

Joint Programming Initiative on Antimicrobial Resistance

ACTIVITY REPORT 2018

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Executive Summary

The Challenge - Lives Are at Stake

Antibiotics have saved millions of lives throughout the many decades they have been in use as a common drug to treat infection. However, antibiotic 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 antibiotic resistant bacteria by 2050.

The JPIAMR – The key to turn the tide of AMR

The Joint Programming Initiative on Antimicrobial Resistance, JPIAMR, is a unique international collaborative platform, engaging 27 nations to curb antibiotic resistance (AMR), coordinates national research funding and supports collaborative action for filling knowledge gaps on antimicrobial resistance with a One Health perspective. By mobilising new and existing resources, the JPIAMR creates a greater critical mass and attracts new researchers into the AMR field. Our shared Strategic Research Agenda outlines the key areas to address and provides guidance for countries to align their AMR research agendas nationally and internationally. JPIAMR also interacts with stakeholders such as World Health Organization (WHO), Association of South East Asian Nations (ASEAN), the AMR Global Hub, the Group of Twenty (G20) and the Group of Seven (G7), and countries outside the current members, including the United States of America. G20 and G7 now include activities by JPIAMR in their declarations and resolutions. JPIAMR coordinates research priorities and calls with the European Commission (EC), the Innovative Medicines Initiative (IMI) and the pharmaceutical industry together with close cooperation with EC DG Research, DG Santé (through their AMR Joint Action) and many efforts aligning with European health authorities.

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.

Major achievements of JPIAMR in 2018

- New strategic plans 2018-2020 and 2020-2025
- Two new JPIAMR members: South Korea and Estonia
- Organisation of two scientific workshops:
 - Maximising Existing and Future Research Efforts and Resource Alignment to Combat AMR (Frankfurt, Germany)
 - Workshop to Construct a Roadmap for Implementation of the JPIAMR Strategic Research and Innovation Agenda (Leiden, the Netherlands)
- Launch of four calls:
 - $\circ\,$ Research Call: Innovations against antibiotic-resistant bacteria: New targets, compounds and tools
 - Network Call: Surveillance
 - o Network Call: Building the Foundation of the JPIAMR-Virtual Research Institute
 - Research Call: Diagnostics and Surveillance of Antimicrobial Resistance: Development of tools, technologies and methods for global use
- Update of the Strategic Research and Innovation Agenda
- Evaluation activities:
 - Mapping the global AMR R&D investments landscape

- o Development of a dashboard on AMR research projects and funding
- Launch of a JPIAMR Peer Reviewers database
- Development of the JPIAMR funded projects evaluation and monitoring policy and templates
- JPIAMR Virtual Research Institute (JPIAMR-VRI):
 - Development of a concept paper
 - Development of membership commitment agreement
 - Launch of a call to support the first networks
- Increased efforts in international coordination of AMR R&D funders and among key AMR global stakeholders
 - Representation at the main international AMR events, including the European Antibiotic Awareness Day, and the AMR Call to Action in Ghana.
 - o Mentions in G7 and G20 statements
 - Development of an internationalisation strategy
 - Development of an industry engagement strategy
 - Engage bilaterally with key stakeholders such as the AMR Global R&D Hub, EU-JAMRAI or the EJP Once Health
- JPIAMR Communications:
 - Development of a communication plan and social media strategy
 - Doubling the social media reach
 - o Development of new JPIAMR graphic profile and templates

JPIAMR governance

The governance and management structure of the JPIAMR is composed of the following bodies according to <u>the JPIAMR Terms of Reference</u>:

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

JPIAMR Management Board

The JPIAMR Management Board (MB) is the main decision making body of JPIAMR. Each of the 27 member countries has two representatives on the MB with a governmental mandate. The European Commission is a non-voting member. The MB meets formally twice per year and in 2018 the Management Board met in Brussels, Belgium (February 2018: hosted by the European Commission) and in Leuven, Brussels (October 2018: hosted by the Flemish government, Department of Economics, Science and Innovation). In 2018, the JPIAMR has engaged one new member, South Korea, and Estonia has become a full member of JPIAMR.

