7th Annual Growth and Resilience Dialogue
25 April 2034

Addressing the Impact of Antimicrobial Resistance

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Chief, AMR Special Program

Communicable Diseases Prevention, Control and Elimination

PAHO Pan American Health Organization

World Health Organization Americas

SECTION OUTLINE

01 Estimating the AMR impact:
- Covid-19
- One Health
- Climate Crisis

02 Response: Cost effectiveness

03 Response: Political Commitment

04 Response: National Action Plans

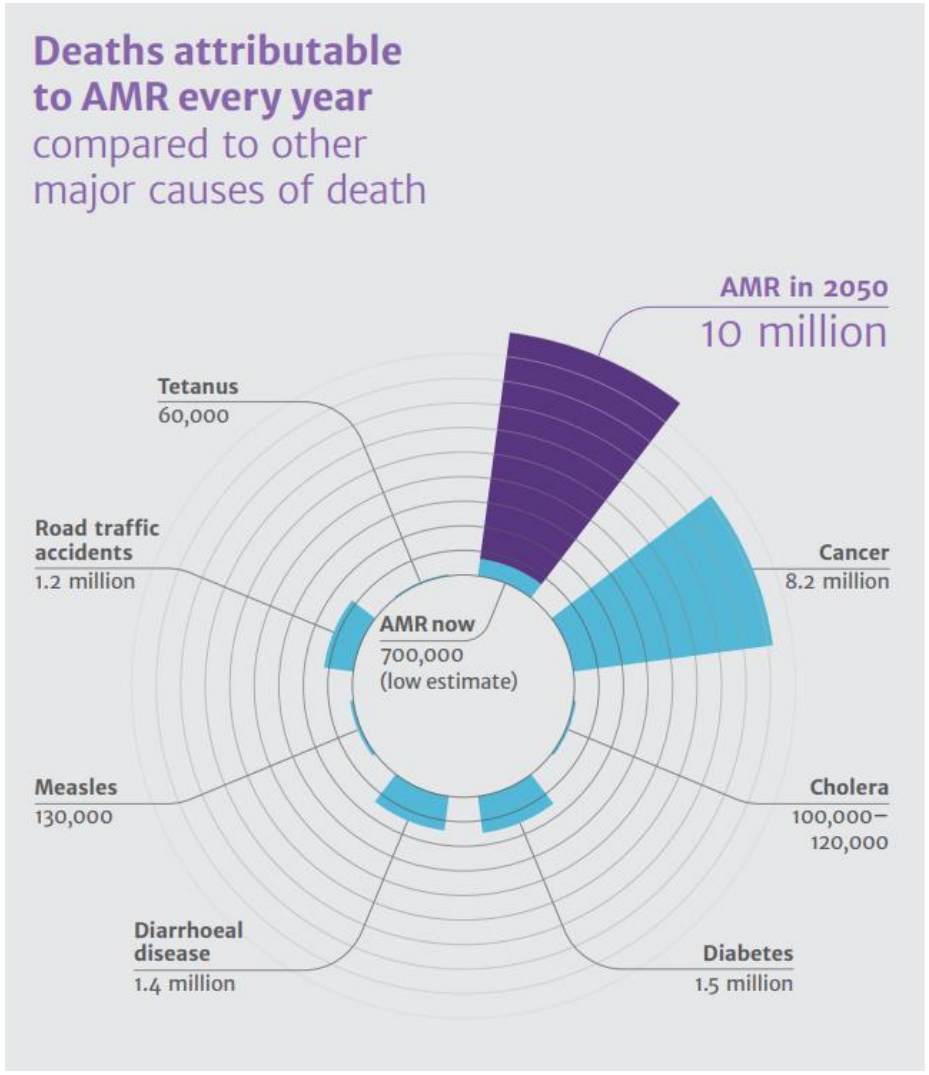
05 Conclusions: the way forward

AMR is invisible …

but its impact is not!

- In human lives
- In economy
- In development …

AMR: A GLOBAL THREAT TO HUMAN HEALTH, THE ECONOMY & DEVELOPMENT



The global rise of AMR will have devastating effects on lives and economies

COST (US)

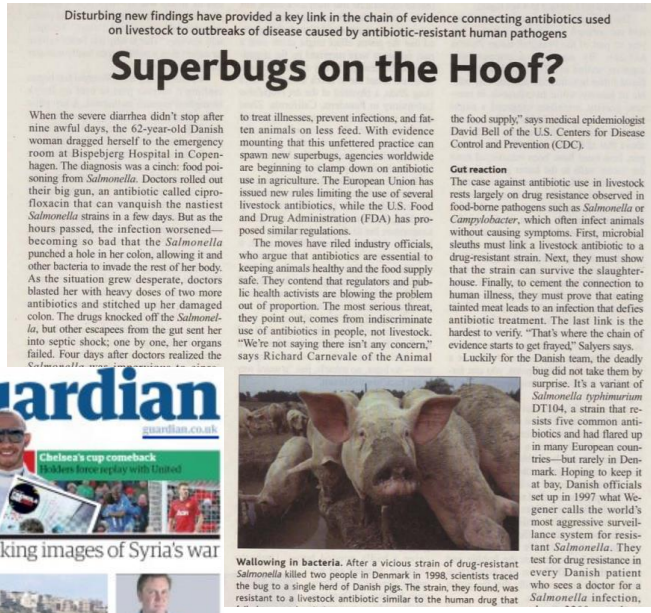
$20 billion

annually in the USA

GLOBAL COST PROJECTIONS

$100 trillion

globally per year by 2050


Disturbing new findings have provided a key link in the chain of evidence connecting antibiotics used on livestock to outbreaks of disease caused by antibiotic-resistant human pathogens

Superbugs on the Hoof?

When the severe diarrhea didn't stop after nine awful days, the 62-year-old Danish woman dragged herself to the emergency room at Bispebjerg Hospital in Copenhagen. The diagnosis was a cinch: food poisoning from *Salmonella*. Doctors rolled out their big gun, an antibiotic called ciprofloxacin that can vanquish the nastiest *Salmonella* strains in a few days. But as the hours passed, the infection worsened—becoming so bad that the *Salmonella* punched a hole in her colon, allowing it and other bacteria to invade the rest of her body. As the situation grew desperate, doctors blasted her with heavy doses of two more antibiotics and stitched up her damaged colon. The drugs knocked off the *Salmonella*, but other escapees from the gut sent her into septic shock; one by one, her organs failed. Four days after doctors realized the

to treat illnesses, prevent infections, and fatten animals on less feed. With evidence mounting that this unfettered practice can spawn new superbugs, agencies worldwide are beginning to clamp down on antibiotic use in agriculture. The European Union has issued new rules limiting the use of several livestock antibiotics, while the U.S. Food and Drug Administration (FDA) has proposed similar regulations.

The moves have riled industry officials, who argue that antibiotics are essential to keeping animals healthy and the food supply safe. They contend that regulators and public health activists are blowing the problem out of proportion. The most serious threat, they point out, comes from indiscriminate use of antibiotics in people, not livestock. "We're not saying there isn't any concern," says Richard Carnevale of the Animal

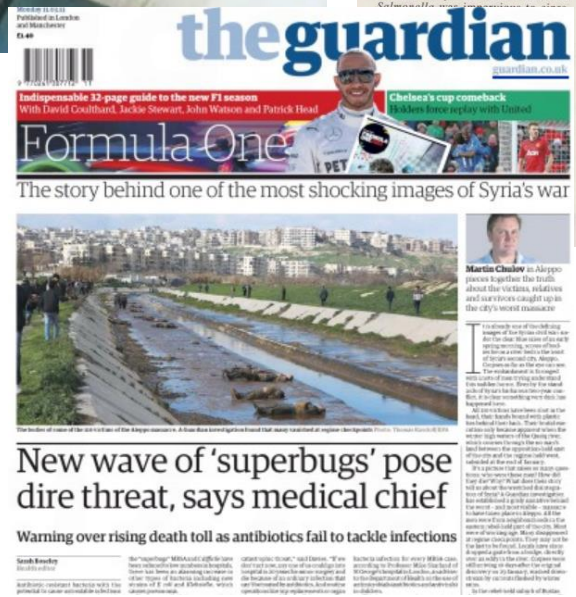
the food supply," says medical epidemiologist David Bell of the U.S. Centers for Disease Control and Prevention (CDC).

Gut reaction

The case against antibiotic use in livestock rests largely on drug resistance observed in food-borne pathogens such as *Salmonella* or *Campylobacter*, which often infect animals without causing symptoms. First, microbial sleuths must link a livestock antibiotic to a drug-resistant strain. Next, they must show that the strain can survive the slaughterhouse. Finally, to cement the connection to human illness, they must prove that eating tainted meat leads to an infection that defies antibiotic treatment. The last link is the hardest to verify. "That's where the chain of evidence starts to get frayed," Salyers says.

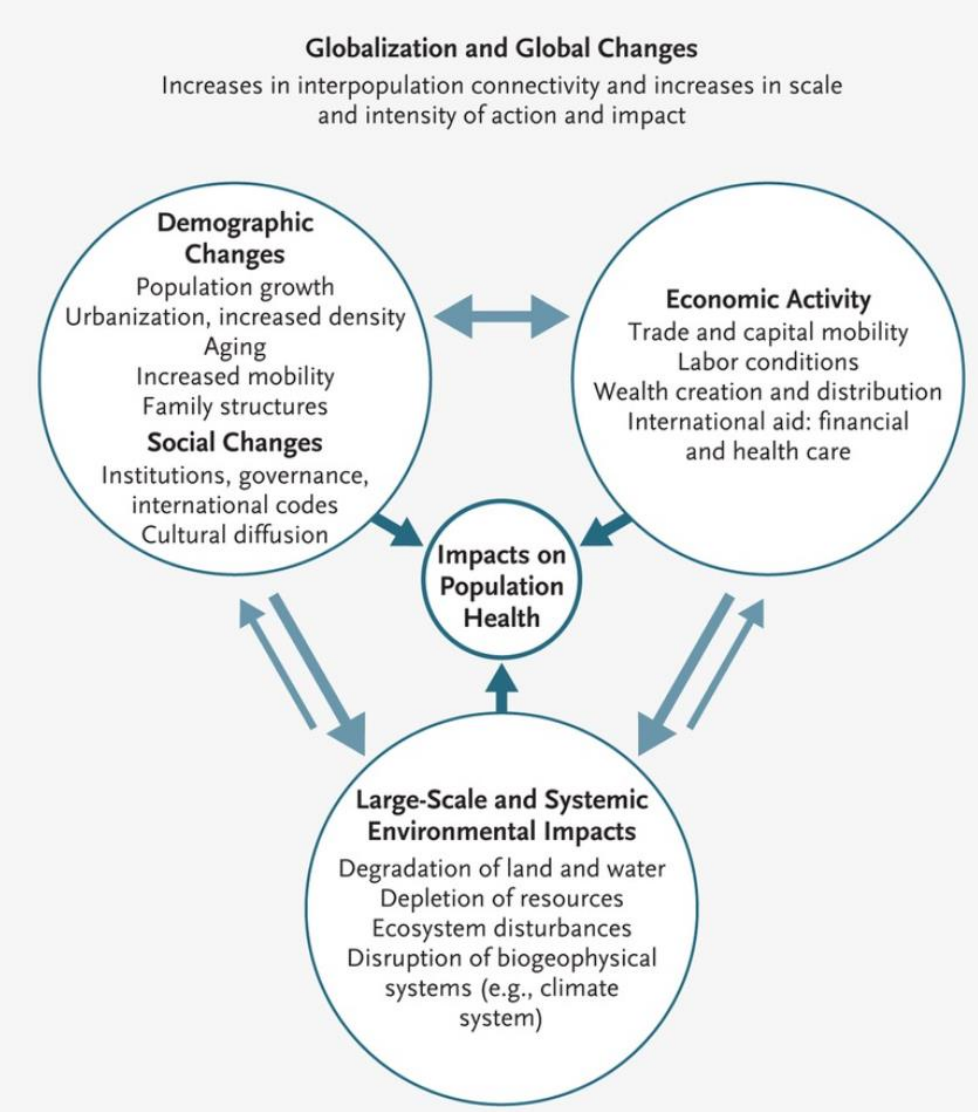
Luckily for the Danish team, the deadly bug did not take them by surprise. It's a variant of *Salmonella typhimurium* DT104, a strain that resists five common antibiotics and had flared up in many European countries—but rarely in Denmark. Hoping to keep it at bay, Danish officials set up in 1997 what Wegener calls the world's most aggressive surveillance system for resistant *Salmonella*. They test for drug resistance in every Danish patient who sees a doctor for a *Salmonella* infection,

Wallowing in bacteria. After a vicious strain of drug-resistant *Salmonella* killed two people in Denmark in 1998, scientists traced the bug to a single herd of Danish pigs. The strain, they found, was resistant to a livestock antibiotic similar to the human drug that

