



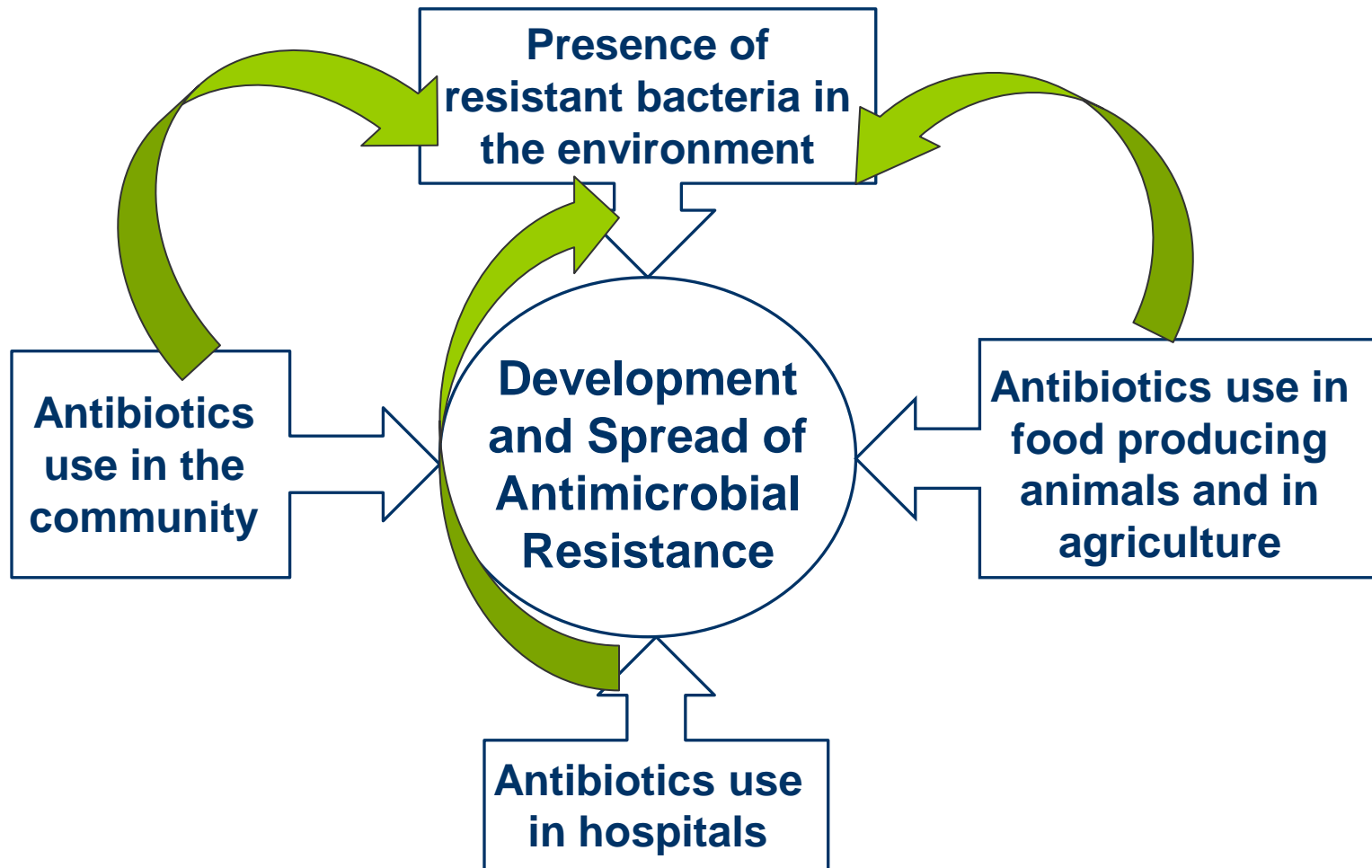
Survey on activities to alleviate the threat of antimicrobial resistance in G20-countries

On behalf of:



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Antimicrobial resistance and One Health



Modified from: Prestinaci, F, P Pezzotti, A Pantosti (2015): Antimicrobial resistance: a global multifaceted phenomenon. Pathogens and Global Health 109(7): 309-318.

Background

- G20 countries commit to strengthen One Health approach.
- Declaration of G20 Health Ministers that antimicrobial resistance (AMR) is a current and increasing threat and a challenge to global health
- Prudent use of antimicrobials in human and animal health is important to preserve effectiveness of antibiotics.
- AMR has the potential to have negative impact on public health, growth and global economic stability.

Questionnaire

- Questionnaire included questions from two established surveys
 - OIE: Global action to alleviate the threat of antimicrobial resistance: Progress and opportunities for future activities under the 'One Health' initiative in 2015
 - WHO/FAO/OIE: Global monitoring of country progress on antimicrobial resistance (AMR): Country self-assessment questionnaire in 2016
- Questions modified and complemented, e.g. for both sectors

Main objectives

Following WHO Global Action Plan on Antimicrobial Resistance

1. Multi-sectoral approach
2. Improving awareness and understanding of AMR through effective communication, education and training
3. Strengthen the knowledge and evidence base through surveillance and research
4. Reducing the incidence of infection through effective sanitation, hygiene and infection prevention measures
5. Measures taken to optimize the use of antimicrobial products in human and animal health
6. Regulation and promotion of prudent use of antimicrobial agents in agriculture and veterinary medicine

Structure of questionnaire

Choose the level of advancement that best corresponds to your situation (WHO 5.1)	Before 2015	From 2015	Objective for 2017	Objective for 2018-2021
Item 1: No national AMR action plan.	X			
Item 2: National AMR action plan under development or plan involves only one sector or ministry.		X		
Item 3: National AMR action plan developed that addresses human health, animal health and other sectors.				
Item 4: Multi-sectoral AMR action plan approved that reflects Global Action Plan objectives, with an operational plan and monitoring arrangements.				
Item 5: Multi-sectoral AMR action plan has funding sources identified, is being implemented and has monitoring in place.				

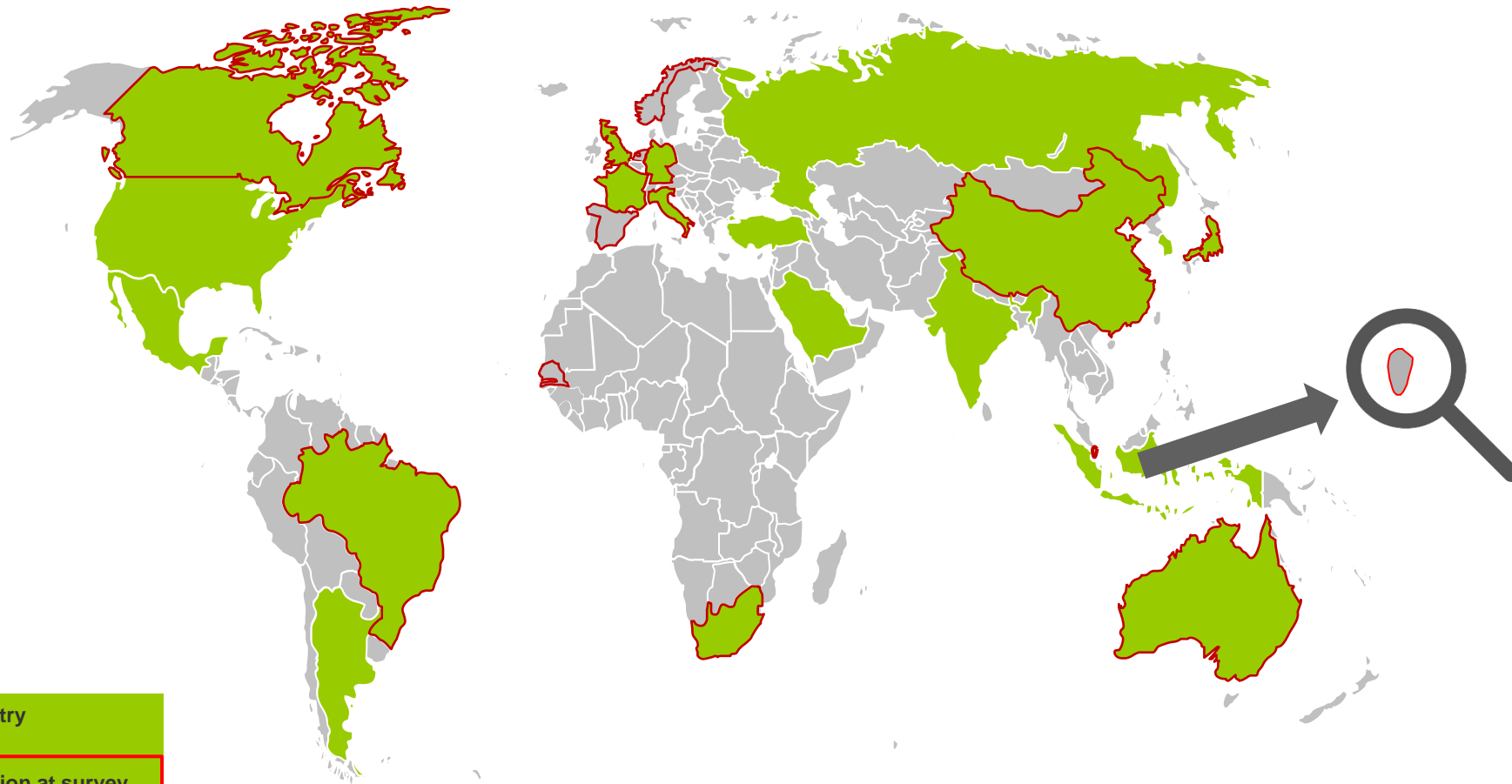
Overview of survey

- 26 countries were invited
 - 19 G20 countries
 - 7 non G20 countries

- 15 countries answered
 - 10 G20 countries
 - 5 non G20 countries

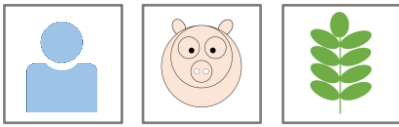
Region	Countries
Europe	7
Asia Oceania	4
Africa	2
Americas	2

G20 countries that participated at survey





1. Multi-sectoral Approach



Sectors collaborating on AMR in a one health approach

Sector	Number of countries	Percentage of countries
Human health	13	86.7 %
Terrestrial food producing animals	15	100.0 %
Aquatic food producing animals	12	80.0 %
Crop production	8	53.3 %
Food sector	14	93.3 %
Environmental sector	11	73.3 %