JPIAMR Steering Committee

The JPIAMR Steering Committee (SC) provides steering direction of the JPIAMR and strategic input to undertake the JPIAMR mission. It is composed of Carlos Segovia (MB Chair, Spain), Jan-Ingvar Jönsson (MB Vice-Chair, Sweden), Jonathan Pearce (United Kingdom), Antoine Andremont (France), Richard Gordon (South Africa) and Joakim Klein (Germany). The SC meets regularly to discuss strategic issues, develop proposals for the MB and follows the implementation of activity of the Secretariat by teleconference (five in 2018) and physical meetings (one in 2018: London (June)).

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 2018 has been the SRA update and to provide advice to the MB regarding scientific priorities, workshops, the JPIAMR Virtual Research Institute and Calls for Proposals. The SAB were present at the Workshop to Construct a Roadmap for Implementation of the JPIAMR Strategic Research and Innovation Agenda (Leiden, December 2018). The SAB secretariat is The Netherlands Organisation for Health Research and Development (ZonMw), who serves as a link between the SAB and the JPIAMR MB.

In 2018, the JPIAMR held two elections for new SAB members, in January 2018 (election of one new member) and September 2018 (election of nine new members).

Departing 2018 SAB members include:

- Laura Piddock, University of Birmingham, United Kingdom (Chair)
- Teresa M Coque, Instituto Ramón y Cajal de Investigación (IRYCIS), Spain (Vice-Chair, 2017)
- Jocelyn Arquembourg, Sorbonne Université Paris, France
- Gunnar Skov Simonsen, University of Tromsø, Norway
- Petra Gastmeier, Institute for Hygiene and Environmental Medicine, Berlin, Germany
- Bruno Gonzales-Zorn, Complutense University, Madrid, Spain
- Jesús Rodriguez Baño, Hospital Universitario Virgen Macarena, Spain
- Mark Sobsey, University of North Carolina, USA

• Athanassios Tsakris, University of Athens, Greece

The SAB as of the 1st of January 2019:

- Jean-Yves Madec, ANSES, France (Vice-Chair from 2018)
- Eric Brown, McMaster University, Canada
- Ana Maria de Roda Husman, RIVM Netherlands, The Netherlands
- Katherine Payne, University of Manchester, United Kingdom
- Eva Tacconelli, University of Tübingen, Germany
- Christina Greko, National Veterinary Institute, Sweden
- Jordi Vila, Hospital Clinic in Barcelona, University of Barcelona and Institute for Global Health, Spain
- Till Bachmann, University of Edinburgh, UK
- 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

The JPIAMR Secretariat

The JPIAMR Secretariat is responsible for the day-to-day management of JPIAMR. It 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 players, and prepares the necessary budgetary arrangements to run the management structure. The Secretariat is hosted by the Swedish Research Council and at the end of 2018 employs eight part-time staff (5 FTEs): a Head of Secretariat (Laura Marin), three a Communications Officer, Senior Research Officers, а Senior Analyst, а Web Administrator/Administrative Officer and a Financial Officer. In 2018, the JPIAMR Secretariat hosted two interns from Karolinska Institutet as part of a career development programme.

Coordination and Support Action: EXEDRA

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), combined with European Commission support in the form of a Coordination and Support Action (CSA), active until 2020. The CSA (EXEDRA) started in 2017 and has six work packages that mirror and support the activities of the JPIAMR Working Groups. The Swedish Research Council is the coordinator of the CSA and it manages a budget of 2.1 M€ (2017-2020). In 2018, the JPIAMR submitted successfully the 18-month reporting of the EXEDRA project to the European Commission.

