# AMR Global Expert Mission

Synergies and Opportunities in the US December 12<sup>th</sup> 2022





# Welcome and Objectives

Dr. Syed Ahmed Innovate UK KTN, Global Alliance



- Please note that this session is being recorded and shared on the Innovate UK KTN website
- Should you have any issues during the session, please let us know in the chat box
- Please feel free to use the Q&A tab or raise your hands to ask any questions
- All participants will be muted and cameras will be turned off



### Agenda

14.00 - 14.05	Welcome and Objectives	Dr. Syed Ahmed
14.05 – 14.15	Introduction to Global Expert Missions	Sian Summerton
14.15 – 14.25	Overview of AMR in the UK	Dr. Phil Packer
14.25 – 14.35	Overview AMR in the US	Dr. Lance Price
14.35 – 14.45	AMR Global Expert Mission	Dr. Syed Ahmed
14.45 – 14.55	Summary of Findings and Recommendations	Dr. Phil Packer
14.55 – 15.25	UK Delegate Perspective on the AMR GEM	Dr. Joanna Wiecek Robin Cohen Dr. Deborah O'Neil Dr. Mandy Nevel Dr. Simon Doherty
15.25 – 15.50	Panel discussion and audience Q&A	Joana Da Silva
15.50 – 16.00	Next steps and wrap up	Dr. Phil Packer



# **Sian Summerton**

Programme Lead – Global Expert Mission Innovate UK KTN



Introduction to the Global Expert **Missions** 







### **Global Expert Mission Objectives**

The Global Expert Missions (GEM) aim to achieve the objectives of:

#### **Building International Collaboration**

Establish expert insights and objective evidence to inform and enhance the UK's innovation partnerships with key global economies.

### Informing UK businesses and Government

Disseminate expert-based insights to maximise knowledge of UK businesses and identify strategic actions to facilitate Government initiative to exploit new opportunities.

#### Showcasing UK Capabilities

Promote the UK's technological and business strengths to be the "Partner of Choice" in future innovation partnerships with strategic global economies.

### **Existing Global Tools**

Global Business

Innovation

Programmes

Global Scoping Workshops

Bring together in a workshop, UK businesses, research organisations and other stakeholders in specific technology and sector areas to help identify countries offering the best prospects for partnership and collaboration with the UK.

The outputs of the workshop(s) will help to narrow down where Global Expert Missions could be used to scope opportunities in more detail.



Global Expert Missions

Group of 6-8 experts scoping opportunities for UK businesses in specific countries and technology and sector areas.

Three stages –

- Mission week
- Dissemination report
- Dissemination workshop

Cohort of c.15 innovative high growth businesses exploring opportunities and building collaborations and partnerships in specific countries and technology

Programme over 9-12 months with 3 phases –

- Get ready
- Visit the market

and sector areas.

Exploit the opportunity

Cohort of c.6-8 innovative high growth businesses building long-term relationships and foundations for future market growth.

Global

Incubator

Programmes

In Canada, USA, Singapore and India in specific technology and sector areas.

Programme over 12-18 months with 4 phases –

- Prepare
- Participate
- Pursue 3-6 months in an incubator in country
- Exploit



Bilateral and multilateral R&D&I funding programmes and access to Horizon Europe

Collaborative R&D&I grant funding programmes to support projects often up to 36 months in specific technology and sector areas

Programmes can be bilateral or multilateral, such as through EUREKA funded by Innovate UK and through helping businesses (including through Innovate UK EDGE and KTN and other organisations access support through Horizon Europe

### ∑eureka







Innova UK

EDGE

Innovate UK

### **Global Expert Missions – to date**

#### Australia

Agri-tech - 2019 Industrial Decarbonisation – 2022 Cyber - 2022

### Canada

AI - 2017 Advanced Manufacturing - 2017 Quantum Technologies - 2018 Advanced Therapies – 2020 Next Generation Services - 2022

### China

Offshore Wind - 2018 Precision Medicine and Vaccines - 2018 Healthy Ageing – 2019 Industrial Decarbonisation - 2022

#### Germany

Antimicrobial Resistance - 2019 Artificial Intelligence - 2021

#### India

Immersive Media - 2018 Sustainable Fashion - 2021 Foundation Industries - 2022

#### Israel

Bioinformatics - 2018 Cyber Security - 2018 Advanced Materials - 2018 Precision Medicine - 2020

