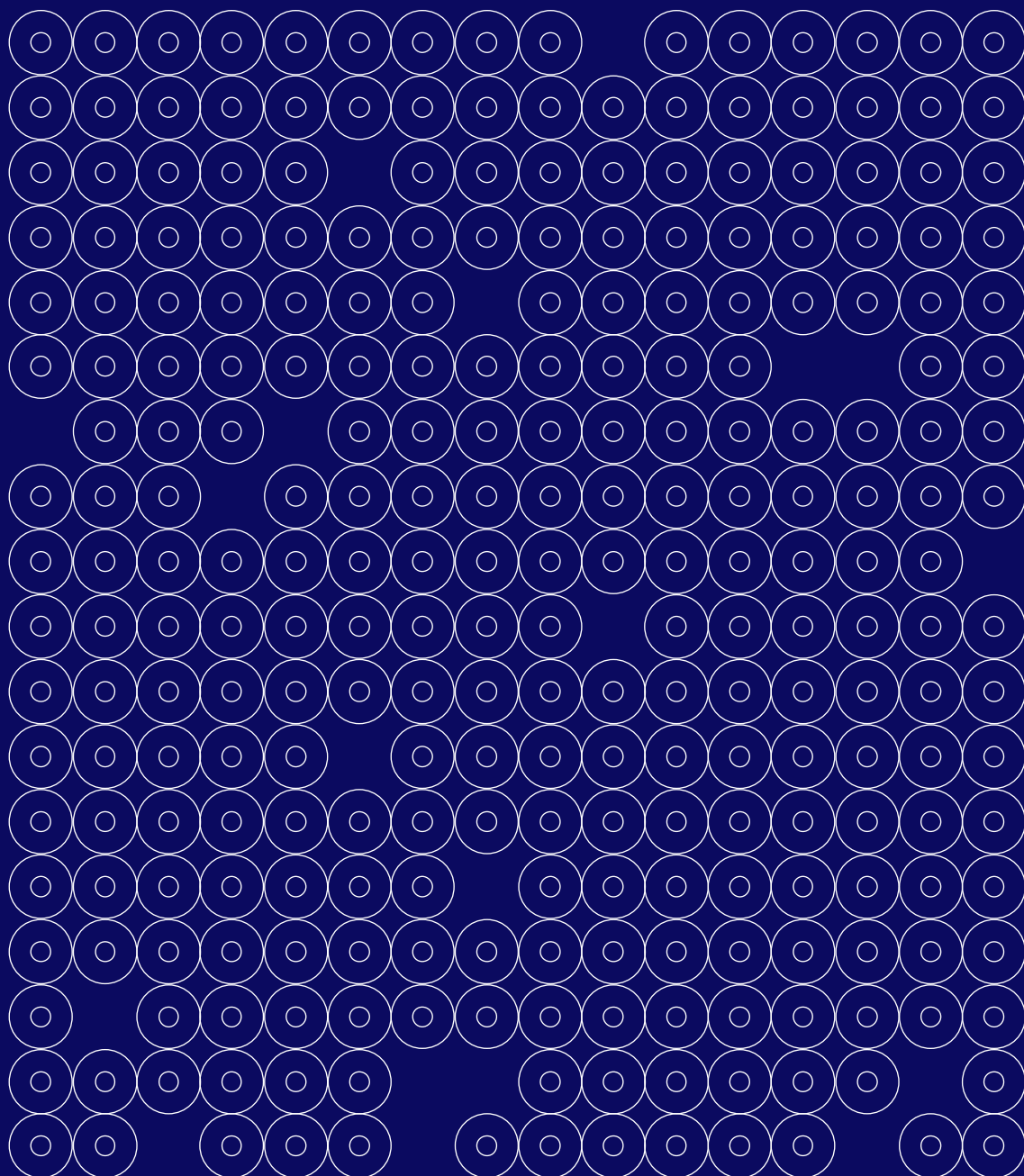


JPIAMR Activity Report 2021



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Foreword

The year 2021 was a mixture of challenges and achievements, as well as celebrations as the JPIAMR has officially reached ten years as an international collaborative platform. The pandemic situation has impacted the way we work, the JPIAMR Secretariat team as well as all the JPIAMR member states and stakeholders globally. Despite the Covid-19 pandemic, much has been achieved and we would like to thank all the community for the support, engagement and work in tackling AMR.

It is impressive to see what JPIAMR members have made possible over the last ten years. From its inception in December 2011 until today, JPIAMR has achieved and exceeded its mission to coordinate national funding of antimicrobial resistance (AMR) research, guided by a shared Strategic Research and Innovation Agenda. Today 29 countries fund AMR research with a One Health approach, as members of JPIAMR. More than 1 400 researchers in 71 countries have been engaged in research that has been funded by JPIAMR members. In total, 125 million Euros have been allocated to research and networking which has achieved outstanding results and impacts. This highlights the role of JPIAMR as a key initiative helping to understand and curb AMR on a global scale.

To keep working forward and together has been the motto of JPIAMR in 2021. We have awarded 19 new projects in the area of water pollutants in collaboration with JPI Water and JPI Oceans and launched a research call on Transmission and Interventions supporting 19 projects co-funded with the European Commission in the framework of a new ERA-Net co-fund JPIAMR-ACTION. We also included antifungals in our SRIA and enhanced transnational collaboration by organising virtual meetings, webinars, scientific workshops and a Hackathon. In addition, we launched the JPIAMR-VRI Digital Platform and a projects dashboard. On the media side, we released a new website and boosted social media channels enhancing our virtual interaction.

JPIAMR is also leading the development of the candidate One Health AMR Partnership within the Horizon Europe Framework Programme. We look forward to working together with members to seek and support solutions to curb AMR. We can only imagine what will be achieved in the ten years to come.

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 2021

- Launch of a new ERA-Net co-fund, the “JPIAMR-ACTION”
- Secure JPIAMR Sustainability with the introduction of a “JPIAMR membership fee for 2021-22”
- Election of a new expanded SAB
- SRIA broadened to include antifungals
- Finalisation and closing of the CSA EXEDRA
- Finalisation and closing of the ERA-Net co-fund JPI-EC-AMR
- Developing the One Health AMR Partnership
 - Setting up a Task Force
 - Development of a work plan
 - Development first draft of the intervention logic
 - Setting up the EJP One Health/Animal Partnership – JPIAMR joint WG
 - Negotiation, preparation and submission CSA proposal “DESIGN OH AMR” 2022-2023

- International policy engagement
 - New member: Chile
 - Membership discussions with USA, Portugal and Australia
 - Partnering in calls with Latvia, Lithuania and Hungary
 - Collaboration with UN:
 - » Observer at WHO Advisory Group on Fungal Pathogens Prioritisation
 - » Observer at STAG Committee
 - » WG of the Triparty One Health Research Agenda
 - » Member Tripartite Multi-stakeholder Platform
 - TATFAR highlighted JPIAMR in latest progress report
 - JPIAMR representation in international AMR events
- Collaboration with key stakeholders
 - Continued collaboration with the Global AMR R&D Hub on the AMR investments dashboard
 - ICARS: joined the 2021 Transmission & Interventions call and is participating as a partner in the CSA to design the OH AMR partnership
 - Updated MoU Educational Group: JPIAMR, CARB-X, GARDP, Repair Fund, Wellcome Trust
 - New member joining the group: the AMR Action Fund
 - Joint session at JPIAMR therapeutics workshop
 - Series of joint webinars with CARB-X, GARDP, Wellcome Trust, Novo Repair Fund
- Workshop organisation in collaboration with members
 - JPIAMR Online Workshop for Junior Researchers
 - Joint workshop with EU-JAMRAI: AMR surveillance research and its impact on policymaking
 - Africa Regional Workshop: African Perspectives on AMR Surveillance and Wastewater Management
 - Therapeutics workshop: Feeding the AMR Therapeutics Pipeline
 - Microbial Bioinformatics Hackathon
- Webinar organisation in collaboration with members
 - 13th JPIAMR Joint Call: Live Q&A and presentation of the call
 - Supporting Transnational Research Collaboration on Fungal Drug Resistance
 - JPIAMR-VRI digital platform launch
- Internal meetings
 - Two Management Board meetings
 - Six Steering Committee meetings
 - Eight Scientific Advisory Board meetings
- Calls
 - JPIAMR Core Call Steering Group new mandate and work plan
 - Planning of new distribution of call management responsibilities
 - Update JPIAMR Peer Review Guidelines
 - Over 125M€ in mobilised joint research funds, supporting over 1,400 researchers spread across 71 countries