Update on JPIAMR activities

Mapping activities

JPIAMR undertook a mapping exercise in 2017 to obtain a comprehensive picture of the antimicrobial resistance (AMR) research landscape within the different JPIAMR member countries. This work is an extension of the mapping exercise performed in 2014. The aim of the 2017 mapping exercise is to obtain an overview of the grant investments, research capacity and scope among JPIAMR member countries for AMR research. Of the 27 member countries, 22 countries along with EU commission provided information related to their investments for the 2017 JPIAMR mapping exercise to scale AMR research landscape under the six-priority research areas assigned in the JPIAMR-SRA.

JPIAMR collected information related to AMR awards and resources (major projects or individual research project grants) that are live (active) or where funding has been committed on 1st January 2017 in AMR research by different organisations of JPIAMR member countries. Research specifically relevant to AMR (bacterial, fungal and parasite resistance) as well as fundamental bacteriology and infectious disease research that may contribute to the overall AMR research effort in the long term were also included.

In early 2019, a report on the mapping and a dynamic dashboard with visual analytics of the dataset will be made publicly available on JPIAMR webpage.

JPIAMR Communication

In 2018, JPIAMR produced a communications plan and strategy that outlined the basis of the communications for the year. Additional activities were added throughout the year that energised the communications and made JPIAMR even more visible on an international level. Specific communications activities conducted in 2018 included:

• Development of a new graphical profile to enhance clarity and visibility (Figure 1).



Figure 1. JPIAMR Graphic Profile. The new graphic profile included updates of the JPIAMR logo and new profile colours

- Created of new templates for Power Point presentations, letters, reports, one pagers on calls and projects.
- Implemented and used the new graphic profile for the pre-announcement and launch of the 2019 JPIAMR Joint Transnational Call.
- Implemented a new Newsletter service.
- Produced campaign materials for the four JPIAMR Calls launched during 2018 (Figure 2).



Figure 2. Campaign material for the JPIAMR 2018 Calls.

- Increased JPIAMRs digital presence with consistent and coordinated communication activities, including posts and updates on <u>www.jpiamr.eu</u>
- Produced video interviews with coordinators of funded research networks at the workshop in JPIAMR Networks workshop in Frankfurt in March, 2018 (Figure 3).









AMR Stewardship in Hospitals - What Works?

AMR Rapid Diagnostics -Roadmap to Future Solutions

AMR in Intensive Care Units -INFACT Tracks

Do Flies Spread Resistant Bacteria?

Figure 3. Video interviews with four AMR Network Coordinators from the projects (1) AMR Stewardship, (2) AMR Rapid Diagnostics, (3) INFACT and (4) Flies.

• JPIAMR was a partner of the Call to Action 2018 event in Ghana in November 2018, hosted by the Wellcome Trust. The 2019 Joint Transnational Call on Diagnostics and Surveillance waspromoted throughout the event.

- Participated in European Antibiotic Awareness Day 2018 (EAAD 2018) where the 2019 Joint Transnational Call was pre-announced, and the results from the three 2018 calls were announced.
- Increased activity on social media (Twitter, Facebook and LinkedIn) leading to more visibility, recognition and outreach for calls, results, activities and impacts made by JPIAMR.
 - Developed a new video format for social media messages.
 - Re-claimed and activated the original Twitter account: @JPIAMR.
 - Twitter 2018: Increased (1) the number of followers by 67%, (2) the number of messages sent by 258%, and (3) the number of engagements by 186%.

