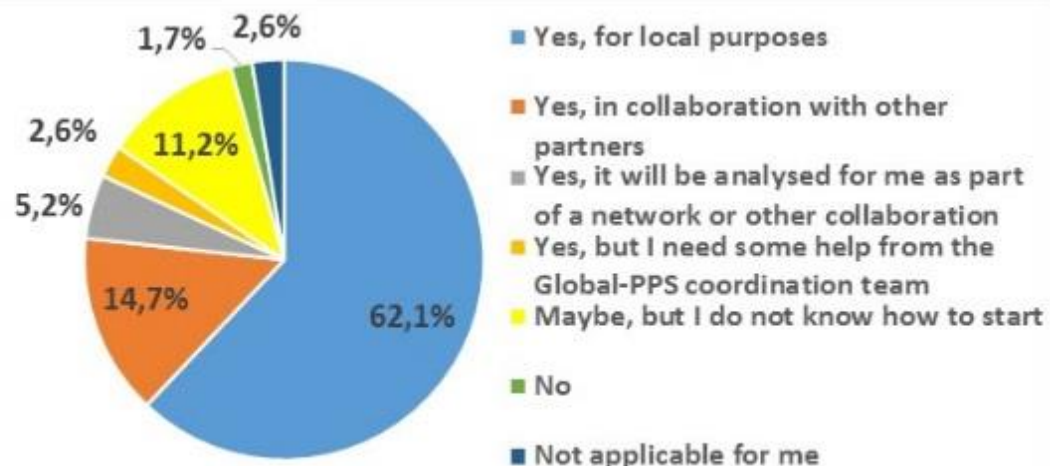
- Networking : seek support for your efforts

- Discussion

Global PPS –continuous evaluation and improving – Survey results

A simple questionnaire evaluated the Global-PPS (116 answers)

▪ **I will participate again if a second PPS would be organised.**

0,9% 0,9%
15,5%
12,1%
70,7%

- Yes, certainly
- Yes, under certain conditions
- Maybe
- No
- Not applicable for me

▪ **I will analyse the data provided to me in excel.**

1,7% 2,6%
2,6%
5,2%
11,2%
14,7%
62,1%

- Yes, for local purposes
- Yes, in collaboration with other partners
- Yes, it will be analysed for me as part of a network or other collaboration
- Yes, but I need some help from the Global-PPS coordination team
- Maybe, but I do not know how to start
- No
- Not applicable for me

Key message: meaningful comparisons

- **Uniformity of data collection** - standardized protocol and data collection templates enabling the collection of valid and comparable antimicrobial consumption data

- **Simple protocol and web-based tool** for data entry and validation = feasible & achievable surveillance

- **Quality assurance approach** – implementation of data validation process

- **Central support** toward data collection or other (helpdesk, FAQ, IT manual)

- **Continuous work on data accuracy**

- **Opportunity to stimulate local networking**

- **Mutual cooperation/feedback** is highly motivating

Key message: toward data interpretation

- **Instant web report** per hospital with quantifiable outcome measures and targets for quality improvement of antibiotic treatment and prophylaxis.

- **Enables in-depth interpretation** of antimicrobial consumption data at different levels (geographical, institutional and patient characteristics).

- **Creation of reference database** for scientific research and hypothesis formulation at national and international level (data are safeguarded at the University of Antwerp, Belgium).

- **Data-sharing** upon agreement with all partners; **publication policy** is available at global-PPS@uantwerpen.be

Features of the Global-PPS

- **Tool for assessing interventions to improve antibiotic prescribing in hospitals when PPS is repeated**
- **Consistency and reproducibility**
- **Continually improve healthcare quality**
- **Combat antibiotic resistance**
- **Improve antibiotic use for better patient health**

"sustained awareness"

Pitfalls of the Global-PPS

- **1-day PPS = cross-sectional snapshot of prescribing practice**
  - ➢ **Seasonal variation (but three surveys in 2018)**
- **No risk factors in denominator data except for institutional factors (hospital and ward type, geographical localization)**
- **Lack of standardized clinical information**
  - ➢ **diagnosis refers to what the clinician tends to treat (for example pneumonia)**
- **Self-training on protocol and web-based data entry; however helpdesk is available**
- **No information on therapeutic antimicrobial course duration**

Global PPS - Testimonials

- **« Definitely I will participate especially after we apply antimicrobial stewardship in our hospital and this will give us** comparative data **before and after this intervention, this will be the 3rd survey for my hospital ».** (Testimonial from Saudi Arabia)

- **"We just conducted the Global PPS study. All patients have now also been entered into the database. We wanted to thank the helpdesk for their cooperation, as such this study could run very smoothly."** (testimonial from Belgium)

Global PPS - Testimonials

- "**We followed your advice and made a survey team and it was such a nice opportunity for us to develop nice interaction, to further develop our extremely good cooperation. It was extremely useful that we surveyed together most of the wards. It was easier than we expected, staff were very collaborative and efficient, and we were very surprised how well it was achieved, having in mind that we did not opt to distribute posters and other stuff. It seems that people liked and welcomed our action. We hope that we will continue to collaborate with you, we are looking forward for any kind of collaboration!" (testimonial from Serbia)**

Contact

global-PPS@uantwerpen.be

THINK GLOBAL ACT LOCAL

Any hospital can participate

Ready to join us ?

URL: www.global-pps.com

We can't change the direction of the wind, but we can adjust the sails.

(Indian proverb)