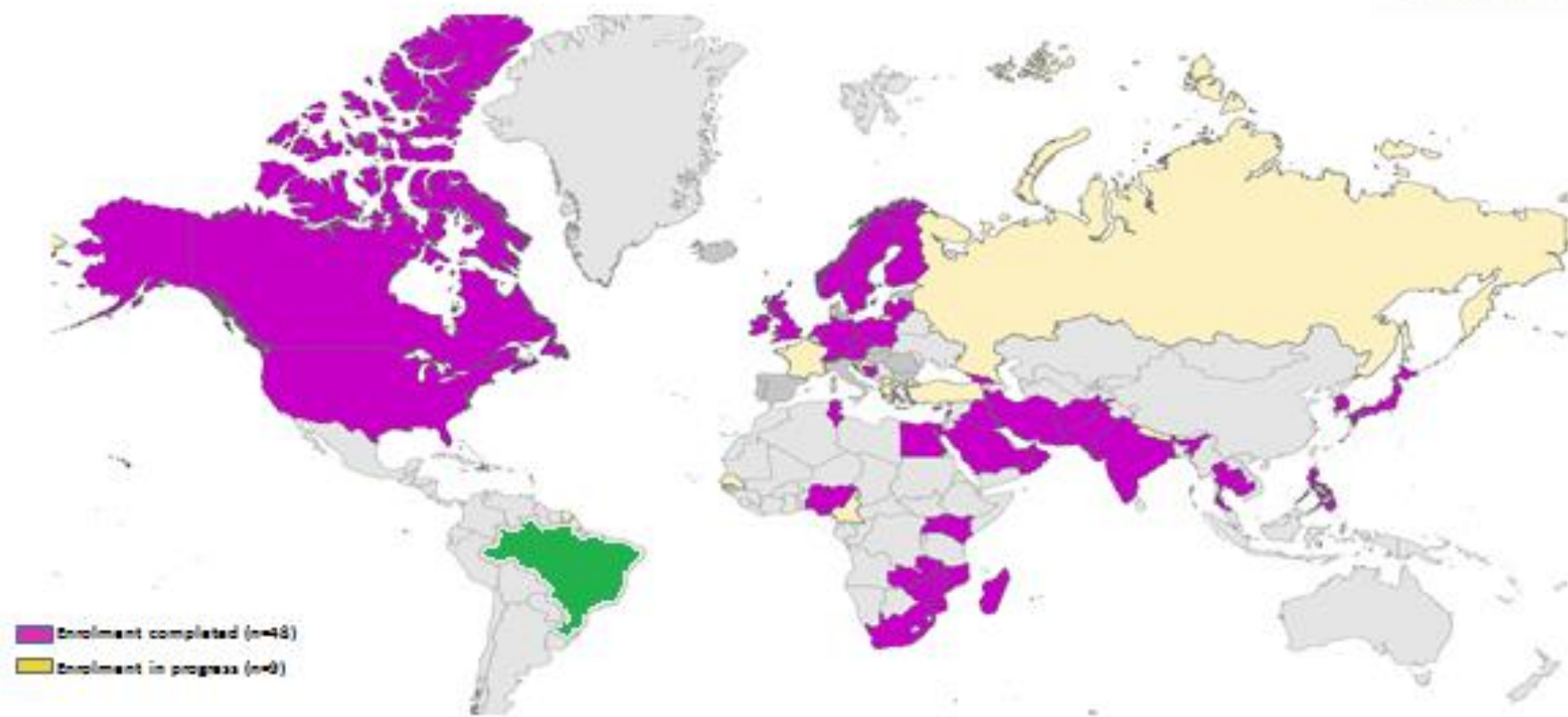


Países participando en GLASS

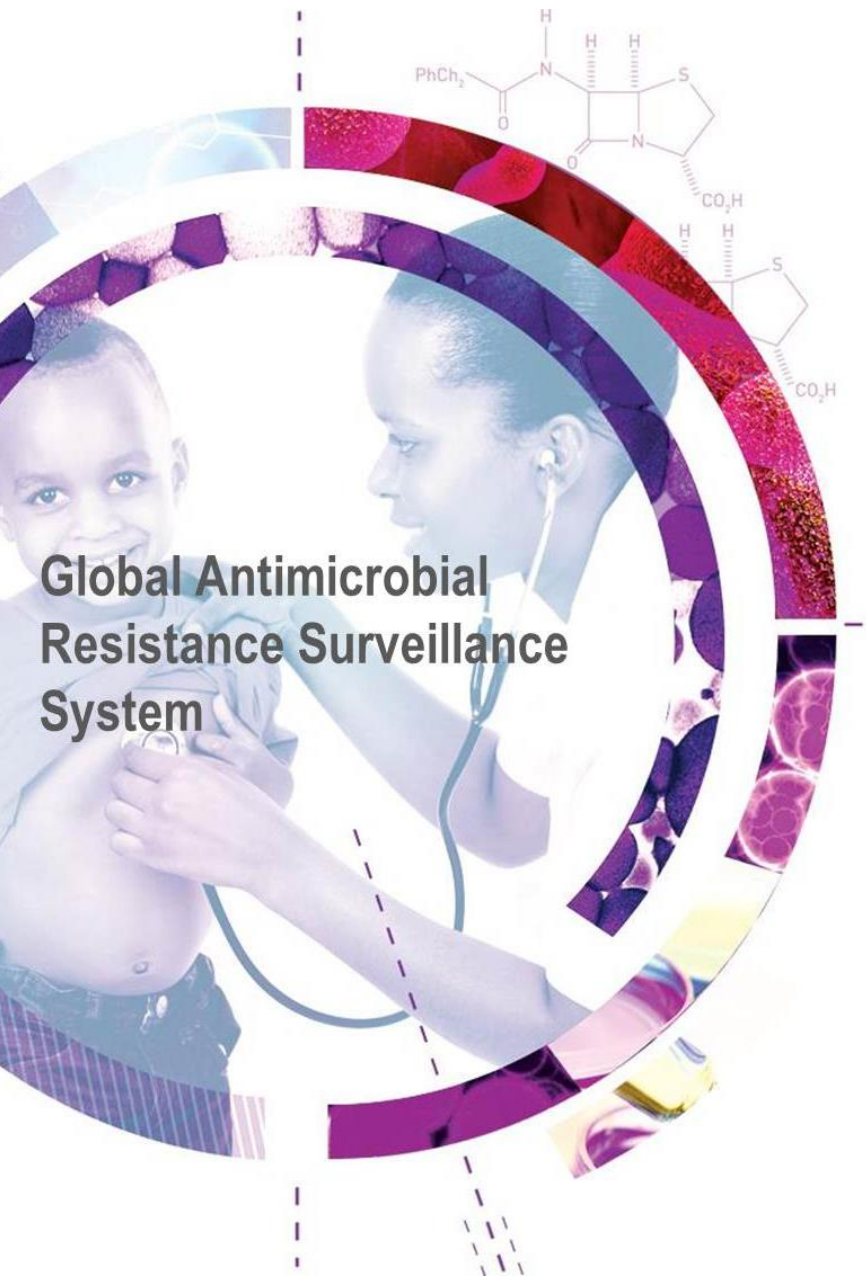
Hasta 17 de Noviembre 2017*



■ Enrollment completed (n=48)

■ Enrollment in progress (n=4)

* Call for country enrollment issued on 21 March 2016



Global Antimicrobial
Resistance Surveillance
System

Gestión de la información Y análisis de datos en GLASS

Carmem Lucia Pessoa-Silva (peessoasilvacl@who.int)