- Launch of the call One Health interventions to prevent or reduce the development and transmission of AMR: 19 projects awarded funding
- Monitoring and data sharing activities
 - Launch new JPIAMR projects dashboard
 - Analysis and graphical representation of portfolio of JPIAMR funded projects
 - Analysis and graphical representation of outcomes of JPIAMR funded projects
 - Launch of the JPIAMR-VRI digital platform
 - Collection and publication on national members AMR plans and research programmes
 - Development of the AMR knowledge hub
 - Map national activities available on the web: national fiche of AMR policies, investments and activities
 - Stakeholder map
- Communications
 - Development and launch of a new JPIAMR website
 - Promotional coms pack on calls
 - Development a standardised guidelines on graphical design, images, templates, registration page and promotional campaigns for all the virtual workshops
 - Increase the impact of social media channels 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 - CSA EXEDRA, and the ERA-Nets JPI-EC-AMR and JPIAMR-ACTION, and supervises the implementation of all tasks. The Swedish Research Council hosts the secretariat, and at the end of 2021, the secretariat was comprised of nine full-time or part-time staff (including in-kind contributions) including a Head of Secretariat, three Senior Research Officers, a Senior Analyst, a Communications Officer, a Web Officer/Administrative Officer and a Financial Officer. In 2021 the JPIAMR hosted one intern from Karolinska Institute as part of a career development programme.

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 2021 the Management Board met held two meetings (March 2021 and October 2021). The meetings were held online as a result of the COVID-19 pandemic.

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 2021, the MB Chair was Jan-Ingvar Jönsson, the Vice-Chair was Marie-Paule Kieny, and the Steering Committee members were Richard Gordon (South Africa), Charu Kaushic (Canada), Joachim Klein (Germany) and Jonathan Pearce (United Kingdom). The SC met six times in 2021, with all meetings conducted online due to the COVID-19 pandemic.

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 2021 has been to support the preparation for the One Health AMR partnership, broaden the JPIAMR Strategic Research and Innovation Agenda to include antifungals, and support JPIAMR workshops and webinars. The SAB has also provided advice to the MB regarding scientific priorities with particular focus on the JPIAMR Virtual Research Institute and JPIAMR calls for proposals. The Netherlands Organisation for Health Research and Development (ZonMw) administers the SAB. The members of the 2021 SAB were:

- Jean-Yves Madec, ANSES, France (Chair)*
- Till Bachmann, University of Edinburgh, UK (Vice-Chair)
- Eric Brown, McMaster University, Canada*
- Ana Maria de Roda Husman, RIVM Netherlands, The Netherlands*
- Katherine Payne, University of Manchester, United Kingdom
- Evelina Tacconelli, University of Verona, Italy*
- 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
- Ramanan Laxminarayan, Center for Disease Dynamics, Economics & Policy (CDDEP) and Princeton University, USA and India*
- Luísa Vieira Peixe, University of Porto, Portugal
- Ed Topp, Agriculture and Agri-Food Canada, Canada*
- Thomas Harrison, St Georges University of London, UK

Departing members are marked with an asterisk.

In 2021, an election was held to expand the SAB to 16 members and replace the departing members who had completed their term(s). In 2021, nine new Scientific Advisory Board (SAB) members were appointed by the JPIAMR Management Board for the period 2022-2024. The new members include:

- Ana Alastruey, Instituto de Salud Carlos III, Spain
- Uga Dumpis, Pauls Stradiņš University Hospital, Latvia
- Sabiha Essack, University of KwaZulu Natal, South Africa
- Luca Guardabassi, University of Copenhagen, Denmark
- 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

The SAB met eight times in 2021 with all meetings and much of the work of the SAB conducted via online as a result of the COVID-19 pandemic.

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.

Member Relations

In 2021, Chile joined the JPIAMR consortium as a new member and discussions with USA, Portugal and Australia regarding membership are ongoing. In 2021, new members were interviewed to better understand their interest and level of satisfaction regarding their engagement in JPIAMR.

Sustainability Plan

JPIAMR's long-term Strategic plan for 2020-2025 and Roadmap of Actions 2019-2024 as well as the new JPIAMR Implementation Plan 2021-2023 describe an ambitious expansion of JPIAMR's activities in several domains. The financial support of JPIAMR is a combination of membership fees (flexible membership fee structure adapted to the engagement and income level of individual countries), voluntary contributions (in-kind) from members to cover activities and secondments to the Secretariat and EC support for coordination costs through CSA actions.

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 (according to GDP) for the year, combined with support from the European Commission in the form of a Coordination and Support Action (CSA) EXEDRA and an ERA-Net co-fund JPIAMR-ACTION to support the management of the joint calls

In 2021 a membership fee has been collected to fund most of the JPIAMR central activities.

JPIAMR Strategy and Collaborations

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 2021-23.

New discussions for the preparation of a One Health (OH AMR) AMR European Partnership have been initiated and in 2021, several JPIAMR members submitted an application for a Coordination and Support Action (CSA) to support the development of the OH AMR partnership.

Implementation Plan

JPIAMR developed a new [Implementation Plan 2021-2023](#) in 2020. This plan was drafted by the Steering Committee and the JPIAMR Secretariat with input from the MB members. The implementation plan follows the main lines of the JPIAMR strategy 2020-2025 and guides JPIAMR activities.

The JPIAMR Strategic Research and Innovation Agenda – antifungal consultation

The JPIAMR, with its [Strategic Research and Innovation Agenda](#) (SRIA), recognises that innovation is critically important in the field of AMR, as there is a strong need for new therapeutics, diagnostics, and innovative infection prevention and intervention measures. In 2021, the JPIAMR expanded the SRIA to include antifungals. A series of consultations were held with experts in fungal resistance, followed by open and member state consultations. The broadened SRIA was launched in alignment with a webinar entitled “Supporting Transnational Research Collaboration on Fungal Drug Resistance” that was held on the 28 April 2021.

The antifungal expert group was composed of:

- Ana Alastruey, Spain
- Judith Berman, Israel
- Tihana Bicanic, United Kingdom
- Elaine Bignell, United Kingdom
- Paul Bowyer, United Kingdom
- Mike Bromley, United Kingdom
- Roger Bruggeman, Netherlands
- Oliver Cornely, Germany
- Matthew Fisher, United Kingdom
- Gary Garber, Canada
- Thomas Harrison, United Kingdom
- William Hope, United Kingdom
- Ed Kuijper, Netherlands
- Koichi Makimura, Japan
- Donald Sheppard, Canada

- Paul Verweij, Netherlands
- Adilia Warris, United Kingdom
- Lewis White, United Kingdom
- Jianping Xu, Canada
- Bas Zwaan, Netherlands

Observers:

- Jorge Matheu, WHO
- Sarah Paulin, WHO

The JPIAMR held a webinar in alignment with the launch of the broadened JPIAMR SRIA: Supporting Transnational Research Collaboration on Fungal Drug Resistance (Figure 1). The webinar was held on 28 April 2021 and was organised in collaboration with the Israel Ministry of Health.



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 2) 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. The roadmap defines future JPIAMR research calls, network calls, strategic workshops and JPIAMR-VRI activities.



In the framework of this roadmap the 2021 Joint Transnational Call One Health interventions to prevent or reduce the development and transmission of AMR was launched.

One Health AMR Partnership

European Partnerships are initiatives in which the European Commission and private and/or public partners commit themselves to jointly support the development and implementation of a research and innovation program. JPIAMR has been leading the discussions for the One Health AMR Partnership formally listed in the Horizon Europe documentation.

This co-funded partnership aims to coordinate and align activities and funding between countries as well as with the EC and increase the level of ambition and funding of JPIAMR. The partnership will facilitate national coherence between different services and ministries with responsibility for the various aspects of AMR (e.g. human health, agriculture, environment, industry and finance). The main goal is to contribute to achieving the objectives of the European One Health Action Plan against AMR and the WHO Global Action Plan on AMR, by reducing the threat of AMR.

Within the framework of the development of the One Health AMR partnership, the following activities have been conducted and/or planned:

- Set up a new Task Force including the members of the JPIAMR Steering Committee, the Chair and Vice-Chair of the JPIAMR Scientific Advisory Board and members from the JPIAMR Secretariat.
- Broadening of the JPIAMR SRIA to include research and innovation priorities for fungal resistance.
- Consultations with One Health stakeholders, including exploration of synergies and alignment with the EJP One Health, and with the IHI Partnership, EPFIA, and IMI representatives through joint working groups

- Submission of a CSA proposal entitled DESIGN OH AMR for preparation of the partnership.