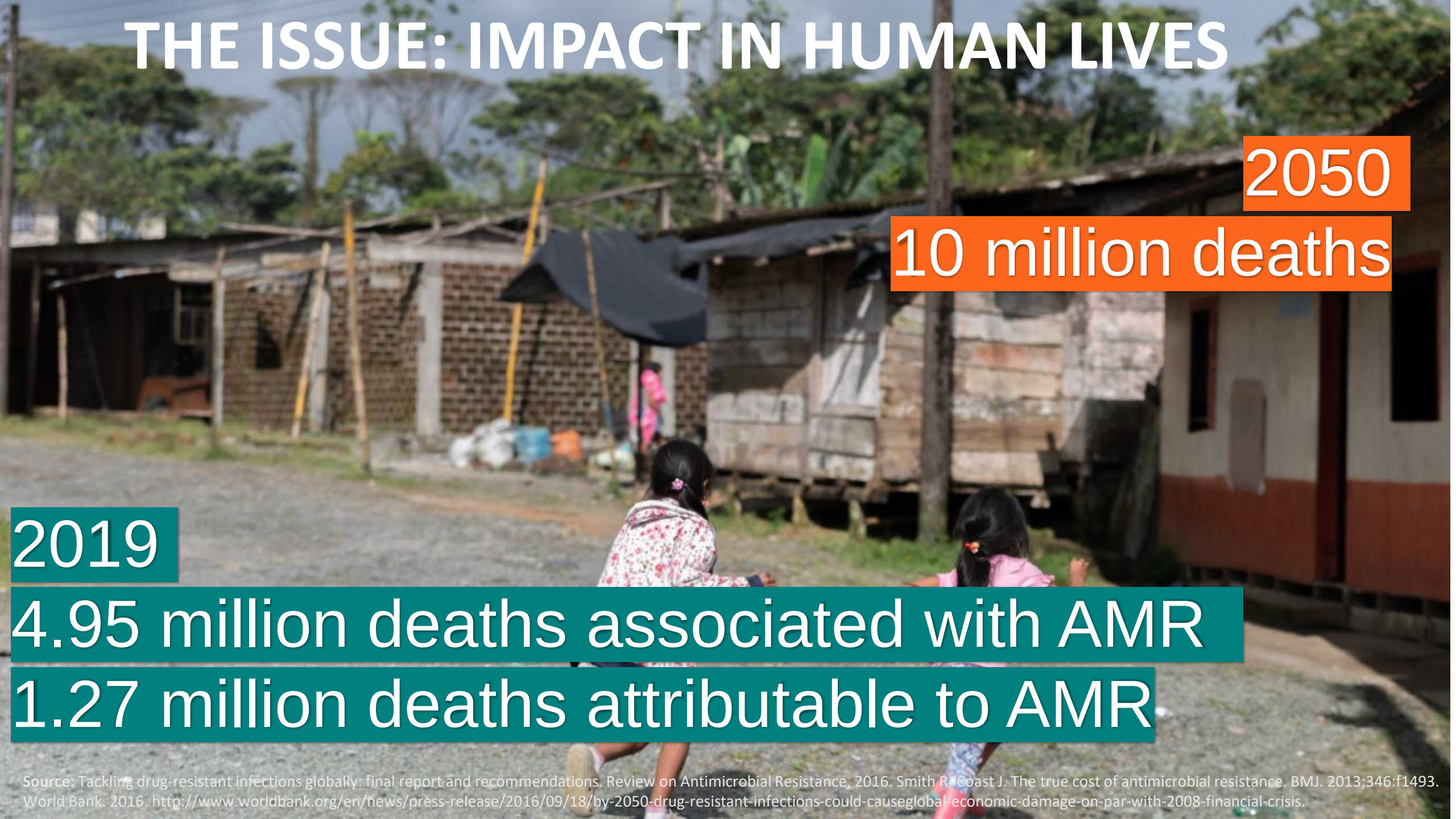

theguardian
guardian.co.uk
Indispensable 32-page guide to the new F1 season
With David Coulthard, Jackie Stewart, John Watson and Patrick Head
Chelsea's cup comeback
Holders force replay with United
Formula One
The story behind one of the most shocking images of Syria's war
Martin Chulov in Aleppo pieces together the truth about the victims, relatives and survivors caught up in the city's worst massacre
New wave of 'superbugs' pose dire threat, says medical chief
Warning over rising death toll as antibiotics fail to tackle infections

Sources: Tackling drug-resistant infections globally: final report and recommendations. Review on Antimicrobial Resistance, 2016. Smith R, Coast J. The true cost of antimicrobial resistance. BMJ. 2013;346:f1493. World Bank. 2016. http://www.worldbank.org/en/news/press-release/2016/09/18/by-2050-drug-resistant-infections-could-causeglobal-economic-damage-on-par-with-2008-financial-crisis.

AN AGGRAVATING CONTEXT FOR AMR …a “silent” pandemic?



THE ISSUE: IMPACT IN HUMAN LIVES



2050

10 million deaths

2019

4.95 million deaths associated with AMR

1.27 million deaths attributable to AMR

Source: Tackling drug-resistant infections globally: final report and recommendations. Review on Antimicrobial Resistance, 2016. Smith R, Coast J. The true cost of antimicrobial resistance. BMJ. 2013;346:f1493. World Bank. 2016. http://www.worldbank.org/en/news/press-release/2016/09/18/by-2050-drug-resistant-infections-could-causeglobal-economic-damage-on-par-with-2008-financial-crisis.

RATE OF DEATHS ATTRIBUTABLE AND ASSOCIATED WITH BACTERIAL AMR BY REGION, 2019

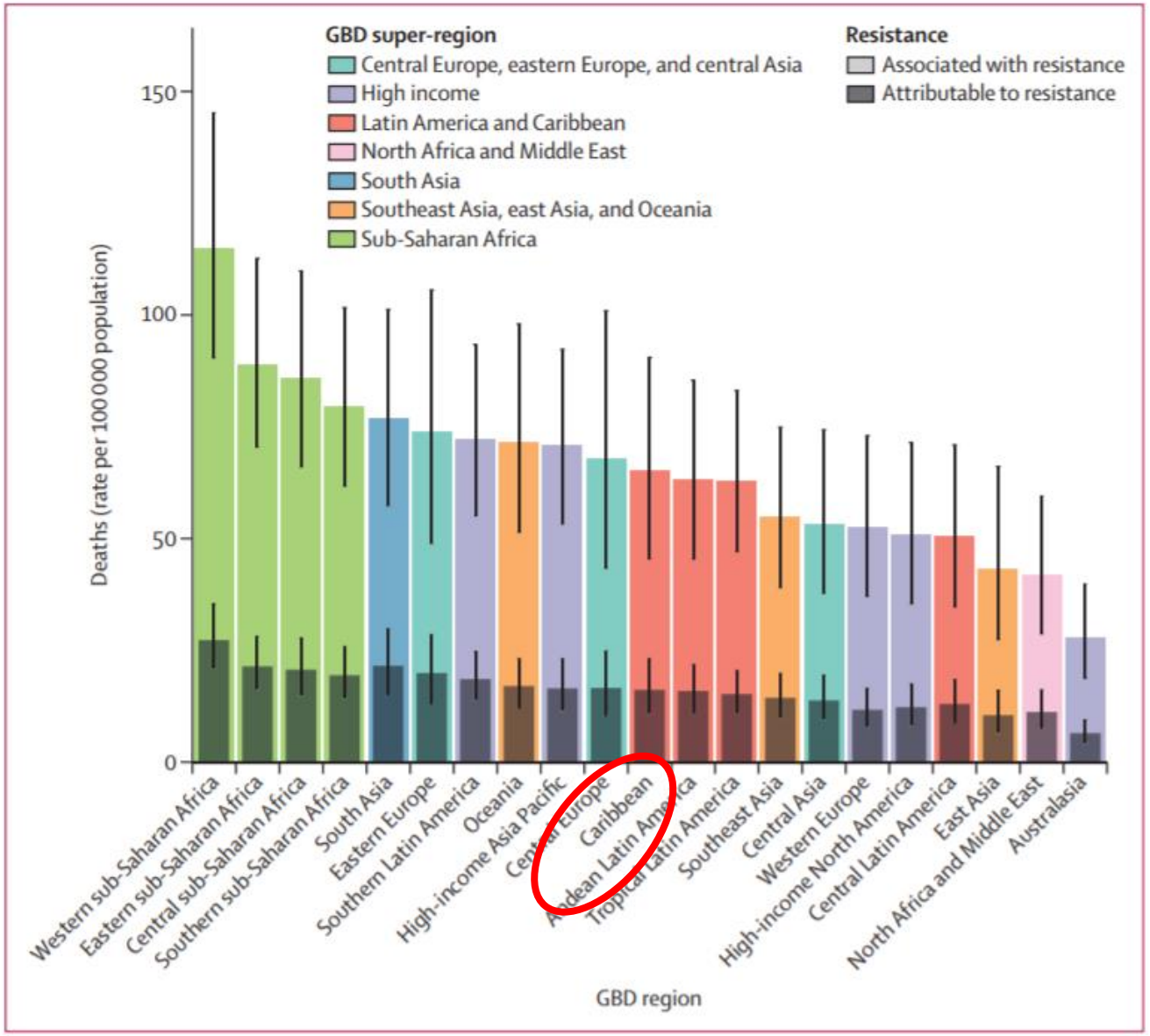


Figure 2: **All-age rate of deaths attributable to and associated with bacterial antimicrobial resistance by GBD region, 2019**

Estimates were aggregated across drugs, accounting for the co-occurrence of resistance to multiple drugs. Error bars show 95% uncertainty intervals. GBD=Global Burden of Diseases, Injuries, and Risk Factors Study.

Articles

Global burden of bacterial antimicrobial resistance in 2019: a systematic analysis

*Antimicrobial Resistance Collaborators**

Summary

Background Antimicrobial resistance (AMR) poses a major threat to human health around the world. Previous publications have estimated the effect of AMR on incidence, deaths, hospital length of stay, and health-care costs for specific pathogen–drug combinations in select locations. To our knowledge, this study presents the most comprehensive estimates of AMR burden to date.

Methods We estimated deaths and disability-adjusted life-years (DALYs) attributable to and associated with bacterial AMR for 23 pathogens and 88 pathogen–drug combinations in 204 countries and territories in 2019. We obtained data from systematic literature reviews, hospital systems, surveillance systems, and other sources, covering 471 million individual records or isolates and 7585 study-location-years. We used predictive statistical modelling to produce estimates of AMR burden for all locations, including for locations with no data. Our approach can be divided into five broad components: number of deaths where infection played a role, proportion of infectious deaths attributable to a given infectious syndrome, proportion of infectious syndrome deaths attributable to a given pathogen, the percentage of a given pathogen resistant to an antibiotic of interest, and the excess risk of death or duration of an infection associated with this resistance. Using these components, we estimated disease burden based on two counterfactuals: deaths attributable to AMR (based on an alternative scenario in which all drug-resistant infections were replaced by drug-susceptible infections), and deaths associated with AMR (based on an alternative scenario in which all drug-resistant infections were replaced by no infection). We generated 95% uncertainty intervals (UIs) for final estimates as the 25th and 975th ordered values across 1000 posterior draws, and models were cross-validated for out-of-sample predictive validity. We present final estimates aggregated to the global and regional level.

Findings On the basis of our predictive statistical models, there were an estimated 4·95 million (3·62–6·57) deaths associated with bacterial AMR in 2019, including 1·27 million (95% UI 0·911–1·71) deaths attributable to bacterial AMR. At the regional level, we estimated the all-age death rate attributable to resistance to be highest in western sub-Saharan Africa, at 27·3 deaths per 100 000 (20·9–35·3), and lowest in Australasia, at 6·5 deaths (4·3–9·4) per 100 000. Lower respiratory infections accounted for more than 1·5 million deaths associated with resistance in 2019, making it the most burdensome infectious syndrome. The six leading pathogens for deaths associated with resistance (*Escherichia coli*, followed by *Staphylococcus aureus*, *Klebsiella pneumoniae*, *Streptococcus pneumoniae*, *Acinetobacter baumannii*, and *Pseudomonas aeruginosa*) were responsible for 929 000 (660 000–1 270 000) deaths attributable to AMR and 3·57 million (2·62–4·78) deaths associated with AMR in 2019. One pathogen–drug combination, meticillin-resistant *S aureus*, caused more than 100 000 deaths attributable to AMR in 2019, while six more each caused 50 000–100 000 deaths: multidrug-resistant excluding extensively drug-resistant tuberculosis, third-generation cephalosporin-resistant *E coli*, carbapenem-resistant *A baumannii*, fluoroquinolone-resistant *E coli*, carbapenem-resistant *K pneumoniae*, and third-generation cephalosporin-resistant *K pneumoniae*.

