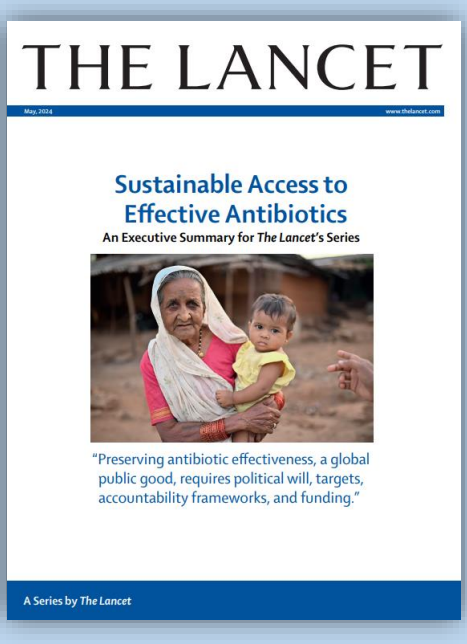
Year Digest | 2024

ANTIMICROBIAL RESISTANCE AND ONE-HEALTH

Discover our top-ten selection of the year!

Scientific Publications



Read report

The Lancet

THE LANCET SERIES ON ANTIMICROBIAL RESISTANCE: THE NEED FOR SUSTAINABLE ACCESS TO EFFECTIVE ANTIBIOTICS

Access to effective antibiotics is essential to every health system in the world, however, antimicrobial resistance (AMR) threatens this backbone of modern medicine and is already leading to deaths and disease which would have once been prevented. This Series highlights that, although AMR can affect anyone throughout the life course, the very young, very old and severely ill are the ones suffering the most. Through novel modelling data, this Series shows how stopping infections through improved vaccination and water and sanitation can not only prevent a significant proportion of deaths due to AMR in low- and middle-income countries, but also reduce the use of antibiotics to preserve its effectiveness. The Series also addresses how a rethink of drug development is needed to support investment in antibiotic, diagnostics, and vaccine development according to the burden of infection and resistance. Lower drug development costs will also make antibiotics more affordable and accessible. Finally, the authors argue for the need of targets to trigger political commitment and accelerate progress in addressing AMR.

Read report

The Lancet

GLOBAL BURDEN OF BACTERIAL ANTIMICROBIAL RESISTANCE 1990-2021: A SYSTEMATIC ANALYSIS WITH FORECASTS TO 2050

This study presents the first comprehensive assessment of the global burden of AMR from 1990 to 2021, with results forecasted until 2050. Evaluating changing trends in AMR mortality across time and location is necessary to understand how this important global health threat is developing and prepares us to make informed decisions regarding interventions. The findings show the importance of infection prevention, as shown by the reduction of AMR deaths in those younger than 5 years. Simultaneously, the results underscore the concerning trend of AMR burden among those older than 70 years, alongside a rapidly ageing global community. The opposing trends in the burden of AMR deaths between younger and older individuals explains the moderate future increase in global number of DALYs versus number of deaths. Given the high variability of AMR burden by location and age, it is important that interventions combine infection prevention, vaccination, minimisation of inappropriate antibiotic use in farming and humans, and research into new antibiotics to mitigate the number of AMR deaths that are forecasted for 2050.

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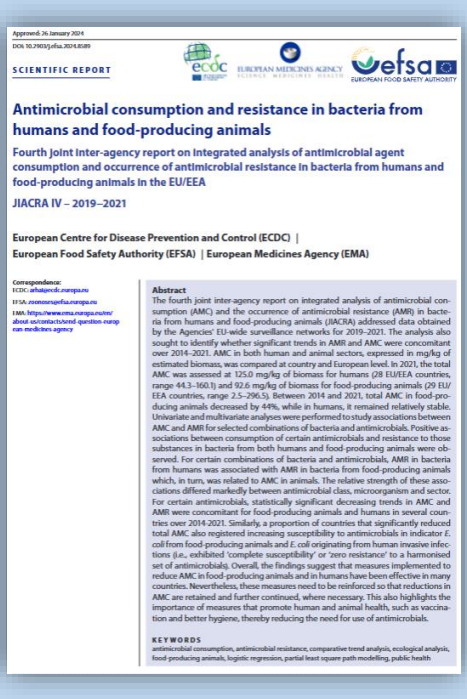
Public Health Reports


Approved: 26 January 2024
DOI: 10.2903/j.efsa.2024.8589

SCIENTIFIC REPORT

Antimicrobial consumption and resistance in bacteria from humans and food-producing animals