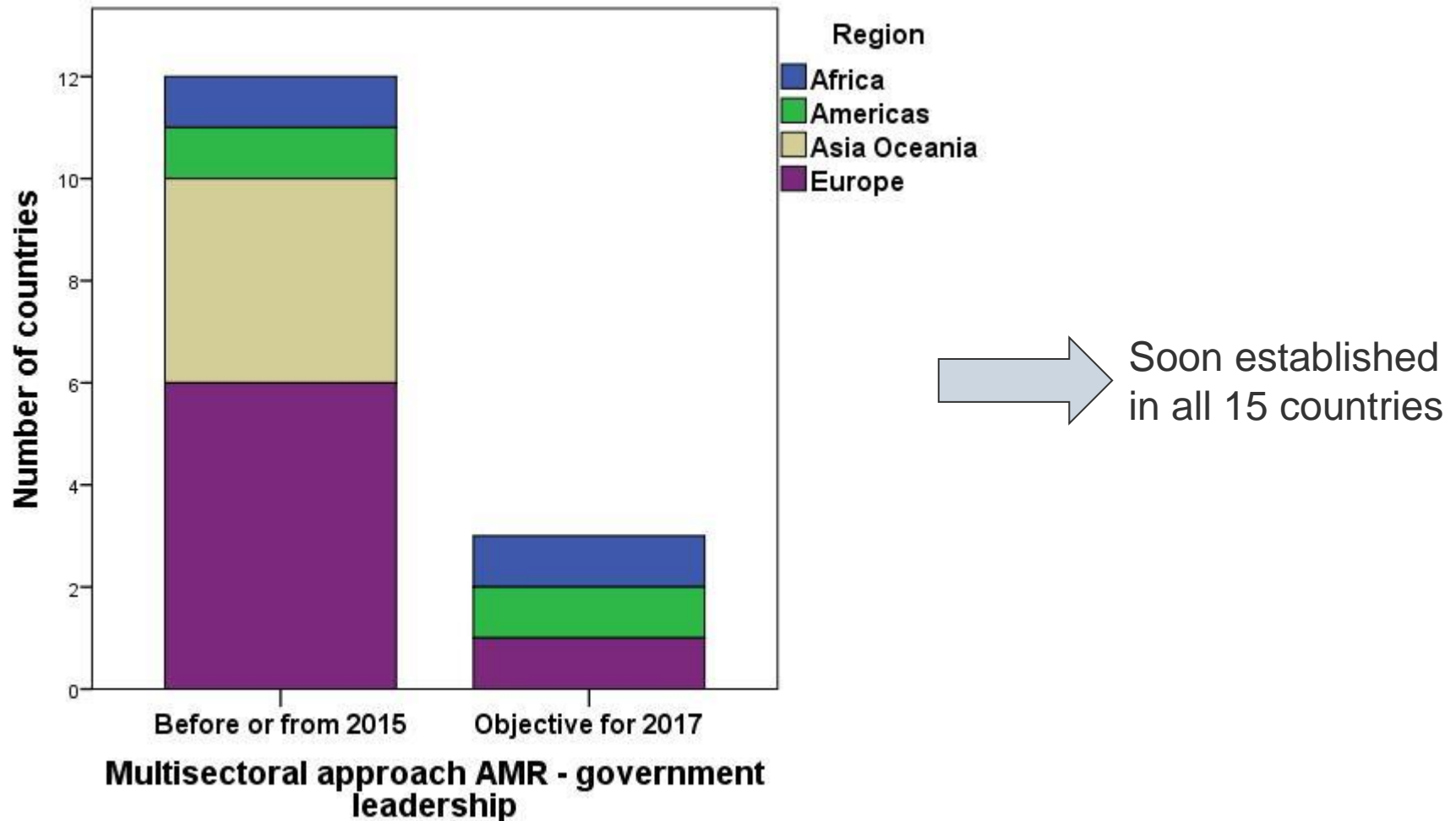
Sectors involved in data collection

Sector	Antimicrobial Usage	AMR	Discrepancy to One Health approach
Human health	11	12	2
Terrestrial food producing animals	11	11	1
Aquatic food producing animals	8	8	2
Crop production	5	4	3
Food sector	5	9	3
Environmental sector	4	6	3

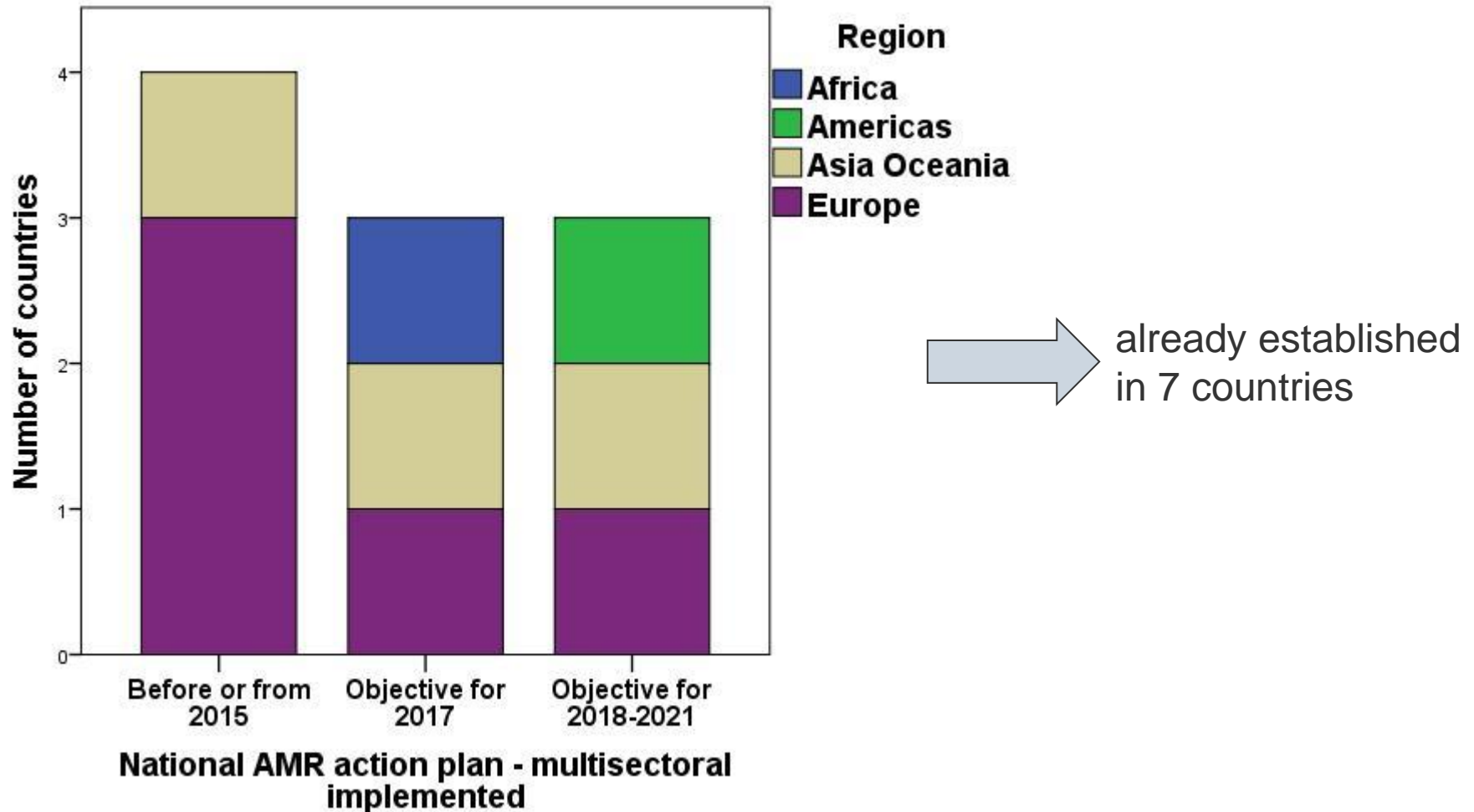
- Some countries provided answers that were in conflict with the information regarding the sectors included in One Health approach.

12 countries provided data, 10 of them for all sectors.

Multisectoral approach addressing AMR

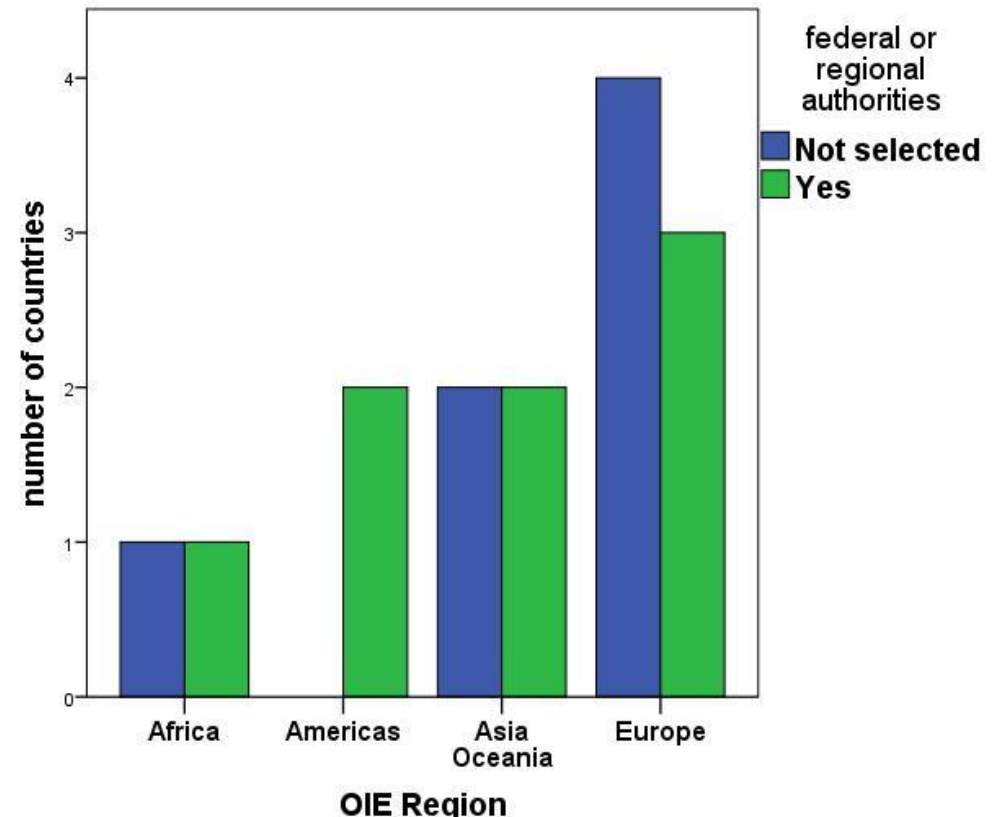


Country progress with development of a national action plan on AMR



Authorities involved in data collection

- Central: all except 1 country
- Federal: 8 countries from all regions
- Municipal: 2 countries (Latin America, Asia)