Lancet 2022; 399: 629–55

Published Online January 20, 2022 https://doi.org/10.1016/S0140-6736(21)02724-0

See Comment page 606

*Collaborators are listed at the end of the paper

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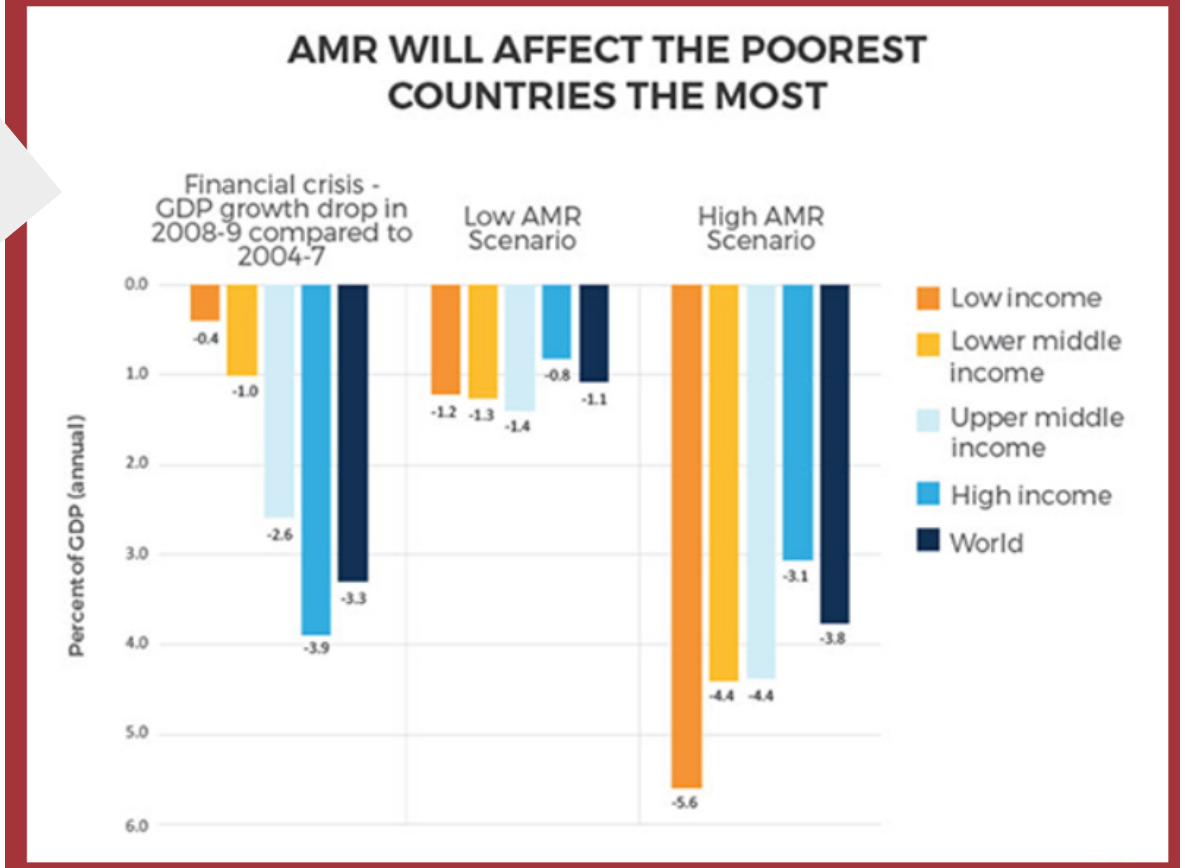
nagham@uw.edu

MACROECONOMICS OF AMR

- Without effective action, AMR pr… to cause 10 million deaths an… cost up to US$100 trillion b…
- According to the World B… port, 'of the additional 28.3 mil… e falling into extreme povert… in the high-impact antimicrob… ance scenario, the vast majorit… illion) would live in low-incom… es.'
- Cost of in… d been calculated to be at 1… 3% decrease of global GDP… To put things into pe…, the consequences of … hange are predicted to cause a … 1.0% to 3.3% global GDP by …

Pre-pandemic estimates



Antimicrobial resistance will affect the poorest countries the most

Compared to the fincancial crisis in 2008-2009 a high AMR scenario will affect almost all of us harder. And it will affect the poorest countries the most.

Source: *World Bank. Drug-Resistant Infections: A Threat to Our Economic Future. 2017*

ANTIMICROBIAL RESISTANCE AND POVERTY ON NATIONAL LEVEL

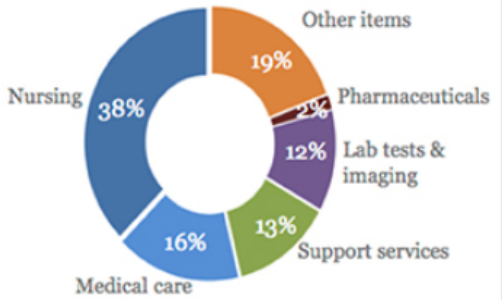
- **A significant proportion of the increased healthcare expenditure** is directly incurred to the national economy and the country's GDP. Additional healthcare costs linked to inpatients with antibiotic resistance infection, often due to required additional nursing and medical care, are becoming unbearable for both LMICs and high-income countries health expenditure budgets.

- **The cost toll due to antibiotic resistance reaches far beyond the health sector.**
  - workforce economic outcomes directly, via decreased productivity, labor supply, and unemployment
  - drains out monetary resources from household income and tax revenues while creating an additional need for social services.

LACK OF AFFORDABLE DRUGS AND CARE

$10 000 – $ 40 000

Additional cost per inpatient with ABR infection



Over half of extra expenditure is due to nursing and medical care

In OECD countries it is estimated that additional costs posed by antibiotic resistance per inpatient is equivalent to $10k-40k.

Source: Cecchini et al. ANTIMICROBIAL RESISTANCE IN G7 COUNTRIES AND BEYOND: Economic Issues, Policies and Options for Action. OECD. 2015

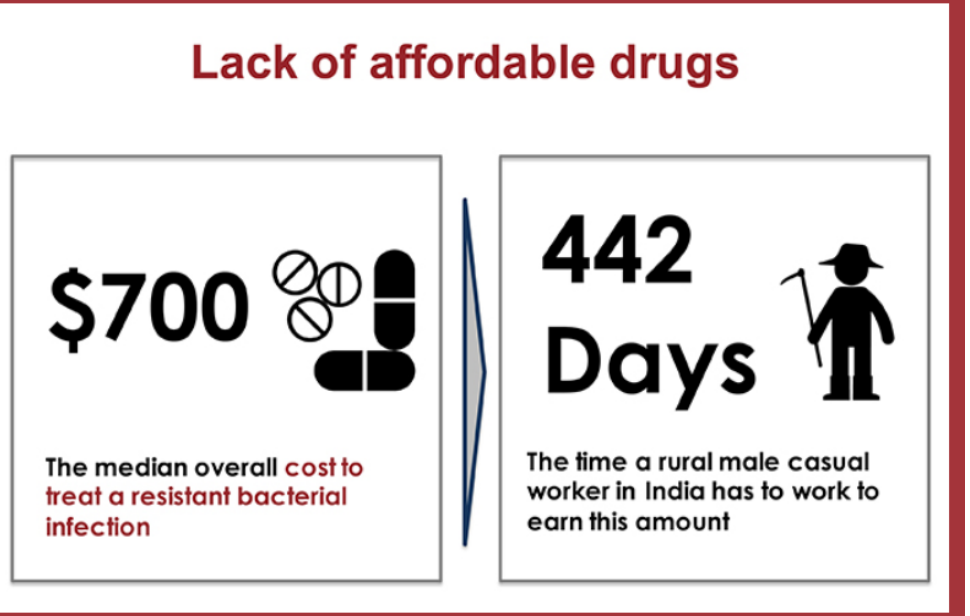
ANTIMICROBIAL RESISTANCE AND POVERTY ON INDIVIDUAL LEVEL

AMR strikes hardest at the poor.

- **1/3 of the world's population** do not have a safe toilet;
- more than **660 million people** do not have access to clean drinking water,
- **1 in 8 people** currently defecates in the open.

→higher transmission of infections → greater antibiotic consumption → AMR & infections becoming harder and more expensive to treat. Increasing price for 2nd, 3rd-line treatment for MDROs.

- India: cost for treating a resistant bacterial infection is more than a years' income for a rural worker. In addition to these direct costs for treatment, mortality and morbidity can drive the patient and family deeper into poverty due to loss of income. While a short-term loss of income may be possible to overcome, longer-term disability is more difficult, and loss of a family supporter may be devastating.
- As a result of these pressures, AMR negatively impacts the economic performance of an individual which ultimately endangers progress towards SDG1 on ending poverty.

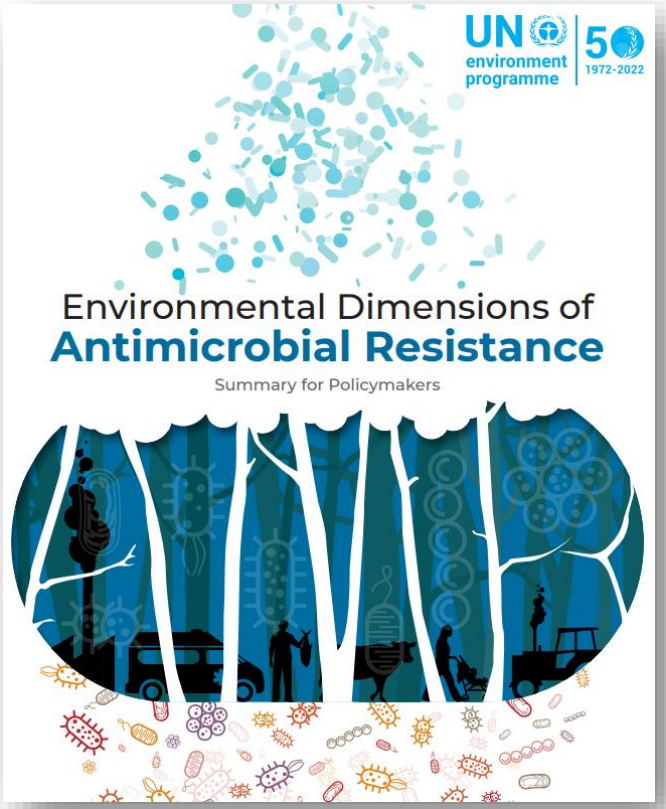


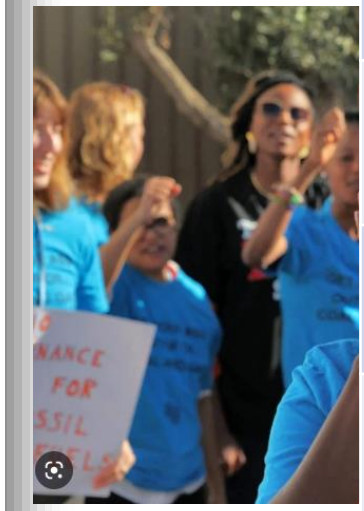
Lack of affordable antibiotics

Median overall cost to treat a resistant bacterial infection in India is approx. $700 –> this is equivalent to 442 days of work of a rural male casual worker.

Source: Chandy S, Naik GS, Balaji V et al. High cost burden and health consequences of antibiotic resistance: The price to pay J Infect Dev Ctries. 2014 Sep 12;8(9):1096-102. doi: 10.3855/jidc.4745.

CLIMATE CRISIS, ENVIRONMENT AND AMR





Factor – climate change	Bacterial infections	Viral infections
Extreme weather events	+	+
Increase in global temperature	+++	+
Droughts	+	+
Floods	+	+/-

https://journals.sagepub.com/doi/full/10.1177/2049936121991374

https://www.youtube.com/watch?v=_S6xJ6M_BZI
COP27 y RAM – evento satélite

https://wedocs.unep.org/bitstream/handle/20.500.11822/38373/antimicrobial_R.pdf

COVID-19 and AMR

Source: https://www.nbcnews.com/news/latino/chile-hospital-gives-covid-19-patients-families-rare-chance-say-n1231870

COVID-19 & AMR
Sharing vulnerable patients:

Underlying risk factors, use of steroids, chronic respiratory diseases, severe patients in ICUs ...

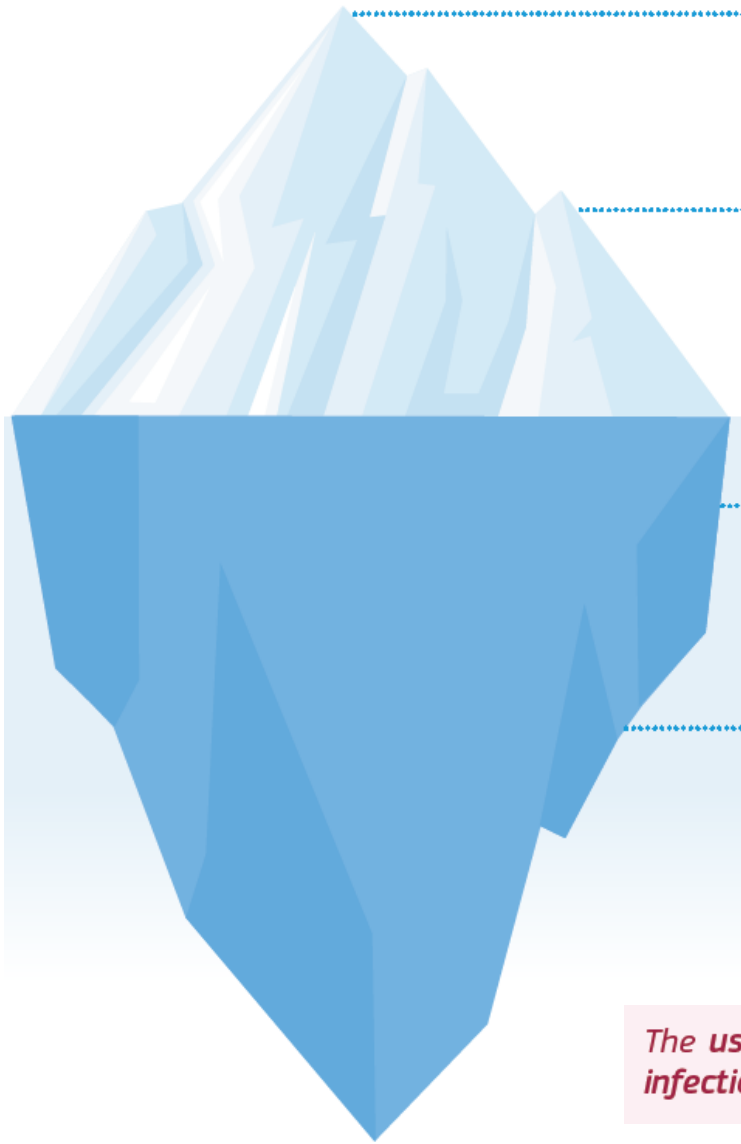
Initially, bacterial infections in 50% of COVID-19 deaths.