#### Japan

**Transforming Construction - 2019** 

### Japan and South Korea

Digital Health and Medtech - 2019 Floating Offshore Wind – 2019

#### **USA and Canada**

Critical Materials - 2022

### New Zealand Agritech - 2019

### South Korea

ICT - 2018 Advanced Materials - 2018 Smart Cities – 2019 Immersive Tech - 2021

### **Singapore** Cyber Security – 2019 Next Generation Services - 2021 **USA** Offshore Wind - 2018

Offshore Wind - 2018 Digital Health - 2018 Composites - 2018 Quantum Technologies – 2019 Robotics and Artificial Intelligence in Extreme Environments - 2019 Cyber Security - 2019 Faraday Batteries – 2022 Antimicrobial Resistance - 2022

https://ktn-uk.org/news/global-expert-mission-reports/

# Thank you.



## **Dr. Phil Packer**

Innovation Lead – AMR & Vaccines Innovate UK





## **Overview of the UK response to AMR**

Phil Packer, Innovation Lead AMR and Vaccines

phil.packer@innovateuk.ukri.org





### Key Reading: UK Government Policy on AMR



In this section, you will find key documents on UK government policy and other (non-exhaustive) reports and recommendations that have been highly influential in developing and updating that policy. Your first stop should be at the <u>gov.uk home page on</u> <u>antimicrobial resistance</u>. It contains links to key publications, surveillance reports, independent inquiries and the latest clinical guidance and advice for healthcare and livestock professionals.

<u>UK National Action Plan for AMR 2019-2024</u> (Jan 2019)	The current national action plan covering all four home nations (the previous NAP and progress reports are also on the gov.uk homepage).
<u>'Contained and Controlled': The UK 20-year Vision for AMR</u> (Jan 2019)	The longer-term vision of the UK government for how it wishes to see AMR addressed by 2040.
House of Commons Health and Social Care Committee Report on AMR (Oct 2018)	A report by the HoC select committee during the 2017-19 session, summarising the evidence gathered and assessment made.
Government response to the Health and Social Care Committee report (Jan 2019)	The Command Paper responding to the Health and Social Care Committee's report of October 2018
<u>Tackling Drug-Resistant Infections Globally: Final Report and Recommendations (May 2016)</u>	The final report of the highly-influential independent Review on AMR, commissioned by the UK government and Wellcome Trust. The interim reports can all be found at <a href="https://amr-review.org/Publications.html">https://amr-review.org/Publications.html</a>
Government response to the Independent Review on AMR (Sept 2016)	The government response to the full findings of the independent Review on AMR, chaired by Lord O'Neill.



### The National Action Plan: An overview

HM Government

Tackling antimicrobial resistance 2019–2024

The UK's five-year national action plan

In January 2019, the UK Government published its vision for AMR:

'By 2040, our vision is of a world in which antimicrobial resistance is effectively contained, controlled and mitigated.'

In support of the vision, the Government also committed to a series of five-year national action plans (NAP) that prioritise actions and direct resources based on the latest information on the biggest risks and on which interventions are most effective in addressing them. The Government's first NAP was published in January 2019 and runs until 2024.

The NAP is supported by eight Delivery Programmes (DPs) across the One-Health spectrum. The DP's collaboratively report against 115 (soon to be 133) commitments to ensure the success of the NAP. Each DP is managed by a Senior Responsible Owner.

Senior Responsible Owners attend the UK AMR Delivery Board, alongside expert advisors from human and animal health and the Deputy Chief Medical Officer. The Board meets three times a year and is co-chaired by Clara Swinson and David Kennedy.

#### The Eight Delivery Programmes are:

.Human Health Animal Health, Food and the Environment Research International Surveillance & Coordination Scotland Wales Northern Ireland



### The National Action Plan: An overview





#### 2. Optimise use of antimicrobials

#### 3. Invest in innovation, supply and access





#### £50m Official Development Assistance (ODA) over 5 years

- Early-stage research
- Neglected and underinvested areas
- Primarily and directly for the benefit of people in LMICs
- One Health approach
- Engage industry for tangible outcomes and support public-private partnerships

### Interact with international/global

- :- public-private partnerships
- :- product development partnerships
- :- funding mechanisms/bodies
- :- fora (e.g. G7, G20) Support Global AMR R&D Collab. Hub
- Leverage additional global funding











# **Investing in the Future of Research & Innovation**





# The Future

Taking a holistic view of pandemic resilience including:

- antimicrobials, other therapeutics and vaccines
- diagnostic technologies
- urban planning and building design
- technologies to reduce or prevent surface and airborne transmission
- novel face-mask and other respiratory protection materials
- disinfection technologies
- epidemiology modelling, tracking and EID surveillance
- psychological, social and behavioural research to better understand public responses to pandemic control measures and address mental health challenges

**Partnering with industry, Government, investors and other stakeholders** to deliver future pandemic resilience research and innovation needs

**Investing in people, talent and skills** to ensure that we have the trained workforces we need to address future pandemics

Investing in research and innovation to combat Anti-Microbial Resistance (AMR)