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

- Collaborate with the WHO for the development of the WHO fungal priority list and the JPIAMR antifungal research priorities
- Start collaboration in developing a One Health Research Agenda

MoU on Educational Activities with Carb-X, Wellcome Trust, GARDP, Novo Repair

- Co-organisation of a bootcamp at ESCMID/ASM conference on AMR drug development
- Series of webinars led by GARDP
- Exchange of information on funding

Global AMR R&D Hub

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

ICARS

A collaboration has been established with ICARS which has resulted in ICARS joining the 2021 Transmission & Interventions call supporting the participation of LMICs. In addition, ICARS is a partner in the CSA DESIGN OH AMR proposal that was submitted to the European Commission.

European Union and the European Commission

Several meetings have taken place with European Commission officers with a main focus on the EC support to JPIAMR activities and the design of the future potential candidate One Health AMR Partnership. Specific points to note include:

- EU-JAMRAI: JPIAMR has continued collaboration in promoting their policy briefs and in the organisation of a joint workshop on AMR evidence based policy that was held in February 2021.

- One Health EJP: Several contacts has been established with One Health EJP, including bilateral discussions with regards to the One Health AMR Partnership. A joint WG JPIAMR-EJP has been develop regarding the alignment of the development of the SRIAs of the two partnerships.
- Interaction with other JPIs: JPIAMR has interacted regularly with the other JPI Chairs, especially with regards to the new European Partnerships. A joint Evaluation working group has been established and meets regularly. A joint call with JPI Water and JPI Oceans has been conducted.

Several bilateral meetings have taken place with the EC and IMI and its Steering Group of Infectious Diseases regarding the coordination and complementarity of funding programmes. Jonathan Pearce has continued his role as a member of this IMI Strategic Governing Group, while the Industry working group Chair and the JPIAMR Secretariat have maintained a dialog with IMI, the new IHI Partnership and future AMR activity within the Horizon Europe Framework. The Industry Relations Working Group has also provided revisions to the JPIAMR Guidelines for Applicants.

JPIAMR is also a stakeholder of the European Clinical Trial Network (ECRAID) initiative, SEDRIC network and MicrobiomeSupport. JPIAMR has also collaborated with VALUE-Dx regarding the development of a catalogue survey and the new AMR resources dashboard.

JPIAMR Joint Calls

Coordination of JPIAMR Joint Calls

JPIAMR coordinates joint calls through the implementation of the ERA-Net co-funds JPI-EC-AMR, JPIAMR-ACTION and AquaticPollutants. JPI-EC-AMR has been running since 2015 and was successfully completed in December 2021. In 2021, JPIAMR launched the first call 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 interacts to develop calls and guidelines to support the activities of Joint Call Steering Groups. Members are representatives from former and present call secretariats. The Core Call Steering Group regularly holds teleconferences. In 2021, the Core Call Group updated the procedures documents for JPIAMR calls and developed new processes for the ethics review procedures.

Joint Transnational Calls for Proposals

Since 2014, JPIAMR has held nine joint transnational project calls and four network calls. To date, JPIAMR has supported 1430 researchers in 99 projects (Figure 3) and 38 networks (Figure 4) with funding over 127.6 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.

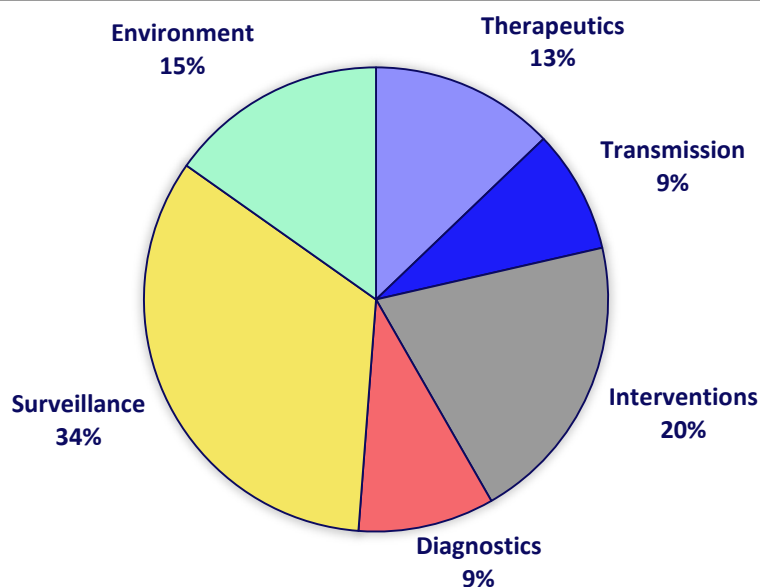


Figure 3. JPIAMR research projects funded by JPIAMR countries from 2014-2021, divided into JPIAMR-SRIA priority areas. To date, 99 research projects have been funded by JPIAMR and the financial contribution to these calls is approximately 125.3M€.

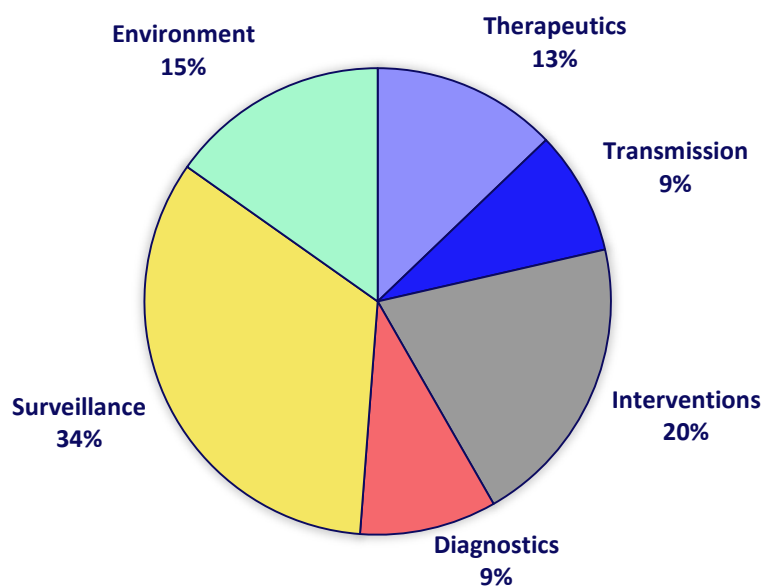
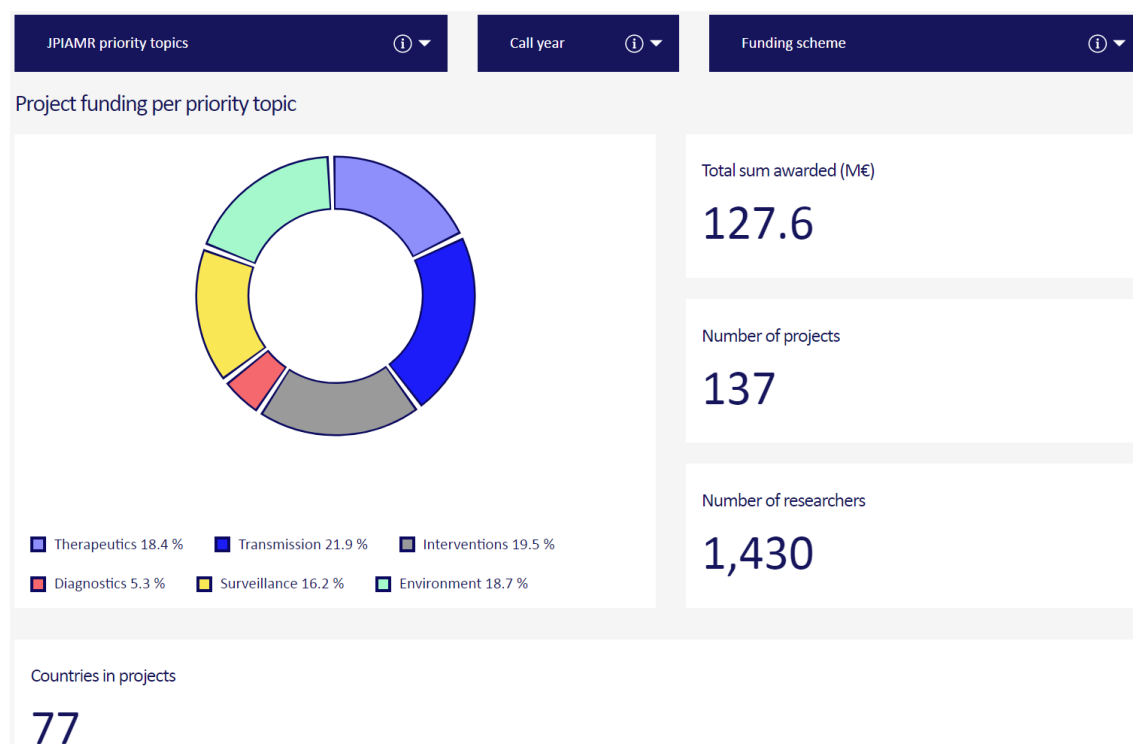
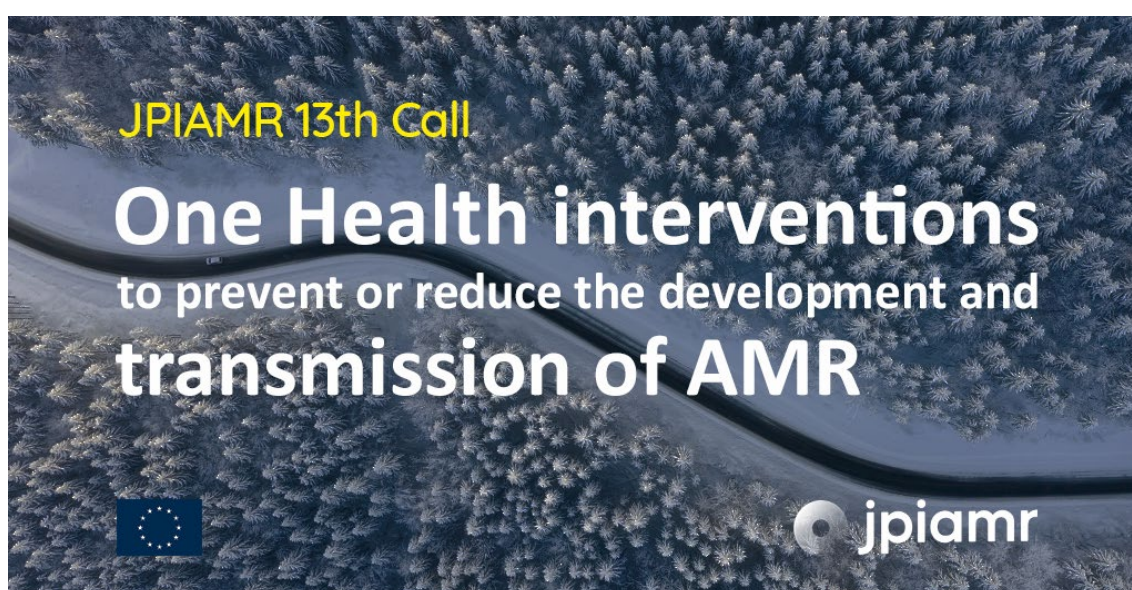