Antibiotic use (94%-100%) higher than the reported incidence of secondary infection (7-10%).

During the COVID-19 pandemic, hospitals were overloaded: impact on health care-associated infections.

Clinical trials with azithromycin and hydroxychloroquine.

COVID-19 HAS FUELED THE AMR PANDEMIC



Emerging AMR pathogens and mechanisms

Increases in *Candida auris* infections, multiple carbapenemase harboring bacterial strains, among others.

Outbreaks and geographic spread of AMR of public health importance to non-endemic areas

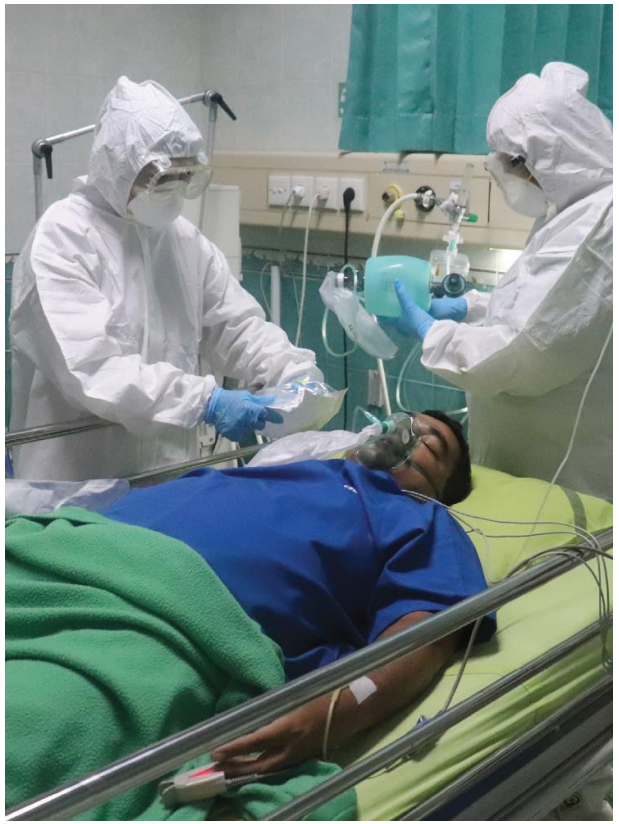
Geographic spread of certain types of carbapenemase such as OXA-48 and NDM producers to new areas where they had not been detected before.

Overall increases in reports of multidrug resistant pathogens

Overall increases in multidrug resistant organisms, particularly carbapenemase-producing Enterobacteriaceae.

Higher burden of AMR

Increased mortality, longer hospital stays, increased costs to health systems



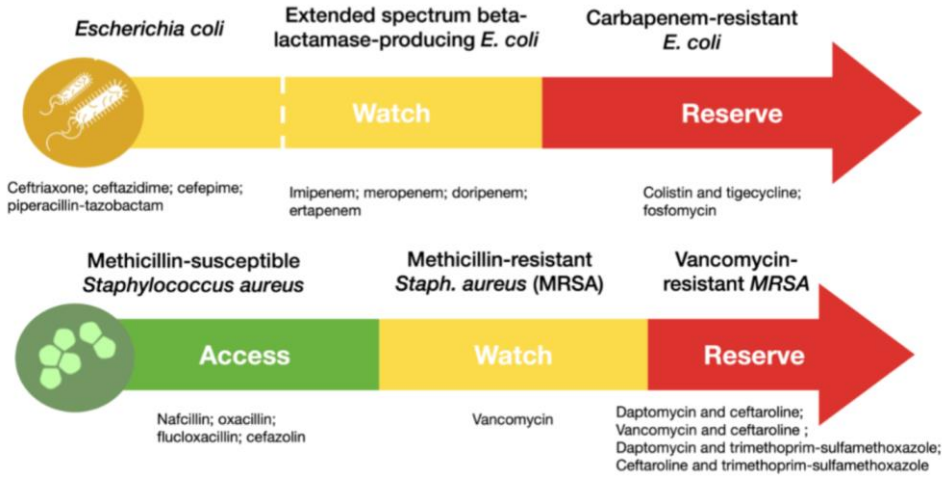
*The **use of antibiotics** in SARS-CoV-2 patients during the COVID-19 pandemic has **exceeded the incidence of secondary infections and coinfections**, suggesting **inappropriate and excessive prescribing**.*

"INCREASED DETECTION OF CARBAPENEMASE-PRODUCING ENTEROBACTERALES IN LATIN AMERICA AND THE CARIBBEAN DURING THE COVID-19 PANDEMIC". **Romero G. et al.** Emerging Infection Diseases. 2022 in press

Country	Period	Findings
Peru (Inst. Nac. de Salud)	PANDEMIC Jul-Oct 2021	First detection of bla_{KPC} + bla_{NDM} (in 2 *K. pneumoniae*), and bla_{OXA-48}-like + bla_{NDM} (in 1 *E. coli*)
Ecuador (INSPI "Dr. L. Izquieta Perez")	PANDEMIC Jan-Feb 2021	First detection of bla_{KPC} + bla_{NDM} (in 1 *K. pneumoniae*) and bla_{OXA-48}-like + bla_{NDM} (in 1 *E. coli*)
Venezuela (Inst. Nac. de Higiene "Rafael Rangel")	PANDEMIC Oct 2021	First detection of bla_{KPC} + bla_{NDM} (in 1 *K. pneumoniae*)
Costa Rica (INCIENSA)	PANDEMIC Dec 2021	First detection of bla_{IMP} + bla_{NDM} (in 1 *Enterobacter cloacae* complex)
Belize (Central Medical Lab)	PANDEMIC Jan-May 2021	First detection of bla_{NDM} (in 4 *K. pneumoniae* and *2 E. coli*)
Dominica (Princess Margaret Hospital Medical Lab)	PANDEMIC Dec 2020 - Mar2021	Fist detection of bla_{NDM} (in *2 K. pneumoniae* and *1 E. coli*)
Chile (Inst. de Salud Pública)	PANDEMIC Apr-Jul 2021	First detection of bla_{OXA-48}-like (in 22 *K. pneumoniae* and *1 E. coli*)

PROGRESS ON ADDRESSING AMR RELATES CLOSELY TO MULTIPLE SDGS

- Agreed in 2015 by the 193 Member States of the UN, the new global agenda with Sustainable Development Goals (SDGs) offers an ambitious 15-year trajectory for the world's sustainable development. If unchecked AMR threatens to undermine the achievements gained during the preceding Millennium Development Goals and can make the realization of many SDGs impossible.
- 2 priority pathogens in bloodstream infections to track progress in addressing AMR.



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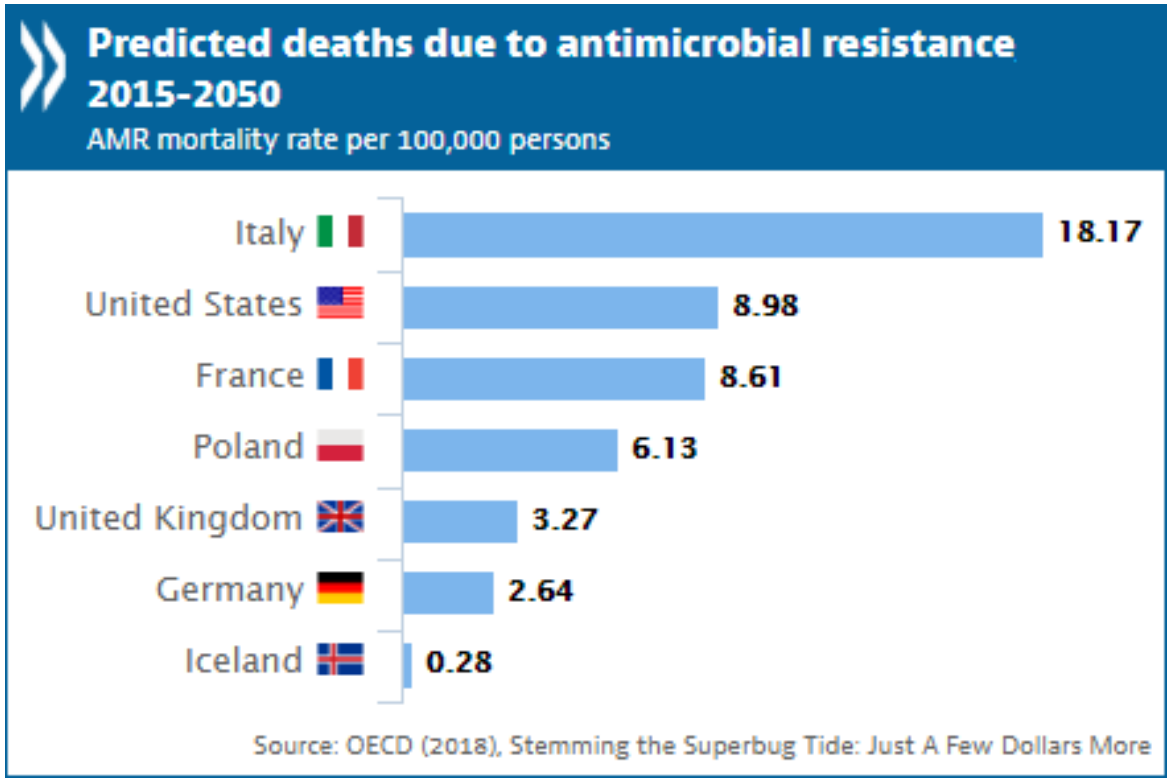
OECD Health Policy Studies

Stemming the Superbug Tide

JUST A FEW DOLLARS MORE



OECD

Key results

- Between 2015-2050, 2.4 million people will die in Europe, North America and Australia due to superbug infections
- 75% can be avoided by spending US$2 per person/year
- Most cost-effective interventions: hospital hygiene, hand hygiene, and antimicrobial stewardship

The investment in these policies would pay for itself in one year!

Source: Organization for Economic Cooperation and Development (2018). Stemming the Superbug Tide: Just a Few Dollars More. *OECD Publishing, Paris*.

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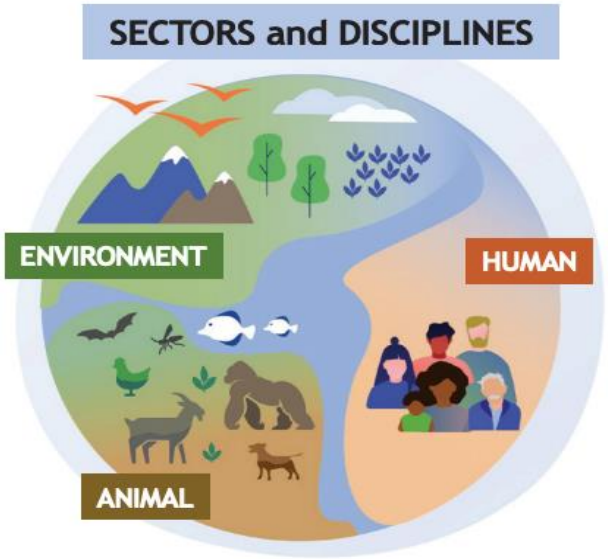
AMR CONTINUES RECEIVING INTERNATIONAL ATTENTION

G20 Call to Action on AMR (Bali, 2022), Ministry of Health statement on leading by example in the implementation of its NAPs.



