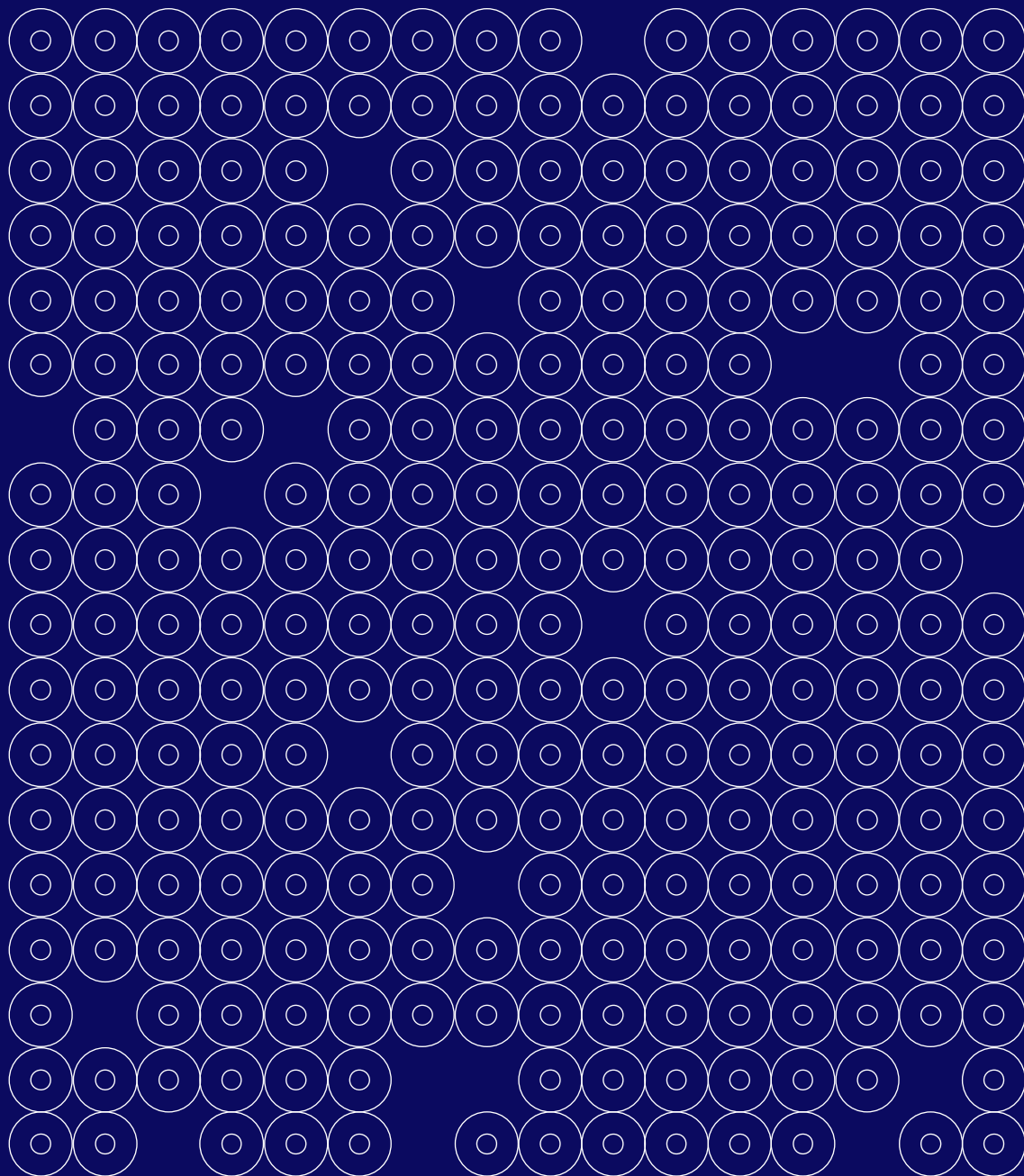


# JPIAMR Activity Report 2022



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## Foreword

The year 2022 marked 10 years of JPIAMR as a collaborative endeavour advancing science to tackle drug resistant infections. We are proud to shining light on the progress our initiative has been making throughout the last ten years and during 2022. We thank all of you for your continued effort in supporting the best science to develop novel and enhanced treatment options, improved surveillance and diagnostics tools and interventions to prevent and reduce the antimicrobial resistance burden.

Towards this direction, JPIAMR has during 2022 awarded 6 new networks including 228 partners from 40 countries to facilitate the development, optimisation and use of diagnostic and surveillance tools, technologies and systems. It is a key milestone that for the first time includes a network focussing on antifungal resistance.

Ten successful years of supporting over 1730 researchers across 77 different countries and bringing to life thousands of new solutions to tackle AMR is an achievement that goes beyond our own community, and we have already started to work in scaling up the one health dimension. The important link between human and animal health as well as environment as an integrated ecosystem is getting a central stage by the start of the preparations of the future OH AMR partnership within the Horizon Europe Framework Programme. While AMR interdisciplinarity remain at centre stage, cross-cutting issues and socio-economics aspects will play an equally important role.

Multiple consultations, expert groups, webinars and workshops have been a major focus in 2022 to identify, in an inclusive mode, the future directions and research priorities to be addressed for the future partnership. These efforts have included working together with the WHO and the Quadripartite to align the development of AMR global human health and one health research agendas that will substantially contribute to global cooperation and coordination.

The year 2022 also marked major research milestones. The outputs, outcomes and impact generated by the funded projects and networks supported by various JPIAMR calls are monitored continuously. Among many impactful findings, it can be highlighted that among JPIAMR Therapeutics projects portfolio already 6 new pre-clinical candidates have been identified and 5 patents have been filed.

We are thankful to our Management Board for their confidence and commitment, and to all colleagues in the Secretariat, our call offices, working groups, committees, Scientific Advisory Board and expert thematic groups for their strong support. Let strive to make 2023 a year that results in even more impactful joint initiatives.

*Jan-Ingvar Jönsson, Chair of JPIAMR*

*Laura Marin, Head of Secretariat*

# Executive Summary

## The Challenge - Lives Are at Stake

Antimicrobials have saved millions of lives throughout the many decades they have been in use as a common drug to treat infection. However, antimicrobial resistance is a current global health security challenge and society needs to respond with concerted actions. Only together can we divert from an anticipated trajectory whereby up to 10 million human lives are lost yearly because of infections caused by antibiotic resistant bacteria by 2050.

## The JPIAMR – The key to turn the tide of AMR

The Joint Programming Initiative on Antimicrobial Resistance, JPIAMR, is an international collaborative platform engaging 29 nations and the European Commission to curb antimicrobial resistance (AMR). The JPIAMR coordinates national research funding and supports collaborative action for filling knowledge gaps on AMR with a One Health perspective. Our shared Strategic Research and Innovation Agenda outlines the key areas to be addressed and provides guidance for countries to align their AMR research agendas nationally and internationally. JPIAMR interacts with stakeholders such as United Nations IACG, World Health Organization (WHO), the Global AMR R&D Hub, and countries outside the current membership. The G20 and G7 include activities by JPIAMR in their declarations and resolutions.

## Major goals of JPIAMR

- To align national and international research programmes.
- To support and coordinate transformative research.
- To develop the JPIAMR Virtual Research Institute.
- To promote innovation and translation of research results.
- To bridge the gap between research and policy.