Figure 4. JPIAMR networks funded by JPIAMR countries, divided according to JPIAMR-SRIA priority areas. To date, 38 AMR networks have been funded through JPIAMR network calls. To date, the financial contribution to these calls is 2.3M€.

A redesigned JPIAMR dashboard (Figure 5) was launched presenting information on projects and networks supported under the various calls coordinated by the JPIAMR. The database allows users to search interactive data by investments in AMR research priority areas (as defined in the JPIAMR Strategic Research Innovation Agenda), countries of the researchers involved and details of the individual research projects and networks.



The French National Research Agency (ANR) was the Joint Call Secretariat for the JPIAMR 2021 Joint Transnational Call *One Health interventions to prevent or reduce the development and transmission of AMR* (Figure 6). The call, with financial support from the European Commission, included 30 funding organisations from 21 JPIAMR member countries. Using a One Health approach, the call aimed to understand the impact of interventions on the development and transmission of antibiotic resistance and to design, implement, evaluate, and compare interventions reducing the development and transmission of antibiotic resistance. Applicants were encouraged to consider the use of interventions that may have an impact in areas where the risk and burden of AMR is greatest, such as in Low and Middle Income countries. Nineteen projects involving 114 partners from 35 different countries were recommended for funding, with a total funding amount of 25.6 M€. Projects funded under this call can be found on the JPIAMR website.¹



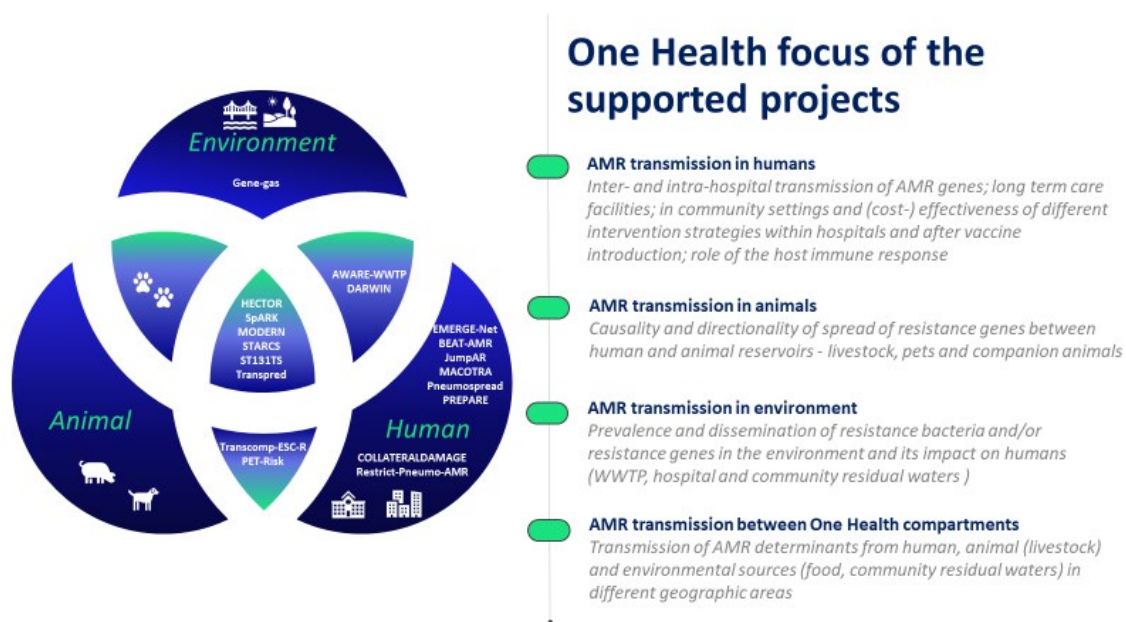
AquaticPollutants

The kick-off meeting of the 18 projects funded through the joint transnational call *Aquatic Pollutants*, in collaboration with the three Joint Programming Initiatives (JPIs) on Water, Oceans and Antimicrobial Resistance (AMR), was held on September 30. The coordinators of the projects presented their planned research activities to address the risks posed to human health and the environment by pollutants and pathogens present in the water resources and fruitful exchanges took place. The kick-off was also the opportunity to release the Aquatic Pollutants website, developed by the Transfer project TransNet, and the booklet presenting information on the specific objectives and structure of funded projects around the three themes of the call: Measuring, Evaluating, and Taking Actions.

¹ www.jpiamr.eu/jpiamr-awards-new-projects-in-the-area-of-transmission-and-interventions/

Monitoring JPIAMR-funded projects and networks - outputs

JPIAMR is continuously monitoring the results, outputs and outcomes of the funded projects and networks. In 2021, an extensive evaluation of the outputs, outcomes and the impact generated by the projects supported under the 2016 JPIAMR joint co-funded call *AMR Transmission Dynamics* was conducted (Figure 7) and was published in a [report](#). The report highlights the effect of supporting excellent science through transnational research collaborations.



Numerous peer-reviewed scientific articles in highly recognised journals have been published by the supported projects on the research findings, and a patent has been filed on a new peptide molecule discovered in one of the projects.

Other impact highlights are:

- New knowledge generation to address AMR at regional, national and global scale with a One Health approach.
- Science-based policy and societal impact.
- Innovative tools and analytical methods and technologies.
- Interdisciplinary expertise in transnational collaboration.