Fourth joint inter-agency report on integrated analysis of antimicrobial agent consumption and occurrence of antimicrobial resistance in bacteria from humans and food-producing animals in the EU/EEA

JIACRA IV – 2019–2021

European Centre for Disease Prevention and Control (ECDC) | European Food Safety Authority (EFSA) | European Medicines Agency (EMA)

Abstract

The fourth joint inter-agency report on integrated analysis of antimicrobial consumption (AMC) and the occurrence of antimicrobial resistance (AMR) in bacteria from humans and food-producing animals (JIACRA) addressed data obtained by the Agencies' EU-wide surveillance networks for 2019–2021. The analysis also sought to identify whether significant trends in AMR and AMC were concomitant over 2014–2021. AMC in both human and animal sectors, expressed in mg/kg of estimated biomass, was compared at country and European level. In 2021, the total AMC was assessed at 125.0 mg/kg of biomass for humans (28 EU/EEA countries, range 44.3–160.1) and 92.6 mg/kg of biomass for food-producing animals (29 EU/EEA countries, range 2.5–296.5). Between 2014 and 2021, total AMC in food-producing animals decreased by 44%, while in humans, it remained relatively stable. Univariate and multivariate analyses were performed to study associations between AMC and AMR for selected combinations of bacteria and antimicrobials. Positive associations between consumption of certain antimicrobials and resistance to those substances in bacteria from both humans and food-producing animals were observed. For certain combinations of bacteria and antimicrobials, AMR in bacteria from humans was associated with AMR in bacteria from food-producing animals which, in turn, was related to AMC in animals. The relative strength of these associations differed markedly between antimicrobial class, microorganism and sector. For certain antimicrobials, statistically significant decreasing trends in AMC and AMR were concomitant for food-producing animals and humans in several countries over 2014-2021. Similarly, a proportion of countries that significantly reduced total AMC also registered increasing susceptibility to antimicrobials in indicator *E. coli* from food-producing animals and *E. coli* originating from human invasive infections (i.e., exhibited 'complete susceptibility' or 'zero resistance' to a harmonised set of antimicrobials). Overall, the findings suggest that measures implemented to reduce AMC in food-producing animals and in humans have been effective in many countries. Nevertheless, these measures need to be reinforced so that reductions in AMC are retained and further continued, where necessary. This also highlights the importance of measures that promote human and animal health, such as vaccination and better hygiene, thereby reducing the need for use of antimicrobials.

KEYWORDS

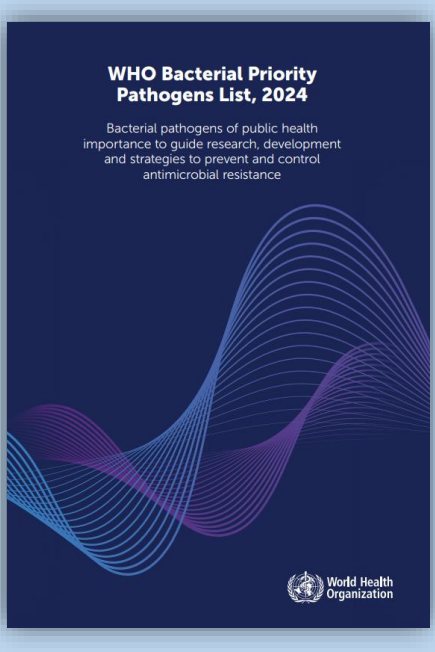
antimicrobial consumption, antimicrobial resistance, comparative trend analysis, ecological analysis, food-producing animals, logistic regression, partial least square path modelling, public health

Read report

ECDC/EMA/EFSA

JIACRA IV - 2019–2021 JOINT INTER-AGENCY REPORT ON INTEGRATED ANALYSIS OF ANTIMICROBIAL AGENT CONSUMPTION AND OCCURRENCE OF ANTIMICROBIAL RESISTANCE IN BACTERIA FROM HUMANS AND FOOD-PRODUCING ANIMALS IN THE EU/EEA

The fourth joint inter-agency report on integrated analysis of antimicrobial consumption (AMC) and the occurrence of antimicrobial resistance (AMR) in bacteria from humans and food-producing animals (JIACRA) addressed data obtained by the Agencies' EU-wide surveillance networks for 2019–2021. The analysis also sought to identify whether significant trends in AMR and AMC were concomitant over 2014–2021. Overall, the findings suggest that measures implemented to reduce AMC in food-producing animals and in humans have been effective in many countries. Nevertheless, these measures need to be reinforced so that reductions in AMC are retained and further continued, where necessary. This also highlights the importance of measures that promote human and animal health, such as vaccination and better hygiene, thereby reducing the need for use of antimicrobials.