## Summary of JPIAMR achievements in 2022

- Governance:
  - Election of a new Steering Committee
  - Election of a new broader Scientific Advisory Board
  - Three new colleagues join the Secretariat
  - Two Management Board meetings, one virtual, one in Paris
  - Six Steering Committee meetings
  - Three Scientific Advisory Board meetings
  - Four Core Call Group meetings
  - Closing successfully activity, review and accounts of the CSA EXEDRA
  - Closing successfully activity, review and accounts of the ERA-Net co-fund JPI-EC-AMR
- International policy engagement:
  - Partnering in calls with Australia, Latvia and Lithuania
  - Collaboration with UN:

- » Observer at STAG Committee
- » Observer at WHO Advisory Group on Fungal Pathogens Prioritisation
- » WG of the Quadripartite AMR One Health Research Agenda
- » Alignment team with the AMR WHO human health agenda
- » Member Quadripartite Multi-stakeholder Platform
- JPIAMR representation in international AMR events
- Collaboration with key AMR initiatives:
  - » Continued collaboration with the Global AMR R&D Hub on the AMR dashboard and discussing platform with other key international stakeholders
  - » ICARS: participating as a partner in the CSA to design the OH AMR partnership
  - » PENTA: participating as a partner in the CSA to design the OH AMR partnership
  - » Continuation with MoU Educational Group: JPIAMR, CARB-X, GARDP, Repair Fund, Wellcome Trust, the AMR Action Fund. Co-branded sessions at AMR conference, ECCMID bootcamp and AMS
  - » Member of the European Partnerships Forum
- Workshop and webinar organisation in collaboration with members and DESIGN OH AMR:
  - *Call on drug resistance: Live webinar for applicants*, 25 Jan 2022
  - *Towards a One Health AMR Partnership*, 3 Feb 2022, online
  - *Supporting research and innovation on One Health AMR Surveillance*, 23-24 March 2022, online
  - *Network call on Diagnostics and Surveillance: Live webinar for applicants*, 25 April 2022
  - *JPIAMR Start Up Workshop for projects funded under the call: One Health interventions to prevent or reduce the development and transmission of AMR*, 28 April 2022, online
  - *New Perspectives on Bacterial Drug Resistance*, 9 June 2022, online
  - *Supporting measures to mitigate AMR in One Health settings*, 13-14 June, 2022, online
  - *Vaccination as a strategy to combat Antimicrobial Resistance*, 17 June 2022, online
  - *Developing Novel Antimicrobial Therapeutics*, 21 June 2022, online
  - *Developing Diagnostic tools for Drug Resistant Infections for Human and Animal Health*, 22 June 2022, online
  - *Tackling the emerging threat of fungal drug resistance*, 23 June 2022, online
  - *Environmental dimensions on AMR*, 22-27 September 2022, EDAR6 conference, Gothenburg, Sweden
- Calls:
  - Over 140M€ in mobilised joint research funds, supporting 156 projects and researchers spread across 77 countries
  - Launch of the transnational research call on Therapeutics awarding 11 new projects supporting the antimicrobial pipeline
  - Launch of the research networks call granting new 6 networks in the area of Diagnostics and Surveillance, especially we support a new network in the area of antifungal resistance

- JPIAMR Core Call Steering Group update of JPIAMR Peer Review Guidelines
- Monitoring and data sharing activities:
  - Report on the outputs, outcome and impact generated by the JPIAMR Therapeutics supported projects
  - Analyses report of JPIAMR supported research addressing the SRIA R&I objectives
  - Analysis and graphical representation of portfolio of JPIAMR funded projects and their outcomes
  - Collection and publication on national members AMR plans and research programmes
  - International Stakeholder/AMR initiatives map
  - Data management plan
  - JPIAMR project webpage automatisisation
- Communications, dissemination and promotion:
  - Promotional communication package on calls and call results
  - Increased impact of social media channels efforts: 276 updates, 285.000 impressions and 8.000 videos views
  - Standardised guidelines on graphical design, images, templates, newsletter, registration page and promotional campaigns for all the virtual workshops and consultations
  - Infographics
  - JPIAMR virtual workshop guidelines
- Contributions to the preparations of the future One Health AMR Partnership:
  - Setting an introductory conference: “Towards a One Health AMR Partnership” on 3rd February 2022
  - Mobilising the JPIAMR SAB members for the drafting of the OH AMR future research and innovation objectives
  - Engagement and brainstorming sessions with members
  - Contribution to the communication and promotion efforts

## JPIAMR Governance

The governance and management structure of the JPIAMR is composed of the following bodies according to the [JPIAMR Terms of Reference](#):

- JPIAMR Secretariat
- JPIAMR Management Board
- JPIAMR Steering Committee
- JPIAMR Scientific Advisory Board
- JPIAMR Core Call Steering Group
- JPIAMR Strategic Working Groups

### The JPIAMR Secretariat

The [JPIAMR Secretariat](#) is responsible for the day-to-day management of JPIAMR. The Secretariat ensures the necessary logistical coordination and communication among all JPIAMR activities and boards as well as manages all administrative and financial matters. The secretariat provides leadership in engaging with key stakeholders and international organisations and prepares the necessary budgetary arrangements to run the management structure. The secretariat coordinates the work of all the partners of the different EU grants and supervises the implementation of all tasks. The Swedish Research Council hosts the secretariat, and at the end of 2022, the secretariat was comprised of nine full-time or part-time staff (including in-kind contributions) including a Head of Secretariat, two Senior Research Officers, two Senior Analysts, a Communications Officer, a Web Officer/Administrative Officer and a Financial Officer.

### JPIAMR Management Board

The [JPIAMR Management Board](#) (MB) is the main decision making body of JPIAMR. Each of the 29 member countries can have two representatives on the MB with a governmental mandate. The European Commission (DG RTD) is a non-voting member. The MB meets formally twice per year, at meetings that are funded by JPIAMR members, and within 2022 the Management Board held two meetings. The first meeting was held online 17 March 2022 and the second meeting was a hybrid meeting held in Paris/online 5-6 October 2022.

### JPIAMR Steering Committee

The [JPIAMR Steering Committee](#) (SC) provides steering direction of the JPIAMR and strategic input to undertake the JPIAMR mission. The SC meets regularly to discuss strategic issues, develop proposals for the MB and follows the implementation of activities by the Secretariat. In 2022, the MB Chair was Jan-Ingvar Jönsson (Sweden), the Vice-Chair was Marie-Cécile Ploy (France) and the Steering Committee members were Kathleen D'Hondt (Belgium), Charu Kaushic (Canada), Henning Gädeke, Germany and Gian-Maria Rossolini, Italy. The SC met five times in 2022, whereof three were conducted online, one in Brussels and one in Paris.

### JPIAMR Scientific Advisory Board

The MB appoints members of the JPIAMR Scientific Advisory Board (SAB), which consists of top international researchers in the AMR field. The prime task of the SAB in 2022 has

been to support the preparation for the One Health AMR partnership, in particular in the development of the OH AMR Strategic Research and Innovation Agenda, workshops and webinars. The SAB members have been actively involved in the working groups of the Research and Innovation Objectives of the OH AMR SRIA. The SAB has also provided advice to the MB regarding scientific priorities, including the JPIAMR calls for proposals. The Netherlands Organisation for Health Research and Development (ZonMw) administers the SAB. The members of the 2022 SAB were:

- Till Bachmann, University of Edinburgh, United Kingdom (Chair)
- Luca Guardabassi, University of Copenhagen, Denmark (Vice-Chair)
- Katherine Payne, University of Manchester, United Kingdom\*
- Jordi Vila, Hospital Clinic in Barcelona, University of Barcelona and Institute for Global Health, Spain
- Anngret Schneider, Robert Koch Institute, Germany\*
- Constance Schultsz, University of Amsterdam, Netherlands
- Rafael Cantón, University Hospital Ramón y Cajal and Complutense University, Spain
- Marc Lemonnier, Antabio, France
- Luísa Vieira Peixe, University of Porto, Portugal
- Thomas Harrison, St Georges University of London, United Kingdom
- Ana Alastruey, Instituto de Salud Carlos III, Spain
- Uga Dumpis, Pauls Stradiņš University Hospital, Latvia
- Sabiha Essack, University of KwaZulu Natal, South Africa
- Christian Giske, Karolinska Institute, Sweden
- Geetanjali Kapoor, Center for Disease Dynamics, Economics & Policy, India
- Joakim Larsson, University of Gothenburg, Sweden
- Nilton Lincopan, Universidade de São Paulo, Brazil\*
- Kornelia Smalla, Julius Kühn Institute, Germany

Departing members are marked with an asterisk.