Outcomes of therapeutics projects supported by JPIAMR under the various calls were also shared and presented to the different consortia members. This comprises the JPIAMR discovery pipeline that has a high-level of diversity ranging from direct acting small molecules (antibiotics), potentiators, anti-virulence agents, repurposed agents, phage or nanobiotics. A majority of the projects are focused on pathogen-specific approaches and 50% of the projects address pathogens categorised under WHO priority pathogens list. A majority of the projects are in the hit-to-lead phase and five patents have been filed for new lead molecules and combinations of antibiotics and non-

antibiotics with potential therapeutic indications for different acute and chronic infections as shown in Figure 8.

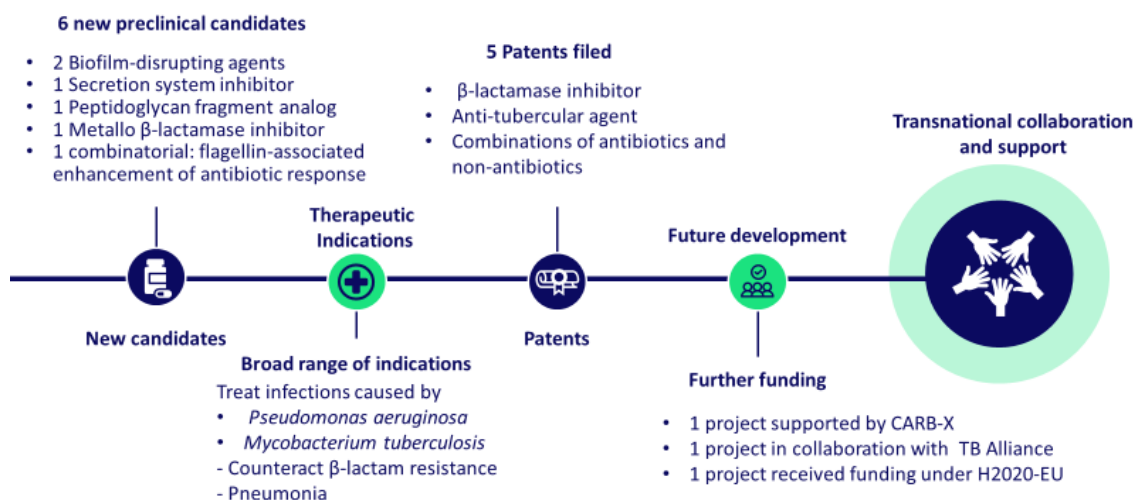
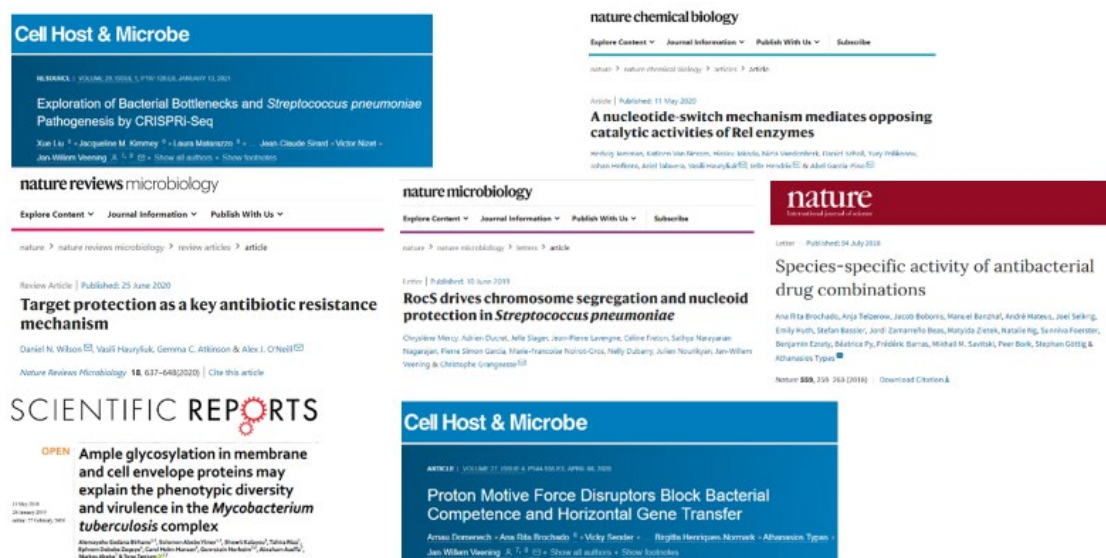


Figure 8. Outcomes of the therapeutics projects supported in the JPIAMR calls (2014 and 2015).

To date, the JPIAMR funded projects and networks have produced more than 400 research publications. The entire list can be accessed on the JPIAMR [website](https://www.jpiamr.eu).



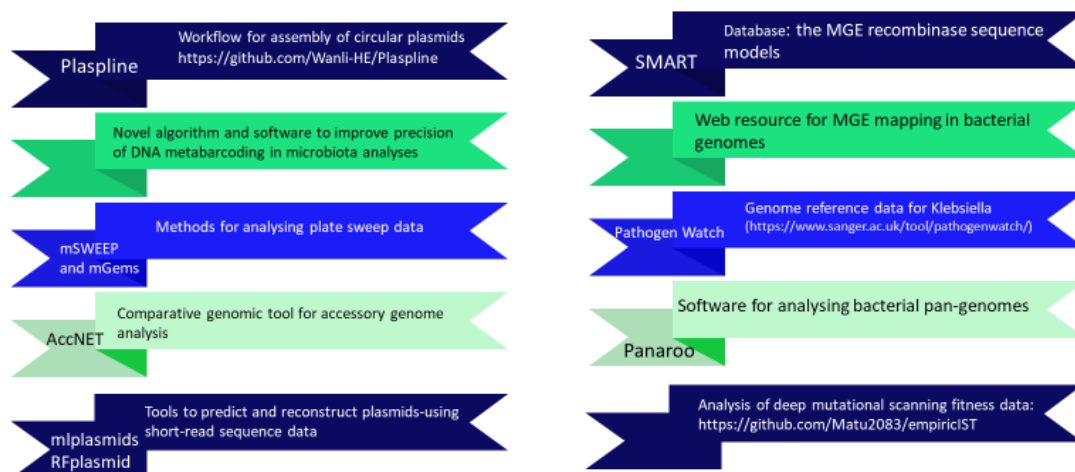


Figure 10. Some of the tools and research resources generated by the projects supported in the 2016 Transmission Dynamics call.

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.

Strategic Workshops

Beyond supporting transnational AMR research, JPIAMR organises scoping workshops, strategic workshops as well as policy workshops aiming knowledge translation and foresight. All workshops produce reports and recommendations to JPIAMR. In 2021, JPIAMR organised five strategic workshops, including a workshop for Junior Researchers, a scoping workshop on therapeutics, a policy workshop on surveillance, a regional workshop for Africa and a Hackathon with a focus on bioinformatics.

JPIAMR Online Workshop for Junior Researchers

The JPIAMR Junior Researchers Workshop³ was the start-up event for the JPIAMR Early Researcher Programme (Figure 11). Originally planned to be held in Krakow in October 2020, the JPIAMR Junior Researchers Workshop was organised as an online event on June 29-30, 2021 due to the COVID-19 pandemic. The event was organised by the Polish National Science Centre (NCN), with the support of the German Aerospace Centre (DLR), the Spanish State Research Agency (AEI), and the JPIAMR Secretariat. The workshop promoted international collaboration and globalisation for the early career researchers by building awareness of JPIAMR goals and activities as well as engaging junior researchers in discussion about their capacity building needs and preferences.



Figure 11. Communications material for the JPIAMR Junior Researchers Workshop.

Feeding the AMR Therapeutics Pipeline

As AMR emerges, new strategies for the treatment of infection and identification of resistant microbes are crucial. This JPIAMR activity was led by the UK Medical Research Council (MRC) with support from the South Africa Medical Research Council (SAMRC), the Korean Research Foundation (NRF), the French National Research Agency (ANR), and the Canadian Institutes of Health Research (CIHR). The workshop (Figure 12) brought together academics, industry representatives, innovators, and policymakers to discuss the global antimicrobial development pipeline, identify gaps and opportunities for future research and development, and support collaboration for creative solutions to

³ www.jpiamr.eu/app/uploads/2021/10/JPIAMR-Junior-Researchers-WS-Report_final.pdf

real-world problems facing therapeutics development in the context of antimicrobial resistance (AMR). The event was attended by 400 people from 45 different countries. The findings from the workshop have been published in a [workshop report](#).



Figure 12. Communications material from the JPIAMR workshop “Feeding the AMR Therapeutics Pipeline”.