*Red Latino Americana de Vigilancia de Resistencia a los Antimicrobianos -
ReLAVRA*

Montevideo, 28-30 Nov 2017

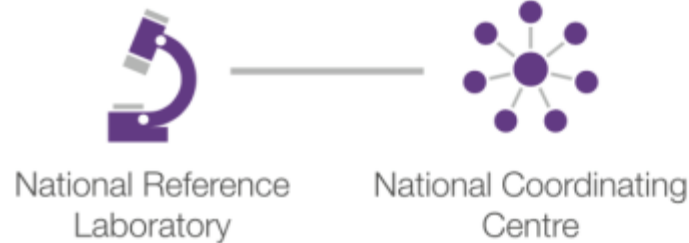
Core components for national surveillance systems



Surveillance sites



National reference laboratory (NRL)



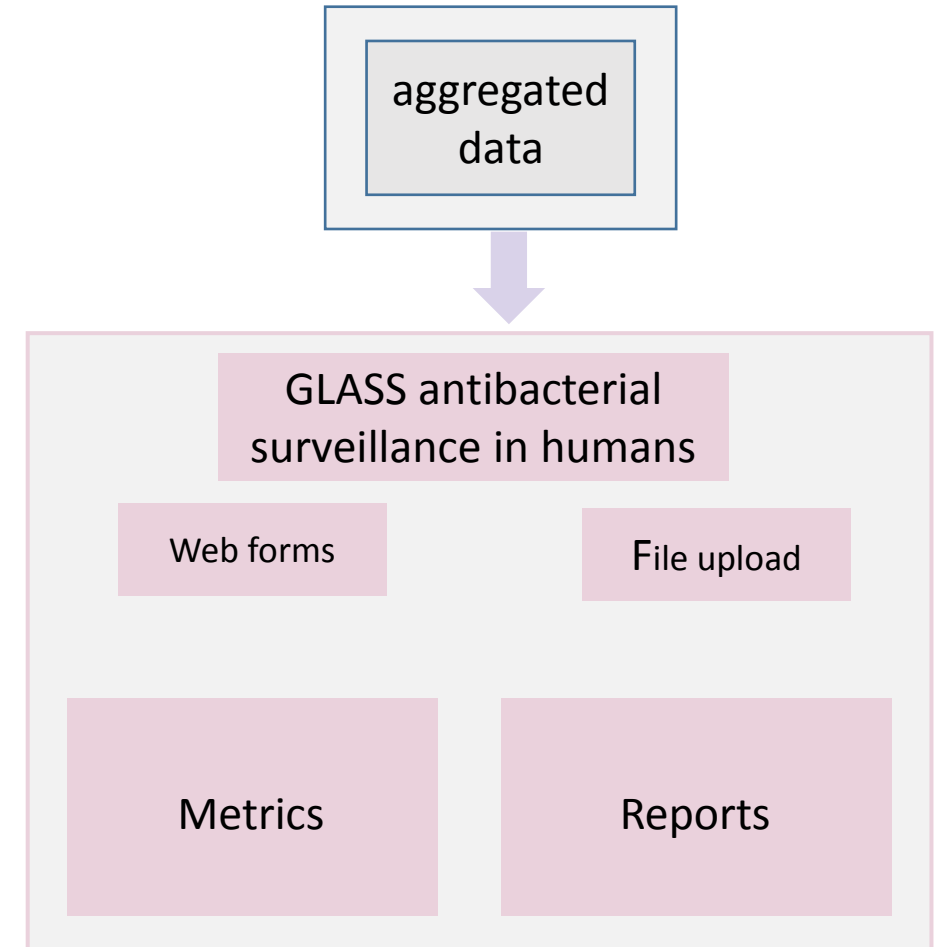
National Coordinating Centre to report to the national body in charge of strategies to contain AMR



