



Joint Programming Initiative on Antimicrobial Resistance

Professor Mats Ulfendahl

Chair JPIAMR

Secretary-General for medicine and health at the Swedish Research Council

- JPIAMR – background, members, governance etc
- Priorities and implementation
- International cooperation
- Comments on the proposed governance of the EU-CELAC *Joint Initiative on Research and Innovation*

Why Joint Programming?

Establishing the ERA – “a European research area in which researchers, scientific knowledge and technology circulate freely, and encouraging it to become more competitive...” */

Addressing the grand challenges

Structural
Societal
Scientific
Health



*The time may come when penicillin can be bought by anyone in the shops. Then there is the danger that the ignorant man may easily underdose himself **and by exposing his microbes to non-lethal quantities of the drug make them resistant.***

Alexander Fleming, 1945

Total antibiotic use DDD / 1000 population/day



World Health
Organization

***Antibiotic resistance:
"One of the Greatest Threats
to Public Health***

***A major societal challenge
requiring joint and coordinated
actions***

JPIAMR – background, members, governance etc

The Vision

In the next fifteen years, a significant number of Member States and

Associated C

in the field

the best Eur

necessary c

scientific a

antimicrob

leading to

for infectious

“...the focus of this JPI should be on **bacterial antibiotic resistance** and **human medicine** and that both basic and applied research is relevant. However, **veterinary medicine with relevance to humans should be included** and no areas or pathogens should specifically be excluded at this stage.

ch Area

on of

m the

nd, and

ments

(From the Vision Document, April 14, 2011)



- 2009 First proposal for a future JPI
- 2010 Formal proposal submitted
- 2011 Formally established
- 2013 Strategic Research Agenda adopted
- 2014 First Joint Call
- 2014- Implementation phase

JPIAMR Participating countries (19)