Early 2022, the SAB Chair (Till Bachmann) and Vice-Chair (Luca Guardabassi) were jointly elected and appointed by the SAB members during the meeting of 9 February. During the year, two elections were held to replace the departing members. The new SAB members were elected by the JPIAMR Management Board and are appointed for two years. The new members are:

- Claire Harpet, University Jean Moulin Lyon 3, France
- Tania Dottorini, University of Nottingham, United Kingdom
- Chantal Morel, University of Bern, Switzerland

The SAB met three times in 2022. In addition, the SAB members participated in numerous working group and alignment meetings for the drafting of the Research and Innovation Objectives of the OH AMR partnership. All meetings and all of the work the SAB has conducted in 2022 were online.

### **Core Call Steering Group**

The [JPIAMR Core Call Steering Group](#) interacts regularly to develop calls and guidelines to support the activities of Joint Call Steering Groups. Members are representatives from past and present call secretariats. The Core Call Steering Group regularly meets online. This group is supported by in-kind contributions by members.



## **Sustainability Plan**

JPIAMR's activities are based in its Strategic plan for 2020-2025 and Roadmap of Actions 2019-2024 as well as the new JPIAMR Implementation Plan 2021-2023.

The central staff of the secretariat and activities of task-specific working groups, led by different member countries in a Distributed Secretariat/Coordination Model, are funded in a mixed model with in-kind contributions from members (including personnel) and a membership fee for the year to support central operations, combined with support from the European Commission in the form of an ERA-Net co-fund JPIAMR-ACTION to support the management of the joint calls.

In 2022, the activities and accounts of audits of the EU grants CSA EXEDRA and the ERAnet co-fund JPI-EC-AMR were successfully closed.

## JPIAMR Joint Calls

JPIAMR conducts activities in the six key priority topics within the AMR field – Therapeutics, Diagnostics, Surveillance, Transmission, Environment and Interventions – outlined in the JPIAMR Strategic Research and Innovation Agenda (SRIA) and deployed by its Roadmap of Actions 2019-2024. In addition to this, other strategic and policy areas of action have been identified and addressed in the JPIAMR Implementation Plan 2021-2023.

### JPIAMR Roadmap of Actions 2019-2024 – investing in AMR research

The JPIAMR SRIA provides a framework for the [JPIAMR Roadmap of Actions 2019-2024](#) (Figure 1) that guides the joint transnational actions of the JPIAMR, as well as to serves as an information resource for other strategic initiatives to support coordination and synergistic actions.



**Figure 1.** The JPIAMR Roadmap of Actions 2019-2024.

In the framework of this roadmap the 2022 Joint Transnational Calls on *Disrupting drug Resistance Using Innovative Design* as well as on *Surveillance and Diagnostics Networks* were launched.

### Coordination of JPIAMR Joint Calls

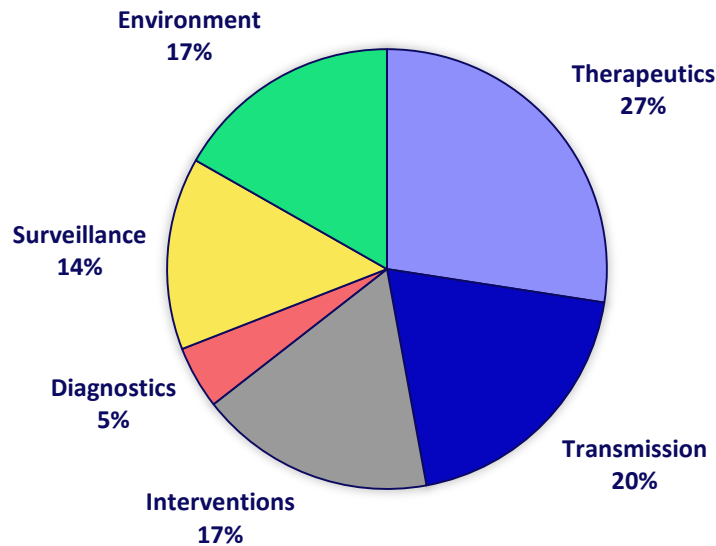
JPIAMR coordinates joint calls through the implementation of the ERA-Net co-funds JPIAMR-ACTION and AquaticPollutants. JPIAMR-ACTION has been running since 2021. In 2022, JPIAMR launched two calls under the ERA-Net co-fund, JPIAMR-ACTION. JPIAMR also participates with JPI WATER and JPI OCEANS in a joint ERA-Net co-fund Aquatic Pollutants.

### Core Call Steering Group

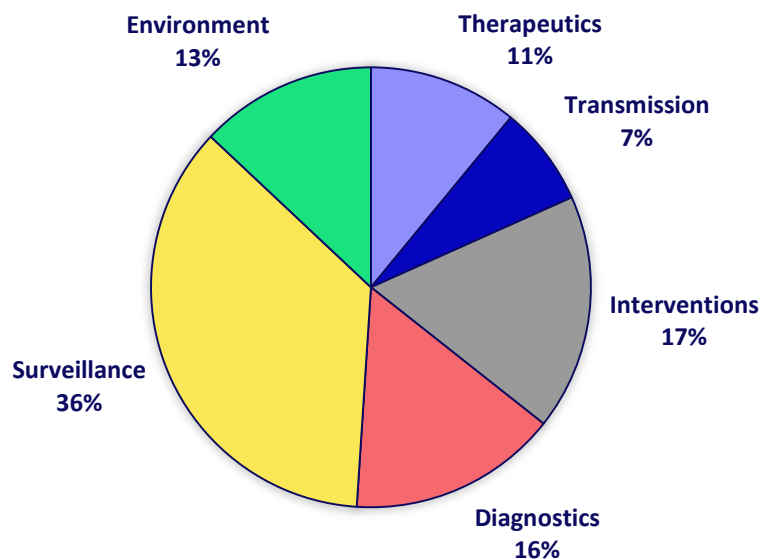
The JPIAMR Core Call Steering Group consists of Members are representatives from former and present call secretariats and develop calls and guidelines to support the activities of Joint Call Steering Groups. In 2022, the Core Call Group updated the procedures documents for JPIAMR calls and a new template for Memorandum of Understanding.

## Joint Transnational Calls for Proposals

Since 2014, JPIAMR has held ten joint transnational project calls and five network calls. To date, JPIAMR has supported 1730 researchers in 112 projects (Figure 2) and 44 networks (Figure 3) with funding over 141 million Euro. The goal of the JPIAMR calls is to foster multinational translational research collaborations that can accomplish more than individual countries working independently, leading to improved control of bacterial infections.



**Figure 2.** Research projects funded by JPIAMR countries in various calls from 2014-2022, divided according to JPIAMR-SRIA priority areas. To date, 112 research projects have been funded by JPIAMR and the financial contribution to these calls is approximately 140M€.



**Figure 3.** Research networks funded by JPIAMR countries in various calls, divided according to JPIAMR-SRIA priority areas. To date, 44 AMR networks have been funded through JPIAMR network calls. To date, the financial contribution to these calls is 2.7M€.