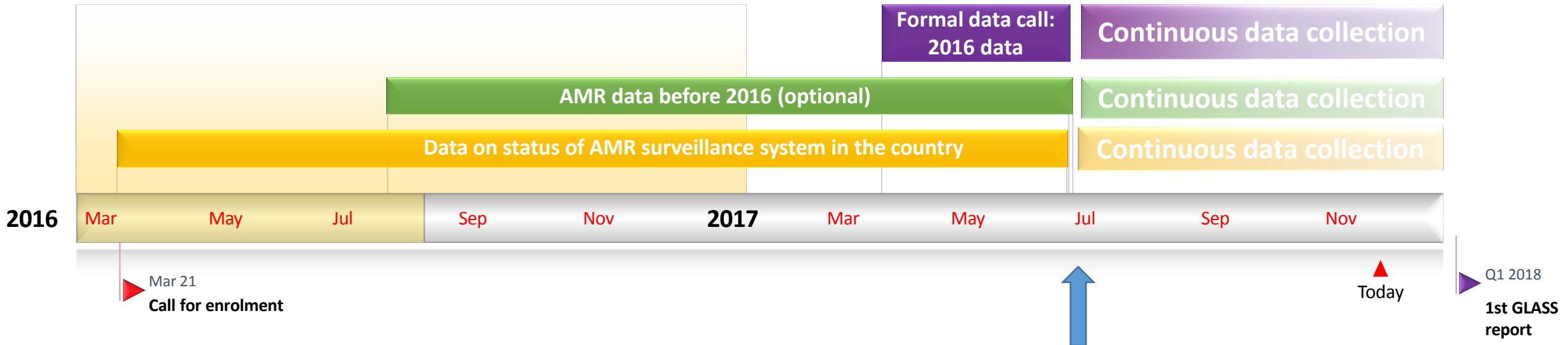
GLASS IT platform



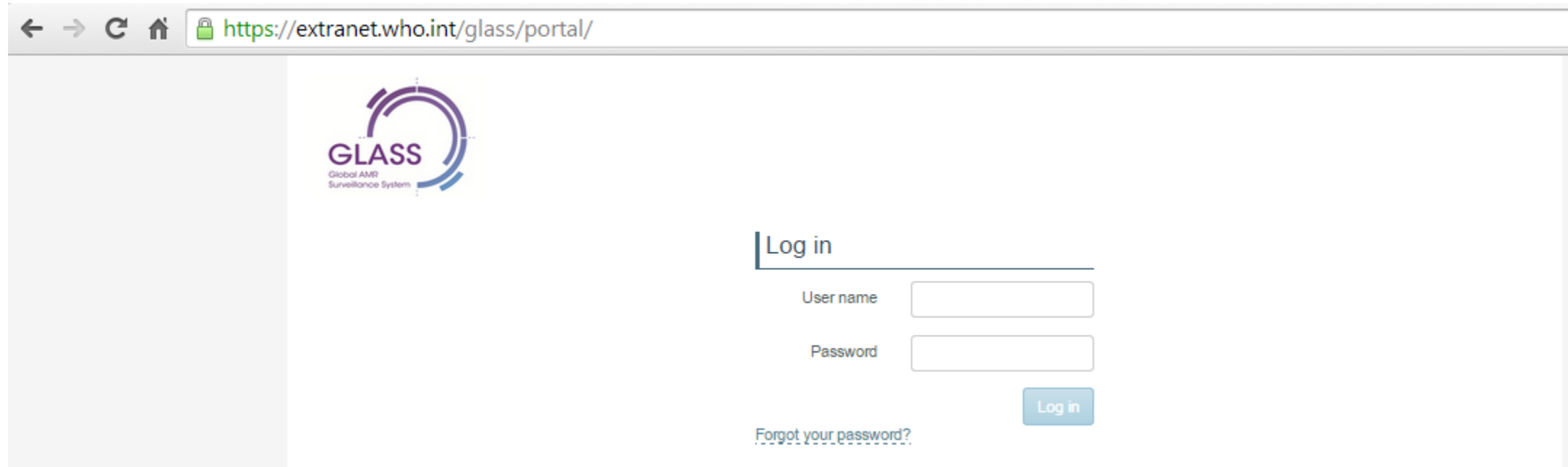
- To collect aggregated data throughout normalized files upload
- To produce reports and metrics based on collected data
- Hosted in WHO server



GLASS reporting timeline: 2016-2017



- ➔ Go to <https://extranet.who.int/glass/portal>
- ➔ Log in with user name and password



The screenshot shows a web browser window with the address bar containing the URL <https://extranet.who.int/glass/portal/>. The page content includes the GLASS logo on the left and a login form on the right. The login form has a title "Log in" and two input fields: "User name" and "Password". Below the password field is a "Log in" button and a link for "Forgot your password?".

GLASSware: the GLASS IT platform





Global Antimicrobial Resistance Surveillance System



⚙ MY ACCOUNT ▾

🚪 LOGOUT

Welcome to the WHO GLASS portal!

This is a platform for global data sharing on antimicrobial resistance worldwide. It has been launched by WHO as part of the implementation of the Global Action Plan on Antimicrobial Resistance (AMR). The data will help to inform national, regional and global decision-making, strategies and advocacy.

GLASS will initially focus on bacterial pathogens in humans. It will also collect information on countries' progress in establishing national AMR surveillance systems. GLASS will then be progressively expanded to include other types of AMR-related surveillance, such as the food chain, the environment and antimicrobial use and will build links with other global surveillance systems.

Antibacterial resistance in humans	Antimicrobial consumption	eGASP	EAR	Leprosy	Tricycle
------------------------------------	---------------------------	-------	-----	---------	----------

Beta-version → end of 2017

2018



GLASSware: the GLASS IT platform



Global Antimicrobial Resistance Surveillance System



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2018



glass.voozanoo.net

GLASS Global AMR Surveillance System

Surveillance of antibacterial resistance in humans

World Health Organization

HOME MENU COUNTRY LOGOUT

GLASS welcomes the participation of all countries. Countries are invited to provide information on the status of implementation of national AMR surveillance and upload data on ABR, following the definitions provided in the GLASS: Manual for early implementation.

