



Vetenskapsrådet

Application

2018-06-12

Draft **Tacconelli, Evelina**

Information about applicant

Name: Evelina Tacconelli

Doctorial degree:

Birthdate: 19671126

Academic title: Professor

Gender: Female

Employer: No current employer

Administrating organisation: Deutsches Zentrum für Luft- und Raumfahrt e.V. Projektträger

Project site: Tübingen

Information about application

Call name: JPIAMR Network Call on Surveillance 2018

Type of grant: Research Network Grant

Focus: JPIAMR

Call for proposals subject area: MH

Project title (english): Bridging the gap between humAn and animal suRveillance data, antibiotic poliCy, and stewardsHip (ARCH)

Project start: 2019-01-01

Project end: 2019-12-31

Review panel applied for: JPIAMR-NW

Descriptive data

Network title (English)*

Bridging the gap between human and animal surveillance data, antibiotic policy, and stewardship (ARCH)

Non-swedish applicants are advised to duplicate the english project title in the field below.

Network title (Swedish/English)*

Bridging the gap between human and animal surveillance data, antibiotic policy, and stewardship (ARCH)

The network start may differ from late 2018 to early 2019 depending on national regulations. For more information please contact your national contact person.

Research description

Ethical considerations

Specify any ethical issues that the project (or equivalent) raises, and describe how they will be addressed in your research. Also indicate the specific considerations that might be relevant to your application.

Reporting of ethical considerations*

The project according to the call is not collecting patients' data but aims to build up a network of experts. Therefore no ethical issue will be raised.

The project includes handling of personal data

No

The project includes animal experiments

No

The project includes experiments involving human subjects

No

Application

Application (pdf)*

See following page for attachment

CALL FOR JPIAMR TRANSNATIONAL NETWORKS

Proposal application form

CHECKLIST FOR THE COORDINATOR:

General conditions:

- The Network proposal addresses the **AIM(S)** of the call

The composition and eligibility of the consortium:

- The Network proposal must involve 15 partners from 10 different countries, of which at least 3 (including coordinator) must be from different JPIAMR countries contributing funding to this call.
- The Network coordinator is eligible to receive funding from its national funding organisation participating in the call.
- The Network coordinator is not leading another Network

I. Network and Applicant Summary

(1) Network

Network title	Bridging the gap between human and animal surveillance data, antibiotic policy, and stewardship (ARCH)
Chosen focal area	<input checked="" type="checkbox"/> Impact of surveillance on prevention, intervention, clinical practice, infection control, treatment and patient management <input type="checkbox"/> Surveillance of AMR in the healthy population: Risk factors; risk groups (e.g. migrants, travellers), reservoirs, and monitoring systems <input checked="" type="checkbox"/> Surveillance of non-human AMR reservoirs: Strategies, models, and technologies for tracing AMR in food, animals and the environment <input checked="" type="checkbox"/> Improvement and standardisation of methods <input type="checkbox"/> Quality assurance, curation and sharing data <input type="checkbox"/> Surveillance technology and tools: Optimisation of methods for outbreaks, rapidly emerging clones, resource-poor settings and global coverage <input type="checkbox"/> Social networks, big data and deep learning for AMR surveillance and prevention <input type="checkbox"/> Other, please define:
Duration	12 months
Funds requested	50,000 €
Brief Summary of Network	<p><i>Surveillance is essential to all aspects of the clinical management of antimicrobial resistance. It provides necessary information to develop empiric therapy guidelines, antibiotic formularies, and stewardship programmes. However, the value of surveillance as a critical component of antimicrobial stewardship is not fully established and the majority of the guidance documents focuses either on laboratory surveillance or antibiotic guidelines. The ARCH Network uniquely brings together multisectoral specialists and networks in the field of animal and human surveillance to bridge the gap between surveillance data and antibiotic stewardship in both compartments. The group will finalise four white papers ("Bridge the Gap: Survey to Treat") tailored to: hospitals (medical and surgical wards, paediatric clinic, intensive care units), long term care facilities, out-patients ambulatory, and veterinary care. The white papers will be developed in the form of checklists (App and paper forms) summarizing the kind of microbiological and antimicrobial use data that are essential for antibiotic prescribing, and how these data relate to antibiotic guidance and stewardship interventions. The multidisciplinary group will integrate recommendations for the checklist implementation in heterogeneous economic settings and where expertise in surveillance is limited. The ARCH Network will organise two one day workshops and will be operating through Webex meetings and conference calls. During the first workshop, the group will discuss opportunities for data sharing, other networks involvement, website features, and define the milestones and tasks' timeline. The drafts of the white papers will be available for open consultation to ARCH members and through the associated networks (EUCIC, EPI-Net, ResistanceMap, LOTTA, EUCAST, LAB-Net, KISS, HANNET, Global PPS, AMCLI-COSA, SWISS-NOSO, CLEO) and international stakeholders (ECDC, WHO, Wellcome, EMA). The ARCH experts will also develop a strategic research agenda to identify critical areas and gaps in clinical surveillance. In the second workshop white papers and the strategic research agenda will be reviewed and approved. The dissemination will be pursued in the dedicated website, quarterly Newsletter, national and international conferences, publications in open scientific peer reviewed journals and through relevant national societies in the field. The ARCH Network will also develop a plan for the sustainability of the network after the funding period.</i></p>