AMR surveillance research and its impact on policymaking

In the current pandemic context AMR surveillance research is more necessary than ever. The efforts made in this framework in recent years have resulted in a number of relevant outputs that need to be properly conveyed to policy makers to be incorporated into national action plans. In February 2021, a workshop jointly organised by JPIAMR and EU-JAMRAI was held to highlight the latest AMR surveillance research findings and how these results can inform national policies (Figure 13). The workshop involved policymakers, researchers and funders and included representatives of the ECDC, WHO GLASS, IMI COMPARE/VEO, the EU-JAMRAI EARS-Vet project, and JPIAMR Surveillance Research Networks.



Figure 13. Communications material from the JPIAMR workshop AMR surveillance research and its impact on policymaking.

African Perspectives on AMR Surveillance and Wastewater Management

On the 9 December 2021, a workshop on African Perspectives on AMR Surveillance and Wastewater Management was virtually held via Zoom (Figure 14). The workshop organisation was led by the South African Medical Research Council. Over 225 participants registered for the workshop from over 20 different countries. In addition to the live event, a recording was sent to all the participants that registered and the video was also uploaded to the JPIAMR YouTube channel. The participants included scientists and representatives from funding agencies and ministries. The event showcased wastewater surveillance research with a focus on the prevention and spread of pathogens and antimicrobial resistance. The workshop had excellent results in terms of the subjects and impact on national, regional and global AMR networks and groups. The programme was divided into two main topics: AMR risk assessment in the environment and pathogen surveillance. The wastewater surveillance topic highlighted the programme and projects established due to COVID-19, which can now also be adopted to advance AMR research from wastewater or environmental water. Half of the speakers presented on research conducted in Africa and others on experiences from Europe. Existing knowledge and experiences between European and African countries were exchanged during the panellist presentations.



Figure 14. Communications material from the JPIAMR workshop African perspectives on AMR Surveillance and Wastewater Management.

Microbial Bioinformatics Hackathon

The Cloud Infrastructure for Microbial Bioinformatics (CLIMB-BIG-DATA) in collaboration with the Public Health Alliance for Genomic Epidemiology (PHA4GE) and the Joint Programming Initiative on Antimicrobial Resistance (JPIAMR) organised the 7th Microbial Bioinformatics Hackathon⁴ with a special focus on Antimicrobial Resistance (Figure 15). The event brought together key internationally renowned bioinformaticians to address targeted challenges in bioinformatics and AMR. The event ran over three afternoons, from the 11-13 October. Due to high demand for places on the Hackathon, the organisers also ran a workshop event on the afternoon of the 15th of October. As a

⁴ www.jpiamr.eu/app/uploads/2021/11/Microbial-Bioinformatics-Hackathon-and-Workshop-2021-report.pdf

result of the Hackathon, several new collaborations have been formed and new bioinformatics tools have been made available. Outputs from the Hackathon can be found at the [JPIAMR website](#).



Figure 15. Communications material from the JPIAMR Microbial Bioinformatics Hackathon.

JPIAMR Network Plus Start-Up meeting

On the 23rd of June 2021, Network Coordinators funded under the JPIAMR Network Plus call 2020, met online to provide information on their planned activities and explore opportunities for future collaborations, synergies and partnerships between Networks if appropriate. In addition to this, the workshop aimed to create an overview of network activities within the funding period to enhance alignment and coordination, and support communication of network outputs by the JPIAMR.⁵

⁵ www.jpiamr.eu/app/uploads/2021/11/JPIAMR-Network-Plus-2020_start-up-workshop-report_final.pdf

JPIAMR Webinars

In 2020, JPIAMR implemented webinars as an approach to support knowledge sharing on AMR during the COVID-19 pandemic. In 2021 JPIAMR held three webinars, including an information webinar on the 13th JPIAMR joint call, a JPIAMR-VRI digital platform launch and a webinar on antifungals that was aligned with the broadening of the SRIA.

13th JPIAMR Joint Call. Live Q&A and presentation of the call

In alignment with the launch of the 13th JPIAMR call *One Health interventions to prevent or reduce the development and transmission of AMR*, a webinar was held on the 28 January 2021. During the webinar the call and the partner search tool were presented, and questions from the potential applicants were answered by both the joint call secretariat and the national funding agencies.

Supporting Transnational Research Collaboration on Fungal Drug Resistance

The webinar on fungal drug resistance was part of the broadening of the JPIAMR Strategic Research and Innovation Agenda (SRIA) activities that were conducted during 2020-2021 to promote the inclusion antifungals (Figure 16). The main goals of the webinar were to promote international scientific collaboration in the field, raise awareness of the antifungal resistance issue and introduce JPIAMR collaborative activities and funding to the antifungal community. The webinar included short lectures by keynote speakers on important pathogenic fungi, followed by presentations and a panel discussion of experts. More than 300 people registered for the webinar from 38 different countries.



Figure 16. Communication material from the webinar Supporting Transnational Research Collaboration on Fungal Drug Resistance.

JPIAMR-VRI digital platform launch

A webinar to launch the JPIAMR-VRI digital platform was held on the 9 June 2021. Participants were shown the features of the digital platform which offers integration of a handful of relevant AMR-related data sources, such as the [CARD](#), [Resapath](#), [NCBI](#)

[Isolates browser](#), [ATLAS](#) with more than 140 different public data sources already available in the DISCOVER platform provided by ONTOFORCE.

Publications from the 2020 JPIAMR webinar series: AMR research in a post pandemic world

In 2020, JPIAMR led and facilitated a series of webinars on AMR in a post-pandemic world. In 2021, two articles were published summarising the outcomes of the webinars and discussing the potential impact of COVID-19 on antimicrobial resistance and providing key recommendations. The first article,⁶ published in the Journal of Global Antimicrobial Resistance provides a statement on the impact COVID-19 has had on AMR stewardship, surveillance, research and data sharing. The second article,⁷ published in the Transactions of The Royal Society of Tropical Medicine and Hygiene reviews antibiotic use and factors affecting the spread of AMR in the COVID-19 pandemic. In addition, the paper provides key recommendations targeted towards clinical, research and policy stakeholders for antimicrobial resistance in the pandemic and post-pandemic times.

⁶ www.sciencedirect.com/science/article/pii/S221371652100045X

⁷ <https://academic.oup.com/trstmh/article/115/10/1122/6195536>

International Events with JPIAMR Participation in 2021

Despite the COVID-19 pandemic, JPIAMR has participated in many events in 2021. The following table (Table 1) outlines the international events in which JPIAMR has been represented, through either participation or attendance.

Table 1. International events with JPIAMR Representation 2021.

Meeting or Event	Location	Date
Nordic Council Antimicrobial Resistance webinar	Online	3 March 2021
ERA-LEARN online workshop “Preparing cofunded European Partnerships”	Online	4 March 2021
Simposio RELAVRA Congreso ALAPAC 2021. Resistencia a los antimicrobianos, detección y vigilancia en las Américas	Online	31 March 2021
Omics Data Integration Workshop – Microbiome Support CSA	Online	13 April 2021
ERA-LEARN Workshop - Globalization of Partnerships	Online	22 April 2021
ERA-LEARN Workshop – Widening participation	Online	28 April 2021
AMR insights meeting	Online	24 May 2021
MicrobiomeSupport Annual Meeting	Online	22 June 2021
BIOCOM	Online	24 August 2021
Simposio One Health OPS WHO	Online	27 August 2021
IGLO Open meeting: Evaluation novelties under Horizon Europe	Online	7 September 2021
ECRAID launch	Online	14 September 2021
RSTMH Annual Meeting on Drug Resistant Infections	Online	11-12 October 2021
MicrobiomeSupport Workshop on Education in Food Systems Microbiome Related Sciences: Needs for Universities, Industry and Public Health Systems	Online	11-12 October 2021
GapOn€2 Network meeting	Hybrid/Bologna	4-5 November 2021
Antimicrobial Resistance Summit Australia	Online	17-18 November 2021
Emerging antimicrobials and diagnostics in AMR 2021	Online	18 November 2021
ProMIS Webinar “Horizon’s partnerships in the health sector: the past and the future”	Online	18 November 2021
Horizon Europe Tackling Diseases and Antimicrobial Resistance (AMR) Webinar and Partnering - Cluster 1 Destination 3 and 5	Online	26 November 2021

JPIAMR AMR Resources

JPIAMR-Virtual Research Institute

The JPIAMR-Virtual Research Institute (JPIAMR-VRI) is a virtual platform to connect research networks and research performing institutes/centres to implement Antimicrobial Resistance One Health collaborative research on the JPIAMR Strategic Research Agenda priority topics. In 2021, the JPIAMR-VRI digital platform pilot phase was launched. The digital platform is a unique free-access point and aims to facilitate knowledge exchange and data sharing of AMR research data to the entire AMR community across the globe. It is developed by ONTOFORCE (as contracted service-provider) with a collection of in-house and external data assets that will improve the visibility of One Health AMR research data and information, and facilitate knowledge exchange and capacity development across the globe. The digital platform offers integration of a handful of relevant AMR-related data sources, such as the [CARD](#), [Resapath](#), [NCBI Isolates browser](#), [ATLAS](#) with more than 140 different public data sources already available in the DISCOVER platform provided by ONTOFORCE (Figure 17).