This database enables to:

- upload, manage and submit data
- access upload history
- access and download previously submitted data
- generate data reports

To continue, please read Terms of Use and complete the following information:

Country information

GLASS implementation questionnaire

GLASS Implementation questionnaire (*.pdf)
Questions related to the use of web-based internet GLASS platform should be sent to the email address: glass@who.int

Aggregated AMR data

Call for data on antimicrobial resistance will be open from July 1st 2016 to June 30th 2017

Data upload **Upload history** **AMR data base** **Denominator Questionnaire** **Reports**

Individual AMR data

Add an isolate **Data upload** **Upload history** **AMR data base** **Denominator Questionnaire** **Reports**

For further information: glass@who.int

Antibacterial resistance in humans

→ GLASS focal points registration and submission of data on implementation of national AMR surveillance programmes

→ Aggregated AMR data: upload, validation and analysis

Data submission



Antimicrobial resistance

GLASS documents and tools

GLASS enrolment and data management

Guide to uploading aggregated antimicrobial resistance data

Download French PDF
pdf, 1.56Mb

Guide to preparing aggregated antimicrobial resistance data files

Download French PDF
pdf, 569kb

Guide to enrolment for antimicrobial resistance national focal points

Download French PDF
pdf, 582kb

Implementation questionnaire

Download French PDF
pdf, 149kb

Guide to completing the GLASS implementation questionnaire

- To upload your data files please follow the steps below :
- Indicate which file you are going to upload (RIS or Sample file)
 - Indicate the period of submission (January to December by default)
 - Indicate the specimen(s) included in your data file
 - Upload your file
 - Click on "Load"

File type: RIS Please upload your RIS file first, then your Sample file.

Country: [REDACTED]

Year: 2009 Start: January End: December

Batch ID: Data Set 1

Specimen: Blood Genital Stool Urine

File: Choose File no file selected

Load

<http://who.int/antimicrobial-resistance/global-action-plan/surveillance/glass-documents/en/>



Datos de implementación



Surveillance of antibacterial resistance in humans

GLASS welcomes the participation of all countries. Countries are invited to provide information on the status of implementation of national surveillance and upload data on ABR, following the definitions provided in the GLASS Manual for early implementation.

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GLASS Implementation questionnaire (*.pdf)
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Region : WHO	Region, Country :	Batch Id : All, 2016
Year		2016
Population (thousands)		5503
National Coordination Centre has been established		Yes
Focal Point for GLASS has been assigned		Yes
National plans to implement and strengthen AMR surveillance		No
National Reference Laboratory has been designated to support national AMR surveillance		Yes
National Reference laboratory does participate in an external quality assurance scheme		Yes
AST standards applied in the country : EUCAST		Yes
AST standards applied in the country : CLSI		No
AMR surveillance standards and guidelines that incorporate GLASS standards available in the country		Yes
National programme organize and run external quality assurance for all laboratories participating in GLASS		No
External quality assurance cover both bacterial identification and AST		ND
All priority pathogens listed in the GLASS manual covered by the EQA		ND
Number of hospitals		ND
Number of outpatient facilities		ND
Number of reporting hospitals		ND
Number of reporting outpatient facilities		ND
Number of laboratories that perform AST and provide support to participating surveillance sites		24

Ejemplo: datos de implementación (1)

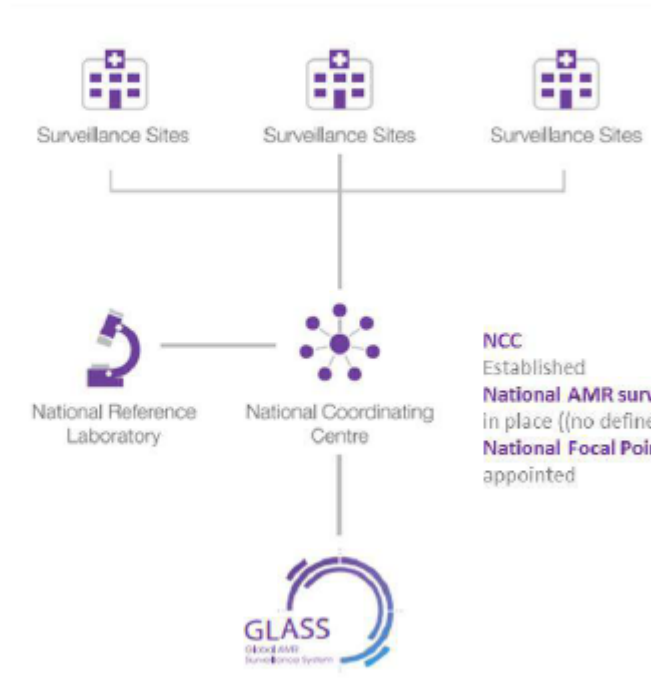


Current status of the national AMR surveillance system

24 participating laboratories*

24 laboratories performing AST
EQA provided to all lab for
bacterial identification,
AST, all GLASS pathogens