(2) Information on Lead Applicant/Coordinator

Name	Evelina Tacconelli
Country	Germany
Affiliation	Tübingen University Hospital
Position	Medical Director of the Comprehensive Center of Infectious Diseases
Address	Otfried-Strasse, Tuebingen, Germany
Phone	+49 7071 28365
E-Mail	Evelina.Tacconelli@med.uni-tuebingen.de

(3) Lead Applicant Supporting Statement

Prof. Evelina Tacconelli is a leading expert in the field of the prevention and clinical management of antimicrobial resistant infections. She leads the EPI-Net project (COMBACTE-Magnet) connecting various European experts from academia, public health agencies, research/health foundations, and industry to increase the scientific knowledge about the distribution and determinants of AMR in Europe. She funded and implemented the European Committee of Infection Control (EUCIC), a network of National Committees, currently covering 93% of the European countries, linked with national scientific societies, aiming to homogenize infection control efforts to reduce the spread of AMR. Prof. Tacconelli led numerous projects on antibiotic stewardship policy at national and international level. Her research group has an extensive experience in implementing networks in the field of surveillance and antibiotic usage; among them the most recent was organised to develop the 2017 WHO priority list for new, effective antibiotics and included 100 renowned experts in all WHO regions. In this project the group reviewed the status of AMR surveillance systems and called for immediate action for improvement. Prof. Tacconelli trusts the importance of raising awareness on how to assess and report surveillance data to drive antibiotic policy interventions and she has planned carefully the time needed for starting up the ARCH-Net and successfully deliver the planned outputs.