Read report

WHO

BACTERIAL PRIORITY PATHOGENS LIST 2024: BACTERIAL PATHOGENS OF PUBLIC HEALTH IMPORTANCE, TO GUIDE RESEARCH, DEVELOPMENT AND STRATEGIES TO PREVENT AND CONTROL ANTIMICROBIAL RESISTANCE

Building on the 2017 edition, the 2024 WHO Bacterial Priority Pathogens List (BPPL) updates and refines the prioritization of antibiotic-resistant bacterial pathogens to address the evolving challenges of antibiotic resistance. The list categorizes these pathogens into critical, high, and medium priority groups to inform research and development (R&D) and public health interventions. It covers 24 pathogens, spanning 15 families of antibiotic-resistant bacterial pathogens. Notable among these are Gram-negative bacteria resistant to last-resort antibiotics, drug-resistant mycobacterium tuberculosis, and other high-burden resistant pathogens such as Salmonella, Shigella, *Neisseria gonorrhoeae*, *Pseudomonas aeruginosa*, and *Staphylococcus aureus*. The inclusion of these pathogens in the list underscores their global impact in terms of burden, as well as issues related to transmissibility, treatability, and prevention options. It also reflects the R&D pipeline of new treatments and emerging resistance trends. The WHO BPPL acts as a guide for prioritizing R&D and investments in AMR, emphasizing the need for regionally tailored strategies to effectively combat resistance.

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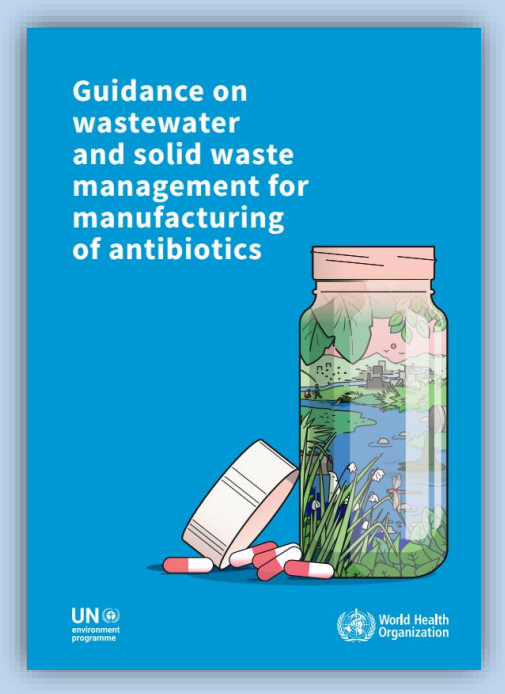


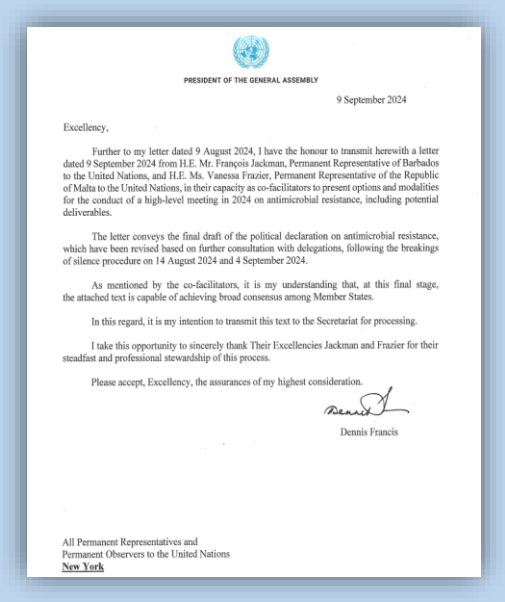
WHO/UNEP

GUIDANCE ON WASTEWATER AND SOLID WASTE MANAGEMENT FOR MANUFACTURING OF ANTIBIOTICS

This guidance has been called for by a myriad of international bodies, strategies and reports. Its purpose is to provide an independent scientific basis for inclusion of targets in binding instruments to prevent the emergence and spread of antibiotic resistance. It also includes best practices for risk management, including internal and external audit and public transparency. Crucially, this guidance includes progressive implementation, and stepwise improvement when needed recognizing the need to protect and strengthen the global supply, and to ensure appropriate, affordable and equitable access to quality-assured antibiotics.