NRL
selected
AST standard
EUCAST
EQA
provided



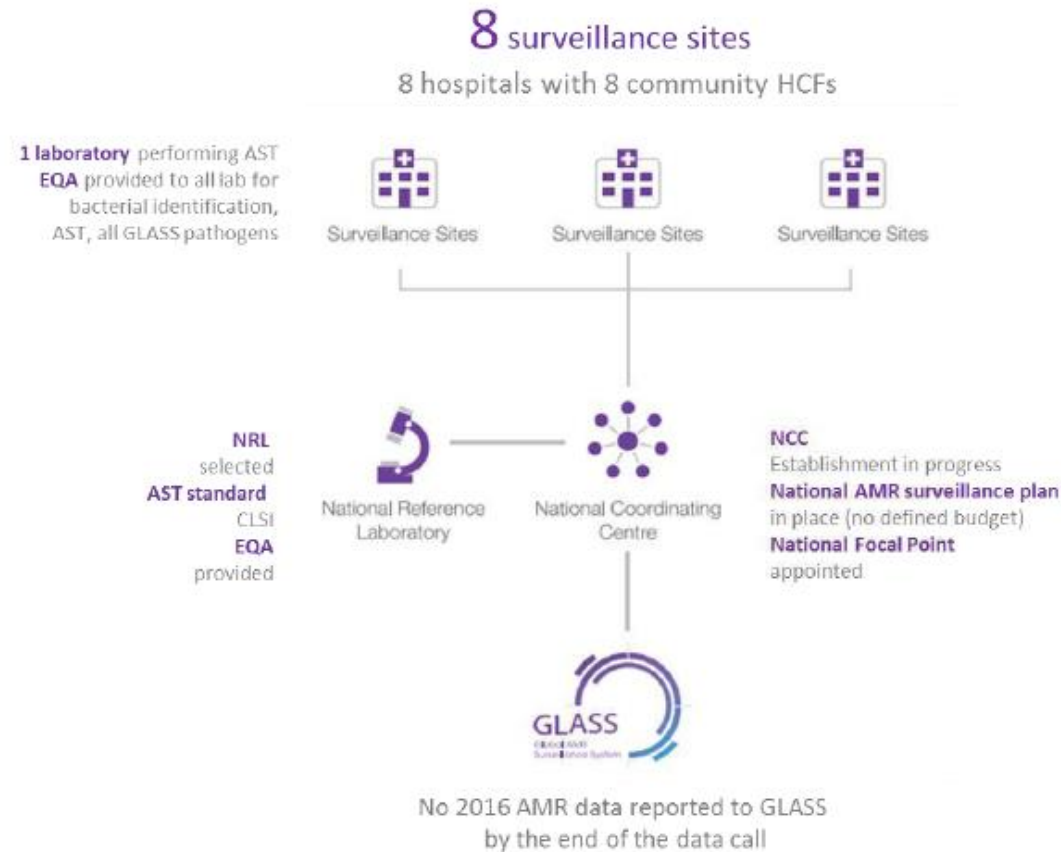
NCC
Established
National AMR surveillance plan
in place ((no defined budget)
National Focal Point
appointed

Participating laboratories providing data to GLASS
(24 laboratories)

Ejemplo: datos de implementación (2)



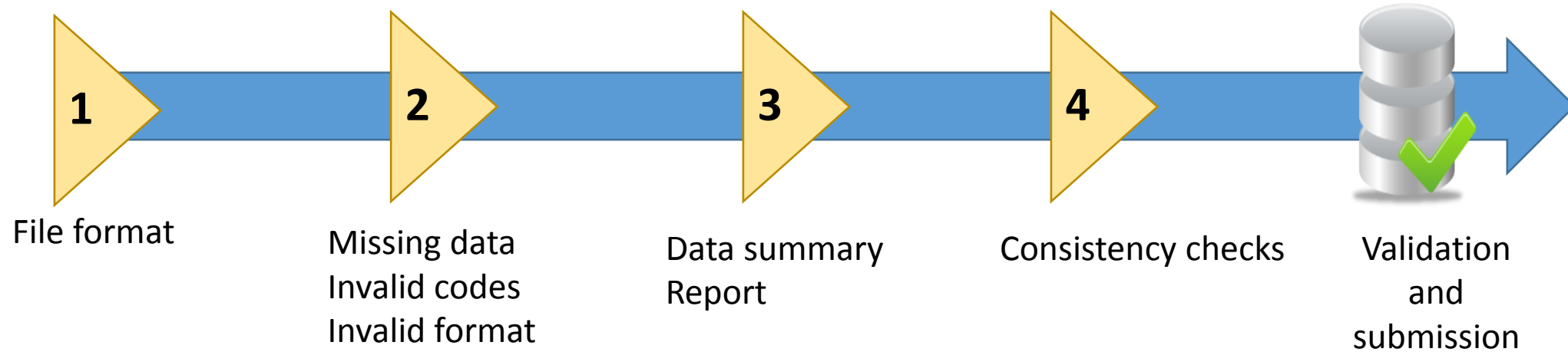
Current status of the national AMR surveillance system



AMR Data validation



- Your upload will follow several data validation steps:
 - Does your file meets GLASS requirements ?
 - Does your file presents blocking errors or non-blocking errors ?
- At each steps the system gives you a feedback
- At the end you choose to validate or not your data submission



➔ As soon as data uploaded, results are displayed in the reports



Surveillance of antibacterial resistance in humans

GLASS Global AMR Surveillance System

World Health Organization

HOME MENU USER_TEST1 LOGOUT

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Aggregated AMR data

Call for data on antimicrobial resistance will be open from July 1st 2016 to November 30th 2016

Data upload **Upload history** **AMR data base** **Denominator Questionnaire** **Reports**

For further information: glass@who.int



Specific pathogen resistance to reported antibiotics

Reports

Country characteristics | Data overview by specimen type | **AST by Antibiotic Class** | AST by age, gender and origin | Percentile Distribution

Country * Year *

Specimen * Pathogen *

Batch Id

Age group

Gender

Origin

Metric *

Display option *

Who test, 2016, Blood specimen, Escherichia coli pathogen, Origin : All, Gender : All, Age group : All, Batch Id : All, Metric : Proportion excluding Unknown category

Antibiotic	Susceptible	Nonsusceptible	S+N	Unknown	Total
Penicillins					
Ampicillin	725	646	1371	866	2237
	52.9 %	47.1 %	61.3 %	38.7 %	
Penicillins	ND	ND	ND	ND	ND
Third-generation cephalosporins					
Cefotaxime	254	35	289	1948	2237
	87.9 %	12.1 %	12.9 %	87.1 %	
Ceftazidime	2004	208	2212	25	2237
	90.6 %	9.4 %	98.9 %	1.1 %	
Ceftriaxone	1970	211	2181	56	2237
	90.3 %	9.7 %	97.5 %	2.5 %	
Third-generation cephalosporins	1999	224	2223	14	2237