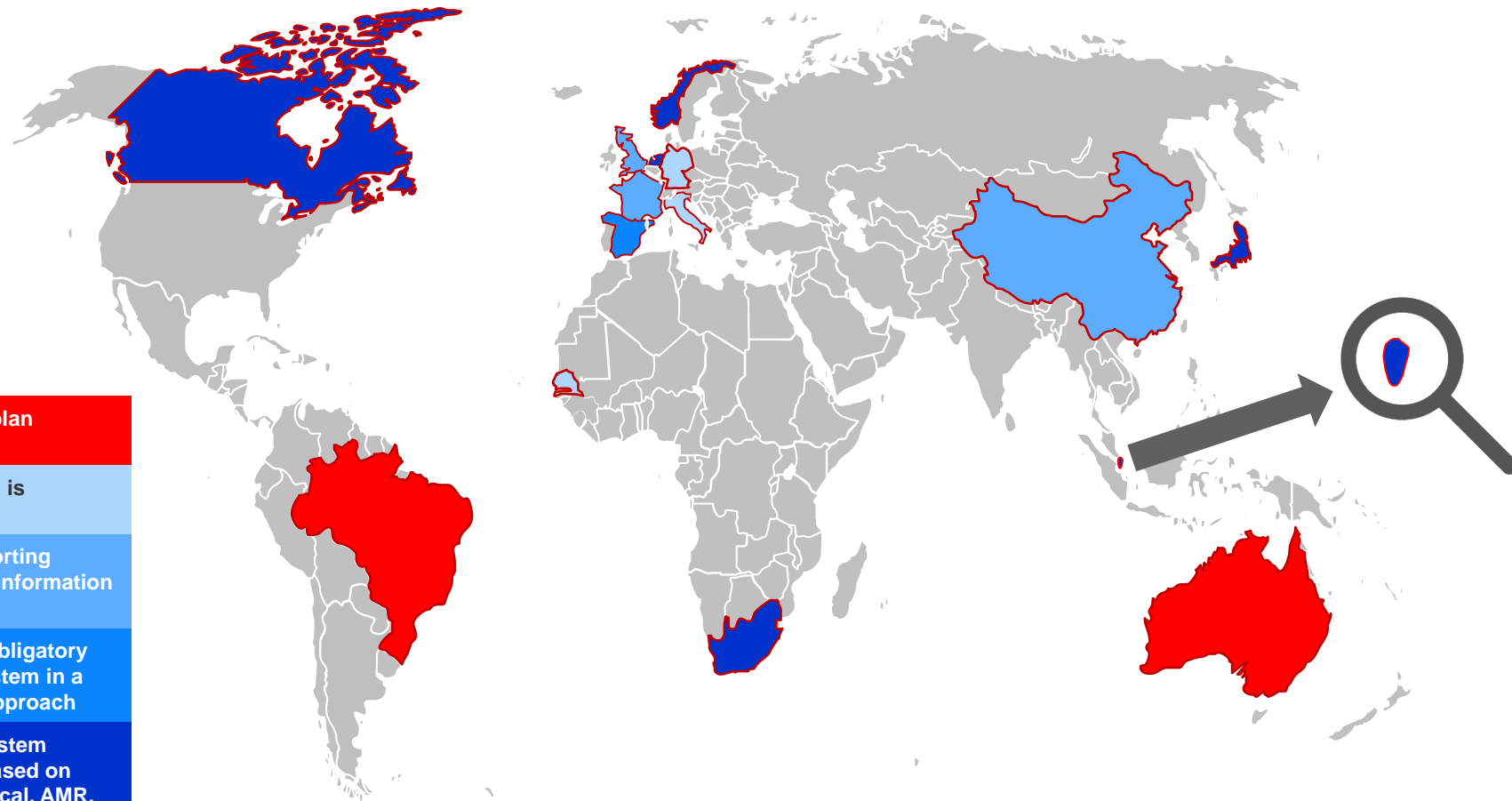


Consolidation of data in a one health approach

- Most countries already have a national plan on incidence, prevalence and geographical patterns (10 countries) (item 2).
- 8 countries have a national reporting system incl. exchange of information (item 3), but an automated reporting system is only implemented in 2 of these countries (item 4).
- 6 countries have a reporting system based on epidemiological, AMR, genetic and phenotypical information on pathogens, 3 countries plan to do that (item 5).

All countries provided data, 6 countries provided data to at least 4 of the 5 items.

Consolidation of data in a one health approach



2. Improving awareness through effective communication, education and training



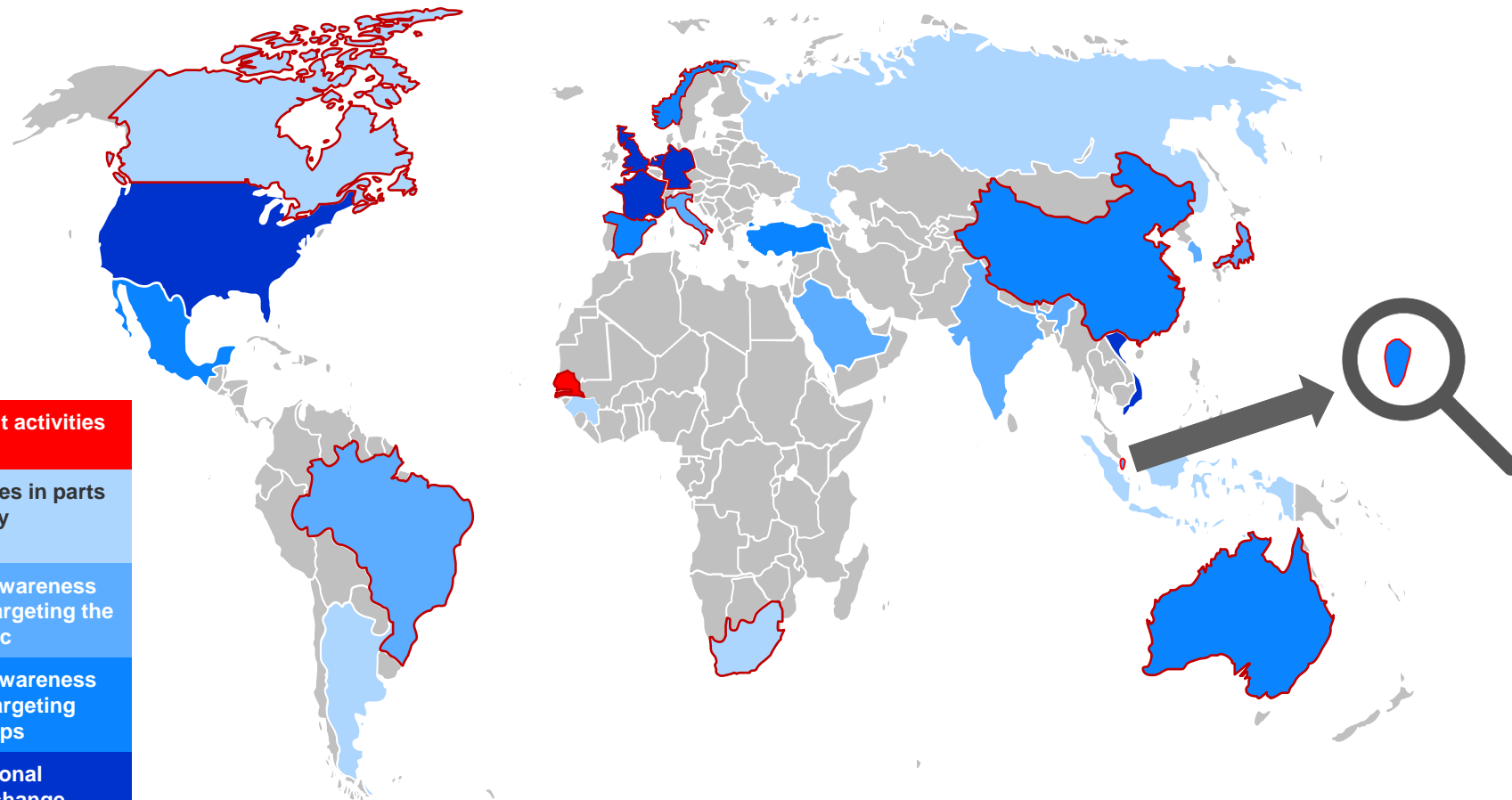
Raising awareness in human health

- 9 countries reported some activities (item 2),
 - 7 of them also nationwide campaigns to the general public or to specific groups (item 3 and 4),
 - 4 of them also national activities to change behaviour (item 5a),
 - 3 of them also monitoring of awareness and behaviour change (item 5b).
- 5 countries plan to improve their activities in the future.

All countries provided data, 9 countries provided data to at least 4 of the 6 items.



Raising awareness and understanding of AMR risks and response in human health



Based on: <http://www.who.int/antimicrobial-resistance/global-action-plan/database/en/>



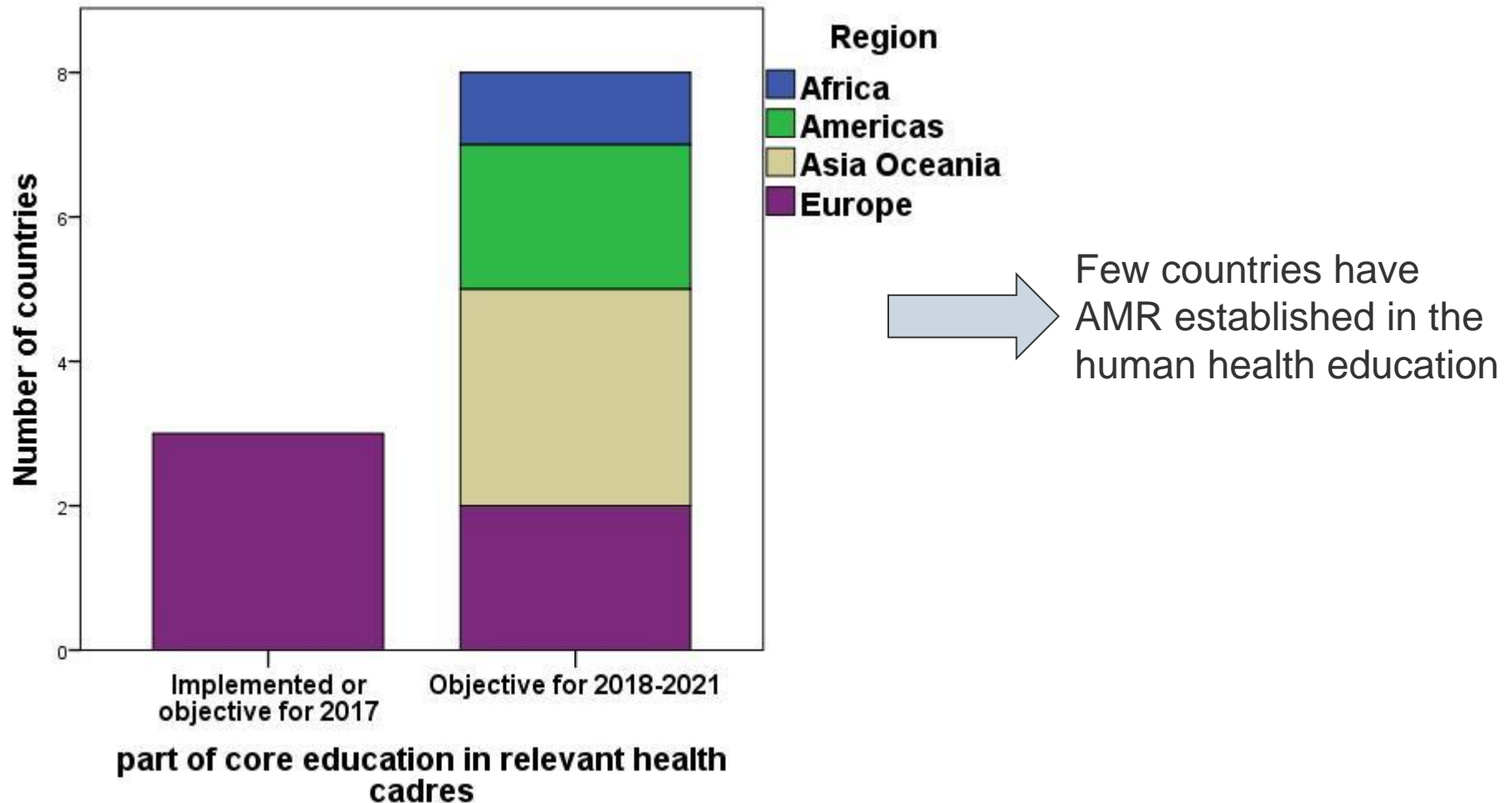
Raising awareness in animal health and food production

- 9 countries reported nationwide campaigns to specific groups (item 4).
 - 7 of them plan to introduce activities or monitoring to change behaviour (item 5 / 6).
 - The other 2 countries already have implemented activities to change behaviour (item 5).
- In general comparable to human health, only monitoring of awareness (item 5b) is to be implemented in animal health.

All countries provided data, 6 countries provided data to at least 4 of the 6 items.