Read report

Health Policy Briefs



PRESIDENT OF THE GENERAL ASSEMBLY

9 September 2024

Excellency,

Further to my letter dated 9 August 2024, I have the honour to transmit herewith a letter dated 9 September 2024 from H.E. Mr. François Jackman, Permanent Representative of Barbados to the United Nations, and H.E. Ms. Vanessa Frazier, Permanent Representative of the Republic of Malta to the United Nations, in their capacity as co-facilitators to present options and modalities for the conduct of a high-level meeting in 2024 on antimicrobial resistance, including potential deliverables.

The letter conveys the final draft of the political declaration on antimicrobial resistance, which have been revised based on further consultation with delegations, following the breakings of silence procedure on 14 August 2024 and 4 September 2024.

As mentioned by the co-facilitators, it is my understanding that, at this final stage, the attached text is capable of achieving broad consensus among Member States.

In this regard, it is my intention to transmit this text to the Secretariat for processing.

I take this opportunity to sincerely thank Their Excellencies Jackman and Frazier for their steadfast and professional stewardship of this process.

Please accept, Excellency, the assurances of my highest consideration.

Dennis Francis

All Permanent Representatives and
Permanent Observers to the United Nations
New York

United Nations

LETTER FROM PRESIDENT OF THE GENERAL ASSEMBLY ON AMR FINAL TEXT OF THE DECLARATION

The UN General Assembly convened a High-Level Meeting on antimicrobial resistance (AMR) for the second time during its 79th session (UNGA 79) in New York in September 2024. The General Assembly adopted a Political Declaration on antimicrobial resistance, recognizing it is one of the most urgent global health threats, and demanding immediate action to safeguard the ability to treat diseases, enhance food security and advance the Goals of the 2030 Agenda for Sustainable Development.

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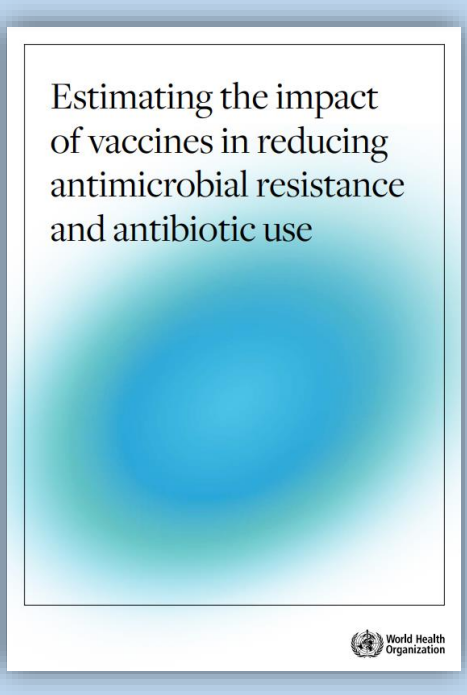
Quadripartite

CALL FOR ACTIONABLE STEPS IN RESPONSE TO THE RISING THREAT OF ANTIMICROBIAL RESISTANCE (AMR)

The AMR Multi-Stakeholder Partnership Platform was established in November 2022 by the Quadripartite organizations (FAO, UNEP, WHO, WOAH) as one of the global governance structures on AMR recommended by the United Nations Inter-Agency Coordination Group on AMR. It brings together relevant stakeholders across the human, animal, plant and environment sectors to assist in preserving antimicrobials and ensuring their responsible use through a One Health approach. It promotes a shared global vision, helps build consensus and takes action to contribute to the implementation of the Global Action Plan on AMR. Since its inaugural meeting in November 2023, the platform has grown to more than 200 members (organizations, networks and federations). This document contains the Key recommendations that are based on the discussions facilitated by the Action Group on the UN High-Level Meeting of the AMR Multi-Stakeholder Partnership Platform.



Read report

WHO

ESTIMATING THE IMPACT OF VACCINES IN REDUCING ANTIMICROBIAL RESISTANCE AND ANTIBIOTIC USE: TECHNICAL REPORT

This report provides an in-depth evaluation of the potential role of vaccines in reducing antimicrobial resistance (AMR). It outlines the importance of vaccines as a crucial tool in preventing infections and curbing the spread of resistant strains, thus reducing reliance on antibiotics. Historically, the role of vaccines in reducing AMR has not been fully recognized, with the focus primarily on their use for preventing infectious diseases.