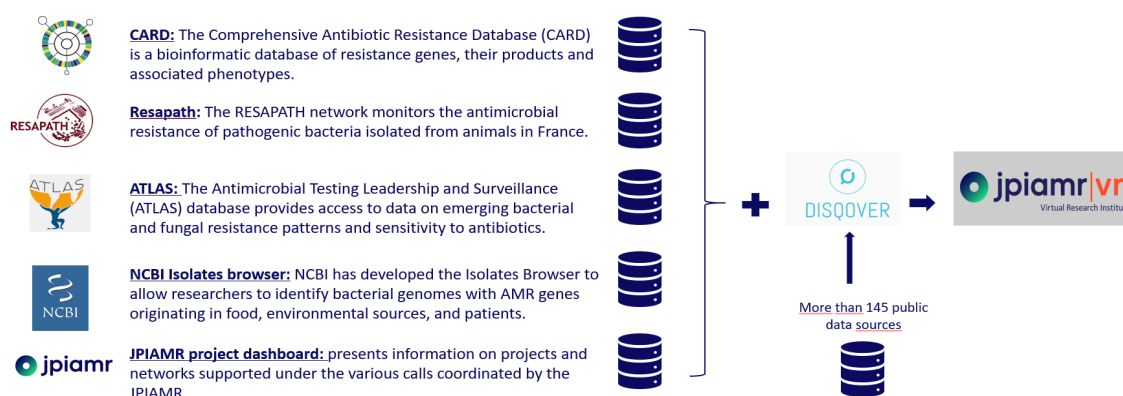


Figure 17. JPIAMR-VRI digital platform resources.

Access to a collection of both in-house and external resources on AMR data platforms, research funding, research infrastructure and services have been provided through the *AMR knowledge hub*⁸ on the JPIAMR website. This aims to increase coordination, improve visibility of the AMR research networks, research performing institutes/centres and infrastructures, and to facilitate knowledge exchange and capacity development across the globe, covering the full One Health spectrum.

⁸ www.jpiamr.eu/resources/amr-knowledge-hub/

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 2019-2020. Updated member fiche can be found on the JPIAMR website.⁹ Below is a description of selected actions and activities of [JPIAMR members](https://www.jpiamr.eu/about/jpiamr-members/):

- **Belgium:** the National One Health AMR action plan 2020-2024 is being validated (expected for November 2021) and is coordinated by the FPS Health, Food Chain Safety and Environment. The national plan aims to collect the research priorities to tackle AMR in order to adopt a coherent approach and favour synergy. Research funding will be allocated by the federal and federated entities according to their priorities.
- **Canada:** a new task force involving public health agencies is being set up. The development of the pan-Canadian Action Plan on AMR is ongoing and will be released soon.
- **Denmark:** grant funding is being reorganised within Innovation Fond DK. On the political level the funding has been directed towards the green transition and climate but health issues including AMR have also been prioritised.
- **Finland:** negotiations are ongoing regarding an Action Plan on AMR.
- **France:** a resource portal for AMR has been set up (<https://ppr-antibioresistance.inserm.fr/en/>). France is in the final stages for the implementation of a priority programme on AMR, including with a focus on LMICs.
- **Germany:** new national action plan is to be launched in 2022 with a stronger One Health focus. A nationally (and regionally) funded One Health research institute is being developed with one section on AMR included. BMBF supports *Academia and industry united innovation and treatment for tuberculosis (UNITE4TB)* of the Innovative Medicines Initiative (IMI) with around 25M€. The aim of UNITE4TB is to accelerate the clinical evaluation of existing and novel drug combinations and to build a global clinical trials network equipped to implement phase 2 trials.
- **Ireland:** a new national action plan is being developed. A One Health approach to funding has mobilised funders in all sectors.
- **Israel:** the committee on AMR works with monitoring on AMR. An overview of funders was given.
- **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. A virtual conference on AMR, *Tokyo AMR One-Health Conference*, was held earlier in the year, supported by AMED and the WHO. The ASPIRE (Asia Pacific group) set up 4 working groups (one specific on R&D) that will work on different aspects of AMR. The countries that participated will continue to work together.
- **Netherlands:** the national action plan from 2015 was evaluated in 2019 and an update in February 2021 was sent to the House of Representatives. The Ministry will

⁹ www.jpiamr.eu/about/jpiamr-members/

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.

- **Norway:** the National strategy and national action plan has been extended to be valid throughout 2021. Norway has a new government and in the new protocol there is dedication to a new national AMR strategy. One Health will continue to have a focus in the national strategy. The Ministry of Foreign Affairs will be included in the national strategy.
- **Poland:** has a continuation of the national AMR action plan. Poland has integrated the AMR action plan into the national health programme. Environmental health and infectious diseases are included. Calls are now open for the shaping of the implementation of the plan. Educational efforts are a part of the programme. NCN will take part in the JPIAMR calls. The National Centre for Applied Sciences and Development (NCBR) will also be engaged in the next JPIAMR call.
- **Romania:** the first steps towards the reform of the national system of research, development, innovation for a sustainable financing. National Program for Surveillance and containment of health-care associated infections and antimicrobial resistance, as well as for antibiotic use monitoring.
- **South Korea:** The second Korean action plan (2021-2025) for containment of AMR is under preparation. The National Institute of Health (NIH), an affiliated institute of Korea Disease Control and Prevention Agency (KDCA), has been designated as a “WHO Collaborating Centre for AMR Reference and One Health Research”. From 2021 to 2025, NIH-KDCA will participate in the WHO AMR Surveillance and Quality Assessment Collaborating Centres Network.
- **Spain:** The Spanish Agency for Medicinal Products, under the Ministry of Health, is responsible for the AMR programme. Annual reports on surveillance information are published. The national plan is finishing in 2021 and a new plan is being developed. The Ministry of Health has a new programme for infectious disease, including some aspects on AMR.
- **Sweden:** an updated strategy to combat AMR has been adopted and will be relevant until the end of 2023. A new action plan is being developed. The Swedish Research Council is responsible for a 10-year programme on AMR and this programme was strengthened in the recent research bill. The ENABLE platform will receive continued funding from the SRC. Several new funding programmes have been included, including a proof of concept grant.
- **United Kingdom:** the national action plan runs until 2023. The AMR ambitions are being tied into the pandemic preparedness but the spending review is ongoing and the decisions will be made later in the year.
- **European Commission:** The European One Health Action Plan is built on three pillars, of which research is an important component. The Action Plan was launched in 2017 and has no end date. The EC would like to perform an assessment on the action plan and propose a new policy package (a communication) for next year and are waiting for approval of this process.

JPIAMR Communications

The JPIAMR communications “digital first” strategy has been developed further in 2021, largely as a result of the digital workshops and meetings that have been arranged during the COVID-19 pandemic. The changed conditions have been challenging but has also created creative meeting solutions that have allowed JPIAMR to reach a wider audience across the Globe. The importance of social media communications has also continued to grow during the year.

Communication activities and events

During 2021, the 13th JPIAMR joint transnational call *One Health interventions to prevent or reduce the development and transmission of AMR*, 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 January 28 presenting the 13th call to researchers and including a Q&A session.

For the opening of the call, a comprehensive communications pack was shared with funders well in advance of the launch. The pack contained suggested social media messages, news text and a tailored image (Figure 18) and enabled funders to insert their own logo to better promote the call in a national context and to show the funder in a global context.



Figure 18. Call image with funder logo.

During 2021, workshops that JPIAMR had planned to both attend and run for 2021 were online due to the COVID-19 pandemic. In many instances events were recorded and published after events, and in many cases the recordings had more views than actual number of attendees.