JPIAMR Stakeholder Relations

JPIAMR through its Steering Committee and Secretariat continues work in building strong ties with other AMR international initiatives and relevant stakeholders. At the European level there have been several meeting with the GPC (high-level group on Joint Programming), Chairs of the other JPIs (developing a joint event under the EU Austrian Presidency), and the European Commission DG Research and DG Santé. An outcome of these conversations is the highlight of JPIAMR in the new "EU AMR Action Plan" where the EC states its commitment to support the JPIAMR Virtual Research Institute. JPIAMR has also have set a collaboration link with the DG Santé AMR Joint Action EU-(JAMRAI) and the EJP One Health in relation to the update of our SRIA. The JPIAMR has held meetings and exchanged of information with EDCTP and Glopid-R, and has supported the ECDC at the European Antibiotic Awareness Day. Several bilateral meetings have taken place with the EC and IMI regarding the coordination and complementarity of funding programmes.

At global level, JPIAMR has continued to strengthen the existing following collaborations:

- United Nations (invited to several meetings and taken part in a survey on the coordination AMR group IACG);
- World Health Organization (in providing input in the antibiotic pipeline analyses or in the stewardship framework among others);
- Transatlantic Task Force on AMR (TATFAR) exchanging information with the US and attending its biannual meeting in Atlanta;
- AMR Global R&D Hub started collaboration discussions;
- G7 Ministerial November Meeting on Health supported JPIAMR;
- G20 Health Ministers May meeting pointed out JPIAMR as a key initiative.
- JPIAMR was also a partner in the "Call to Action on AMR" this year hosted in Ghana under the leadership of the UN Foundation and Wellcome.
- In 2018, JPIAMR has also become an official stakeholder of the surveillance SEDRIC network as well as the new European Clinical Trial Network (ECRAID) initiative.
- JPIAMR has also engaged with the European Environment Agency regarding new legislation related to antimicrobial resistance and urban wastewater treatment.

To develop an international AMR Funder's forum with the key funding agencies, in December 2017 Wellcome Trust hosted the first meeting of the AMR International Funders (JPIAMR, WHO, European Commission, Wellcome, AMR Global Fund, DNDi, IMI, CARBx, BARDA, Pew Trust, Gates, ECDC, CDC, EMA, and FDA). The meeting enabled sharing of background information and future strategies between the initiatives will provide the foundation for strategic partnerships in funding AMR research. In 2018, Wellcome and the German Government conveyed this AMR international funder's panel at the Berlin "Grand Challenges" event. In 2019, JPIAMR in collaboration with the EC will host the next

event. A clear outcome of collaboration, beyond information sharing, is a joint MoU to develop educational programmes.

Strategic Workshops

JPIAMR identifies future joint actions through the organisation of <u>JPIAMR workshops</u>. By bringing together experts from all relevant fields relating to a specific topic, the JPIAMR workshops map the research landscape and identify knowledge gaps. Using funding mechanisms and collaborative actions, JPIAMR sets in motion activities to fill these knowledge gaps. All workshops produce reports and recommendations to JPIAMR. The workshops that have been organised by JPIAMR in 2018 are:

Maximising Existing and Future Research Efforts and Resource Alignment to Combat AMR, 8/9 March 2018, Frankfurt am Main Germany

This workshop brought together networks funded with the JPIAMR fourth call: AMR Networks/Working Groups to:

- o Share ideas on AMR policy recommendations and research strategies
- Increase awareness of existing networks and identify possibilities for future research collaboration and funding schemes
- Exchange experiences, approaches and lessons learnt
- Allow alignment and potential coordination of future programmes

Coordinators or representatives from 11 networks were present at the meeting. Two networks provided summaries but were unable to attend the meeting. The main conclusion from the meeting was that JPIAMR network funding mechanism facilitated the formation of successful networks in all strategic JPIAMR areas and allowed the networks to carry out a broad range of activities with different outcomes, including white papers/position papers, conferences/workshops, systematic reviews, Standard Operating Procedures, online courses, guidance documents and journal articles, amongst others. The networks felt that they would benefit from participating in an earlier joint meeting.