This report is unique in its comprehensive assessment of 44 vaccines targeting 24 pathogens, encompassing both licensed vaccines and those in development. It incorporates a robust methodology to estimate the potential impact of these vaccines on AMR-related health outcomes, antibiotic use, and economic costs. What sets this report apart is its detailed modelling of the burden averted by vaccines and the feasibility of development for each pathogen. The findings underscore the critical role vaccines must play in national and global AMR mitigation strategies.

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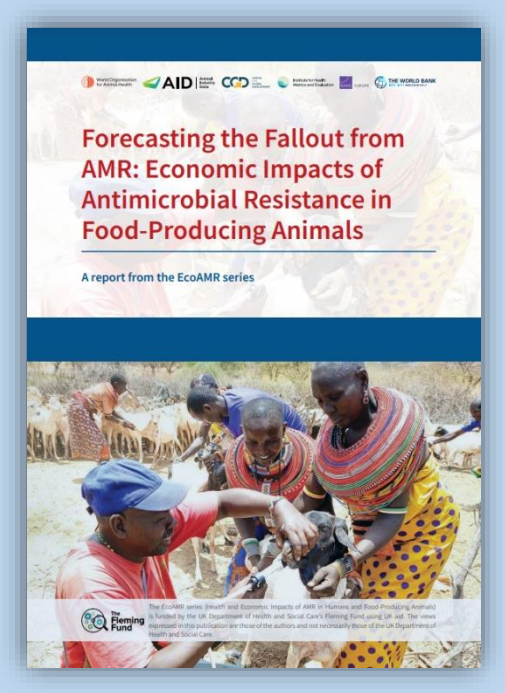


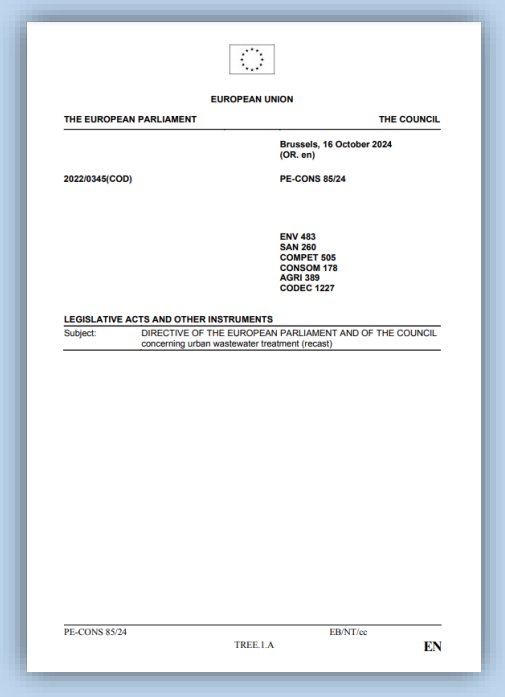
WOAH/AID/CGD/IHME/RAND Europe

ECOAMR SERIES: HEALTH AND ECONOMIC IMPACTS OF AMR IN HUMAN AND FOOD-PRODUCING ANIMALS

The EcoAMR series (Health and Economic Impacts of AMR in Human and Food-Producing Animals), led by the WOAH, used the latest data from 204 countries and 621 subnational locations to forecast the impact of AMR on mortality, health care costs, food security and the global economy. The analysis, published in three reports, was produced by experts at WOAH, Animal Industry Data (AID), the Center for Global Development (CGD), Institute for Health Metrics and Evaluation (IHME) and RAND Europe, with contributions from The World Bank.

Read report

EU Legislation


EUROPEAN UNION

THE EUROPEAN PARLIAMENT — THE COUNCIL

Brussels, 16 October 2024
(OR. en)

2022/0345(COD) — PE-CONS 85/24

ENV 483
SAN 260
COMPET 505
CONSOM 178
AGRI 389
CODEC 1227

LEGISLATIVE ACTS AND OTHER INSTRUMENTS

Subject: DIRECTIVE OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL concerning urban wastewater treatment (recast)

PE-CONS 85/24 EB/NT/cc
TREE.1.A EN

European Union

URBAN WASTEWATER: COUNCIL ADOPTS NEW RULES FOR MORE EFFICIENT TREATMENT

The Council of the EU gave the final green light for a revised EU directive on urban wastewater treatment. The revised directive extends the scope to smaller agglomerations, covers more pollutants, including micropollutants, and contributes to energy neutrality. The new rules are one of the key deliverables under the EU's zero-pollution action plan. The Commission shall adopt implementing acts in order to establish a minimum frequency of sampling and a harmonised methodology for measuring antimicrobial resistance in urban wastewater, taking into account at least all available data from national public health authorities and national authorities responsible for monitoring antimicrobial resistance.

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