The French National Research Agency (ANR) was the Joint Call Secretariat for the JPIAMR 14<sup>th</sup> Joint Transnational Call *Disrupting drug Resistance Using Innovative Design* (Figure 4). The call, included 27 funding organisations from 16 JPIAMR member countries and 2 associated countries. Using a One Health approach, the call aimed to improve the treatment of bacterial and fungal infections (including coinfection) and/or the prevention of the emergence/spread of resistance in humans, animals or plants through the improvement of the efficacy, specificity, delivery, combinations and/or repurposing of drugs and plant protection agents

Applicants were encouraged to consider new delivery strategies which should minimize impact to commensal organisms and/or the environment. The following thirteen projects involving 72 partners from 15 different countries were recommended for funding, with a total funding amount of 15.4 M€:

- Development and in vivo validation of a novel triggered release antibiofilm coating for orthopaedic implants and vascular grafts. (TRA-COAT)
- Optimization and implementation of ceftazidime or ceftazidime-avibactam combined with fosfomycin against highly resistant gram-negative bacteria (CAVIFOS)
- Optimisation of bi-therapy inhibition of *Staphylococcus aureus* in persistent and bacteremic infections (StopStaphGrowth)
- The disulfide bond as a chemical tool in cyclic peptide antibiotics: engineering disulfide polymyxins and murepavadin (MURYXIN)
- Identification of a Novel non-antibiotic Bactericidal agent to fight antimicrobial resistance (NOBACT)
- Targeted Nitroxoline Delivery for Treatment of Multidrug-resistant Pathogens (TANDEM)
- Disrupting drug resistance by exploiting collateral sensitivity to design novel therapeutic strategies for *C. auris* and *C. glabrata* (CycleDrug)
- Design and implementation of silver-based nanoparticles for combating antibiotic resistance (VARIANT)
- Optimization of Antibiotic Combinations using Organoids for treatment of *Mycobacterium abscessus* infections (ACOMa)
- New Inhalation Formulations for Improved Delivery of Antimicrobials (APRINHA)
- Lyophilized fecal microbiome transfer for primary *Clostridioides difficile* infection (DONATE study): a multicenter randomized controlled trial (DONATE)
- Optimized dosing regimens for the combinations of sulfonamides and trimethoprim in veterinary medicine (SulTAn)
- Design and implementation of effective combination of Phages and Antibiotics for improved Therapy protocols against *Klebsiella pneumoniae* (KLEOPATRA)

More information about the projects can be found on the JPIAMR website.<sup>1</sup>

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<sup>1</sup> [www.jpiamr.eu/new-projects-in-the-area-of-therapeutics/](http://www.jpiamr.eu/new-projects-in-the-area-of-therapeutics/)



**Figure 4.** Communication material for the 14<sup>th</sup> Joint Transnational Call 2022, Disrupting drug Resistance Using Innovative Design.

The Lithuanian Research Council (LTM) was the Joint Call Secretariat for the JPIAMR 15<sup>th</sup> transnational call 2022, *Diagnostics and Surveillance Networks*. The call involved funding organisations from 11 JPIAMR member countries. The aim of the call was to assemble networks of leading experts and stakeholders with an intent to facilitate the development, optimisation and use of diagnostic and surveillance tools, technologies and systems. The following six networks including 228 partners from 40 countries were recommended for funding, with a total funding amount was 300 000 € plus up to 100 000 € for start-up and final joint workshops:

- Standardization of diagnostics and antimicrobial susceptibility testing and clinical interpretation in animal mycoplasmas (MyMIC)
- Improving surveillance of antibiotic-resistant *Pseudomonas aeruginosa* in Europe (ISARPAE)
- Bridging of Antimicrobial resistance Surveillance systems In Community Settings across Europe (BASICS)
- Bench, Bedside, Business, and Beyond: innovative solutions for AMR diagnostics (B2B2B AMRDx)
- International Fungal Network for One-Health Resistance Surveillance: Antifungal Resistance (INFORM-AFR)
- Tools for the Epidemiology of AMR Plasmids, One-Health Transmission and Surveillance (TEAPOTS)

More information about the networks can be found on the JPIAMR website.<sup>2</sup>

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<sup>2</sup> [www.jpiamr.eu/six-new-networks-the-area-of-diagnostics-and-surveillance/](http://www.jpiamr.eu/six-new-networks-the-area-of-diagnostics-and-surveillance/)



**Figure 5.** Communication material for the 15<sup>th</sup> Joint Transnational Call 2022, Diagnostics and Surveillance Networks.

### **AquaticPollutants**

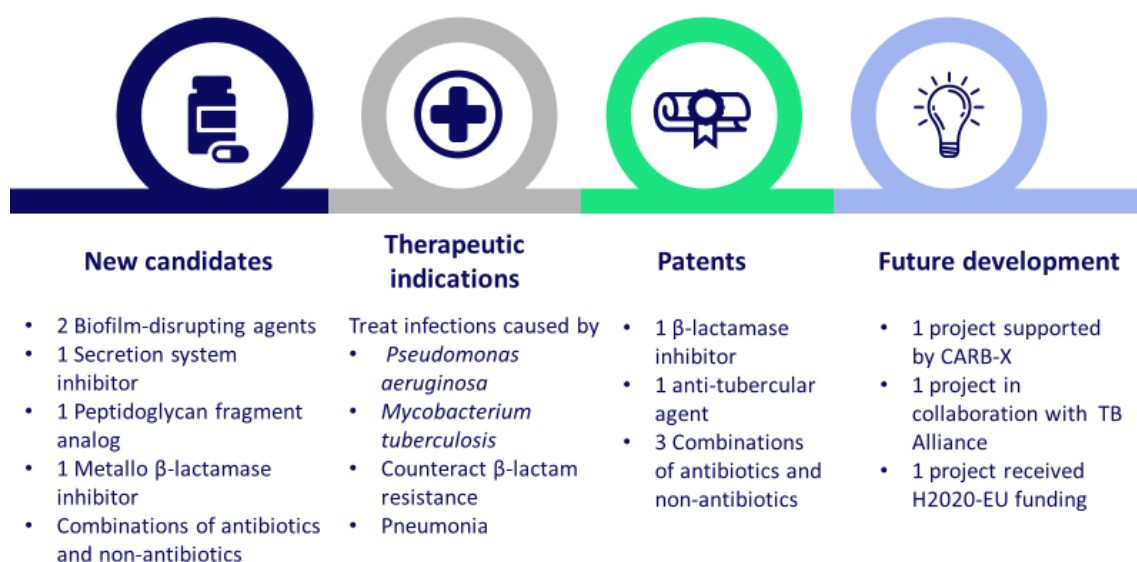
AquaticPollutants is an ERA-NET by the three Joint Programming Initiatives (JPIs) on Water, Oceans and Antimicrobial Resistance (AMR). During 2022 AquaticPollutants has launched the additional activity Thematic Annual Programming, a leveraging network with the aim to increase transnational synergies of projects funded in national schemes, foster research coordination and mobility, as well as to promote sharing of results, data and other resources. Researchers from Czech Republic, France, Ireland, Spain and Sweden have joined the network.

In addition, five webinars have been conducted within the PhD Forum and national stakeholder mappings have been performed within the transfer project, AquaticPollutants TransNet.



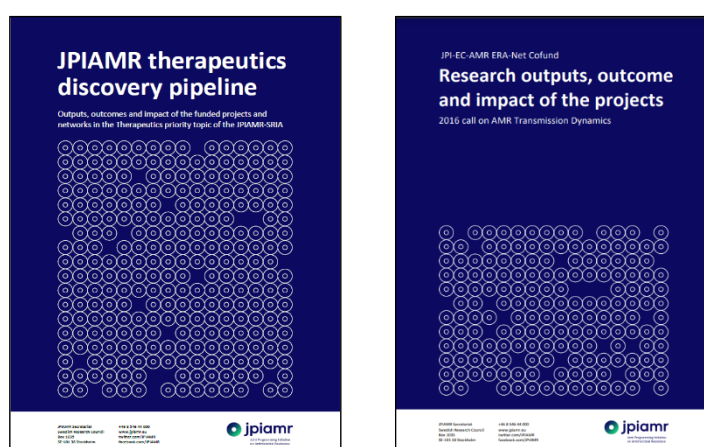
## Monitoring JPIAMR-funded projects and networks - outputs

The outputs, outcomes and impact generated by the funded projects and networks supported under various JPIAMR calls is monitored continuously. In early 2022, an extensive evaluation of the outputs, outcomes and the impact generated by the projects and networks supported under the calls on the priority topic Therapeutics was conducted (Figure 6) and was published in the report [JPIAMR therapeutics discovery pipeline](#)<sup>3</sup>.



**Figure 6.** Overview of the outcomes of the concluded research projects supported in the various JPIAMR calls under the Therapeutics priority topic.

This report is in series of another similar report published in 2021 on the outputs, outcomes and impact of the projects funded in the 2016 JPIAMR joint co-funded call *AMR Transmission Dynamics*<sup>4</sup>. Both the reports highlight the effect of supporting excellent science through transnational research collaborations.