Stratification by age groups



AGE GROUPS :					
Subtotal	254	35	289	1948	2237
	87.9 %	12.1 %	12.9 %	87.1 %	
<1	2	0	2	32	34
	100 %	0 %	5.9 %	94.1 %	
01-04	0	0	0	4	4
	NaN %	NaN %	0 %	100 %	
05-14	0	0	0	6	6
	NaN %	NaN %	0 %	100 %	
15-24	2	0	2	38	40
	100 %	0 %	5 %	95 %	
25-34	3	0	3	54	57
	100 %	0 %	5.3 %	94.7 %	
35-44	10	2	12	54	66
	83.3 %	16.7 %	18.2 %	81.8 %	
45-54	21	5	26	126	152
	80.8 %	19.2 %	17.1 %	82.9 %	
55-64	38	6	44	266	310
	86.4 %	13.7 %	14.2 %	85.8 %	
65-74	64	13	77	438	515
	83.1 %	16.9 %	15 %	85 %	
75-84	75	6	81	573	654
	92.6 %	7.4 %	12.4 %	87.6 %	
85+	39	3	42	357	399
	92.9 %	7.1 %	10.5 %	89.5 %	
Unknown	ND	ND	ND	ND	ND

Rates per 1000 patients sampled if number of sampled patients is reported



Who test, 2016, Genital specimen, Neisseria gonorrhoeae-Ciprofloxacin combination, Origin : All, Gender : All, Age group : All, Batch Id : All, Metric : Rates per 1000 patients with samples taken

Stratification	Susceptible	Nonsusceptible	S+N	Unknown	Total	Sampled patients
ORIGIN :						
Subtotal	32	292	324	6	330	7325
	4.4	39.9	44.2	0.8	45.1	
Hospital origin	ND	ND	ND	ND	ND	ND
Community origin	30	290	320	6	326	7015
	4.3	41.3	45.6	0.9	46.5	
Unknown	2	2	4	0	4	310
	6.5	6.5	12.9	0	12.9	
GENDER :						
Subtotal	32	292	324	6	330	7325
	4.4	39.9	44.2	0.8	45.1	
Male	28	240	268	4	272	5205
	5.4	46.1	51.5	0.8	52.3	
Female	4	50	54	2	56	1965
	2	25.5	27.5	1	28.5	
Other	ND	ND	ND	ND	ND	ND
Unknown	0	2	2	0	2	155
	0	12.9	12.9	0	12.9	

Technical support to countries



Flexibility to include ALL countries

→ Based on the recommendations from countries

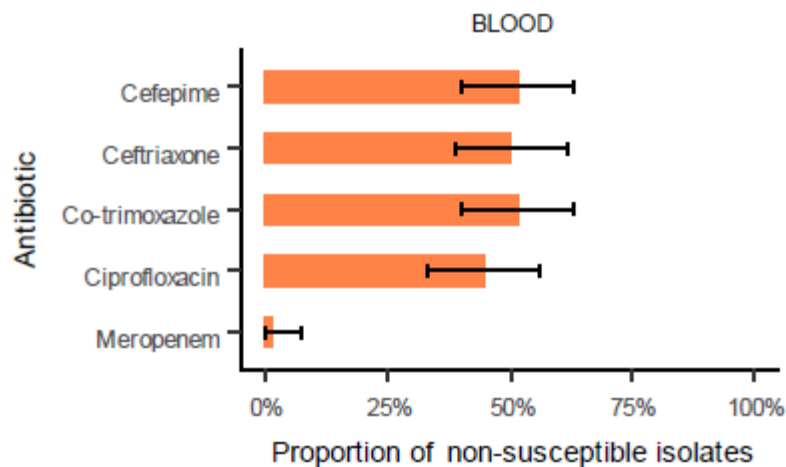
Ejemplo de resumen de datos RAM (1)



Specimen	Data on number of tested patients	Pathogen	AST results	Age	Gender	Infection origin
Blood	●	<i>Acinetobacter</i> spp.	●	●	●	●
		<i>E. coli</i>	●	●	●	●
		<i>K. pneumoniae</i>	●	●	●	●
		<i>Salmonella</i> spp.	●	●	●	●
		<i>S. aureus</i>	●	●	●	●
Urine	●	<i>S. pneumoniae</i>	●	●	●	●
		<i>E. coli</i>	●	●	●	●
Stool	●	<i>K. pneumoniae</i>	●	●	●	●
		<i>Salmonella</i> spp.	●	●	●	●
Genital	●	<i>Shigella</i> spp.	●	●	●	●
		<i>N. gonorrhoea</i>	●	●	●	●

Data overview – collection between January and December 2016

Specimen	Number of tested patients			Pathogens	Number of patients with positive samples		
	Community origin	Hospital origin	Unknown origin		Community origin	Hospital origin	Unknown origin
Blood	-	-	-	<i>Acinetobacter</i> spp.	-	-	-
	-	-	-	<i>E. coli</i>	-	-	72
	-	-	-	<i>K. pneumoniae</i>	-	-	-
	-	-	-	<i>Salmonella</i> spp.	-	-	-
	-	-	-	<i>S. aureus</i>	-	-	-
Urine	-	-	-	<i>S. pneumoniae</i>	-	-	-
	-	-	-	<i>E. coli</i>	-	-	-
Stool	-	-	-	<i>K. pneumoniae</i>	-	-	-
	-	-	-	<i>Salmonella</i> spp.	-	-	-
Genital	-	-	-	<i>Shigella</i> spp.	-	-	-
	-	-	-	<i>N. gonorrhoea</i>	-	-	-



Ejemplo de resumen de datos RAM (2)

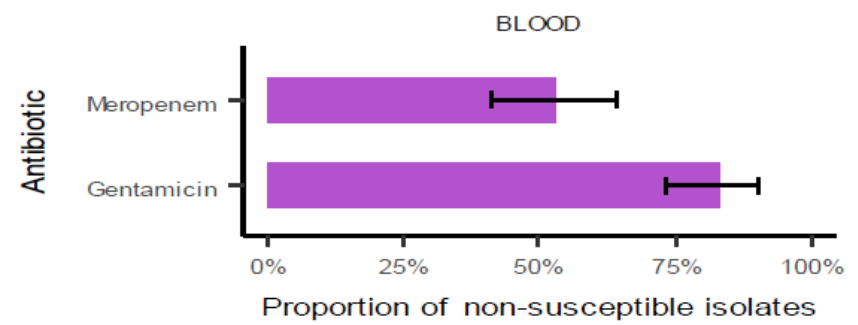


Specimen	Data on number of tested patients	Pathogen	AST results	Age	Gender	Infection origin
Blood	●	<i>Acinetobacter</i> spp.	●	●	●	●
		<i>E. coli</i>	●	●	●	●
		<i>K. pneumoniae</i>	●	●	●	●
		<i>Salmonella</i> spp.	●	●	●	●
		<i>S. aureus</i>	●	●	●	●
		<i>S. pneumoniae</i>	●	●	●	●
Urine	●	<i>E. coli</i>	●	●	●	●
		<i>K. pneumoniae</i>	●	●	●	●
Stool	●	<i>Salmonella</i> spp.	●	●	●	●
		<i>Shigella</i> spp.	●	●	●	●
Genital	●	<i>N. gonorrhoea</i>	●	●	●	●