A HIGH PRIORITY FOR THE G7

- During the 2021 G7, G7 Finance Ministers agreed to support “global health threats, including the **silent pandemic of antimicrobial resistance (AMR)**.”
- All G7 members committed to expediting their implementation of existing strategies, outlined in their respective AMR Action Plans.

https://www.who.int/news/item/18-03-2022-un-environment-programme-joins-alliance-to-implement-one-health-approach

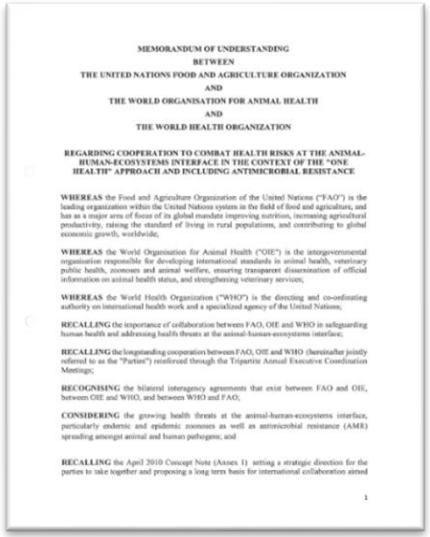
ONE HEALTH QUADRIPARTITE COLLABORATION

Tripartite Concept Note
April 2010


The FAO-OIE-WHO Collaboration

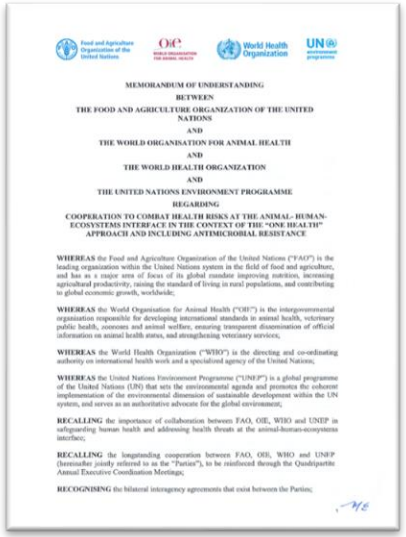
A Tripartite Concept Note

Tripartite MoU
May 2018


MEMORANDUM OF UNDERSTANDING
BETWEEN
THE UNITED NATIONS FOOD AND AGRICULTURE ORGANIZATION
AND
THE WORLD ORGANISATION FOR ANIMAL HEALTH
AND
THE WORLD HEALTH ORGANIZATION

REGARDING COOPERATION TO COMBAT HEALTH RISKS AT THE ANIMAL-HUMAN-ECOSYSTEMS INTERFACE IN THE CONTEXT OF THE "ONE HEALTH" APPROACH AND INCLUDING ANTIMICROBIAL RESISTANCE

Quadripartite
March 2022


MEMORANDUM OF UNDERSTANDING
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AND
THE UNITED NATIONS ENVIRONMENT PROGRAMME
REGARDING
COOPERATION TO COMBAT HEALTH RISKS AT THE ANIMAL- HUMAN-ECOSYSTEMS INTERFACE IN THE CONTEXT OF THE "ONE HEALTH" APPROACH AND INCLUDING ANTIMICROBIAL RESISTANCE

To consolidate, develop and harness the cooperation and effectiveness to address the threats at the human-animal-plant-ecosystem interface, particularly preventing further zoonotic pandemics and AMR, by means of a strengthened "One Health" approach.

- **Quadripartite SMM**
- **QPT Secretariat**
- **QPT Higher Management**
- **Quadripartite Annual Executive Meeting**
- **Quadripartite Regional coordination**

amrleaders.

The Global Leaders Group on Antimicrobial Resistance

Impact:

Global consensus on reducing the use of antimicrobials in food production

Facilitation of CODEX negotiations

Advocating for a high-level meeting on AMR at the UN General Assembly 2024

THE CARIBBEAN TAKES A STAND AGAINST AMR

BELIZE FEATURED NEWS NEWS AND MEDIA STATEMENTS AND DECLARATIONS

DECLARATION: CARICOM-SICA

• MARCH 5, 2022 431 5 MINUTES READ

JOINT DECLARATION OF SAN PEDRO

IV SUMMIT OF HEADS OF STATE AND GOVERNMENT of the Caribbean Community (CARICOM) and of the Central American Integration System (SICA)

3 March 2022

We, the Heads of State and Government of the Caribbean Community (CARICOM) and of the Central American Integration System (SICA) meeting in San Pedro, Ambergris Caye, Belize on 3 March 2022, on the occasion of the IV CARICOM SICA Summit:

Acknowledge that these are exceptional times characterized by recurrent as well as new multidimensional challenges, including socioeconomic challenges brought about by the climate crisis, the COVID-19 pandemic and antimicrobial existence

Consider that our geographic proximity, shared values, commitment to regional solidarity and multilateralism are the bases for our regional partnership

Strengthening National and Regional Antimicrobial Resistance Detection and Surveillance in CARICOM Member States

3 GOOD HEALTH AND WELL-BEING

Buidling networks and supporting horizontal partnerships

CHALLENGE

Antimicrobial resistance (AMR) is a major public health problem and development issue because, in addition to its impact on morbidity and mortality, it has a huge economic impact. Accurate, reliable and timely laboratory testing for AMR is an essential component of effective disease surveillance, prevention and management.

The capacity for the detection of AMR is heterogeneous within CARICOM Member States, as are the susceptibility testing methods and the quality assurance standards used. To obtain useful and timely data for decision-making, it is necessary to develop an efficient surveillance system with standardized protocols, strict quality assurance standards, clear information flow and sustainable stewardship activities. Mitigating AMR has been identified as an area that requires strengthening in CARICOM Member States.

TOWARDS A SOLUTION

To address the issue, PAHO/WHO brokered a partnership between CARICOM and Argentina to leverage the latter's best practices on antimicrobial resistance, which led to the development of the project Strengthening Antimicrobial Resistance Detection and Surveillance at the National and Regional Level in the CARICOM Member States. The project is strengthening capacity to conduct high-quality testing for the detection of AMR, collate and analyze AMR laboratory data and use the laboratory results to monitor trends, improve prescribing practices and AMR prevention activities. Technical expertise and solutions are being shared between Argentina and 14 independent CARICOM member states to guide public health interventions. The objectives include improving the capacity for diagnosis and characterization of AMR in clinical, veterinary and food laboratories, establishing

NOMINATED BY
Pan American Health Organization/World (PAHO/WHO) Argentina

COUNTRIES/REGIONS/TERRITORIES
Antigua and Barbuda, Argentina, Bahamas, Dominica, Grenada, Guyana, Haiti, Jamaica, Vincent and the Grenadines, Saint Lucia, S and Tobago

SUSTAINABLE DEVELOPMENT GOALS
3.3; 3.d

SUPPORTED BY
PAHO/WHO, CARICOM, Government of Arg

IMPLEMENTING ENTITIES
CARICOM, CARPHA, Ministry of Health of A Foreign Affairs of Argentina, National Food Service (SENASA) of Argentina, World Orga Health (OIE)

PROJECT STATUS
Ongoing

PROJECT PERIOD
December 2019 – December 2021

URL OF THE PRACTICE
www.paho.org/en/amr-detection-surveilla states

Tedros Adhanom Ghebreyesus @DrTedros

Prime Minister @miaamormottley & I also discussed the silent pandemic of #AntimicrobialResistence. I'm deeply grateful for her leadership on this cause & for chairing the Global Leaders Group. We can already see significantly more awareness since she took on this role.

10:02 AM · Mar 24, 2022 · Twitter for iPhone

SECTION OUTLINE

01 Estimating the AMR impact:
- Covid-19
- One Health
- Climate Crisis

02 Response: Cost effectiveness

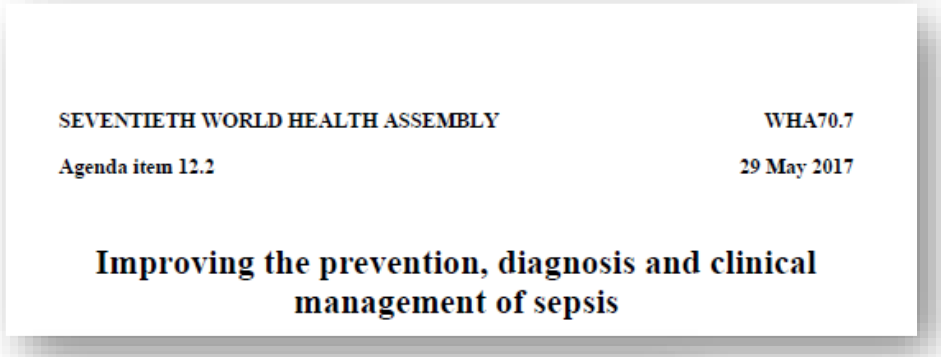
03 Response: Political Commitment

04 Response: National Action Plans

05 Conclusions: the way forward

Building on Member States' mandates

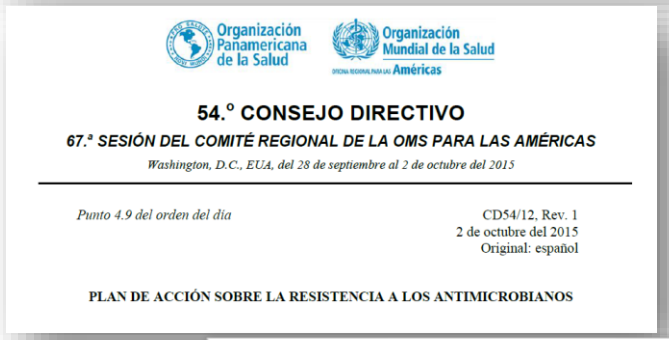
http://apps.who.int/gb/ebwha/pdf_files/WHA70/A70_13-en.pdf?ua=1



SEVENTIETH WORLD HEALTH ASSEMBLY WHA70.7

Agenda item 12.2 29 May 2017

Improving the prevention, diagnosis and clinical management of sepsis



Organización Panamericana de la Salud — Organización Mundial de la Salud, Américas

54.º CONSEJO DIRECTIVO

67.ª SESIÓN DEL COMITÉ REGIONAL DE LA OMS PARA LAS AMÉRICAS

Washington, D.C., EUA, del 28 de septiembre al 2 de octubre del 2015

Punto 4.9 del orden del día CD54/12, Rev. 1
2 de octubre del 2015
Original: español

PLAN DE ACCIÓN SOBRE LA RESISTENCIA A LOS ANTIMICROBIANOS

Organización Panamericana de la Salud — Organización Mundial de la Salud, Américas

59.º CONSEJO DIRECTIVO

73.ª SESIÓN DEL COMITÉ REGIONAL DE LA OMS PARA LAS AMÉRICAS

Sesión virtual, del 20 al 24 de septiembre del 2021

Punto 4.6 del orden del día provisional CD59/9
20 de julio del 2021
Original: inglés

UNA SALUD: UN ENFOQUE INTEGRAL PARA ABORDAR LAS AMENAZAS PARA LA SALUD EN LA INTERFAZ ENTRE LOS SERES HUMANOS, LOS ANIMALES Y EL MEDIOAMBIENTE

https://www.paho.org/es/documentos/cd599-salud-enfoque-integral-para-abordar-amenazas-para-salud-interfaz-entre-seres

Organización Panamericana de la Salud — Organización Mundial de la Salud, Américas

57.º CONSEJO DIRECTIVO

71.ª SESIÓN DEL COMITÉ REGIONAL DE LA OMS PARA LAS AMÉRICAS

Washington, D.C., EUA, del 30 de septiembre al 4 de octubre del 2019

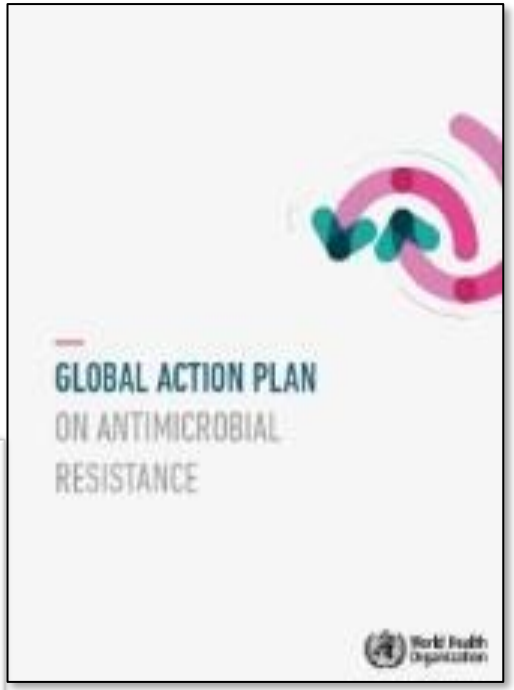
CD57.R7
Original: inglés

RESOLUCIÓN

CD57.R7

INICIATIVA DE LA OPS PARA LA ELIMINACIÓN DE ENFERMEDADES: POLÍTICA PARA APLICAR UN ENFOQUE INTEGRADO Y SOSTENIBLE DE LAS ENFERMEDADES TRANSMISIBLES

https://www3.paho.org/hq/index.php?option=com_docman&view=download&alias=50
r7-s-iniciativa-eliminacion-enfermedades&category_slug=cd57-es&Itemid=270&lang=es