Workshop to Construct a Roadmap for Implementation of the JPIAMR Strategic Research and Innovation Agenda, 6/7 December 2018, Leiden, the Netherlands

One of the current major goals of JPIAMR in 2018 has been to update the Strategic Research and Innovation Agenda (SRIA) and develop a roadmap for the implementation of the SRIA. The JPIAMR SAB, invited experts, representatives from the JPIAMR Steering Committee, and the SRIA Editorial Board participated in a workshop to develop joint actions to implement the SRIA.

•	January 18	Geneva	AMR Industry Alliance meeting
٠	January 23	Copenhagen	WHO AMR seminar
٠	January 29	Washington	US mission with JPIs
٠	January 31	Paris	One Health EJP launch event
٠	February 5	Brussels	One Health Network on AMR
٠	February 27	Brussels	Glopid-R meeting
٠	March 7-8	USA	TATFAR meeting
٠	March 15	Brussels	JPIAMR-IMI-EC meeting
٠	March 19-21	Paris	Challenges and new concepts in antibiotics research
٠	April 21-24	Madrid	ECCMID
٠	May 17	Stockholm	A holistic approach to antibiotic innovation
٠	May 22	Geneva	Launch Event: Global AMR R&D Hub
٠	June 6,7	Helsinki	JPI Water conference

International Events with JPIAMR Participation in 2018

•	June 7,8	Gothenburg	Infection Control SGG meeting
•	June 14	Brussels	WssTP, Water Innovation Europe
•	June 21	Brussels	Stakeholders Committee One Health EJP
•	August 29	Stockholm	JPIAMR-GARDP meeting
•	September 19	Vienna	JPI Water: Strategy for International Cooperation
•	September 19, 20	Vienna	10 Years Joint Programming
•	September 26	Stockholm	JPIAMR-Global Hub meeting
•	October 2,3	Copenhagen	AMR and urban wastewater treatment
•	October 10-12	Limassol, Cyprus	XENOVAC II Conference
•	October 16-18	Berlin	2018 Grant Challenges Annual Meeting
•	November 5,6	Vienna	Impact of R&I Policy
•	November 7-9	Vienna	EU-JAMRAI Stakeholder board
•	November 16	Brussels	European Antibiotic Awareness Day
•	November 19	Accra, Ghana	AMR call to action
•	December 6-7	Annency	IMI SGC meeting
•	December 7	Paris	EJP Stakeholder Board

JPIAMR is a regular participant at JPI Chairs meetings and Groupe de haut niveau pour la Programmation Conjointe (GPC) meetings. JPIAMR also participates in meetings from IMI, the EC, and regional conferences in the AMR and AMR governance field.

Calls

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 former and present call secretariats, and the UK. The Core Call Steering Group regularly holds teleconferences and in 2018, the group developed the general JPIAMR guidelines for calls and general guidelines for applicants. The group was also involved in the development of the monitoring and evaluation guidelines.

Joint Transnational Calls for Proposals

Since 2014, JPIAMR has held five joint transnational calls and three network calls funding 49 research projects (Figure 4) and 30 networks (Figure 5). The goal of the JPIAMR calls is to foster multi-national translational research collaborations that can accomplish more than individual countries working independently, leading to improved control of bacterial infections.



Figure 4. Research Projects funded by JPIAMR from 2014-2018, divided according to JPIAMR priority area. To date, 49 research projects have been funded by JPIAMR, contributing approx 66M € to AMR research.



Figure 5. Networks funded by JPIAMR, divided according to JPAMR priority area. To date, 30 AMR networks/working groups have been funded by JPIAMR. The financial contribution to these calls is 1.7M €.

The National Research Agency in France coordinated the JPIAMR Joint Transnational Call "Innovations against antibiotic-resistant bacteria: New targets, compounds and tools". Ten projects were awarded funding with a total funding amount is 12.8 M€, involving 48 research groups from 15 countries.