**Figure 7.** Covers of the two project outcomes reports published in 2022.

<sup>3</sup> [www.jpiamr.eu/app/uploads/2022/05/JPIAMR-therapeutics-discovery-pipeline\\_2022-05-12.pdf](http://www.jpiamr.eu/app/uploads/2022/05/JPIAMR-therapeutics-discovery-pipeline_2022-05-12.pdf)

<sup>4</sup> [www.jpiamr.eu/app/uploads/2021/12/AMR-Transmissions-call-2016\\_Outcomes-report.pdf](http://www.jpiamr.eu/app/uploads/2021/12/AMR-Transmissions-call-2016_Outcomes-report.pdf)

The research publications and the research resources generated from the projects and the networks are provided on the JPIAMR website.<sup>5</sup>

Detailed analysis and graphical representation of the outcomes of the entire portfolio of JPIAMR funded projects and networks were presented in various consortia meetings and networks.

In addition, JPIAMR also supported research networks in various calls. The outcomes of some of the concluded research networks (Figure 8) in the area of surveillance are:

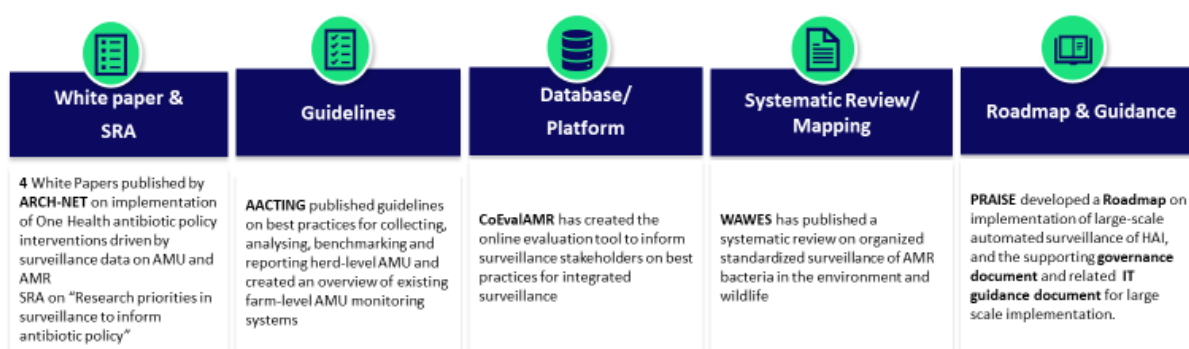
- [ARCH \(Bridging the gap between humAn and animal suRveillance data, antibiotic poliCy, and stewardship\)](#): The network has published the white paper series in the [Journal of Antimicrobial Chemotherapy](#) on implementation of One Health antimicrobial stewardship (AMS) programmes linked to surveillance of antimicrobial resistance (AMR) and antimicrobial usage (AMU). The 4 white papers provide consensus-based practical guidance to any stakeholder looking to establish or implement AMS activities under heterogeneous economic settings that include low- and medium-income countries as well as in context with limited expertise in surveillance/AMS. Guidance is provided as list of actions tailored for different settings: hospital, outpatient, long-term care facility; or veterinary and focusing on three main topics: 1) AMS leadership and accountability; 2) surveillance of AMU for AMS; 3) surveillance of AMR for AMS.
- [CoEvalAMR](#): Developed a publicly available online guidance (<https://guidance.fp7-risksur.eu/>) for harmonised evaluation of integrated surveillance of antimicrobial usage (AMU) and antimicrobial resistance (AMR) from a One Health perspective that addressed the specific needs of such surveillance systems. The evaluation guidance provides support to personnel working in public, private and non-governmental organisations working to protect the health of humans, animals, plants and the environment at local, national and international levels through AMU/AMR surveillance. It helps users to conduct evaluations of their AMU/AMR surveillance systems which will provide information on the functionality, effectiveness and efficiency of these systems and allow identifying potential areas for improvement. The network published the guidance in [Clinical Microbiology and Infection](#) to select a fit-for-purpose surveillance tool. Performing evaluations, as presented in the publication, and consecutively adjusting integrated AMR surveillance activities and national action plans will contribute to effective antimicrobial treatment options for humans and animals in the future.
- [WAWES](#): The work included on how wildlife should be defined in the perspective of performing ABR surveillance and highlight why wildlife is relevant when performing ABR surveillance. The network also focussed to find a way to perform global comparative surveillance of AMR in the environment and wildlife, which is furthermore applicable in most countries irrespective of economic resources. A collaboration with another JPIAMR supported network [“Towards Developing an International Environmental AMR Surveillance Strategy”](#) resulted in the development of a [research agenda on environmental surveillance](#).

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<sup>5</sup> <https://www.jpiamr.eu/resources/project-resources/>



- **PRAISE:** The PRAISE network provided guidance on how to move automated surveillance of healthcare-associated infections from the research setting to large-scale implementation. The network published a [roadmap on implementation of large-scale automated surveillance, the supporting IT document and the supporting governance document](#). The roadmap discusses the selection of surveillance targets (what infections to detect), different organisational and methodological approaches to large-scale automation of surveillance and their advantages, disadvantages and risks. It defines key performance requirements of automated surveillance systems and suggestions for their design and provides guidance on how to achieve successful implementation, including the involvement of all relevant stakeholders. The roadmap also addresses areas of future research and lists training requirements for the infection control community and related disciplines.



**Figure 8.** Outcomes of the JPIAMR supported networks on Surveillance.

### Automatization of publishing information on funded projects and networks on dedicated webpages

JPIAMR publishes information on the funded research projects and networks in dedicated pages in the website to provide detailed information on the scientific abstract, popular summary, any resources and publications generated from the projects and the networks (for e.g. see the project page of [Gene-gas](#), a project supported under the 2016 JPIAMR call on Transmission Dynamics). This information used to be collected and made available on the website manually and updated during the entire lifecycle of the projects or networks. In the year 2022 we have undertaken an assignment to automatize the process technically. A Structured Query Language (SQL) database with all the relevant information on the projects and networks has been created. An application programming interface (API) is being built to fetch project information from the SQL database directly to the respective project pages on the website. This will ensure rapid transfer and update of data with minimal manual involvement and efficient dissemination of information on the outputs and outcomes of the projects and networks supported under various JPIAMR calls.

## **JPIAMR Webinars**

JPIAMR webinars have become an important tool to include AMR researchers and stakeholders. They are creating valuable dialogues around important themes and topics that contribute to JPIAMR's aims and goals. In 2022, JPIAMR held four webinars. The webinars were recorded and the videos were later published on the JPIAMR YouTube channel.

### **14th JPIAMR Joint Call webinar for applicants**

In alignment with the launch of the 14th JPIAMR call "Disrupting drug resistance using innovative design", a webinar was held on the 25<sup>th</sup> of January 2022. During the webinar, the call and the partner search tool were presented and the joint call secretariat and national funding agencies answered questions from potential applicants. The presentations were recorded and published on the JPIAMR YouTube channel. Close to 500 people registered for the webinar and the recorded presentations have been viewed approx. 850 times.

### **15th JPIAMR Network Call webinar for applicants**

In collaboration with the call secretariat and in alignment with the opening of the 15th JPIAMR call "Diagnostics and Surveillance Networks", a webinar was held on the 25<sup>th</sup> of April 2022. The call and the partner search tool were presented and representatives from funders participating in the call were available to answer questions. The presentations were recorded and published on the JPIAMR YouTube channel. More than 110 people registered for the webinar, and the recorded presentations have been viewed approx. 700 times.

# JPIAMR Strategy and Collaborations

## International collaboration and stakeholder relations

JPIAMR through its Steering Committee and Secretariat continue to engage and collaborate with other AMR funding agencies, international initiatives and relevant stakeholders. International cooperation activities within JPIAMR aim to:

1. Build the critical mass needed to provide an effective response to the AMR challenge;
2. Coordinate global AMR research funding and,
3. Participate more effectively in agenda setting in international AMR policy and research policy fora.