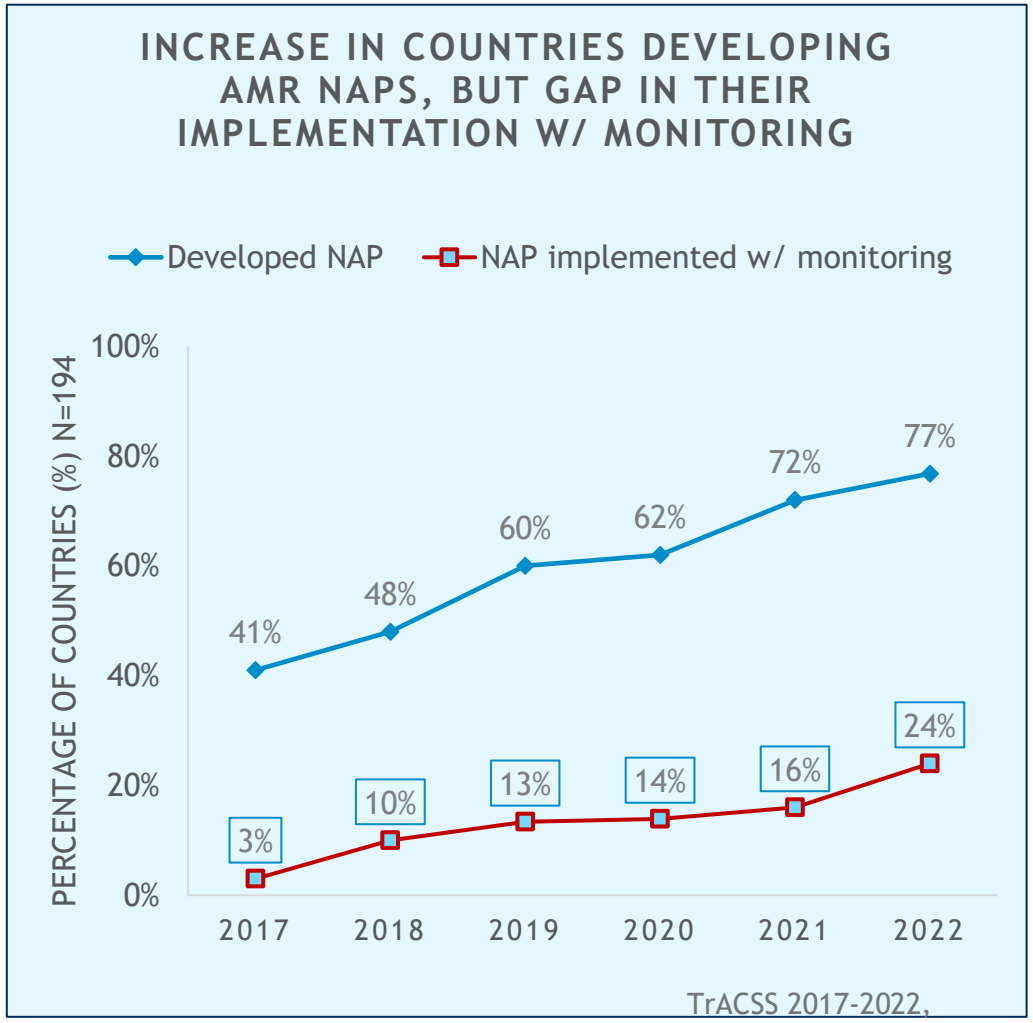


WHO, 2015. Global Action Plan on Antimicrobial Resistance.
http://apps.who.int/iris/bitstream/10665/193736/1/9789241509763_eng.pdf?ua=1

AMR National Action Plans

Moving from plans to implementation is challenging!

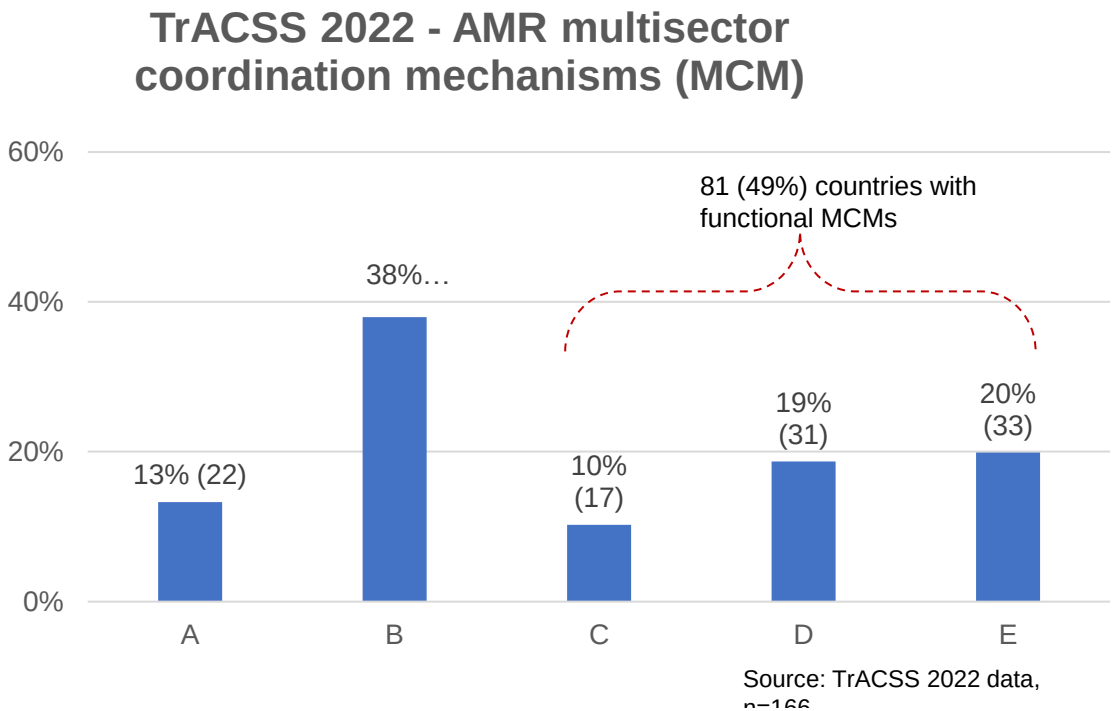
- Following the Global Action Plan on AMR, **170 countries** have now developed a national action plan (NAP) on AMR.
- Implementation of NAPs is often fragmented, siloed, not costed and budgeted. **Only 17 (10%) of the responding countries have made financial provisions in their national budget for AMR NAPs…..**
- **24% of countries** say their NAP is being implemented effectively (among them 26% from the EURO Region)
- Interdependence of various AMR interventions is not being considered in NAP implementation.



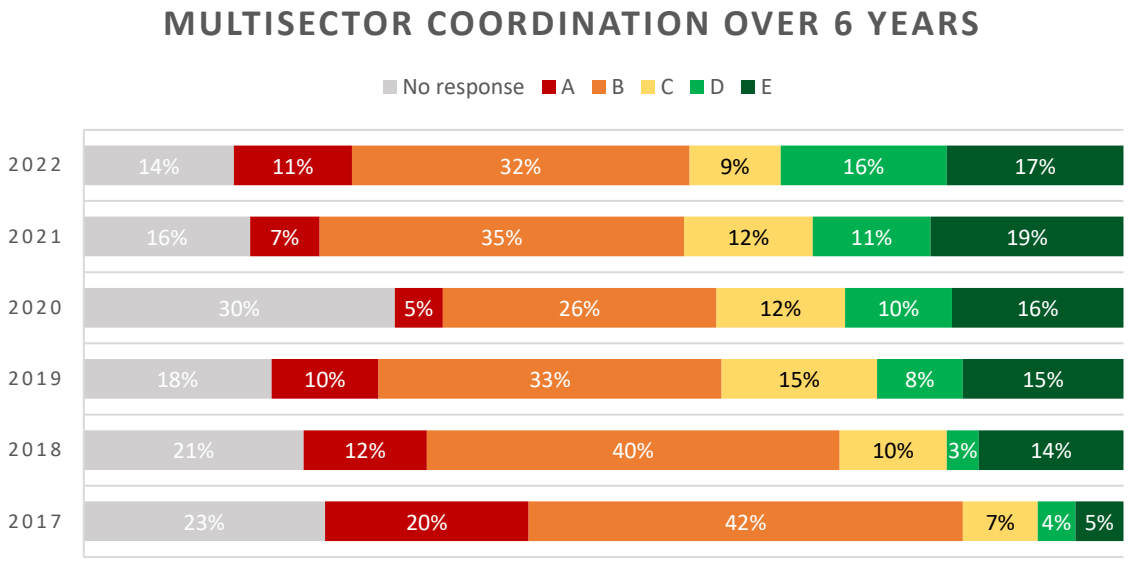
✓ Based on TrACSS data (Tracking Annual Country Self Assessment)

Source: K. Van Weenkenzen, WHO

Multisector coordination on AMR



A	No formal multi-sectoral governance or coordination mechanism on AMR exists.
B	Multi-sectoral coordination mechanism on AMR established with Government leadership.
C	Formalized Multisector coordination mechanism with technical working groups established with clear terms of reference, regular meetings, and funding for working group(s) with activities and reporting/accountability arrangements defined.
D	Joint working on issues including agreement on common objectives.
E	Integrated approaches used to implement the national AMR action plan with relevant data and lessons learned from all sectors used to adapt implementation of the action plan.

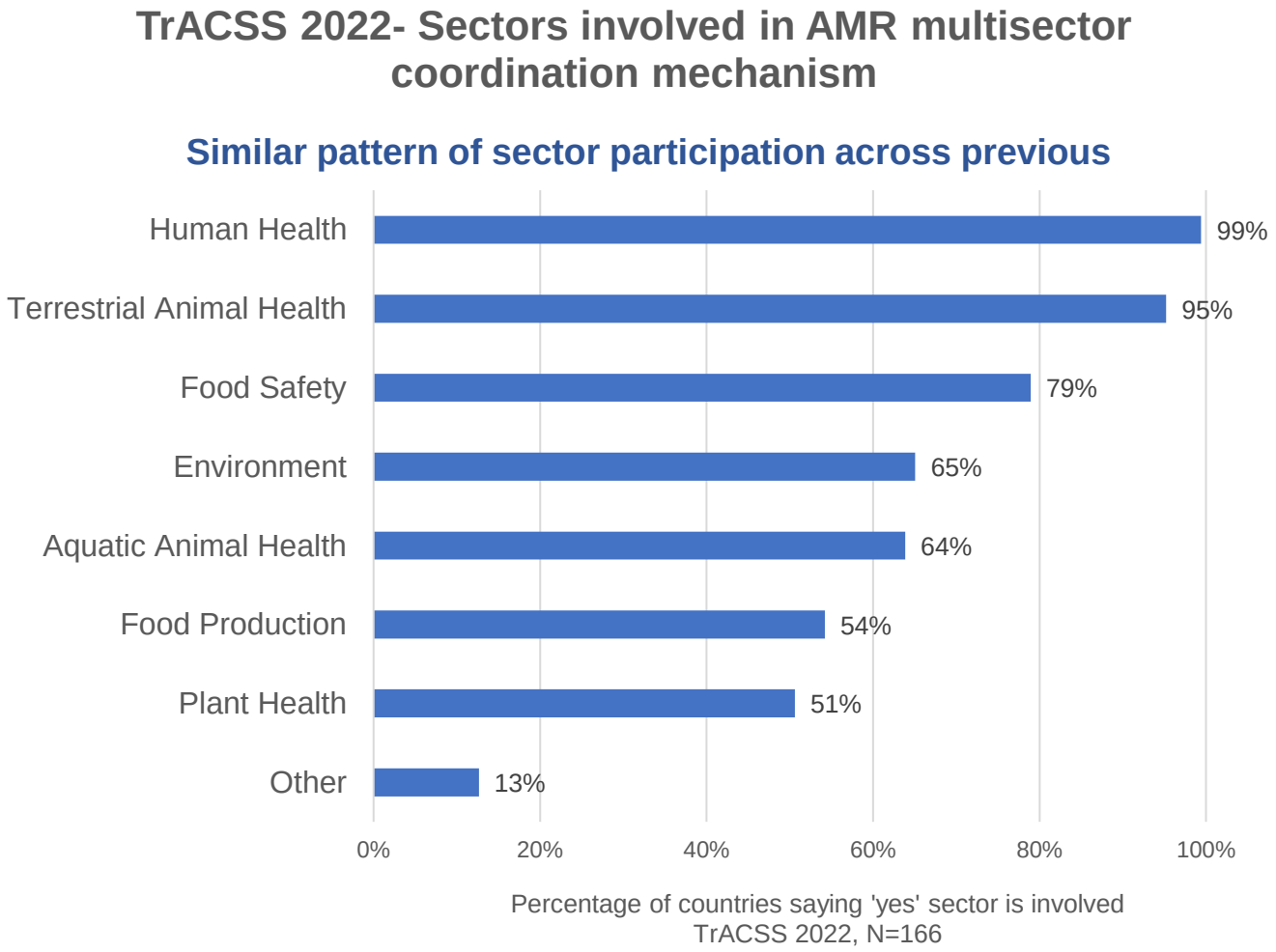


Source: TrACSS 2017 -2022, n=194

6 year: Increase in functional MCM over the past years (C-E) but has slowed since 2019. Most common response over years has been that committees have been established with government leadership, but not yet functional (B).