In 2018, JPIAMR launched two calls for networks on (1) Surveillance, and (2) Building the Foundation of the JPIAMR-Virtual Research Institute. The Swedish Research Council was the Joint Call Secretariat for the Surveillance call, and the Italian Ministry of Health was the Joint Call Secretariat for the JPIAMR-VRI call. Ten networks, involving 183 participants, were funded within the Surveillance network call. Eight networks, involving 2018 participants, were funded within the JPIAMR-VRI call. A start-up and final workshop will be held for both network calls. Additional funding for the organisation of these workshops was awarded to four funded networks.

JPIAMR also launched the joint transnational call for research in the priority areas of Diagnostics and Surveillance (Diagnostics and Surveillance of Antimicrobial Resistance: Development of tools, technologies and methods for global use). DLR in Germany is the Joint Call Secretariat.

All calls were launched within the framework of the ERA-NET cofund: JPI-EC-AMR.

Monitoring and evaluation of JPIAMR-funded projects and networks

In 2018, JPIAMR has set up a monitoring policy of the JPIAMR supported research projects and networks. This involves midterm monitoring followed by first and second ex-post monitoring of the research projects and networks. The policies are aligned as defined in "The Framework for Monitoring and Evaluating JPIAMR". JPIAMR will pursue both qualitative and quantitative analyses of outputs from supported projects and networks. This will help JPIAMR identify priorities and obstacles to the successful execution of AMR research projects and networks and to assess and evaluate the outcome of JPIAMR funded calls.

An online survey tool was developed for reporting and monitoring of JPIAMR funded projects and networks. Mid-term reporting of the supported projects from the JPIAMR calls in 2015 and 2016, and final reporting (first ex-post) of the projects from the JPIAMR call in 2014 is underway. The Swedish Research Council (SRC) hosts the online tool. A comprehensive analyses of the reports submitted will be performed by the JPIAMR secretariat to assess the progress of the projects along with the research outputs generated by them in early 2019.

Peer Review Database

JPIAMR has developed an expert database of researchers and potential peer reviewers with experience in the AMR field. The database contains an overview of the expertise areas of each expert, divided by the areas identified of the JPIAMR Strategic Research Agenda. The database is hosted by the Swedish Research Council and available for all members of JPIAMR.

JPIAMR Working Groups

In order to organise the portfolio of joint activities the JPIAMR Management Board has set up seven strategic Working Groups (WG). The mandate of the WGs is to serve as think-tanks/brainstorming of the WGs action plans, to provide leadership and to approve the activities.

Working Group: Globalisation (Chair: Germany)

In 2018, the globalisation WG has selected and identified indicators for eastern European countries and presented this information to the MB. The WG developed an internationalisation activity plan, a membership welcome package and an update of the membership policy. Two workshops will be held as part of the strategic enlargement activities:

- A workshop will be held during the April 8-9, 2019 in Buenos Aires and will be organised by ISCIII and MINCyT. The 2-day workshop will focus on AMR One Health with representatives of research funding agencies and the scientist from the main Latin American countries.
- Workshop in Eastern Europe, JPIAMR representatives from Poland and Romania will lead this activity.

The JPIAMR Joint Transnational Call for 2019, in the field of diagnostics and surveillance, engaged agencies that can fund researchers from Low and Middle Income Countries (Sweden: SIDA, Canada: IDRC and the Netherlands: NWO-WOTRO) who committed funding. The engagement of these agencies has expanded the geographical funding base of JPIAMR within this call.

Working Group: Policy Alignment (Chair: Sweden)

Within 2018, the working group for Policy Alignment has conducted a survey among JPIAMR and EU-JAMRAI representatives to map national policies and organisation models in AMR work. The survey covered issues like which ministry/governmental agency has the main responsibility for the national AMR policy development, which ministry/governmental agency has the main responsibility for AMR research activities, and which ministries/governmental agencies have responsibility for different AMR sub-areas. The survey also covered the national organisation for AMR-related activities, possible national organisation for JPI coordination and which other international organisations in the area that each country is engaged in. There is a named contact person linked to every entry of a responsible ministry or governmental agency. Twenty-one countries answered the survey and the result is now being analysed.