JPIAMR has continued to strengthen the following collaborations at the global level:

### *World Health Organisation*

- Observer at STAG Committee
- Observer at WHO Advisory Group on Fungal Pathogens Prioritisation
- WG of the Quadripartite AMR One Health Research Agenda
- Alignment team with the AMR WHO human health agenda
- Member Quadripartite Multi-stakeholder Platform

### *Engagement with LMICs AMR challenge*

In the second part of 2022 several conferences took place with active participation of JPIAMR to showcase research supported in LMICs and to seek synergies and input. To highlight the contributions to the Bill and Melinda Gates Foundation Grand Challenges conference and to the AMR symposium at the Global Health Network conference in South Africa.

### *MoU on Educational Activities with Carb-X, Wellcome Trust, GARDP, Novo Repair, Action Fund*

- Co-branded sessions at AMR conference, ECCMID bootcamp and AMS
- Exchange of information on funding

### *Global AMR R&D Hub*

JPIAMR is part of the Global AMR R&D Hub Stakeholder Group. JPIAMR has continue collaboration for the further development of the global research investment dashboard.

### *ICARS*

ICARS is a valuable partner in the CSA DESIGN OH AMR providing advice and support in the AMR prevention and intervention area.

PENTA are also participating as a partner in CSA DESIGN OH AMR providing input in the social economics aspects of AMR.

### *European Union and the European Commission*

Several meetings have taken place with European Commission officers with a main focus on the design of the future One Health AMR Partnership.

# International Events with JPIAMR Participation in 2022

The following table outlines the international events in which JPIAMR has been represented, through either participation or attendance.

**Table 1.** International events with JPIAMR Representation 2022.

Meeting or Event	Location	Date
BEAM Alliance meeting	Online	17/01/2022
JPI Monitoring & Evaluation TF meeting	Online	21/02/2022
OHEJP Stakeholder meeting	Hybrid/Ovieto IT	13/04/2022
SRIAs development alignment meeting JPIAMR-WHO-Quadripartite	Online	22/04/2022
CARBx alignment meeting	Online	02/05/2022
One Health Priority Research Agenda on AMR - expert briefing meeting	Online	10/05/2022
MEP Interest Group Annual Meeting: Investigating the environmental dimensions of AMR	Online	17/05/2022
Partnerships Knowledge Hub (PKH) hearing with partnerships representatives	Online	18/05/2022
3rd ERA CoBioTech Hub Meeting	Online	19/05/2022
JPIAMR-ICARS coordination meeting	Copenhagen	31/05/2022
European action to curb antibiotic resistance, French presidency event	Paris	07/06/2022
WHO STAG-AMR committee meeting	Online	14-16/06/2022
Joint meeting candidate Horizon Europe Partnerships PAHW and OH-AMR	Online	16/06/2022
JPIAMR-NIAD meeting	Online	16/06/2022
Cross-JPIs meeting	Online	20/06/2022
MicrobiomeSupport's final conference	Brussels	27-29/06/2022
ICRAD - JPIAMR meeting	Online	04/07/2022
JPIAMR and WHO AMR FPPL	Online	12/07/2022
EU AMR Action Plan future-proofing workshop	Online	13/07/2022
Genome Canada/JPIAMR: One Health initiatives	Online	29/08/2022
GARDP / PENTA / JPIAMR - DESIGN Project discussion	Online	15/09/2022
EDAR 6 meeting	Göteborg	22-27/09/2022
Research Agenda JPIAMR/WHO/Quadripartite	Online	29/09/2022
Joint meeting between candidate PAHW and OH AMR partnerships	Online	10/10/2022
ERA-LEARN webinar: The new Monitoring and Evaluation (M&E) Framework for Partnership	Online	12/10/2022
Symposium on Antimicrobial Resistance	Copenhagen	12/10/2022

AMR Global R&D Hub Stakeholder Group Annual Meeting	Berlin	14/10/2022
Grand Challenges Annual Meeting	Brussels	24-26/10/2022
OHAMR/IHI meeting	Brussels	26/10/2022
JPI Monitoring & Evaluation TF meeting	Online	03/11/2022
EUP AH&W SRIA workshop	Online	10/11/2022
Partnership Stakeholder Forum	Hybrid/Brussels	15-16/11/2022
EAAD 2022 Launch event	Online	17/11/2022
SAMRC Sub-Saharan Africa Funders Forum	Cape Town	20-22/11/2022
AMR symposium at the Global Health Network conference	Cape Town	23/11/2022
One Health EJP PMC/POC and stakeholder meeting	Stockholm	22/11/2022
Innovate UK KTN webinar on Horizon Europe Cluster 1	Online	02/12/2022
EFSA meeting	Online	12/12/2022
Quadripartite/WHO AMR Research Agenda alignment meeting	Online	13/12/2022

## Update of national AMR research programs/calls from the member countries

JPIAMR has collected updates of all the activities and action plans on AMR that are taking place in member countries at national levels in the year 2021-2022. Updated member fiche can be found on the JPIAMR website.<sup>6</sup> Below is a description of selected actions and activities of [JPIAMR members](https://www.jpiamr.eu/about/jpiamr-members/):

- **Canada:** A new task force involving public health agencies has been set up. The development of the pan-Canadian Action Plan on AMR is expected to be released by December 2022.
- **Finland:** The Helsinki One Health Researcher forum event on cross-disciplinary science was organised.
- **France:** The strategic plan against AMR has been updated for the period 2022-2025. France is in the final stages for the implementation of a priority programme on AMR, including with a focus on LMICs.
- **Germany:** A new national action plan is to be launched in November 2022 with a stronger One Health focus and an implementation plan is foreseen to be developed in 2023. The nationally (and regionally) funded One Health research institute “The Helmholtz Institute for One Health (HIOH)” has been established and will address the ongoing threat posed by the emergence of novel pathogens as well as the adaptation of known pathogens, including their AMR to already approved agents. A national call to promote the career path of qualified young scientists in clinical and application-oriented infection research has been conducted, “Junior research groups in infection research” where six research groups will investigate research topics related to AMR in 2022.
- **Ireland:** A new research network ‘AMR Thematic Network’ is being developed. A national research gap and horizon scanning analysis in relation the environmental dimension of AMR has been published by the EPA. The report entitled “Gap analysis of research needs to understand the environmental dimension of antimicrobial resistance in preparation for iNAP2” has also been published at the end of 2021.
- **Italy:** Funds for AMR are mainly from the Ministry of Health and the Ministry of Education. A new national action plan is being developed, including an ethical section and an annex on viral, fungal and parasitic diseases.
- **Japan:** The national action plan is in the process of being updated. Calls in the “Research Program on Emerging and Re-emerging Infectious Diseases” and in the “Research Program for Infectious Diseases and Infrastructure” has been conducted.
- **Netherlands:** A national follow up programme on antimicrobial resistance is being developed that will start in 2023. The Ministry will set up a new research programme starting in 2023, which will include national funding and international collaborations, including the new partnership under the Horizon Europe framework.
- **South Korea:** “One health AMR research program” in Korea spans from 2019 – 2033 and includes three phases: Phase I – To construct research infrastructures including soft and hard structures; Phase II – To vitalize basic and translational researches by taking advantage of the collaborative and multisectoral research platforms that have been built during the stage 1; and Phase III – To expand the breadth and depth of

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<sup>6</sup> [www.jpiamr.eu/about/jpiamr-members/](https://www.jpiamr.eu/about/jpiamr-members/)

researches in all areas of the one health AMR and pursue further advancement of the one health AMR research.

- **Spain:** A new national action plan is being developed. A framework document for the surveillance of AMR has been published.
- **Sweden:** The Swedish government has appointed to the Public Health Agency of Sweden (Fohm) and the Swedish Board of Agriculture to chair an intersectoral coordinating mechanism that brings together representatives from national authorities and organisations. The Swedish Research Council is responsible for a 10-year programme on AMR and calls on “Proof-of-concept within the infection area” and career grant and project grant has been conducted under this programme in 2022.
- **Switzerland:** A closing event of the National research programme NRP 72 “Antimicrobial Resistance” has been organised in November, 2022 where NRP 72 researchers presented important results and recommendations of the programme and discussed them with national and international decision-makers from policy and practice.
- **United Kingdom:** The national action plan runs until 2024 and is accompanied by a 20-year strategic vision and an addendum to the national action plan has been published.
- **European Commission:** The EC has launched the preparation of the work programmes and the series of the partnerships to be developed. The Work Programme for 2023-2024 has been published in November 2022 and will include a topic on the OH AMR partnership for 2024 for its application. A Stakeholders forum has been held in November 2022 in Brussels for the ongoing and future partnerships that would provide an opportunity to meet the lead contacts of the other partnerships and network and share experiences and best practices.