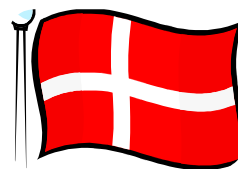
Belgium



Canada



Czech
Republic

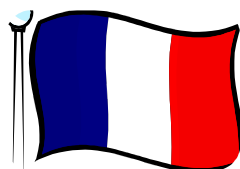


Denmark



Finland

+ European
Commisson



France



Germany



Greece



Israel



Italy



Netherlands



Norway



Poland



Romania



Spain



Sweden



Switzerland



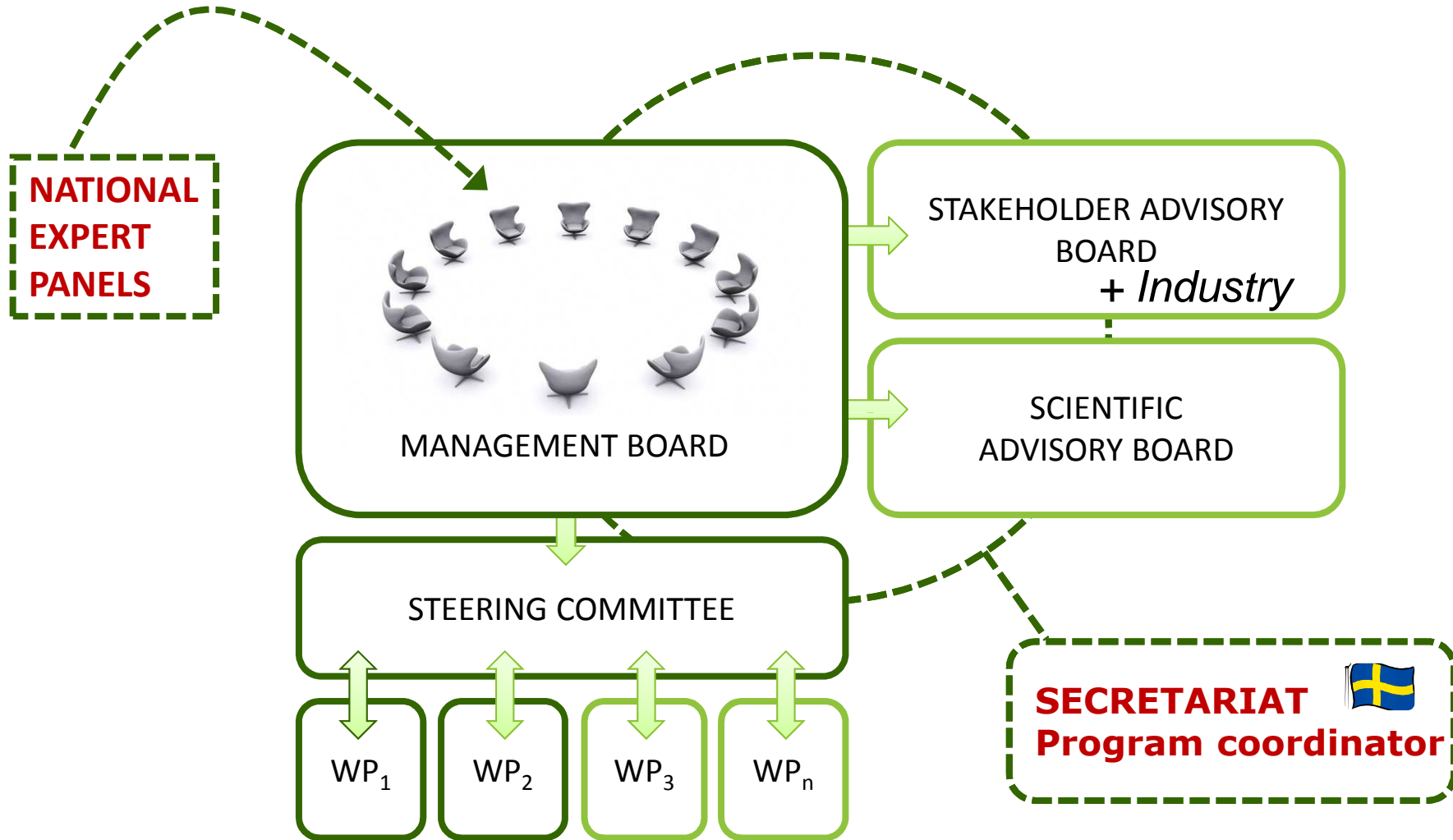
Turkey



United Kingdom

+ Estonia

Governance Structure



Priorities and implementation

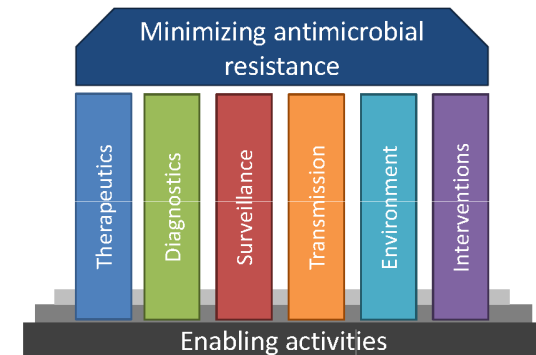


Strategic Research Agenda

- Scientific Advisory Board
- National expert panels
- Online consultation
- Stakeholder involvement

Implementation phase started

- A first Joint Call
- Mapping & Gap analysis
- AMR research output study
- Workshops
- Working Groups on e.g. evaluation, alignment, internationalisation
- Globalization



Priority topics

THERAPEUTICS: Development of **novel antibiotics** and alternatives for antibiotics – from basic research to the market.

DIAGNOSTICS: Design strategies to improve treatment and prevention of infections by **developing new diagnostics**.

SURVEILLANCE: Implementation of a publicly funded global antibiotic resistance **surveillance program**.

TRANSMISSION: **Transmission dynamics**.

ENVIRONMENT: The role of the **environment and sewage as a source for the emergence and spread of antimicrobial resistance**.