Source: WHO, TRACCS 2022 Webinar

AMR Multisector Coordination – sectors involved



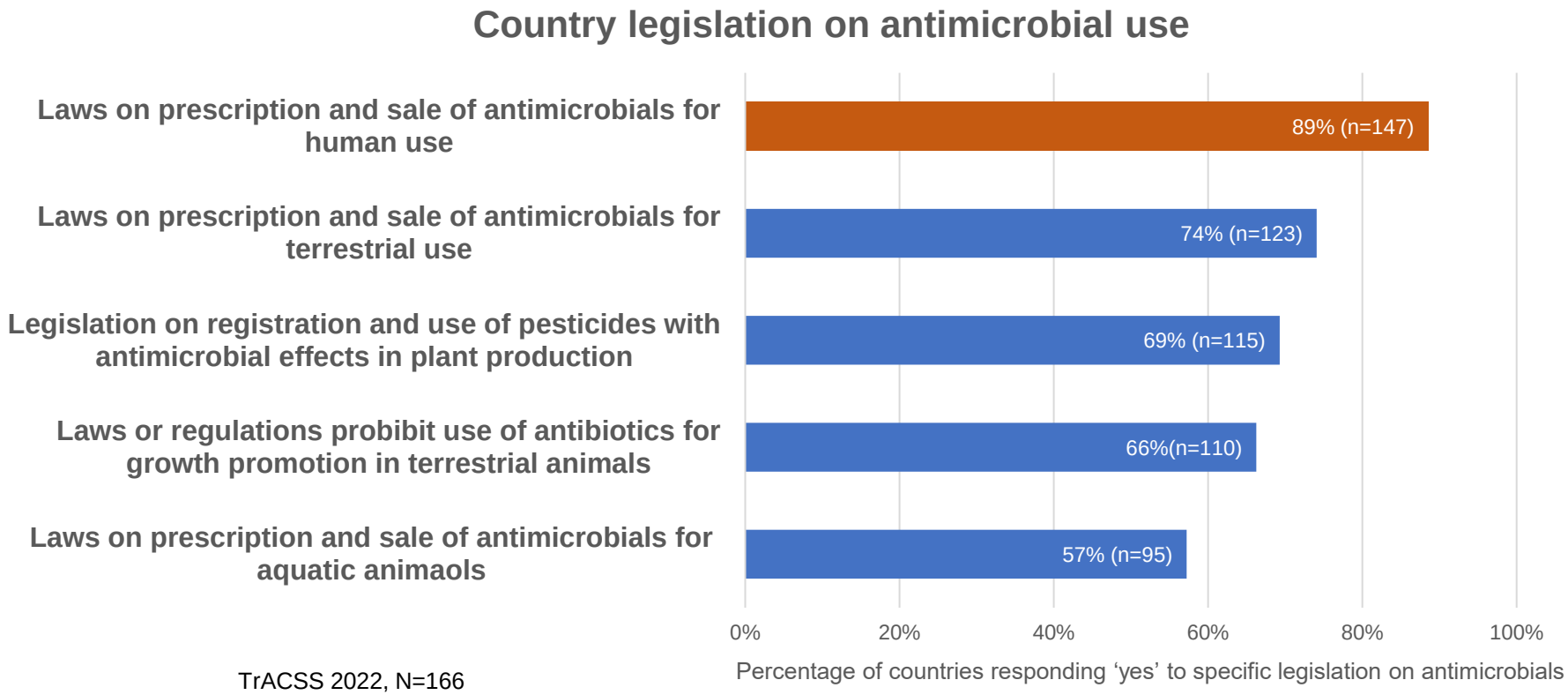
‘Other’ most frequently includes academia and research institutions

95% (157/166)
Of countries have human health and terrestrial animal health sectors involved in their MCM

25% (42/166)
Countries have all sectors involved in AMR MCM

Source: WHO, TRACCS 2022 Webinar

Legislation on antimicrobial use



TrACSS 2022, N=166

For human health, **147** (~90%) countries report having regulations on antimicrobial sale, only **74** (~45%) of these countries report monitoring total sales of antimicrobials at a national level.

- Legislation doesn't always translate to practice. Monitoring of existing legislation is an area that needs improvement

Source: WHO, TRACCS 2022 Webinar

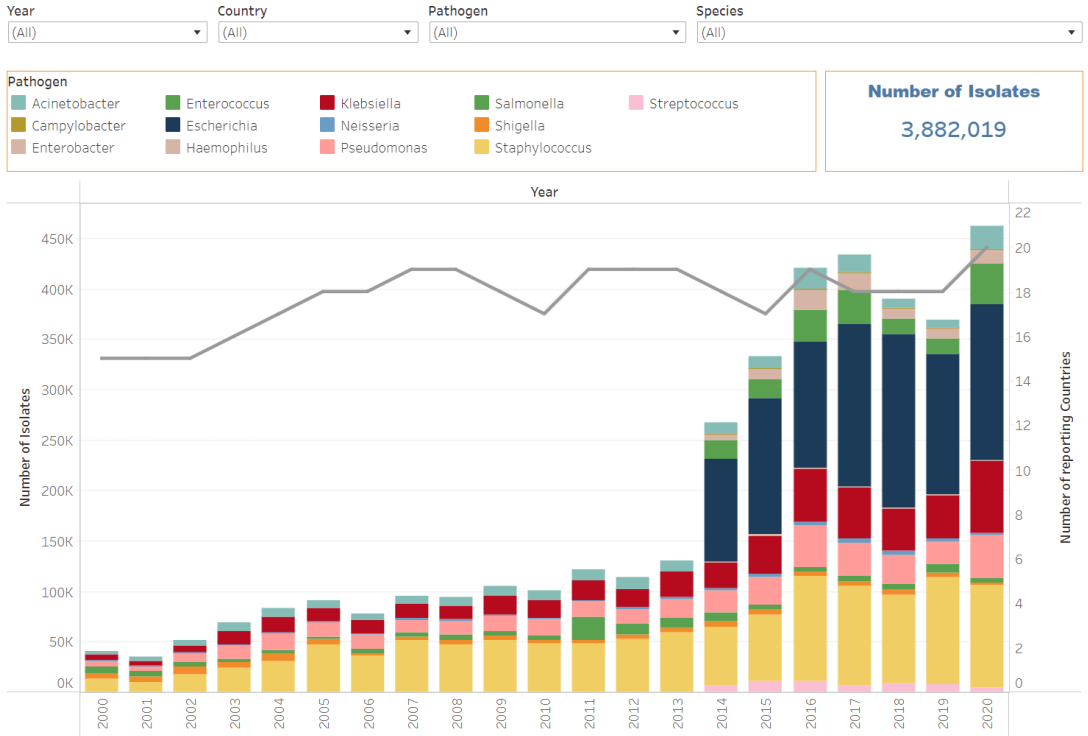
LATIN AMERICAN AND CARIBBEAN NETWORK FOR ANTIMICROBIAL RESISTANCE SURVEILLANCE – ReLAVRA+

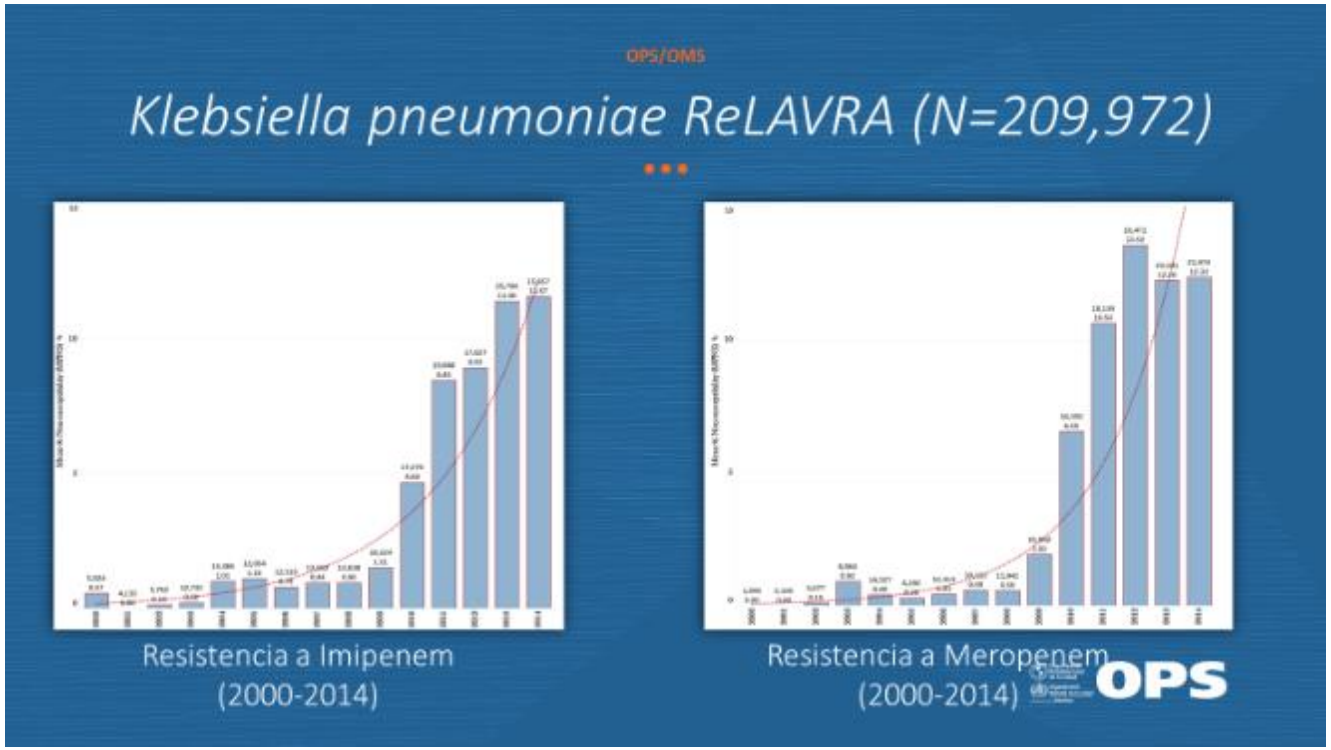
- Expanded to include Caribbean NRLs in 2020
- Horizontal cooperation between **PAHO, Argentina (MoH, Food safety authorities), CARPHA**, and **14 CARICOM Member States*** to strengthen capacity for AMR diagnosis and surveillance
  - 12 countries joined a laboratory external quality assurance program led by the Malbran Institute, Argentina
  - Virtual trainings in specimen collection, AST, etc.
  - On-site trainings in Argentina

ReLAVRA+
Latin American and Caribbean Network for AMR Surveillance

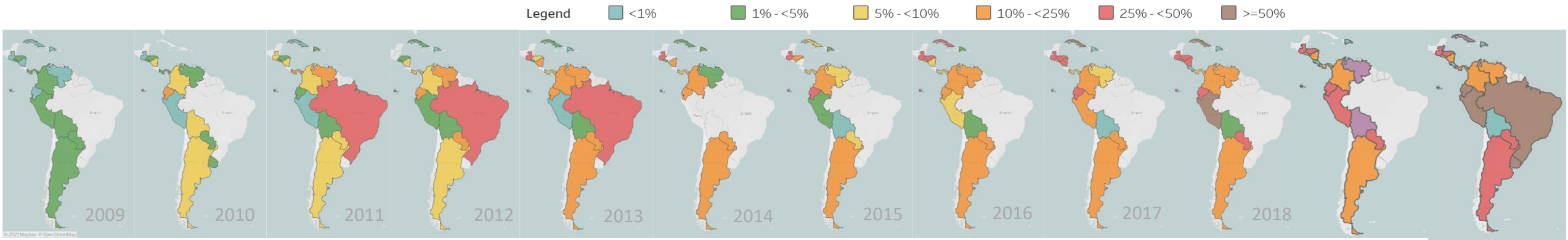
*Antigua and Barbuda, Bahamas, Barbados, Belize, Dominica, Grenada, Guyana, Haiti, Jamaica, Saint Kitts, and Nevis, Saint Vincent and the Grenadines, Saint Lucia, Suriname, and Trinidad and Tobago

RELAVRA AGGREGATED AMR SURVEILLANCE DATA VISUALIZATION (2000-2021)





Klebsiella pneumoniae imipenem non susceptible



https://www3.paho.org/data/index.php/es/temas/resistencia-antimicrobiana.html

BUILDING CAPACITY IN USE OF MOLECULAR TECHNIQUES FOR AMR SURVEILLANCE

- Molecular AMR diagnostics are complementary to phenotypic testing
- In surveillance, can help confirm the mechanisms responsible for certain resistance and improve our understanding of AMR dissemination

Regional strategy

- Build capacity for molecular characterization and WGS
- Group of experts to establish standards, systems & framework for data sharing; pathogen prioritization
- Create a regional support hub for countries with no in-country capacity
- Foster multidisciplinary interpretation of results (+epidemiological data) to guide public health action
- Make the case for investment in molecular techniques

Pan American Health Organization

World Health Organization
REGIONAL OFFICE FOR THE Americas

170th SESSION OF THE EXECUTIVE COMMITTEE

Washington, D.C., USA (hybrid session), 20-24 June 2022

Provisional Agenda Item 4.7

CE170/18
3 June 2022
Original: English

STRATEGY ON REGIONAL GENOMIC SURVEILLANCE FOR EPIDEMIC AND PANDEMIC PREPAREDNESS AND RESPONSE

Introduction

1. Genomic surveillance leverages advances in molecular biology to discover pathogens, track their evolution, categorize their differentiation into new lineages and variants, and identify transmission chains and infectious sources *(1, 2)*. In recent years, new genomic sequencing and bioinformatics technologies have emerged, allowing broader and timelier application in rapid response to outbreaks and epidemics. In these events, genomic surveillance data, together with clinical and epidemiologic information, have been used in continuous risk assessment of the public health situation, ongoing decision-making on public health and social measures, development of vaccines, therapeutics, and diagnostic tests, and evaluation of their effectiveness.