## JPIAMR Communications

The JPIAMR communications “digital first” strategy has been developed further in 2022 as a result of workshops, meetings, and other activities moving online due to the COVID-19 pandemic. The digital solutions have, to a large extent, been made permanent creating a digital-only context.

The AMR research community is international, and so is JPIAMR communications, but there is a need to act locally together with funders and other stakeholders. Social media continues to be a centrepiece of communications, together with digital tools. The JPIAMR website is the hub for communications, and the social media platforms and tools, such as newsletters, are the spokes. A model that continues to be the communication strategy to build on.

### Communication activities and events

In 2022, JPIAMR executed a significant number of online workshops, webinars and other online activities. A majority of the events were recorded and made available on the JPIAMR website and YouTube channel after the events. In many cases, the recordings have had more views than the actual number of attendees. For most activities, tailored images and registration pages were created and the events were extensively promoted on social media. In many cases collaborations and shared communications were made with the partners involved in each event.

#### *Calls*

On 11 April 2022, the 14th JPIAMR joint transnational call *Disrupting drug resistance using innovative design*, was launched and communicated according to plan. The call was launched with a tailored image, social media outreach activities, newsletters, and news updates on the JPIAMR website. Participating funders held a joint webinar on 25 January 2022, presenting the 14th call to researchers, including a Q&A session. A partner search toll was promoted as well.

For the opening of the call, a comprehensive communications package was shared with funders well in advance of the launch. The package contained suggested social media messages, news text and a tailored image. This enabled funders to easier promote the call in a national context and to align promotion in a global context.

On 12 April 2022, the 15th JPIAMR call, *Diagnostics and Surveillance Networks*, was launched and communicated according to plan. The call was launched with a tailored image, social media outreach activities together with newsletters and news updates on the JPIAMR website. Participating funders held a joint webinar on 25 April, presenting the network call to researchers. A Q&A session was included as well.

Both webinars were recorded, and videos of presentations were shared on the JPIAMR Youtube channel. This has become a standard and is very appreciated by the applicants.



*European Antibiotic Awareness Day (EAAD) and World Antibiotic Awareness Week.*

The European Antibiotic Awareness Day was held on 18 November 2022 marking the start of the World Antibiotics Awareness Week. During this period of intense focus on AMR, JPIAMR communicated the results of the 14th joint transnational call *Disrupting drug resistance using innovative design* as well as the 15<sup>th</sup> call *Diagnostics and Surveillance Networks*.

The 2023 call on *AMR Diagnostics and Surveillance* was also pre-announced. The participating funders received a communications package to promote this call to align communications and better reach out in their national context with clear and consistent messages. Social media was the primary communication context since digital activities mainly manifest the EAAD and WAAW.



**Figure 9.** Call image for the 16<sup>th</sup> JPIAMR call “AMR Diagnostics and Surveillance” pre-announced at the EAAD 2022.

#### *Overview of JPIAMR events and activities*


- Online conference: *Towards a One Health AMR Partnership* (3 February): Promotion and video recording published on the JPIAMR YouTube channel.
- Videos presenting funded research projects in the 2016 call “AMR Transmission Dynamics”. Published on the JPIAMR YouTube channel and shared in social media (February).
- Video interviews with the new SAB Chair and Vice-Chair. Published on the JPIAMR website, YouTube channel and shared in social media (16 March).
- Video showcasing JPIAMR at ECCMID 2022 (29 March).
- Communication and promotion of the public consultation (global survey) on the Strategic Research and Innovation Agenda (SRIA) priority topics through JPIAMR communication channels (March-April).
- Promotion of the AquaticPollutants newsletter, following collaboration within AquaticPollutants. Communicating the progress of the 18 projects funded in the call via JPIOCEANS, WATERJPI and JPIAMR (April).
- Highlighting the World Zoonosis Day by sharing messages with the JPIAMR infographic with a One Health theme (6 July).

- Collaboration with the publication Health Europe and shared scientific articles on antimicrobial resistance and diagnostics research. Interview with SAB Chair Till Bachman (29 September).
- Communication of the first WHO fungal priority pathogens list since JPIAMR updated its SRIA in 2021, including antifungal research (25 October).
- Communication activities during this year's EAAD and WAAW (17-24 November). See the separate section above.
- JPIAMR has shared and communicated updates during 2022 as a partner of the AquaticPollutants TransNet.
- Eleven newsletters published, reaching some 1 300 contacts with news on JPIAMR activities and events.
- Thirteen news posts and ten articles about events posted on the JPIAMR website.
- Sixteen videos published on the JPIAMR YouTube channel. Due to regulations regarding accessibility, only videos with subtitles may stay on the channel for more than three weeks. As a result, six videos published in 2022 are still available.

*Overview of the total measured impact made by JPIAMR communications*

<b>JPIAMR Communications Activity Overview: 1 January – 13 December, 2022</b>				
<b>Type</b>	<b>Updates*</b>	<b>Impressions*</b>	<b>Engagement*</b>	<b>Views of Video*</b>
Twitter @JPIAMR	156	247600	7528	3077
Facebook/JPIAMR	37	6038	357	-
LinkedIn/JPIAMR	67	31690	1009	1555
YouTube/JPIAMR	16	-	-	3597
<b>TOTALS</b>	<b>276</b>	<b>285 328</b>	<b>8 894</b>	<b>8 229</b>
<b>Newsletters (1300 contacts)</b>	<b>11</b>			
		Unique Pageviews*		
<b>www.jpiamr.eu</b>	<b>23</b>	<b>123 485</b>		

\* Ongoing measures.  
[www.jpiamr.eu](http://www.jpiamr.eu) [twitter.com/JPIAMR](https://twitter.com/JPIAMR) [facebook.com/JPIAMR](https://facebook.com/JPIAMR)



**Figure 10.** Measured communications and impact by JPIAMR communications.

## Communication tools

### *Newsletter*

The JPIAMR newsletter is vital for sharing important updates, information and news. In 2022, the tool was replaced from Paloma to Ungapped. Currently, the newsletter reaches over 1 300 subscribers.

### *YouTube channel*

The JPIAMR YouTube channel contains videos from workshops and webinars and supports projects and networks. The number of subscribers and viewers is continuously increasing. As of December 2022, the channel has 331 followers and in total 55 232 views.

### *Canva*

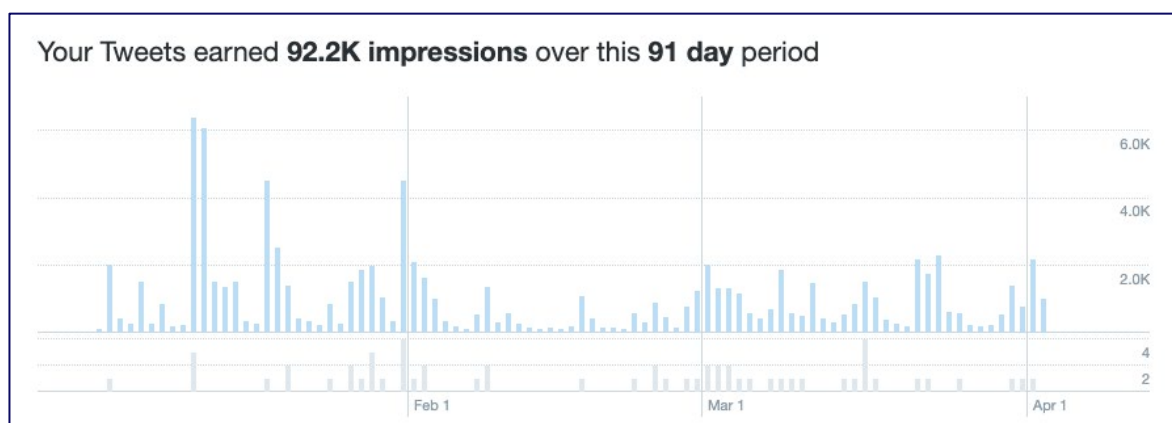
JPIAMR is exploring and evaluating new, practical, creative tools and ways to reach key audiences, researchers, and stakeholders. During 2022 JPIAMR communications have increasingly used Canva to develop infographics for social media messages.