Data overview – collection between January and December 2016

Specimen	Number of tested patients			Pathogens	Number of patients with positive samples		
	Community origin	Hospital origin	Unknown origin		Community origin	Hospital origin	Unknown origin
Blood	-	-	-	<i>Acinetobacter</i> spp.	-	-	72
	-	-	-	<i>E. coli</i>	-	-	405
	-	-	-	<i>K. pneumoniae</i>	-	-	126
	-	-	-	<i>Salmonella</i> spp.	-	-	122
	-	-	-	<i>S. aureus</i>	-	-	245
	-	-	-	<i>S. pneumoniae</i>	-	-	463
Urine	-	-	-	<i>E. coli</i>	-	-	252
	-	-	-	<i>K. pneumoniae</i>	-	-	47
Stool	-	-	-	<i>Salmonella</i> spp.	-	-	83
	-	-	-	<i>Shigella</i> spp.	-	-	110
Genital	-	-	-	<i>N. gonorrhoea</i>	-	-	413

Acinetobacter spp. (n=72)



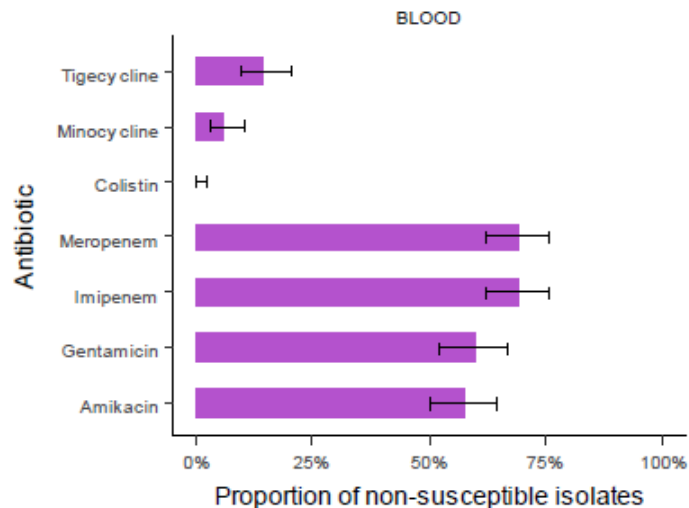
Ejemplo de resumen de datos RAM (3)



Specimen	Number of tested patients	Pathogen	AST results	Age	Gender	Infection origin
Blood	●	<i>A. baumannii</i>	●	●	●	●
		<i>E. coli</i>	●	●	●	●
		<i>K. pneumoniae</i>	●	●	●	●
		<i>Salmonella spp.</i>	●	●	●	●
		<i>S. aureus</i>	●	●	●	●
		<i>S. pneumoniae</i>	●	●	●	●
Urine	●	<i>E. coli</i>	●	●	●	●
		<i>K. pneumoniae</i>	●	●	●	●
Stool	●	<i>Salmonella spp.</i>	●	●	●	●
		<i>Shigella spp.*</i>	●	●	●	●
Genital	●	<i>N. gonorrhoea</i>	●	●	●	●

* Data collected by the national system, but no positive samples were obtained.

Acinetobacter spp. (n=169)



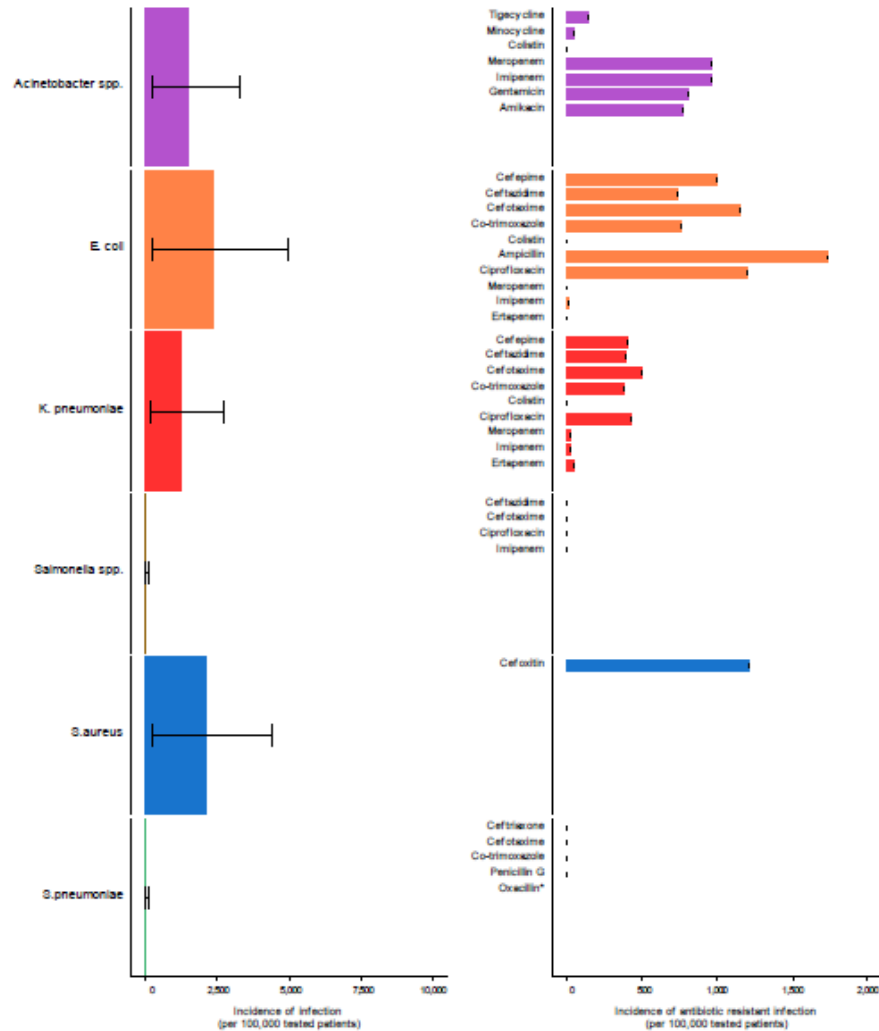
Data overview – collection between January and June 2016