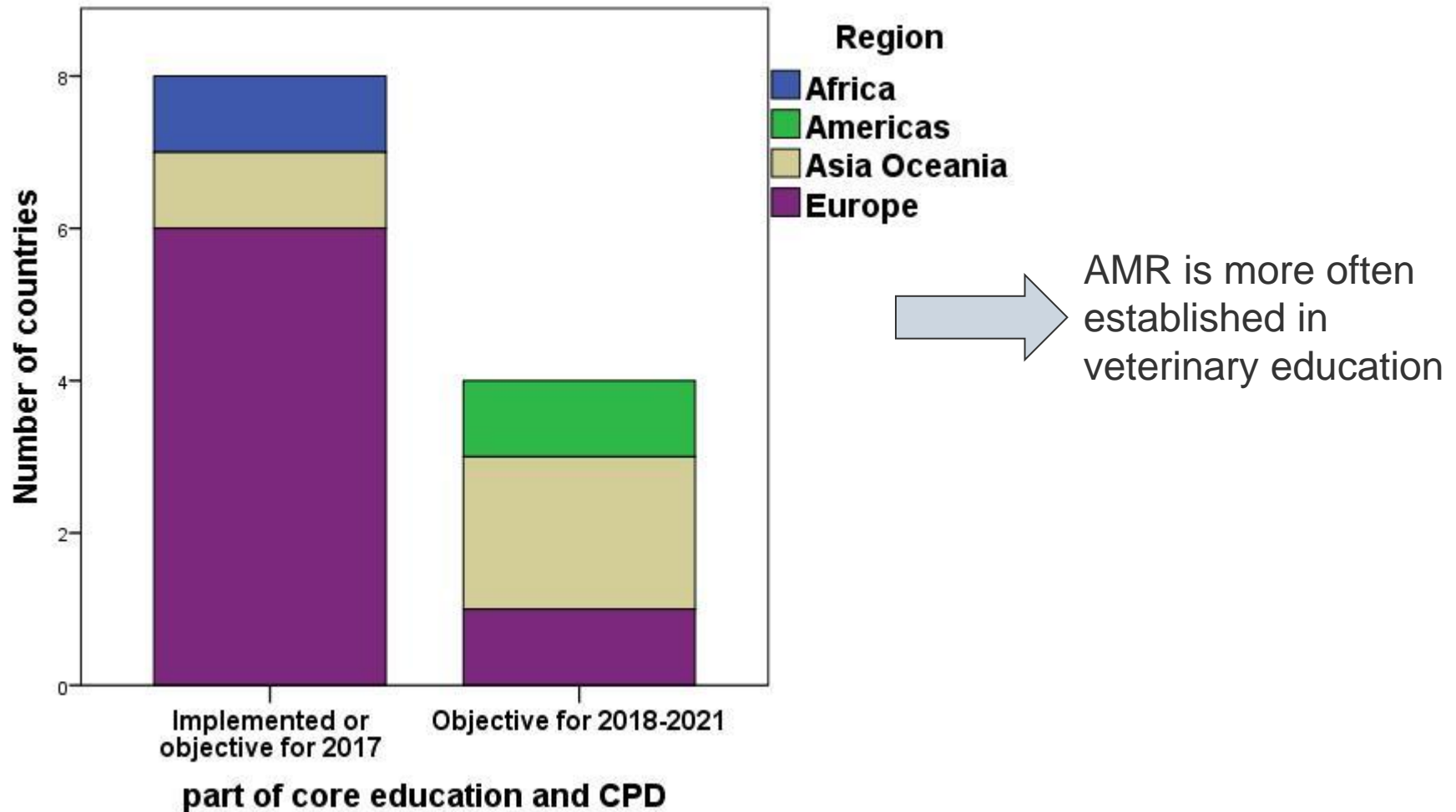


Training on AMR in the human health sector



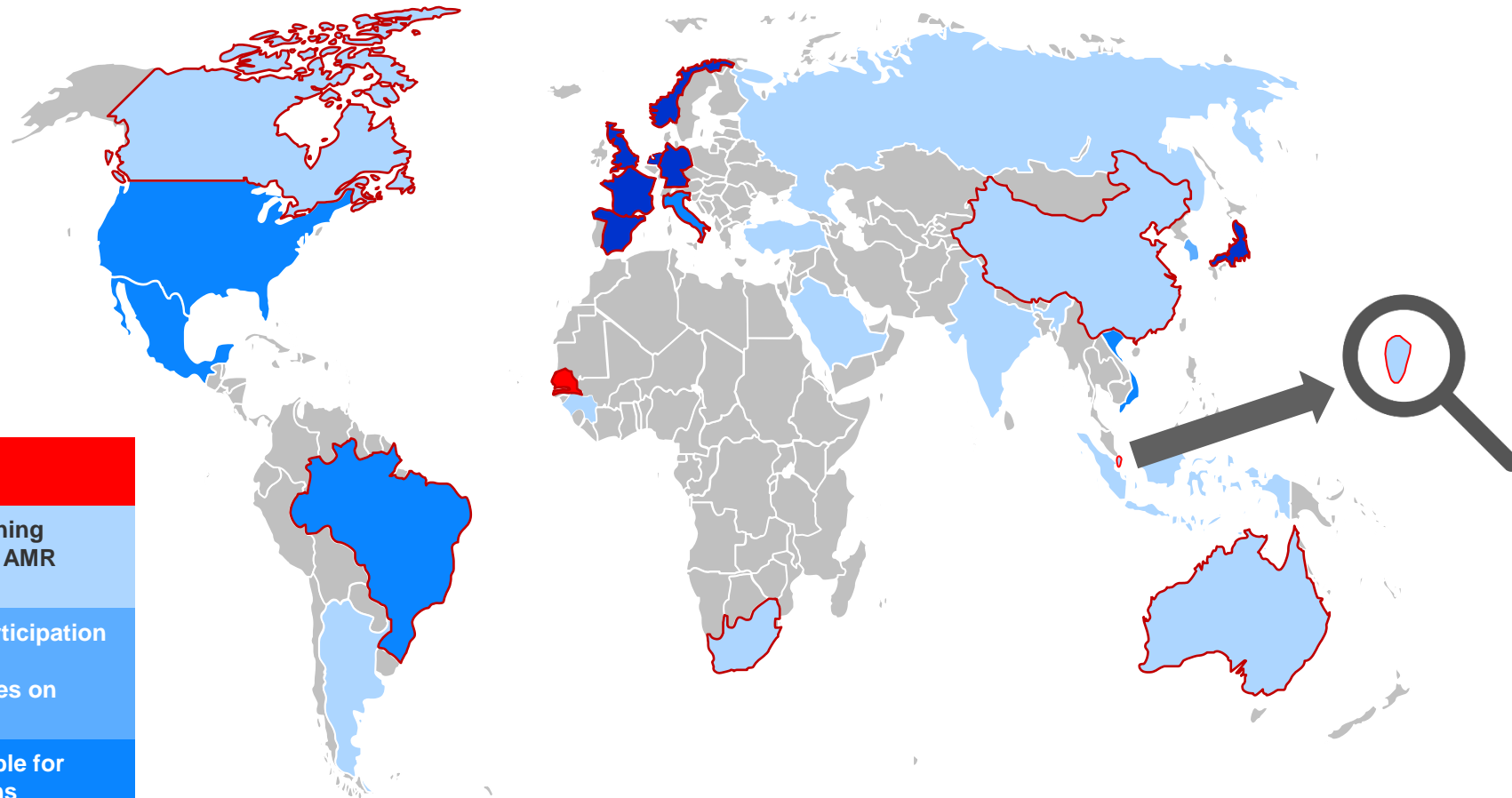


Training on AMR in the veterinary sector





Training on AMR in the veterinary sector



No training

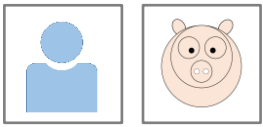
Ad hoc training
courses on AMR
available

Regular participation
in training
opportunities on
AMR

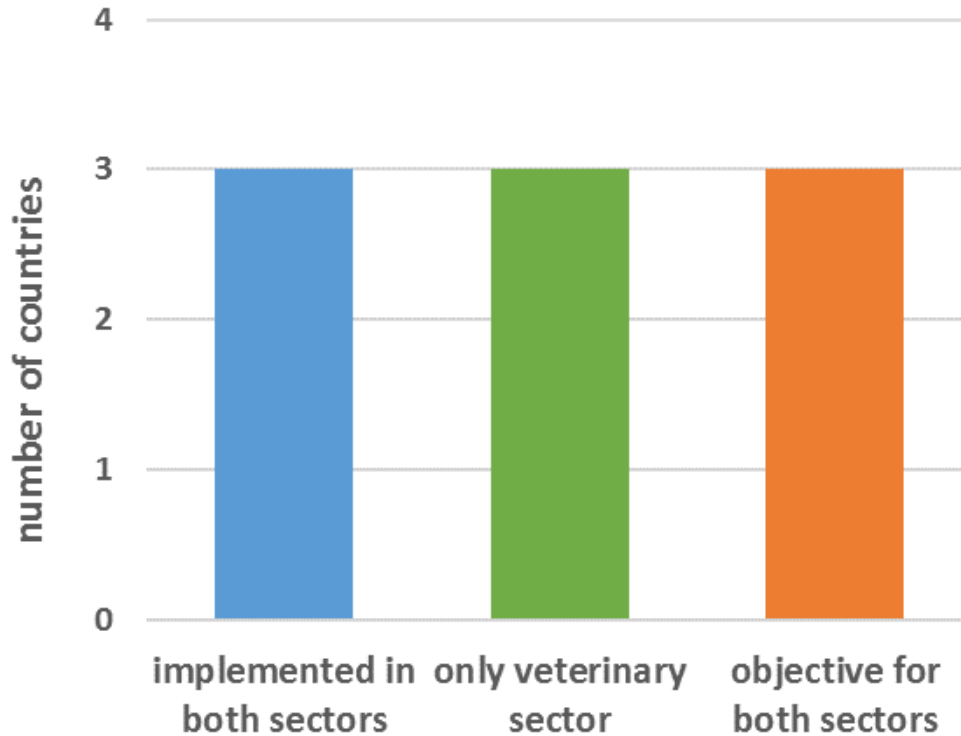
CPD available for
veterinarians

Part of core
education in
veterinarians

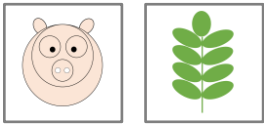
Based on: <http://www.who.int/antimicrobial-resistance/global-action-plan/database/en/>



Multisectoral education



Only three countries have AMR implemented in human and veterinary education



Communication with stakeholders regarding AMR-related risks (animal health / agricultural production)

- All countries reported some communication or working groups with stakeholders in the field of animal health (item 2 – 4).
- 3 countries additionally plan to start coordinated activities of combatting antimicrobial resistance (item 5).

All countries provided data, 9 countries provided data to 4 of the 5 items.