II. Scientific/Policy Rationale for the Proposed Network

Surveillance of antimicrobial resistance (AMR) and antimicrobial use (AMU) is essential to all aspects of antibiotic prescribing and clinical management of patients. It provides the necessary information to develop and monitor therapy guidelines, antibiotic formularies, antibiotic stewardship programmes, public health interventions, infection control policies, and antimicrobial and vaccine development. The key role played by surveillance starts with the development of algorithms for empiric antibiotic therapy and of stewardship programmes. Indeed, active monitoring of AMR and AMU is essential to effective antibiotic stewardship supporting appropriate antimicrobial use that optimises patients' clinical outcomes while minimising unintended consequences of antibiotics, including toxicity and the emergence of resistance. Knowledge of up-to-date surveillance data improves public health not only at the local level (clinical outcomes for patients) but also globally (hospital and community). However the link between availability of surveillance data and antibiotic prescription is vague and fragmented. Major limitations to bridge the gap between surveillance data and antibiotic policy are the significant heterogeneity in data reporting among different countries and within the same country and the poor connection between clinical prescribers and surveillance data providers. Most incidence and prevalence data cannot be linked with relevant epidemiological, clinical, or outcome data. Of even more concern is the insufficient coordination of surveillance systems of human AMU and AMR resistance with animal surveillance systems resulting in uncoordinated efforts for antibiotic stewardship in human and animal populations and increase in the emergence and spread of resistance genotypes and phenotypes among compartments. Recent meta-analysis proved that antibiotic stewardship programmes significantly reduce the incidence of infections with antibiotic-resistant bacteria in hospital inpatients. These results provided stakeholders and policy makers with evidence for implementation of antibiotic stewardship interventions to reduce the burden of AMR. In this scenario, a global, translational approach linking, through evidence-based checklist, surveillance reports with stewardship team recommendations, would facilitate the interventions, ensure generalisability of the results, and contribute to a coordinated effort to reduce inappropriate antibiotic usage in animal and humans populations. The ARCH network (Net) brings together **multidisciplinary specialists and networks** in the field of **animal and human surveillance and antibiotic usage to bridge the gap** between surveillance data and antibiotic policy and stewardship. Major goals of the ARCH Net are: 1. to provide new tools to **strengthen cooperation** between surveillance and stewardship teams; 2. to **facilitate** the antibiotic stewardship teams enabling appropriate **assessment** of the **AMU and AMR rates** according to case-mix of patients and settings to develop **antibiotic policy recommendations**; 3. to **reduce** the **heterogeneity** of microbiological and sensitivity data **reporting** in surveillance systems; and 4. to promote and harmonize reporting in **animal surveillance** and stewardship and to **connect** it with **human recommendations**.

The group aims to finalise a series of four white papers ("Bridge the Gap: Survey to Treat") tailored for different settings: hospitals (medical and surgical wards, paediatric clinics, intensive care units), long term care facilities, outpatients ambulatory, and veterinary clinics. The white papers series will be developed in the form of easy to read checklist (App format preferable) listing which microbiological data as well as which antimicrobial use data; and in which format are essential for antibiotic prescribing in different settings and how these data can be translated in antibiotic guidance and stewardship interventions. The translational approach will facilitate the ARCH Net providing suggestions on how the checklist requirements can be implemented in heterogeneous economic settings including low and medium income countries and in environments lacking expertise in surveillance and stewardship. The ARCH Net plans to strengthen overarching cooperation and improve reporting and clinical applicability of AMR and AMU surveillance data by increasing a One –Health approach and exchange of multisectorial, multidisciplinary surveillance networks and experts. The Net outputs (white papers and strategic research agenda) will: 1. help the process of integration of competence between surveillance and antibiotics experts in human and animal populations; 2. contribute to the active efforts from WHO (GLASS project) and other major stakeholders providing a consulting platform with strong link with clinical and microbiological networks; 3. facilitate the definition of the role of rapid diagnostic tests for antibiotic stewardship; 4. sensitize medical and regulatory communities to the value of adequate surveillance to reduce antibiotic usage; 5. contribute to the reduction of unnecessary antibiotic prescribing (incorporation of ARCH checklists into existing and new national and international guidelines and algorithms to guide appropriate antibiotic use); 6. raise awareness of health professionals on the necessity of the knowledge of local epidemiological setting to prescribe appropriate empiric therapy. The Net does not aim to create a new platform to collect data but to contribute to the continuous improvement of existing ones providing evidence based papers summarizing best evidence. The ARCH Net will also discuss and evaluate how to guarantee sustainability of the work in the forthcoming years. The group aims to be able to run focused surveillance project according to the questions raised.