Endorsed by PAHO Member States on June 20, 2022

World Health Organization

SEVENTY-FIFTH WORLD HEALTH ASSEMBLY
Agenda item 14.6

A75/A/CONF./5
25 May 2022

Global Strategy on Infection Prevention and Control

Draft resolution proposed by Bosnia and Herzegovina, Botswana, Colombia, Jordan, Kenya, Kingdom of Saudi Arabia, Lebanon, Norway, Oman, Philippines, Qatar, United Arab Emirates, United States of America and Vanuatu

The Seventy-fifth World Health Assembly,

PP1 Having considered the report by the Director-General on infection prevention and control as part of the universal health coverage and communicable disease agendas towards 2030[1];

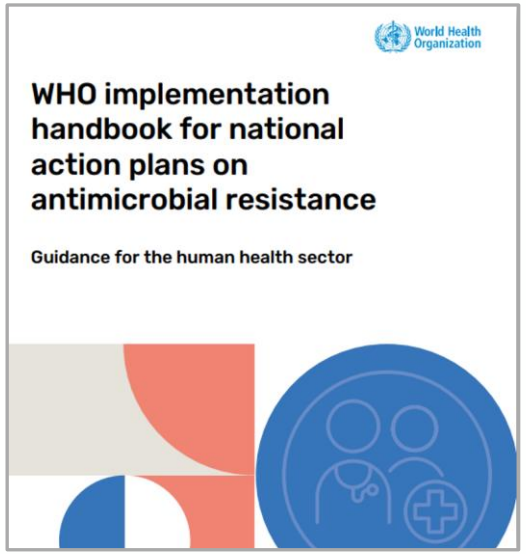
PP2 Recalling the resolutions WHA48.7 (1995)[2] on the International Health Regulations, WHA58.27 (2015)[3] on infection prevention and control as objective 3 of the Global Action Plan on Antimicrobial Resistance (AMR), WHA69.1 (2016)[4] on quality care for all, WHA70.7 (2017)[5] on infection prevention and control as part of prevention of sepsis, WHA72.6 (2019)[6] on infection prevention and control as strategy 3.3 of the global patient safety action plan 2021–2030, WHA72.7 (2019)[7] on infection prevention and control as part of water, sanitation and hygiene, WHA73.1 (2020),[8] WHA73.8 (2020),[9] and WHA74.7 (2021)[10] on infection prevention and control as

Regional consultation for the Americas
October, 2022

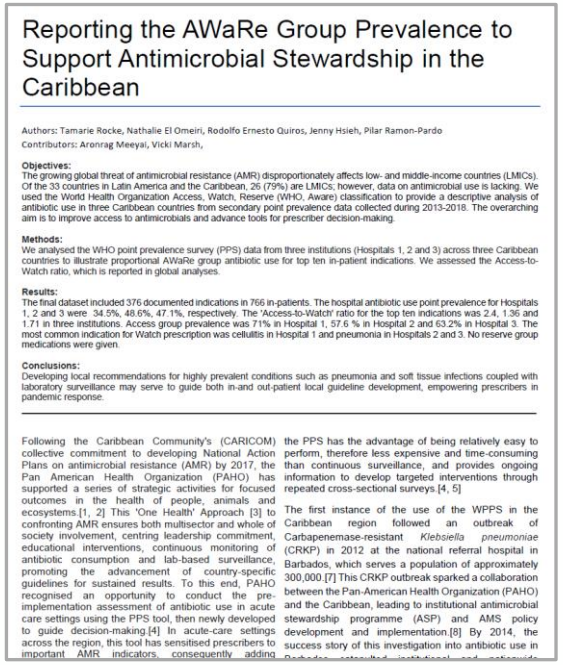
Global report on infection prevention and control
Executive summary

World Health Organization

OTHER AMR ACHIEVEMENTS DURING THE COVID-19 PANDEMIC IN THE CARIBBEAN



Belize *shared lessons learned from its NAP implementation in global launch of WHO handbook*


Reporting the AWaRe Group Prevalence to Support Antimicrobial Stewardship in the Caribbean

Authors: Tamarie Rocke, Nathalie El Omeiri, Rodolfo Ernesto Quiros, Jenny Hsieh, Pilar Ramon-Pardo
Contributors: Aronrag Meeyai, Vicki Marsh,

Objectives:
The growing global threat of antimicrobial resistance (AMR) disproportionately affects low- and middle-income countries (LMICs). Of the 33 countries in Latin America and the Caribbean, 26 (79%) are LMICs; however, data on antimicrobial use is lacking. We used the World Health Organization Access, Watch, Reserve (WHO, Aware) classification to provide a descriptive analysis of antibiotic use in three Caribbean countries from secondary point prevalence data collected during 2013-2018. The overarching aim is to improve access to antimicrobials and advance tools for prescriber decision-making.

Methods:
We analysed the WHO point prevalence survey (PPS) data from three institutions (Hospitals 1, 2 and 3) across three Caribbean countries to illustrate proportional AWaRe group antibiotic use for top ten in-patient indications. We assessed the Access-to-Watch ratio, which is reported in global analyses.

Results:
The final dataset included 376 documented indications in 766 in-patients. The hospital antibiotic use point prevalence for Hospitals 1, 2 and 3 were 34.5%, 48.6%, 47.1%, respectively. The 'Access-to-Watch' ratio for the top ten indications was 2.4, 1.36 and 1.71 in three institutions. Access group prevalence was 71% in Hospital 1, 57.6 % in Hospital 2 and 63.2% in Hospital 3. The most common indication for Watch prescription was cellulitis in Hospital 1 and pneumonia in Hospitals 2 and 3. No reserve group medications were given.

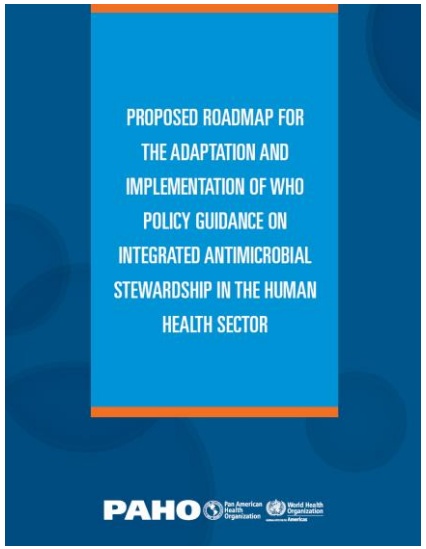
Conclusions:
Developing local recommendations for highly prevalent conditions such as pneumonia and soft tissue infections coupled with laboratory surveillance may serve to guide both in-and out-patient local guideline development, empowering prescribers in pandemic response.

Following the Caribbean Community's (CARICOM) collective commitment to developing National Action Plans on antimicrobial resistance (AMR) by 2017, the Pan American Health Organization (PAHO) has supported a series of strategic activities for focused outcomes in the health of people, animals and ecosystems.[1, 2] This 'One Health' Approach [3] to confronting AMR ensures both multisector and whole of society involvement, centring leadership commitment, educational interventions, continuous monitoring of antibiotic consumption and lab-based surveillance, promoting the advancement of country-specific guidelines for sustained results. To this end, PAHO recognised an opportunity to conduct the pre-implementation assessment of antibiotic use in acute care settings using the PPS tool, then newly developed to guide decision-making.[4] In acute-care settings across the region, this tool has sensitised prescribers to important AMR indicators, consequently adding the PPS has the advantage of being relatively easy to perform, therefore less expensive and time-consuming than continuous surveillance, and provides ongoing information to develop targeted interventions through repeated cross-sectional surveys.[4, 5]

The first instance of the use of the WPPS in the Caribbean region followed an outbreak of Carbapenemase-resistant *Klebsiella pneumoniae* (CRKP) in 2012 at the national referral hospital in Barbados, which serves a population of approximately 300,000.[7] This CRKP outbreak sparked a collaboration between the Pan-American Health Organization (PAHO) and the Caribbean, leading to institutional antimicrobial stewardship programme (ASP) and AMS policy development and implementation.[8] By 2014, the success story of this investigation into antibiotic use in

3 Caribbean countries participated in a pooled secondary analysis of point prevalence surveys of antimicrobial use to inform subregional gaps

Caribbean countries participate in multisectoral dialogue between governments, NGOs, CSOs and the community on social participation in AMR response



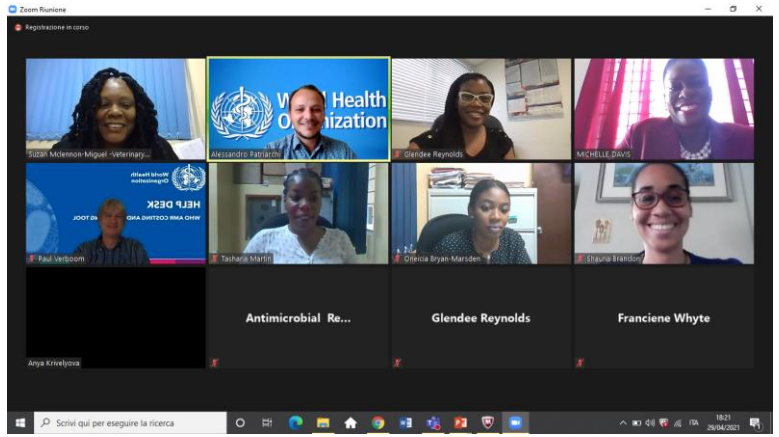
11 Caribbean countries participated in a regional consultation and contribute to the development of the PAHO roadmap for the roll-out of the WHO antimicrobial stewardship policy

Belize *and* ***Trinidad and Tobago*** *Caribbean countries started sharing AMR aggregated surveillance data following improvements in local lab capacity for AMR diagnosis. Trinidad and Tobago also shared isolate-level bloodstream infections data for the first time.*

OTHER AMR ACHIEVEMENTS DURING THE COVID-19 PANDEMIC IN THE CARIBBEAN

- *Highly innovative pilot aiming at integrating clinical laboratories, infection prevention and control teams and the National Reference Lab for the early detection and rapid containment of emerging AMR under implementation in **Belize** in 2022.*

- *In 2022, **Haiti** received online training in the use of WHONET to standardize the collection of AMR data.*
- *In 2022, **Trinidad and Tobago** used WHONET to send data to WHO GLASS.*
- *A Laboratory Information Management System for microbiology developed by the Wellcome Trust and the University of Oxford is currently being piloted in **Dominica**, in 2022.*



- *In May 2021, **Jamaica** became the first country in the Americas to pilot test the WHO Costing and Budgeting Tool for AMR NAPs, with the participation of the Ministry of Health and Wellness, Ministry of Agriculture and Fisheries, and the Inter-American Institute for Cooperation on Agriculture.*

SECTION OUTLINE

01 Estimating the AMR impact:
- Covid-19
- One Health
- Climate Crisis

02 Response: Cost-effectiveness

03 Response: Political Commitment

04 Response: National Action Plans

05 Conclusions: the way forward

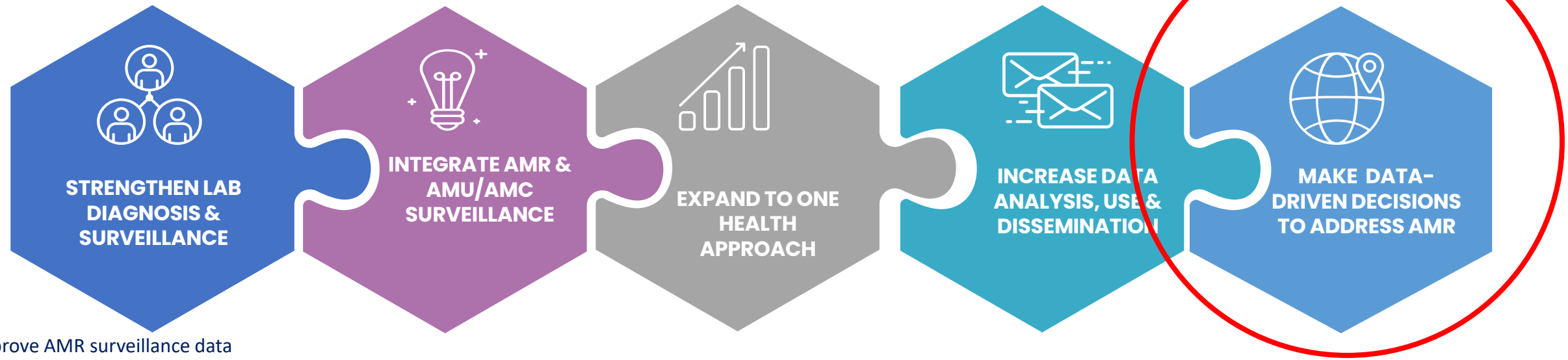
One-word responses to question on ‘the biggest AMR challenge at country level’ (WHO AMR global webinar with > 600 participants from 120 countries

Morning Session

Afternoon Session

THE WAY FORWARD

Better data to respond to information needs for AMR interventions and national priorities



- Improve AMR surveillance data quality, completeness and geographic representativeness
- Set up enhanced isolate-level surveillance (bacterial and fungal pathogens)
- Continue building NRL and local clinical lab capacity, increasing the use of new molecular technologies

- Integrate lab & IPC,
- Leverage surveillance to estimate AMR burden,
- Evaluate impact of interventions

- Integrate AMR and AMC data across sectors to better understand AMR emergence and spread in humans, animals, environment
- Set up integrated One Health AMR surveillance of foodborne pathogens

- Increase data use among national and local stakeholders
- Inform patient and AMS
- Disseminate epidemiological findings
- Contribute to GLASS

- Translate evidence for decision-makers, advocate for AMR prioritization,
- Assess cost-effectiveness of interventions,
- Evaluate resources needed to sustain AMR efforts and return on investment

Thanks to everyone who made this presentation possible:

RELAVRA+
PAHO AMR team, in WDC and in the countries
Technical and financial partners

All the
of a

“We’re committed to creating a better, more sustainable future for our people, communities, animals and our planet”

Marcos Espinal

Director, Communicable Diseases and Environmental Determinants of Health

Join us on World Hand Hygiene Day 2023

https://www.who.int/campaigns/world-hand-hygiene-day/2023