### *Social media*

Social media continues to be a key channel for JPIAMR communications:

- Twitter: JPIAMR's most important social media platform for sharing news, events, funded research results and activities with the AMR-research community, policymakers and beyond. JPIAMR is gaining more and more followers and reached 4 618 followers in 2022 (3 870 in 2021)
- LinkedIn/JPIAMR: 944 followers (570 in 2021)
- Facebook/JPIAMR: 473 page likes and 530 followers. (In 2021, 460 page likes and 490 followers).

The start of each year is the busiest time for JPIAMR when calls are launched together with news and different events. Twitter is the most important channel, and the following overview shows the traffic on @JPIAMR from January to April (91 days) for 2022. (Figure 11).

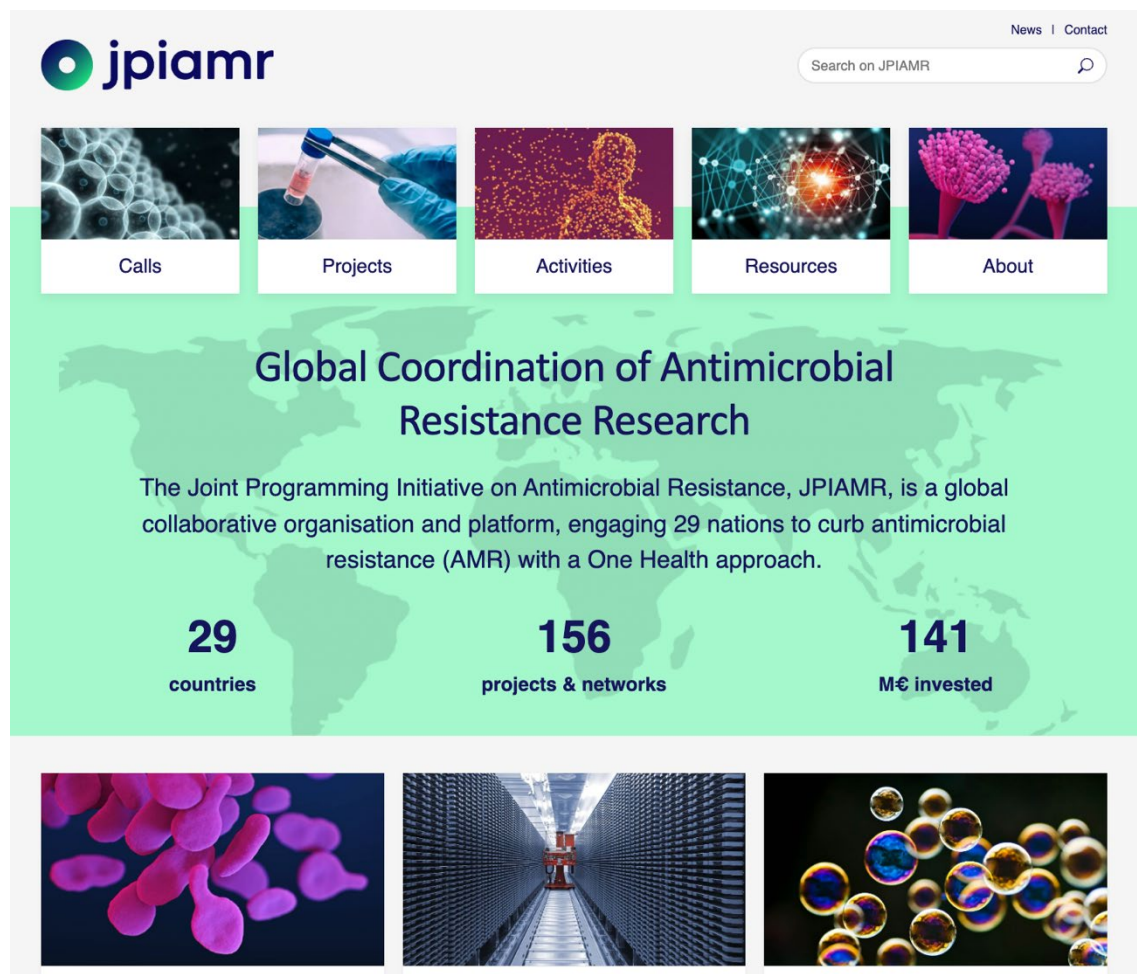


**Figure 11.** Twitter impressions from January to April 2022.

## JPIAMR website

The website [jpiamr.eu](http://jpiamr.eu) is the hub for communications and is the container for information about JPIAMR and its activities across time. During 2022, a project was initiated to further develop the website by connecting the webpages for the JPIAMR projects and networks to the JPIAMR project database (read more on page 17). This will ensure rapid transfer and update of data with minimal manual involvement and efficient dissemination of information on the outputs and outcomes of the projects and networks supported under various JPIAMR calls.

In 2022, the website has been continuously updated and 23 news and event posts have been published. It had more than 123 000 unique page views during the year.



**Figure 12.** The homepage of the JPIAMR website.

# Contributions to the preparation of the One Health AMR Partnership

During 2022, the preparation for the future European co-funded One Health AMR partnership has escalated and many JPIAMR members have been actively involved. The year started with a big virtual conference (*“Towards a One Health AMR Partnership”*) to introduce the concept of the Partnership to a wider audience.

The Partnership will build on, be complementary to and go beyond JPIAMR with the aim to close the current gaps and break existing silos on AMR in accordance with the European One Health Action Plan against AMR. The partnership will encompass the field of human, veterinary and environmental disciplines, a broad spectrum of pathogens and include socio-economic aspects. It will strengthen the EU as an internationally recognised actor for OH AMR by expanding globally. The OH AMR partnership will boost research, development and innovation and foster the generation of novel solutions to prevent and treat infectious and improved surveillance, diagnosis and control of resistant microorganisms and to facilitate the uptake and implementation of such solutions in order to reduce the burden of AMR. The partnership will pool the necessary financial resources from the participating national research programmes with a view to implementing joint calls for transnational proposals.

JPIAMR has contributed and work closed with the Coordination and Support Action (CSA), DESIGNing the European Partnership on One Health AMR (DESIGN OH AMR, project number 101057036) granted by the European Health and Digital Executive Agency (HADEA) to lay the preparatory groundwork for the future European co-funded OH AMR partnership. The proposal of the partnership is planned to be submitted 2024 and the first calls are expected to be launched 2025.

JPIAMR members, its Management Board and its Secretariat has been actively providing input to the multiple consultations regarding the development of the partnership proposal, its intervention logic, the potential funding instruments as well as its research and innovation objectives. Especially JPIAMR Scientific Advisory Board has been leading the drafting of the future research and innovation objectives.

JPIAMR central infrastructures and resources (e.g. communication channels, social media, website, databases etc) have been mobilised to support the DESIGN OH AMR consortia in organising multiple consultations, workshops and webinars, see box below.



**Figure 13.** Consultation event pictures.



**Consultations 2022**

- Supporting research and innovation on One Health AMR Surveillance, 23-24 March 2022, online
- New Perspectives on Bacterial Drug Resistance, 9 June 2022, online
- Supporting measures to mitigate AMR in One Health settings, 13-14 June, 2022, online
- Vaccination as a strategy to combat Antimicrobial Resistance, 17 June 2022, online
- Developing Novel Antimicrobial Therapeutics, 21 June 2022, online
- Developing Diagnostic tools for Drug Resistant Infections for Human and Animal Health, 22 June 2022, online
- Tackling the emerging threat of fungal drug resistance, 23 June 2022, online
- Environmental dimensions on AMR, 22-27 September 2022, EDAR6 conference, Gothenburg, Sweden