III. Objectives and Mode of Operation

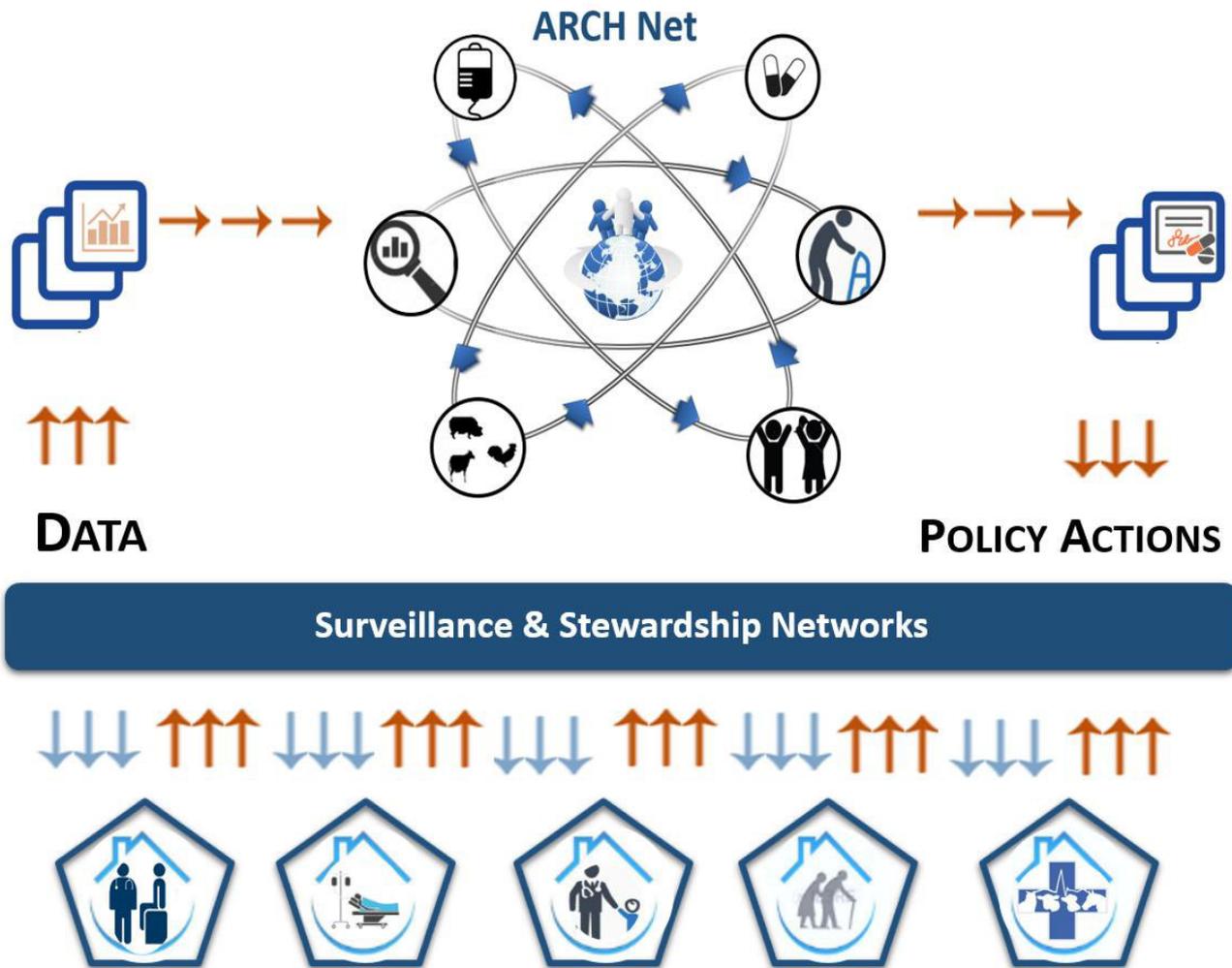
The ARCH Net will organise two one day workshops and will be operating through Webex meetings and conference calls. During the first workshop, the group will define data sharing, other experts /networks involvement, website features, subgroups composition, milestones, and tasks´ timeline. Subgroups will identify key questions in each area. The drafts of the white papers will be reviewed and discussed during monthly Webex by the ARCH members (M7-9) and then go for open consultation (M10) through the ARCH-Net associated networks (EUCIC, EPI-Net, LOTTA, EUCAST, LAB-Net, KISS, AMCLI-COSA, SWISS-NOSO, FASTEN, Global-PPS, CLEO, ResistanceMap, HANNET) and international stakeholders (ECDC, WHO, Wellcome, EMA, and EUNETIPS). Two conference calls will be organised to discuss reviews and facilitate the translational approach and interactions among multidisciplinary experts and related networks (M4-6). The ARCH Net plan also to develop a strategic research agenda to identify and reduce critical areas and gaps in clinical utility of surveillance data and usage for stewardship intervention. In the second workshop the white papers and the strategic research agenda will be reviewed and approved (M7-10) and funding opportunities evaluated to guarantee the sustainability of the network after the funding period. We do not forecast major problems in delivering the planned outputs and therefore no corrective actions have been planned. Key success for the implementation of the output of the ARCH Net will be based on the strong cooperation and motivation of the all experts, the dissemination opportunities connected with the experts´ associated networks and major stakeholders (many of the Partners are involved in WHO, ECDC, ESCMID, ISC initiatives), the capability to build on existing activities avoiding duplication of efforts, and the focus on patient benefit and public health impact.