3. Monitoring and surveillance



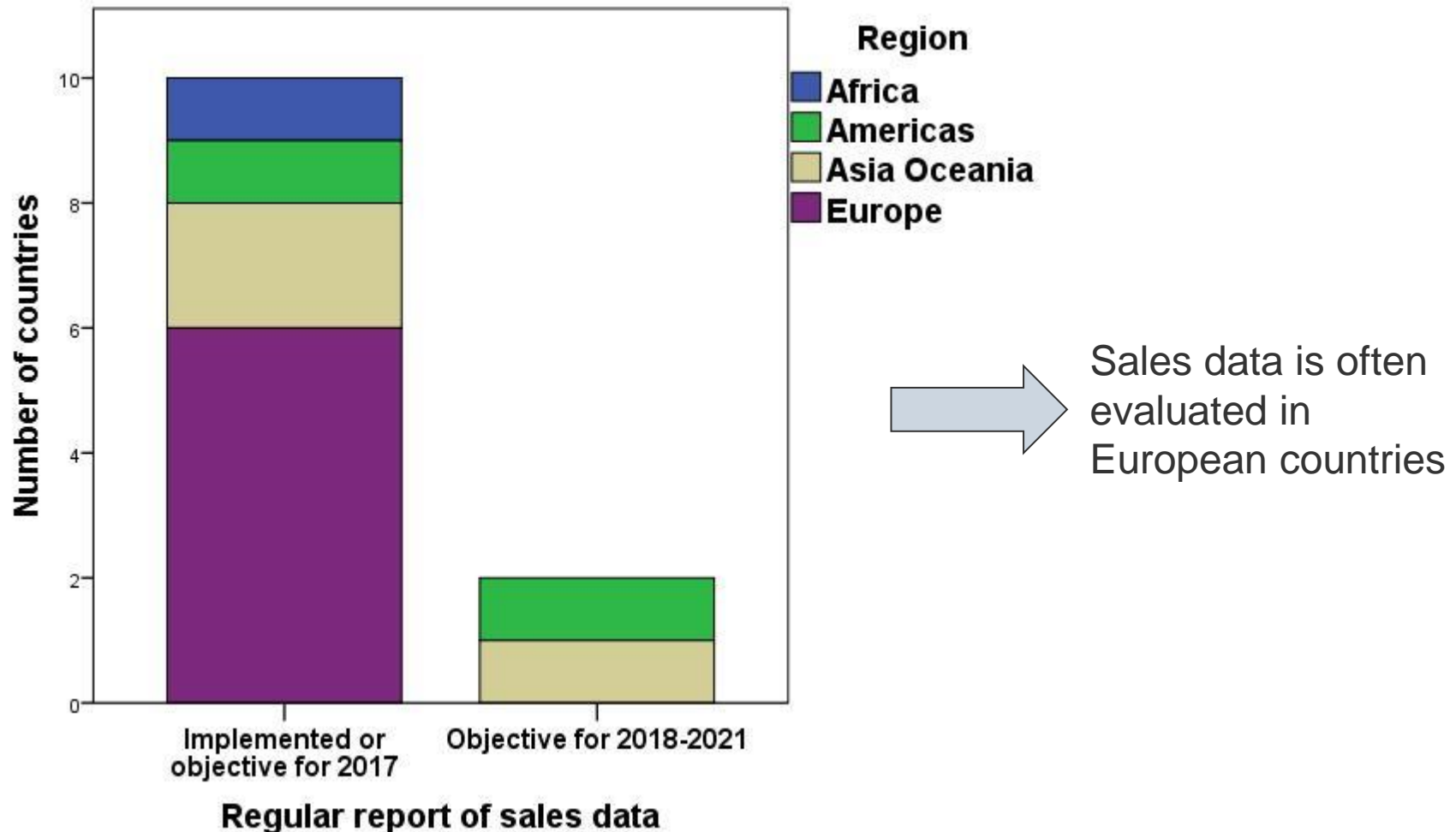
Monitoring for consumption and use of antimicrobials in human health

- 11 countries already monitor total sales (item 3), and 10 of them also monitor prescribing practices in a sample of healthcare settings (item 4).

All countries provided data, 9 countries provided data to 4 of the 6 items.

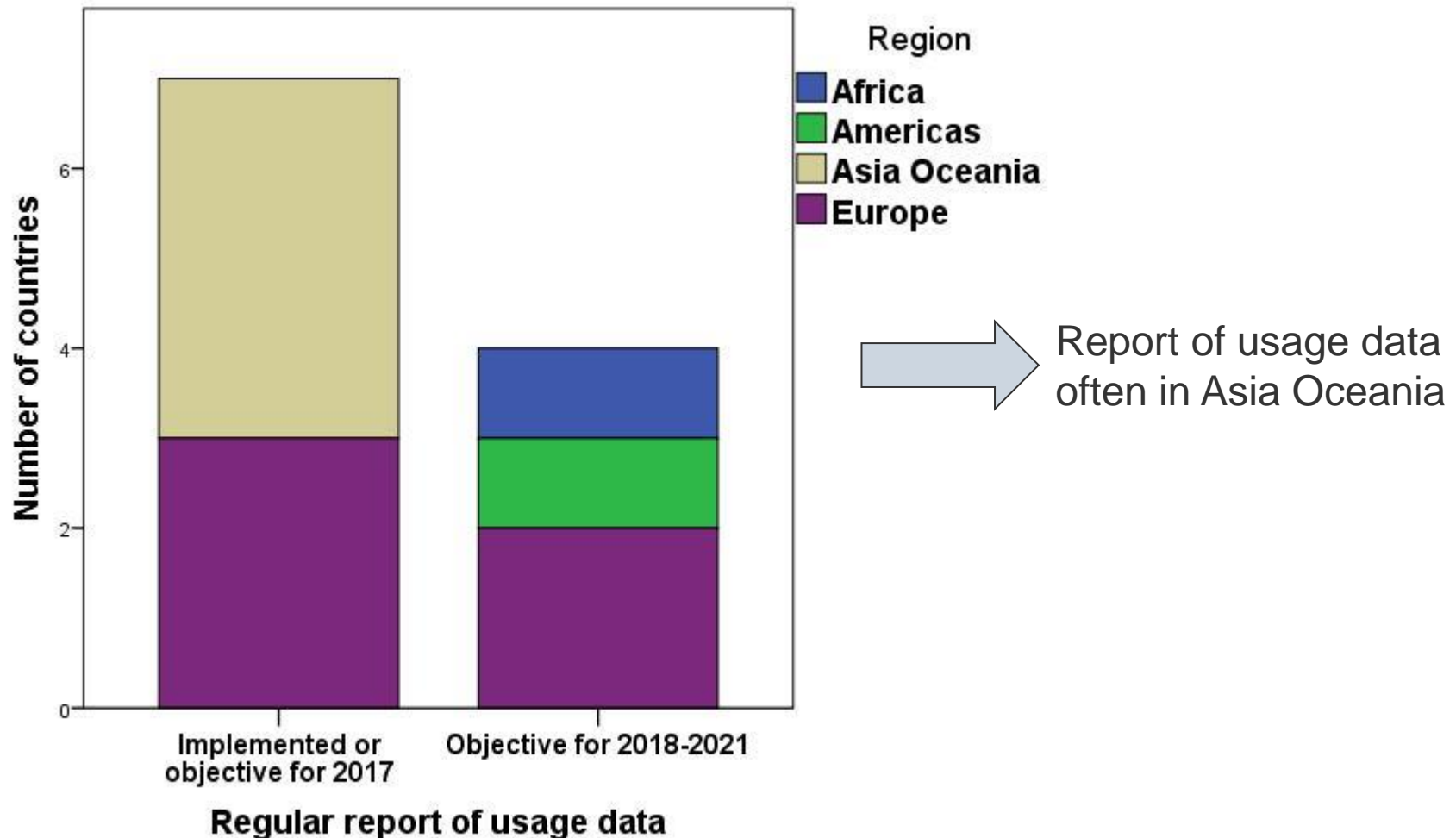


Regular reports on sales data in human health





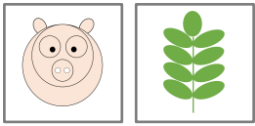
Regular reports on prescribing and appropriate use in human health





Monitoring for consumption and use of antimicrobials in human health

- 5 countries have regular reports of sales and usage data in human health.
- 10 countries have implemented monitoring in either sales or usage, while it is the objective for 2018 – 2021 for the other aspect, respectively.

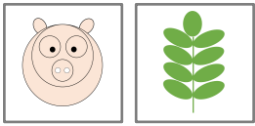


Monitoring for consumption and use of antimicrobials in animal health

- 10 countries already monitor total sales, 2 countries will start in 2017 (item 4).

- Item 5:
 - 12 countries already collect data on a regular basis,
 - 5 countries plan to enhance activities in future, e.g.
 - Monitoring of the appropriate use of antimicrobials and/or
 - Antimicrobial sales or consumption for crop production

14 countries provided data, 7 countries provided data to at least 4 of the 8 items.

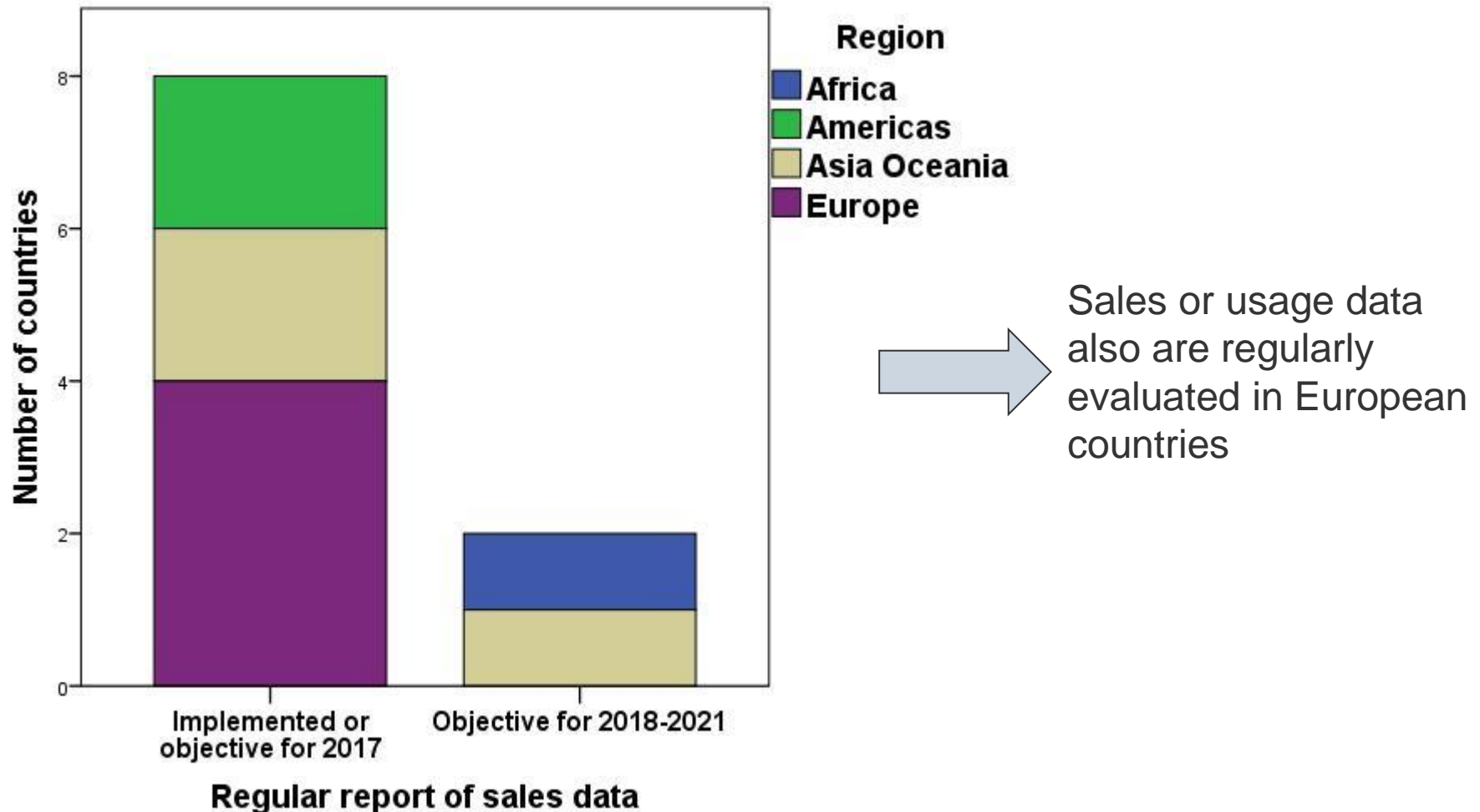


Monitoring for consumption and use of antimicrobials in animal health (2)

- 10 countries participate in OIE data collection on sales or usage data by species, class and type of use (item 5c).
 - 8 of them also reported regular monitoring of sales data in humans.
- 6 countries either have implemented or plan to have regular reports for sales and usage from human and animal health.