European Antibiotic Awareness Day 2021 (EAAD)

The European Antibiotic Awareness Day was held on November 18, 2021. On this date many organisation launched communications about projects, achievements, etc. JPIAMR communicated results of the 13th call *One Health Interventions to prevent or reduce the development and Transmission of AMR*. The 2022 calls *Disrupting drug resistance using innovative design* and *Diagnostics and Surveillance Networks* were pre-announced (Figure 19). JPIAMR funders received a communications pack for the promotion of the 14th call, to align communications and better reach out in national contexts with clear and consistent messages about the call.



Figure 19. Call images for the calls pre-announced at the EAAD 2021.

Overview of JPIAMR events and activities

A selection of JPIAMR events and activities conducted in 2021:

- Workshop: AMR Surveillance research and its impact on policymaking (February 23): A JPIAMR and EU-JAMRAI joint event. Promotion and video recording published on JPIAMR YouTube channel.
- Workshop: Feeding the AMR Therapeutics Pipeline (April 20-22). Livestream of webinar by UKRI in collaboration with JPIAMR. Video recordings were published on JPIAMR YouTube channel.
- Communication of scientific articles on antimicrobial resistance research in a post-pandemic world: Insights on antimicrobial resistance research in the COVID-19 pandemic (March 10).
- Recognition of the #WorldTBDay: highlighted the importance of global research collaboration. Communicated of funded projects addressing tuberculosis and AMR, via Twitter (March 24).
- Launch of new JPIAMR website (March 25), see more details below.
- Updated *JPIAMR Strategic Research and Innovation Agenda* (April 6).
- Promotion of the new JPIAMR dashboard (from April 7).
- Joined the celebration of #WorldHealthDay and the importance of #OneHealth to curb #antibioticresistance throughout the world via Twitter (April 7).
- Communicated results from the 2020 call *Aquatic Pollutants* (April 19).
- Communicated results from the 2020 *Call on knowledge transfer of research on Aquatic Pollutants* (April 19).
- Webinar: Supporting Transnational Research Collaboration on Fungal Drug Resistance (April 28). Promotion and video recording published on JPIAMR YouTube channel, in collaboration with the Israel Ministry of Health.

- JPIAMR Online Workshop for Junior Researchers (June 29-30). Promotion and outreach to junior researchers.
- Interview with Professor Tom Harrison on antifungal resistance. Published on JPIAMR YouTube channel.
- Promotion of re-designed JPIAMR Project Dashboard (from July 2).
- Launch of the JPIAMR-VRI Digital Platform (June 9). Promotion of launch webinar, video recording published on JPIAMR YouTube channel. Promotional video created for social media. Messages tailored showcasing capabilities. Three videos with user cases created for social media. Figure 20 shows promotional activities and results from these between the launch date until October 12.

JPIAMR-VRI Digital Platform – Impact / Communications and Promotions (June 2, 2021 – October 12 2021)

Type	Updates*	Impressions*	Engagement*	Views of Video*
Twitter @JPIAMR	36	46 239	1 253	689
Facebook/JPIAMR	27	1 368	101	323
LinkedIn/JPIAMR	15	3 801	194	410
YouTube/JPIAMR	5	-	-	267
TOTALS	83	51 408	1 548	1 689
Launch / Webinar: June 9th	10 (Panel w. Moderator)	87 (Registrants)	52 (Attendees)	
Newsletters (1300 contacts)	2	-	99 (link clicks)	
			Unique Pageviews*	
JPIAMR.eu/digitalplatform			224	
			Unique Created Users*	
Digital Platform - hosted by Ontoforce (since June 9th)			230	

* Ongoing measures.
www.jpiamr.eu twitter.com/JPIAMR facebook.com/JPIAMR




Figure 20. Impact from targeted communications promoting the JPIAMR-VRI Digital Platform.

- Dissemination of the PRAISE network roadmap (July 6).
- Communication of the JPIAMR-VRI IRAAD network publication in Nature Reviews Chemistry (August 20).
- Review of call communication activities at JPIAMR-ACTION consortium meeting (September 9).
- Dissemination of the project Aquatic Pollutants Transnet video and news in collaboration with JPI Oceans and JPI Water (September 15).
- Hackathon: 7th Microbial Bioinformatics Hackathon (October 11-13) in collaboration with UKRI. Promotion of event in social media.
- EAAD 2021
- Workshop: African Perspectives on AMR Surveillance and Wastewater Management (December 9) in collaboration with MRC South-Africa. Promotion and outreach activities in social media. Webinar video published on JPIAMR YouTube channel.
- JPIAMR ten year anniversary (December 9). Communications including social media video, images and news items.
- Chile new member of JPIAMR (December 13). Communication including social media updates, images and news items.

- Main achievements of the 2016 JPIAMR call *AMR Transmission Dynamics* (December 20). Dissemination of research results from funded research projects.
- Initiated creation of a folder presenting JPIAMR ten year achievements and a series of infographics. To be finalised in 2022.

Communication tools

Newsletter

The JPIAMR newsletter is a key tool for sharing important updates, information and news. It currently reaches over 1300 subscribers.

YouTube channel

The JPIAMR YouTube channel is used to post videos from workshops, webinars and supported projects and networks. The number of subscribers and viewers is continuously increasing.

Canva

JPIAMR is exploring and evaluating new, effective and creative tools together with ways to reach key audiences, researchers and stakeholders. During 2021 JPIAMR added the tool Canva to craft images for example social media and presentations.

Social media

Social media continues to be a very important 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, now exceeding 3 870.
- LinkedIn/JPIAMR: 570 followers.
- Facebook/JPIAMR: 460 page likes and 490 followers.

The start of each year is the busiest time for JPIAMR when calls are launched together with news, events and more. Twitter is the most important channel, and the following overview shows traffic on @JPIAMR using the date range January to April (91 days) for 2021. The analysis shows "impressions" as the measure; the total times users saw an update. Activity on JPIAMR Twitter in 2020 was considerably lower but in 2021 the activity showed a rebound for digital communication and beyond expected levels. An almost 100% increase in activity was seen compared with the same time frame in 2020. (Figure 21).

Your Tweets earned **99.7K impressions** over this **91 day** period



Your Tweets earned **192.1K impressions** over this **91 day** period

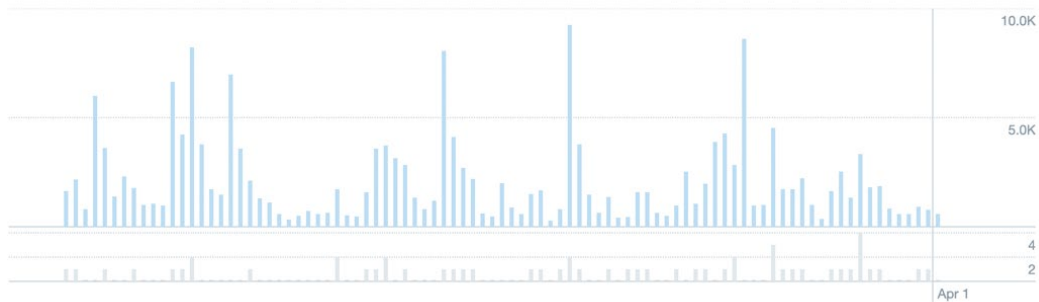


Figure 21. Twitter impressions January to April 2020 (upper panel) and January to April 2021 (lower panel). An increase from 100,000 to 192,000 impressions.

LinkedIn has become the second most important social media platform for JPIAMR, with a steady increase in followers and interactions. Updates on LinkedIn follow the same themes as on Twitter but with a slower pace. On August 17, 2021, a single update resulted in more than 700 impressions, promoting registration for the Hackathon taking place in October. This is a perfect example showing how LinkedIn works as a tool to reach researchers and stakeholders (Figure 22).



Figure 22. LinkedIn update about the 2021 Microbial Bioinformatics Hackathon.

JPIAMR website

Due to technical issues, new accessibility regulations and an increasing need for an updated web structure and new functionalities, a new website for JPIAMR was developed in 2020-2021. To enhance the user experience on the new website a Google Analytics expert was consulted in June 2020 to analyse users and map user behaviour. A web development agency was procured and the first version of the new website was launched in March 2021.

The website was further developed during the summer of 2021 to improve page templates, search engine optimisation and the search function for projects. Minor design changes were also made to the start page. The improved version of the new website was launched in September 2021 (Figure 23).



Figure 23. Update of the new JPIAMR website launched in September 2021.