Dissemination Plans

The dissemination of the results (M10-12) will be pursued in a dedicated website, quarterly Newsletter (circulated online to all ARCH members and collaborated networks), national meetings (connected with national representatives of the experts´ networks), and international conferences and through publications in scientific open access peer reviewed journals. We will map all relevant major stakeholders in the field of surveillance and stewardship. Theses stakeholders will be invited in the review phase as external experts to increase the white papers implementation and dissemination rates. The key messages of the ARCH Net will be regularly posted in the Net website, send it to the connected networks through a Newsletter and, if relevant, disseminated with ARCH-Net accounts in Twitter, Facebook, YouTube channel (short presentations), and ResearchGate. The final results will also be disseminated to national societies in infection control, clinical microbiology, and infectious diseases connected within the EUCIC national advisory board (active in 95% of the EU countries including the five most inhabited countries). A layman version of the workshops key messages will be produced and made public for journalistic purposes. The Editors in Chief of CMI and ARIC, Partners of the ARCH-Net, will contribute to the documents dissemination. The characteristics, composition, and goals of the ARCH Net will be advertised in the ECCMID (European Conference on Clinical Microbiology and Infectious Diseases) networking corner online and presented in poster format at the 29th ECCMID 2019 taking place on the 13th-16th of April in Amsterdam. The output from the Net will also be submitted for presentation to the 30th ECCMID 2020 taking place 18-21 April in Paris. The ECCMID as the largest conference in Europe on infectious disease and clinical microbiology with >10.000 participants will ensure worldwide visibility of the output documents. The ARCH-Net will be also presented at the ICPIIC (well attended conference in infection control with dedicated spots to surveillance) 2019 in September in Geneva.

Tasks	Months											
	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII
Webex conference call and workshop preparation	■											
First Workshop		■										
White Papers´ protocols finalization			■									
First draft White Papers				■	■	■	■	■	■			
Consultation rounds (internal)					■				■			
Consultation round (external)										■		
Finalisation of the white papers									■	■	■	
Conference calls							■				■	
First draft strategic research agenda							■	■	■	■		
Consultation rounds (external and internal)											■	
Publication												■
Website development	■	■	■									
Newsletters				■				■				■