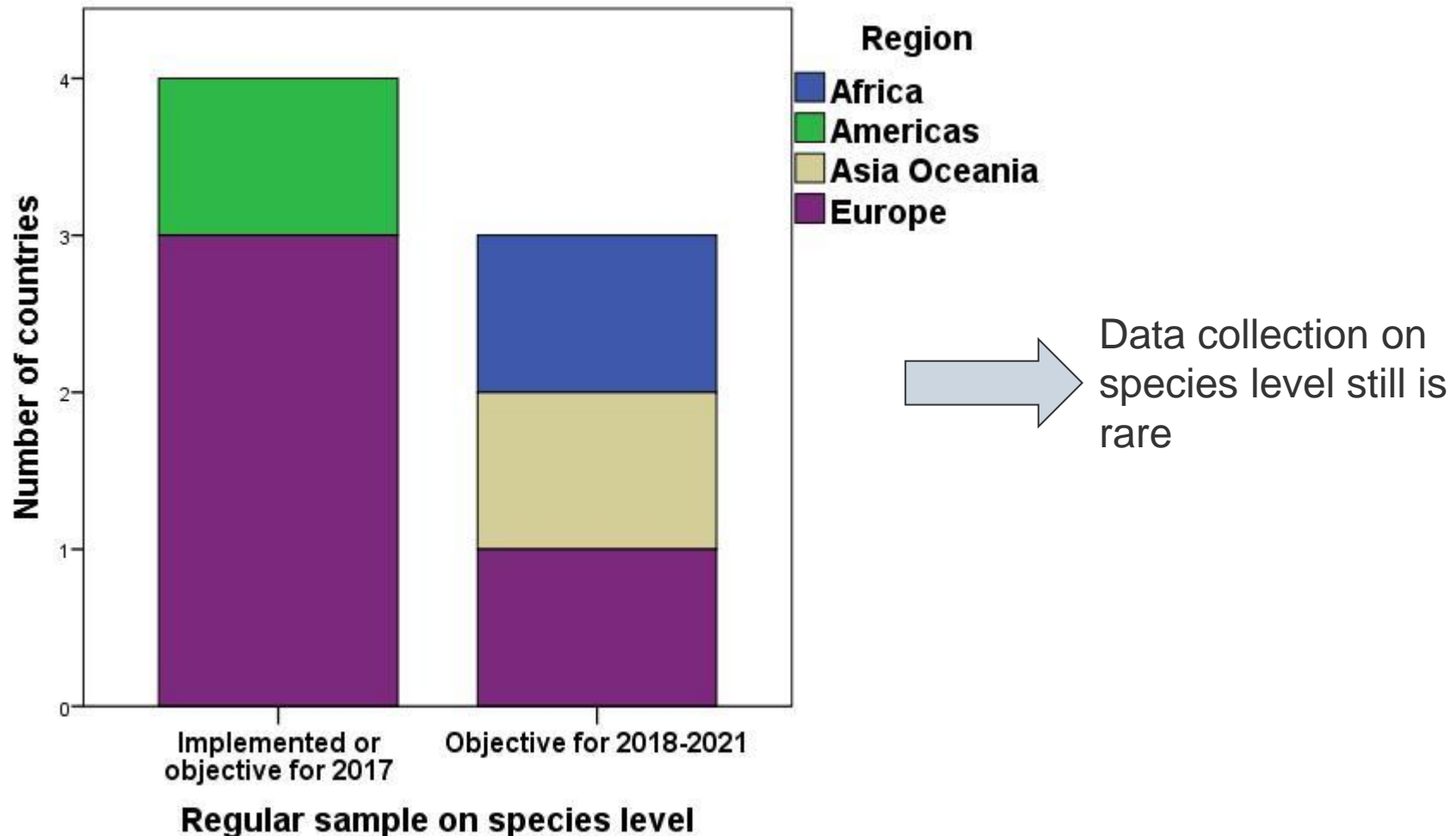


Regular reports of sales data in animal health



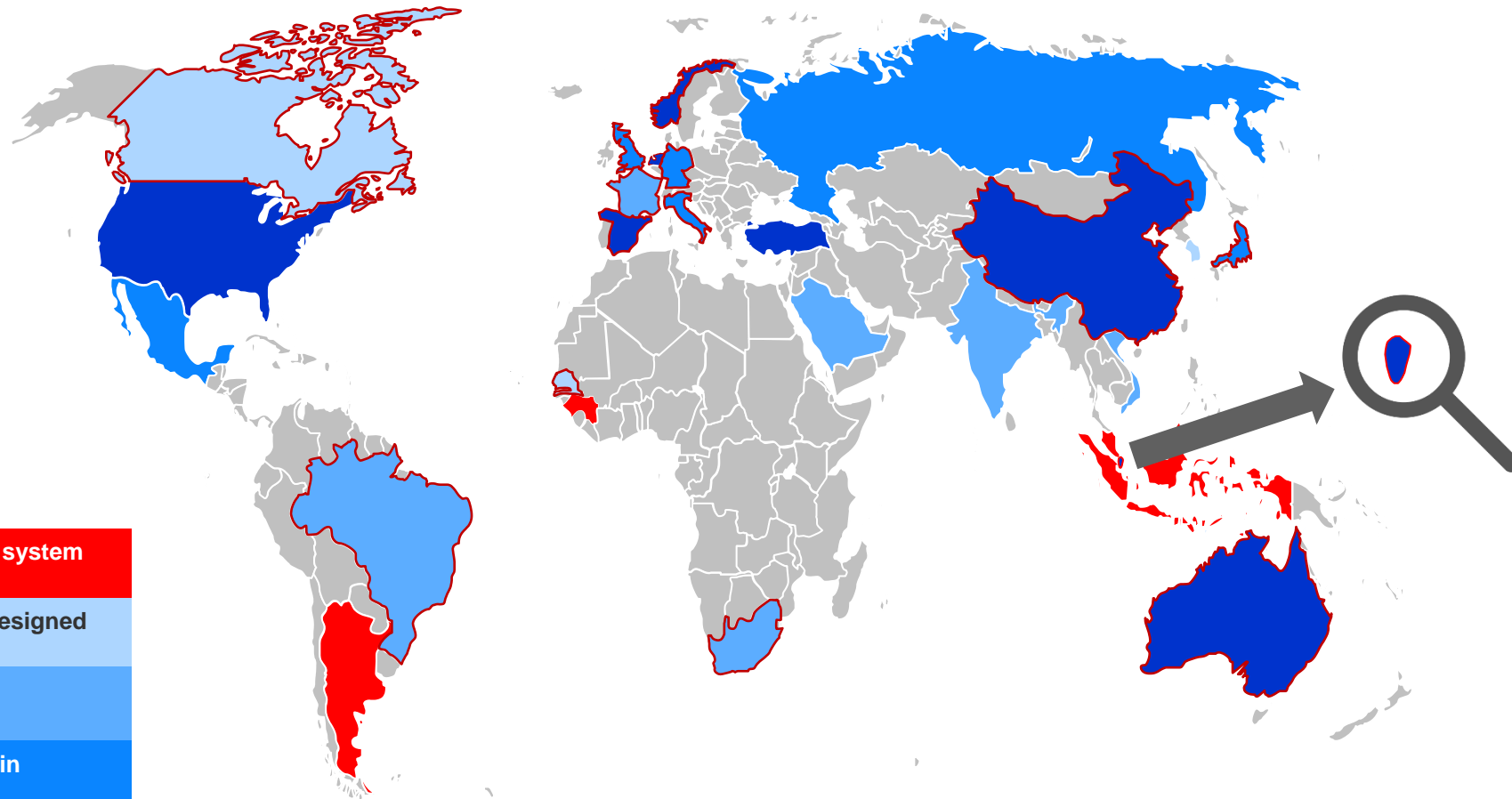


Regular reports of usage data on species level





Monitoring system for antimicrobial use in human health



No national system

System is designed

Total sales
monitoring

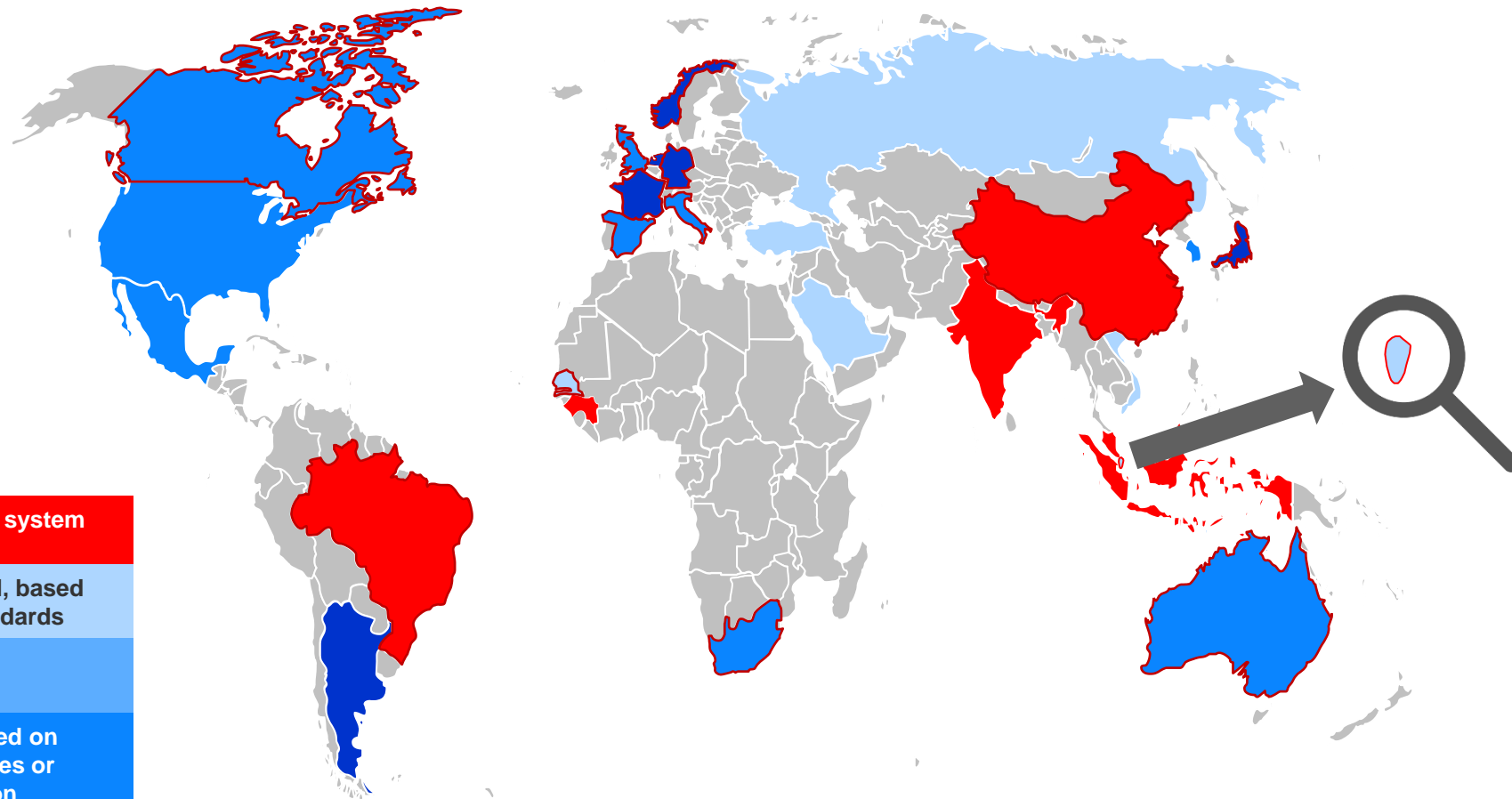
Usage data in
sample

Regular sales or
consumption
monitoring

Based on: <http://www.who.int/antimicrobial-resistance/global-action-plan/database/en/>