Specimen	Number of tested patients		Pathogens	Number of patients with positive samples			
	Community origin	Hospital origin		Community origin	Hospital origin	Unknown origin	
Blood	38938	9434	-	<i>Acinetobacter spp.</i>	27	142	-
			-	<i>E. coli</i>	885	219	-
			-	<i>K. pneumoniae</i>	306	116	-
			-	<i>Salmonella spp.</i>	32	2	-
			-	<i>S. aureus</i>	195	195	-
			-	<i>S. pneumoniae</i>	11	3	-
Urine	31426	8988	-	<i>E. coli</i>	3637	799	-
			-	<i>K. pneumoniae</i>	491	321	-
			-	<i>Salmonella spp.</i>	65	6	-
Stool	4777	4283	-	<i>Shigella spp.</i>	-	-	-
			-	<i>N. gonorrhoea</i>	-	-	-
Genital	-	-	-	-	-	-	-

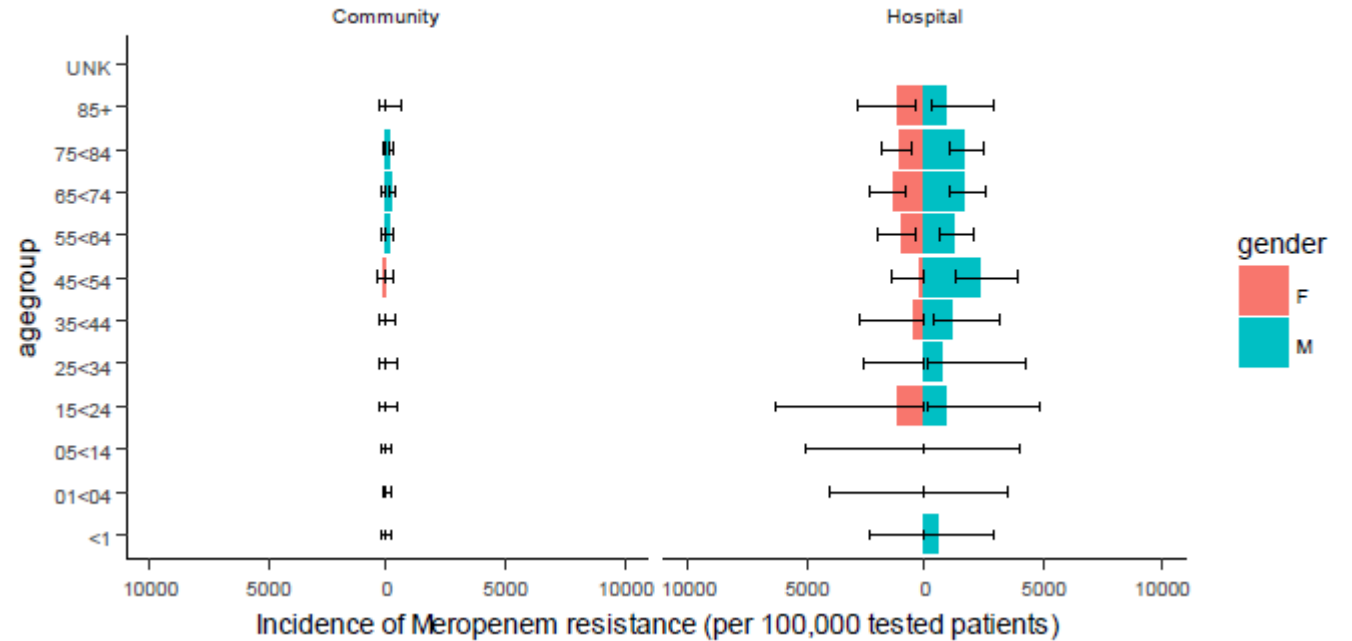
Cont. ejemplo de resumen de datos (2)



Blood – Hospital infection origin (n=9434)



Blood
Acinetobacter baumannii



Interpretación de los resultados

= dependiente de las prácticas de utilización de métodos diagnósticos



Proof of principle study to improve sampling habits



Nienke van de Sande

Technical officer AMR, WHO Regional office for Europe, Denmark



PoP has the goal to improve

Use of **microbiological diagnostics** to identify pathogens and guide therapeutic decisions.

Appropriate selection & collection of **specimens**

Accurate and timely **testing & reporting** of results

Responsible & informed **prescribing** of antimicrobials



Mejorar el uso de métodos diagnósticos = ayuda a la vigilancia!!



Proof of principle study to improve sampling habits



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Diagnostic stewardship

A guide to implementation in antimicrobial resistance surveillance sites



Access to GLASS data



- ➔ IT data platform hosted in WHO

- ➔ The reports with specific country data are visible for GLASS users with passwords:
 - only for your country users
 - for the staff of specific WHO region
 - for the WHO HQ staff

Concluding remarks



- ➔ Need for good diagnostic practices for improving quality of data

- ➔ GLASS as a global tool for
 - data sharing
 - Data analysis & reporting

- ➔ Participation in GLASS
 - Share data on common indicators
 - Shape and inform future GLASS development

Gracias



→ glass@who.int