Diagram of workflow



IV. Composition of Network Legend: AMR= antimicrobial resistance; ATBS=antibiotic stewardship

Composition of the Network	
Coordinator (Germany)	Evelina Tacconelli , Medical Director CIDiC, Tübingen University, Tübingen; coordination; Expert: surveillance, ATBS; Networks: EPI-Net (EU AMR surveillance, Head), EUCIC (infection control network, 25 EU countries, Chair), LOTTA (LTGFs network, 14.000-bed)
Partner 1 (USA)	Ramanan Laxminarayan , Director Center for Disease Dynamics, Economics & Policy, Washington, DC; Expert: economic analysis of resistance burden, policy engagement to increase AMR awareness; Network: ResistanceMap (AMR global surveillance, Director)
Partner 2 (Vietnam)	Thirumalaisamy P Velavan , Director Vietnamese-German Centre for Medical Research, Hanoi; Expert: AMR in LMIC; Network: HANNET (> 30 hospitals / institutes of hygiene)
Partner 3 (Gabon)	Ayola Akim Adegnika , Director Centre de Recherches Médicales de Lambaréné (CERMEL); Expert: surveillance, ATBS, education in LMIC; Network: CANTAM
Partner 4 (Lebanon)	Souha Kanj , Director Division of Infectious Diseases, AUBMC, Beirut; Expert: ATBS, education in LMIC; Network: teaching network of healthcare workers (Lebanon, Iraq, Syria, Palestine, UAE); ISC Antimicrobial Stewardship Study Group (co-Chair)
Partner 5 (South Africa)	Marc Mendelson , University of Cape Town, South Africa (SA), SA National Antibiotic Stewardship Training Centre (Director); Expert: surveillance, ATBS in LMIC; Network: SA One Health Stewardship Sub-Committee; Cape Town GeoSentinel Network Site (Director)
Partner 6 (UK)	Mike Sharland , Professor in Paediatric Infectious Diseases, St George's University of London; Expert: AMR, antibiotic usage in the pediatric population; Networks: PENTA-ID (EMA Level 1 paediatric trials network), and Global Paediatric AMR network – GARPEC
Partner 7 (Belgium)	Herman Gossens , Director Laboratory Medical Microbiology, Clinical Biology, University of Antwerp; Expert: diagnostics, antibiotic surveillance; Networks: LAB-Net, Global PPS
Partner 8 (Germany)	Nico Mutters , Institute for Inf. and Prev. Hosp. Epid., Freiburg University; Expert: infection control implementation and training; Networks: EUCIC, HighMed (IT surveillance)
Partner 9 (Germany)	Petra Gastmeier , Head Institute of Hygiene and Environmental Medicine, Charité University Medicine, Berlin; Expert: AMR and antibiotic surveillance; Network: National Reference Center for Surveillance of Nosocomial Infections, KISS (Head)
Partner 10 (Sweden)	Christian Giske , Karolinska Institute, Stockholm; Expert: susceptibility testing, reporting of AMR; Network: EUCAST (Chairman, global breakpoints for new antimicrobial agents)
Partner 11 (Spain)	Lorena López-Cerero , University Hospital Virgen Macarena, Sevilla; expert: molecular typing; Networks: Andalusia Regional Laboratory for molecular typing (PIRASOA), REIPI
Partner 12 (Netherlands)	Andreas Voss , Medical Microbiology, Canisius-Wilhelmina Hospital, Radboud University medical centre, Nijmegen; Expert: infection control, One Health surveillance; ISAC (president elect); Dutch Working Party on Antibiotic Policy (Executive Board)
Partner 13 (Italy)	Roberto Cauda , Dept. Scienze Lab. Infettivologiche, Pol. Universitario A Gemelli IRCCS, Rome; Expert: ATBS education; Network: FASTEN (stewardship training, 30 hospitals)
Partner 14 (Netherlands)	Remco Schrijver , Veterinary & Food Safety, 3723 BG Bilthoven; Expert: animal AMR reservoir; Network: VetEffect (circular animal production in veterinary and food area)
Partner 15 (Netherlands)	Alex Friedrich , Chair Medical Microbiology and Infection Prevention, University of Groningen; Expert: surveillance across border humans-animals; Network: EurHealth-1
Partner 16 (Italy)	Luigia Scudeller , Clinical Epidemiologist, IRCCS Policlinic San Matteo Foundation, Pavia; Expert: evidence-based medicine and training; ESCMID Guideline Director
Partner 17 (Switzerland)	Andreas Widmer , Div. Infectious Diseases, Hospital Epidemiology, Universitätsspital Basel; Expert: AMR surveillance; National Center for Infection Prevention (President)
Partner 18 (Austria)	Elisabeth Presterl , Dept. Infection Control, Hospital Epidemiology, Medical University of Vienna; Expert: surveillance; Head National Reference Center of Nosocomial Infection
Partner 19 (Greece)	Theoklis E. Zaoutis , Scientific Director Center for Clinical Epidemiology and Outcomes Research (CLEO); Expert: ATBS in paediatric population; Network: PENTA-ID, ARPEC
Partner 20 (France)	Jean-Christophe Lucet , Head, Infection Control Unit Bichat - Claude Bernard Hospital, Paris; Expert: ICU surveillance; Network: French network of surveillance and prevention
Partner 21 (Israel)	Leonard Leibovici , Dept. Medicine E, Beilinson Hospital, Rabin Medical Center, Petah-Tiqva; Expert: decision support system; Editor-in-Chief, Clinical Microbiology and Infection
Partner 22 (Italy)	Maurizio Sanguinetti , Dept. Scienze Lab. Infettivologiche, Pol. Universitario A Gemelli IRCCS, Rome; Expert: diagnostics; Network: AMCLI-Cosa (molecular tests for surveillance)