Monitoring system for antimicrobial use in animal health



No national system

Plan agreed, based on OIE standards

Total sales monitoring

Data reported on national sales or consumption

Regular sales or consumption monitoring

Based on: <http://www.who.int/antimicrobial-resistance/global-action-plan/database/en/>



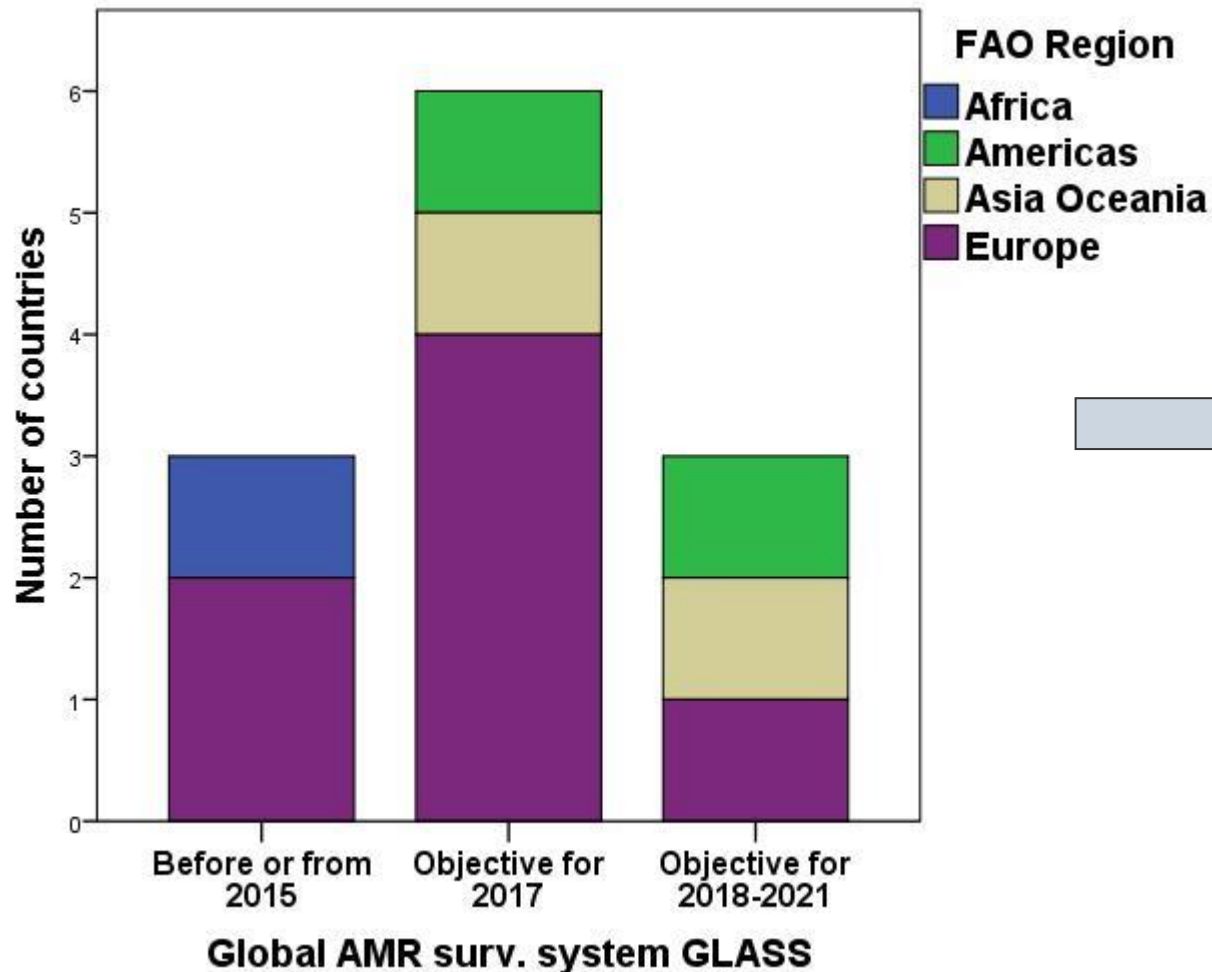
AMR Surveillance system in humans

- Most countries have surveillance activities for common bacterial pathogens and national reference laboratories (item 3).
- Also most countries produce national reports on resistance level (item 4b, 5c).
- Animal health is included in 5 (item 5a), agriculture in 3 countries (item 5b).
- Data from community / outpatients needs to be integrated in some countries.

All countries provided data, 11 countries provided data to at least 5 of the 10 items.



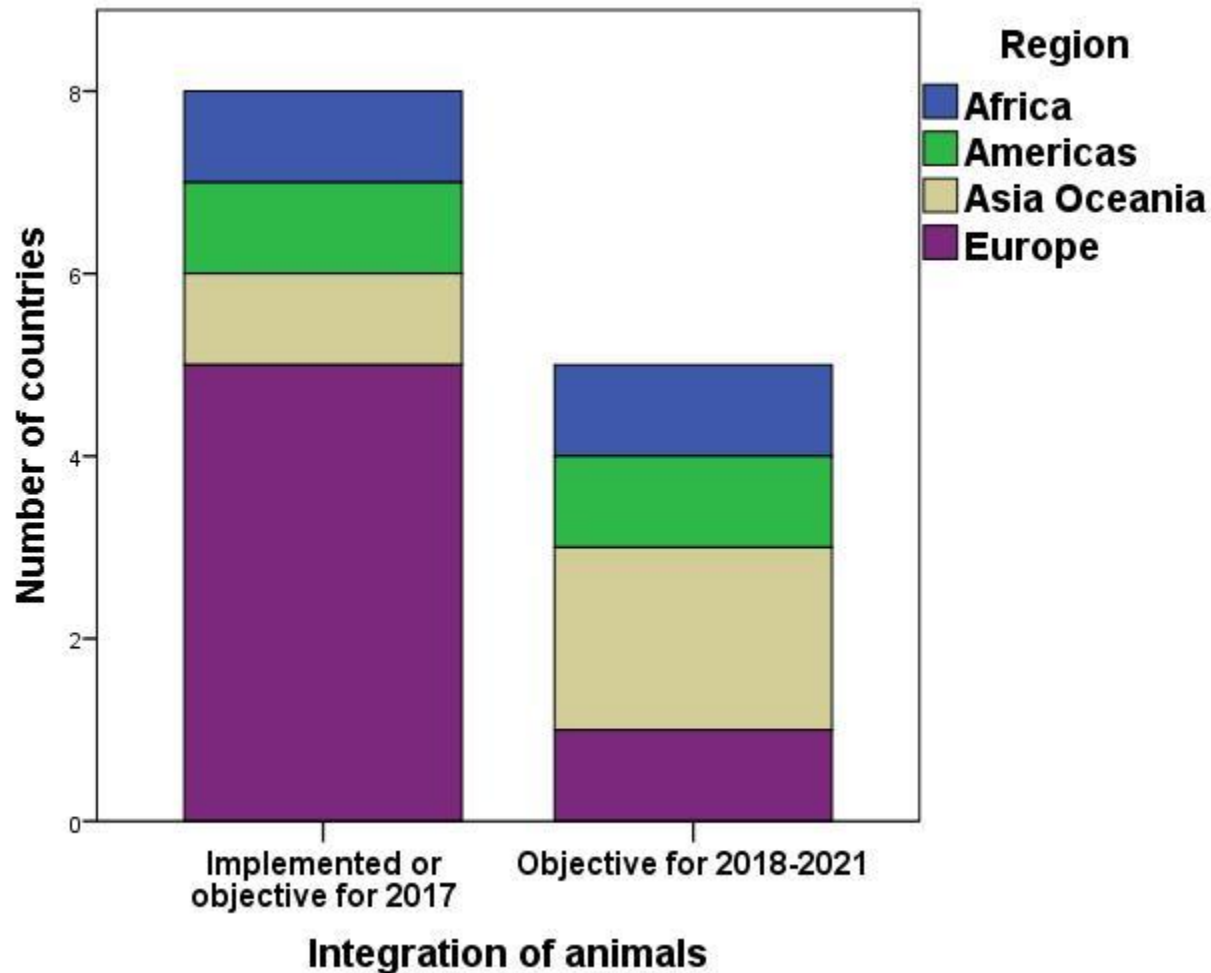
Global AMR Surveillance System (GLASS)

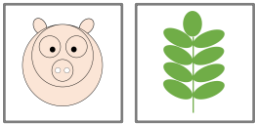


Large progress in 2017



Integration of animals in AMR surveillance system

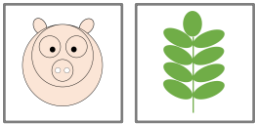




AMR surveillance system in animals and foods

- 12 countries collect data locally or for priority pathogens (item 2) and additionally have study data (item 3).
- 7 countries have installed national surveillance system for relevant animal pathogens (item 4),
 - 5 countries plan to implement it.
- 8 countries have a complete regular surveillance system (item 5),
 - 6 countries plan to implement it.

14 countries provided data, 11 countries provided data for at least 4 of 8 items.



Animal samples included in AMR surveillance

Sector	Number of countries	Percentage of countries
Commensal bacteria	10	66.7 %
Zoonotic bacteria	11	73.3 %
Animal pathogenic bacteria	6	40.0 %

- Many European countries do not include animal pathogens, but commensals and zoonotic bacteria



Bacteria assumed to play an important role with regard to AMR

Bacteria	Number of countries (of 15)	Surveillance system in human sector established (in preparation)	Surveillance system in veterinary sector established (in preparation)
Acinetobacter baumannii	11	8 (1)	0 (1)
Escherichia coli	14	12 (1)	8 (1)
Campylobacter spp.	10	3 (1)	7 (0)
Clostridium difficile	10	6 (2)	0 (0)
Klebsiella pneumonia	13	9 (2)	2 (1)
Neisseria gonorrhoeae	9	7 (1)	0 (1)
Staphylococcus aureus	13	10 (1)	5 (1)
Streptococcus pneumonia	6	4 (1)	0 (1)
Salmonella species	13	9 (1)	7 (1)
Shigella species	5	4 (0)	0 (0)
Mycobacterium tuberculosis	12	8 (1)	1 (1)

4. Sanitation, hygiene and infection prevention measures



Infection prevention and control in human health care

- Three countries range between no national IPC policy (item 1) and national IPC SOPs implemented in some health-care facilities (item 3).
- 8 countries have implemented all relevant infection control measures in all health facilities, 1 country plans to implement it (item 5).