Working Group: Research Alignment (Chair: The Netherlands)

The major goal of this WG for 2018 was to update the JPIAMR Strategic Research Agenda to a Strategic Research and Innovation Agenda. Together with input from the JPIAMR SAB, the SRIA Editorial Board has reviewed the SRA and updated all texts. The WG has:

• Consulted with the JPIAMR SAB to identify gaps in the SRA

- Updated the texts of the six priority topics of the SRIA
- Produced the draft of the introduction
- Conducted an Open Consultation on the SRIA priority topic texts and the Research Objectives
- Conducted a National Consultation of the SRIA priority topic texts with JPIAMR Member States.
- Held a workshop for prioritisation and refinement of actions (Leiden on 6-7 December 2018) for development of a roadmap of actions to implement the SRIA in the period 2019-2023.

It is anticipated that the SRIA and the roadmap of actions will be ready for publication early in 2019.

Working Group: Virtual Research Institute (Chair: Canada)

JPIAMR has embraced the development of the JPIAMR-VRI as one of its key activities. The 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. The JPIAMR will establish a platform providing an unprecedented level of knowledge exchange, research coordination, and sharing of resources, data, and research results and increasing capacity. It will foster coordination, collaboration and even alignment of national strategies and programmes in further developing AMR research.

The JPIAMR Network call entitled "Building the Foundation of the JPIAMR Virtual Research Institute" was launched in mid-May 2018 and funded the activities of eight Networks. Two of the funded networks received additional funding to coordinate the start-up meeting and the final meeting.

Working Group: Research Infrastructures (Chair: The Netherlands)

In 2018, the Research Infrastructures (RI) WG met in two workshops, organised by the WG leader, to discuss the options for the following activities:

- Research data management in JPIAMR research projects. The management board decided that a similar DMP template as that of JPIHDHL could be used;
- Building a catalogue of databases and biobanks (including collections of bacteria) derived from AMR research, and information about research infrastructures (facilities and services to use the databases and biobanks).

Further activities focussed on preparing the survey for the catalogue. Various expert groups were consulted to get insight into the current situation for microbial cataloguing, and what is needed for the AMR research community. Most importantly, we joined the international consortium VALUE-Dx to prepare a grant proposal for an IMI funded project about the "value of diagnostics to combat antimicrobial resistance by optimising antibiotic use", aimed at establishing a Standardised Care Network against AMR. The grant was awarded and the project will start in March 2019. JPIAMR will participate in developing sustainable biobanking (with associated databases) and a business model for sustainability.

All together, we now have sufficient information to perform a survey that will lead to a catalogue of databases and biobanks aimed the AMR research community, as a part of the JPIAMR VRI platform.

Working Group: Industry relations (Chair: UK)

In 2018, the Industry working group held a face-to-face meeting on the 11th of January 2018 in Paris, and held a breakout session on Industry at the February 2018 MB meeting in Brussels. At the Paris meeting in January, the Industry working group discussed issues including the relationship between JPIAMR and SMEs, including how to engage with industrial partners and national innovation agencies, the JPIAMR relationship with IMI, the SRA update and the feasibility of holding an industry workshop to inform this activity. The Industry breakout session at the MB meeting in February 2018 in Brussels (followed by a survey) provided an opportunity to discuss member state restrictions in funding industry partners, and suggestions for how JPIAMR might accommodate industry partners. A framework for industry engagement and a plan for action was developed. JPIAMR representatives will attend and participate in the coming Biocom Novel Antimicrobials and AMR Diagnostics 2019 meeting in Berlin (March 14-15 2019). Guidance for industry participation in JPIAMR research calls (formally ICA) is currently being developed and will be informed by participation in the Biocom meeting. Representatives of this WG attend meetings with IMI strategic infectious group and liase with CARB-X and other international funding initiatives.