V. Outcomes and Deliverables

Outcome/Deliverable	How will this contribute to moving AMR Surveillance forward?
<p>D1.1 White Paper 1st of the case series “Bridge the Gap: Survey to Treat”</p> <ul style="list-style-type: none"> - How to report AMU and AMR rates to drive antibiotic stewardship in hospitalised patients (dedicated checklists for medical and surgical wards, paediatric wards, and intensive care units) 	<ul style="list-style-type: none"> - The series of the ARCH White Papers will provide a very practical tool to connect surveillance data with stewardship guidance. The recommendations will be provided in practical checklist (available in electronic or paper form), easy to use also in settings with limited expertise in surveillance and antibiotic stewardship. Improved surveillance data to be provided to medical doctors will favourably impact hospital antibiotic usage. - The dissemination of the results will increase homogeneity in data reporting, comparability of data and effectiveness of interventions and antibiotic policy. - The focus on high risk population as ICU will facilitate the antibiotic stewardship teams enabling appropriate assessment of the AMU and AMR rates to develop antibiotic policy recommendations in this settings, thus reducing antibiotic pressure and related morbidity and mortality. The model could be easily exported to other settings in the future as transplants or hematological patients. - The availability of checklist for the pediatric population will play a pivotal role in the implementation of antibiotic stewardship and in the measure of efficacy and outcomes indicators.
<p>D1.2 White Paper 2nd of the case series “Bridge the Gap: Survey to Treat”</p> <ul style="list-style-type: none"> - How to report AMU and AMR to drive antibiotic stewardship in veterinary care 	<ul style="list-style-type: none"> - The One Health approach of the D1.3 focusing on surveillance in the animal population will promote and harmonize reporting in animal surveillance and stewardship. The panel will define which microorganisms in animal population needs to be strictly followed up with the human population. The strict collaboration within the Net between multidisciplinary experts in human and animal population will foster exchange of data, collaborative projects and alignment of goals among the groups.
<p>D1.3 White Paper 3rd of the case series “Bridge the Gap: Survey to Treat”</p> <ul style="list-style-type: none"> - How to report AMU and AMR to drive antibiotic stewardship in long term care facilities 	<ul style="list-style-type: none"> - The checklists could be easily incorporated into existing and new national and international guidelines and algorithms to guide appropriate antibiotic use in LTCFs. In this setting the availability of clear indications on how to connect microbiological laboratories (usually far away from the healthcare) could help in connecting external microlabs with the prescribers and improve local antibiotics policy.
<p>D1.4 White Paper 4th of the case series “Bridge the Gap: Survey to Treat”</p> <ul style="list-style-type: none"> - How to report AMU and AMR rates to drive antibiotic stewardship in ambulatory settings 	<ul style="list-style-type: none"> - Although the highest consumption of antibiotics is reported in community there is no dedicated guidance on how general practitioners could assess and use surveillance data to reduce inappropriate antibiotic usage. The checklist could also play a role in community campaigns to improve appropriateness of prescriptions.
<p>D1.5 How to design a study to fill the missing evidence in the strategic research agenda for surveillance and stewardship (roadmap)</p>	<ul style="list-style-type: none"> - The strategic research agenda will identify critical areas and gaps and prioritize studies to improve the evidence on the effectiveness of surveillance in reducing antibiotic usage. The document could be also used by research institutions providing funding for AMR research.