All countries provided data, 9 countries provided data to at least 4 of the 6 items.



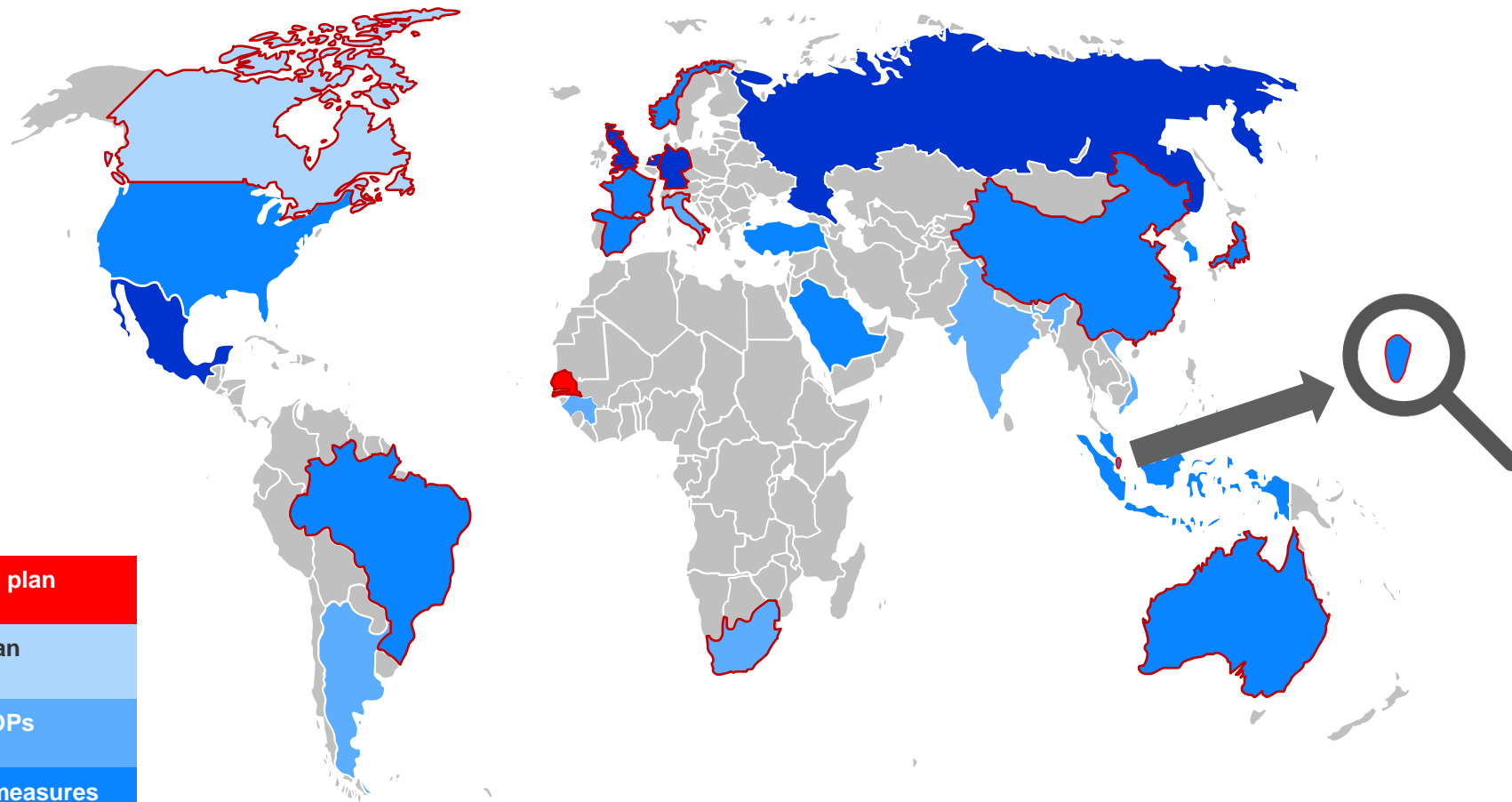
Good animal health and management practices and good hygiene

- 7 countries have already a national plan to prevent transmission of resistant bacteria, one will have one in future (item 2).
- 1 country has monitoring in animals, veterinary practices and the food chains (items 5 a – c),
 - 2 other countries monitor one or two of the items,
 - 6 countries plan to introduce a monitoring in future.

13 countries provided data, 9 countries provided data to at least 4 of the 7 items.



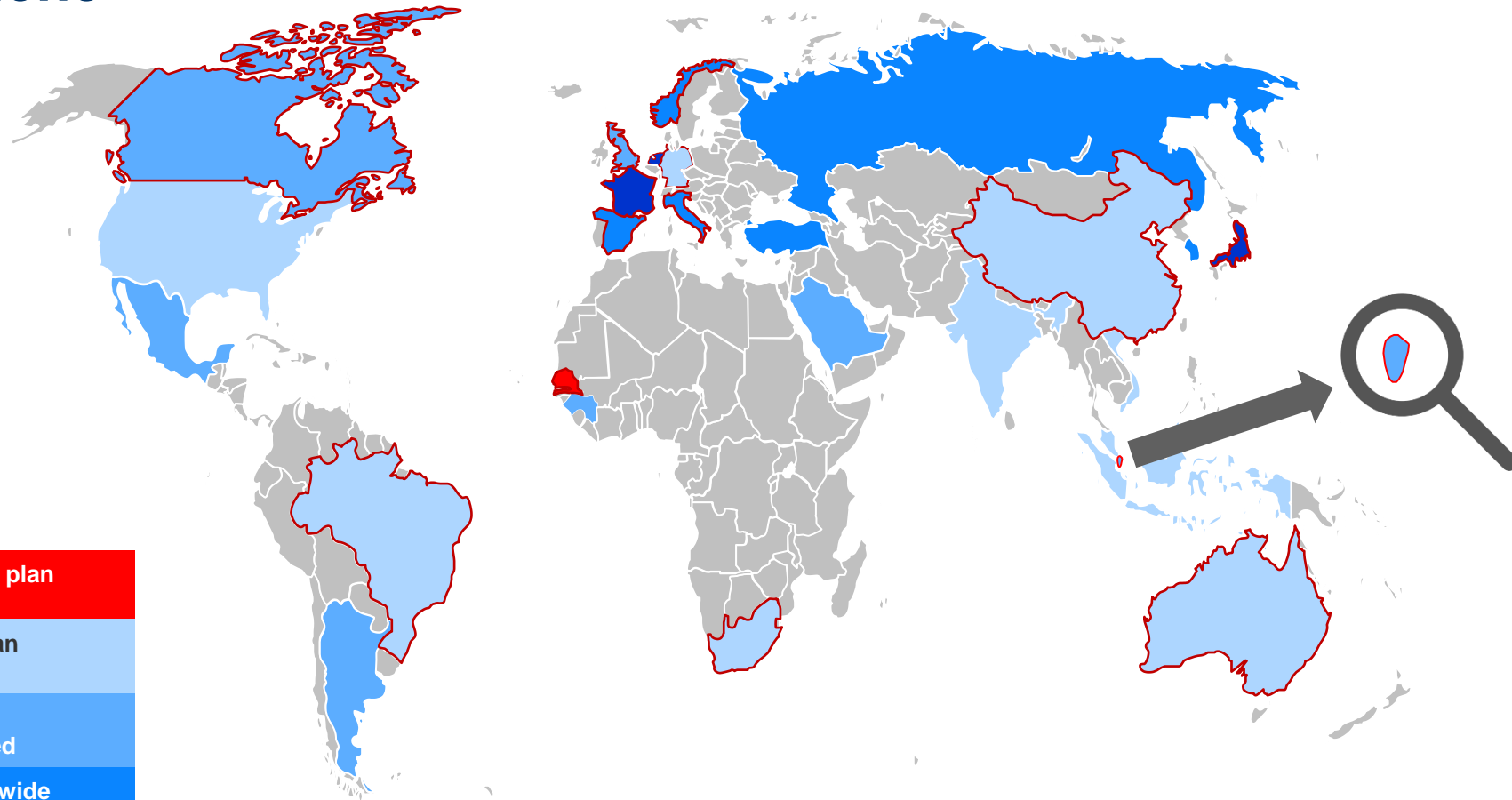
Infection prevention and control in human health care



Based on: <http://www.who.int/antimicrobial-resistance/global-action-plan/database/en/>



Good animal health and management practices and good hygiene



Based on: <http://www.who.int/antimicrobial-resistance/global-action-plan/database/en/>

5. Optimization of the use of antimicrobial products



Antimicrobial stewardship and regulation in human health

- Antimicrobial stewardship activities take place in most of the countries (items 2 to 4).
- Respective regulations are enforced (item 5b) and monitoring results are used to improve the situation in 11 countries (item 5c).
- Only in 5 countries the program is implemented in health care facilities and in the community, but planned in 4 countries (item 5a).

14 countries provided data, 11 countries provided data to at least 6 of the 11 items.



Antimicrobial stewardship and regulation in animal health

- Antimicrobial stewardship activities take place in most of the countries (items 2 to 4).
- Use of growth promoters prohibited in 8 countries, 2 plan to ban them (item 4d).
- 12 countries reported to comply with Codex Alimentarius standards (item 5c).

14 countries provided data, 12 countries provided data to at least 6 of the 11 items.

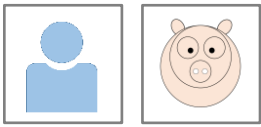


Regulations to prevent contamination of the environment with antimicrobials

- Regulations on discharge of wastewater from sewage, health facilities, animals and industry are in place in all countries (items 2 and 3).
- Regulatory compliance systems including antimicrobial residues are effective in 4 countries, and planned in 1 country (item 5c).

11 countries provided data, 5 countries provided data to at least 5 of the 10 items.

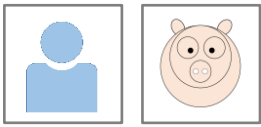
6. Prudent use of antimicrobial agents



Indications for using antimicrobials related to AMR

Item	Human sector established (in preparation)	Veterinary sector established (in preparation)
SPCs address conditions for use that are linked to respective studies (items 2 and 3).	13	15
SPCs address information on risks related to incorrect use (item 4).	13	15
Antibiograms are required at least for some antibiotics (item 5).	8	9 (1)
Advertising is limited exclusively to professionals (item 7).	13	9 (2)
Positive list is available that accounts for WHO list of CIAs / OIE list of Antimicrobial Agents of Veterinary Importance (item 8).	6 (1)	8 (4)

13 (15) countries provided data, 9 (12) countries provided data to at least 5 of the 9 items.



Implementation of international standards

	Human sector established (in preparation)	Veterinary sector established (in preparation)
Companies operate in compliance with international standards (item 2)	10 (0)	12 (1)
System for collecting data on usage based on WHO / OIE standards (item 3)	7 (2)	6 (4)
AMR surveillance based on WHO /OIE standards (item 4)	9 (2)	8 (4)
Recommendations in the WHO List of Critically Important Antimicrobials for Human Health / OIE list Antimicrobial Agents of Veterinary Importance accepted and implemented (item 5)	5 (5)	6 (3)

13 countries provided data, 10 countries provided data to at least 4 of the 5 items.



Conclusions

	Human sector	Veterinary sector
Training and awareness raising	O	+
Monitoring and surveillance	+	(+)
Hygiene and infection prevention	+	O
Optimized use	+	+

Thanks to

- Participating countries



- Funding ministries



Federal Ministry
of Food
and Agriculture



Federal Ministry
of Health

Thank you for your attention



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