INTERVENTIONS: Designing and testing **interventions to prevent acquisition, transmission and infection** caused by antibiotic-resistant bacteria.



Therapeutics

Development of novel antibiotics and alternatives for antibiotics - from basic research to the market

Research objectives and activities

New antibiotics and alternatives to antibiotics

- Basic and translational **research to provide leads, targets, and candidate compounds** that can be exploited to develop novel antibiotics and anti-infective strategies (including immunotherapy, vaccines and anti-virulence or anti-colonisation approaches and combinations of different therapeutics).
- Research aimed at **re-sensitising resistant bacteria** to conventional antibiotics.
- Mechanistic studies into the **molecular mechanisms that lead to AMR.**



Therapeutics

Development of novel antibiotics and alternatives for antibiotics - from basic research to the market

Research objectives and activities

Improve existing antibiotics

- Research on **previously discovered, but neglected, drug compounds** with the aim to improve the clinical efficacy and reduce side effects, and to develop them into safe and effective antimicrobial drugs for modern clinical practice.
- Research to **optimise drug use, dosage, and delivery** to improve the antibacterial efficacy of existing antibiotics and to reduce their adverse impact on the normal microbiota.
- Research focusing on the **pharmacokinetic/pharmacodynamic properties** of neglected antibiotics



Therapeutics

Development of novel antibiotics and alternatives for antibiotics - from basic research to the market

Research objectives and activities

Regulatory and economic aspects

- Activities aiming at streamlining **regulatory processes** and removing **economic barriers** in order to facilitate the rapid and successful introduction of novel antibiotics and antimicrobials to the market.

Next steps:

Implementation

= transforming the Strategic Research Agenda
into actions

Challenges...

Prioritization

Commitment

Agreeing on how

Actions to follow existing funds

or

Funds & actions to follow "needs"

International cooperation

Subra Suresh (*Nature* 2012):

Global challenges need global solutions

“Without a coordinated global response, humanity will not overcome the challenges it faces.”

...and AMR is a truly global problem!

Worldwide spread of the 23F clone of penicillin resistant pneumococci



JPIAMR - Participating states

Belgium

Canada

Denmark

Finland

France

Greece

Israel

Italy

the Netherlands

Norway

Poland

Romania

**Strategic
Research Agenda**

Sweden

Czech Republic

Turkey

**Global Research
Agenda**

Estonia (observer)

European Commission

Pending /

Discussions ongoing:

- **Argentina**
- **Australia**
- **Latvia**
- **India**
- **South Africa**
- **WHO**

COMMENT

MEDICINE Microbial genome sequencing brings precision prescribing **p.557**

ASTROPHYSICS Exhilarating account of the hunt for dark matter **p.560**



TELEVISION Neil deGrasse Tyson reflects on impact of *Cosmos* series **p.562**

OBITUARY Douglas Coleman, obesity biochemist, remembered **p.564**



Unregulated sales of medicines in developing countries contribute to the rise in antimicrobial resistance.

An intergovernmental panel on antimicrobial resistance

Drug-resistant microbes are spreading. A coordinated, global effort is needed to keep drugs working and develop alternatives, say **Mark Woolhouse** and **Jeremy Farrar**.

“Creating an effective IPAMR will be a huge undertaking, but the successful global campaign to eradicate smallpox, led by the WHO, demonstrates that a coordinated, international response to a public-health threat can work. The attempt must be made — otherwise, the massive health gains made possible by antimicrobial drugs will be lost.”

Comments on the proposed governance of the EU-CELAC *Joint Initiative on Research*

Key people

Political commitment



Where is the money?

Joint programming or a
joint initiative is about
much more than money!



Back to square one?
Let's go beyond statements!



Professor Anne Glover
Chief Scientific Adviser
to the President of the
European Commission

ESOF – EuroScience Open Forum
Copenhagen, June 2014

Thank you

More information at:
<http://www.jpiamr.eu/>