Innovate UK







### **Development pathway for new vaccines - Innovate UK Funding**



### **IUK Investment in AMR**

AMR Theme	Investment to date (£)	No. of Projects to date	Value of Live Projects (£)	No. of Live Projects
Tech. to reduce antimicrobial use in Agriculture	>3,400,000	23	>1,500,000	8
Agriculture- Detection Tech.	>775,000	4	>605,000	2
Agriculture- Treatment Tech.	>68,000	1	>68,000	1
Environment- Detection Tech.	>224,000	2	>124,000	1
Human- Therapeutic solutions	>12,800,000	81	>2,490,000	12
Human- Detection Tech.	>30,300,000	37	>5,550,000	7
IPC	>2,500,000	26	>650,000	4
Total	>56,800,000 <sup>1</sup>	174	>14,640,000	35



<sup>1</sup>N.B. Includes miscellaneous projects not included above

### The Longitude Prize on AMR

Innovate UK

nesta 🖣

A £10m prize fund, with an £8m pay-out, that will reward a team of innovators who develop a point-of-care diagnostic test that will conserve antibiotics for future generations. The test must be accurate, rapid, affordable and easy to use anywhere in the world.

# 60-minute diagnostic tests tackling antibiotic resistance

LONGITUDE PRIZE

### WHAT KIND OF TEST COULD WIN THE LONGITUDE PRIZE?



#### THE WINNING TEST MUST BE...

 $(\bigcirc)$ 

RAPID Sample collection

30 minutes

17

CONNECTED

will be favoured

Tests with built-in data-

recording and transmission

ACCURATE

decisions and give

confidence to the user

to result in less than

Eliminate harmful treatment



#### NEEDED Improve the antibiotic treatment decision of a globally occurring problem



AFFORDABLE Affordable for purchase and use everywhere that it is needed



EASY TO USE Can be used and interpreted anywhere in the world with minimal training





SAFE The benefits far outweigh any risks

SCALABLE A plan for full-scale manufacture and distribution



# **UK Research and Innovation**

We work with the government to **invest over £7 billion a year in research and innovation** by partnering with academia and industry to make the impossible, possible.

Through the UK's nine leading academic and industrial funding councils, we create **knowledge with impact**.

**Innovate UK** drives productivity and economic growth by supporting businesses to develop new ideas





UKRI Funding Opportunities: <u>https://www.ukri.org/opportunity</u> (You can sign up for news and funding alerts on the left of this page)

### UK Research and Innovation

# Strategic Theme: Investment Plans: Tackling

Inter-Governmental context: Tackling Infections is positioning into a complex and evolving policy and research landscape:

- There are a range of national Government activities & commitments, significant European & Global coordination efforts and groups, with UKRI/Govt commitments (existing or under consideration) into a range of these activities. E.g., globally, the UK has led G7 commitments to deliver effective future pandemic preparedness action.
- Tackling infectious diseases will be essential to meeting a raft of UN sustainable development goals focussed on reducing poverty and inequality, and increasing sustainable living, and health and wellbeing ('100 Days Mission', Global Pandemic Radar)
- Significantly reducing the endemic burden and future threats of infectious disease will be a critical component for achieving Government net zero targets within the food system
- Infectious disease R&I investment will underpin a range of Government priorities and strategies, e.g.: BEIS 'Healthy Populations' priority, 5-yr AMR strategy, Food Strategy, Integrated Review, 25-yr Environment Plan



### AMR will be a significant part of the Tackling Infections Strategic Theme: Currently under development

## **Dr. Lance Price**

**Co-Director – Antibiotic Resistance Action** Centre



# **Dr. Syed Ahmed**

Mission Lead – Global Alliance Innovate UK KTN





### **Mission Objectives**

To help determine how Innovate UK can best support UK businesses more effectively and efficiently when considering innovation partnerships with the US

Review R&I and commercial opportunities in the US with a focus on diagnostics, therapeutics and environmental surveillance

To provide insights into where there are synergies between the countries and determine whether there is an appetite for further collaboration.





### **Diagnostics**

There is an urgent need to develop rapid diagnostics test for identification and characterization of resistant bacteria. Fast point-of-need diagnostics tests that can distinguish between viral and bacterial infection are critical in the healthcare process to significantly reduce unnecessary

### **Therapeutics and Vaccines**

With a significant innovation gap since the 1970s and poor economic incentives there has been very few antibiotics coming to market. This GEM will aim to explore developments in new innovative therapies in human and animal interventions along with business models to support drug discovery.

# Surveillance and Monitoring of AMR in the Environment

Surveillance has been recognised to be a vital cog in the 'One Health' approach to combating AMR. With a focus on water, soil and air, the GEM will focus on defining the objectives of AMR surveillance with a clear need to develop a harmonised international approach.



### In 2019, the UK Government set out a 20 year vision to combat AMR.

- R&D investment to develop new diagnostics and therapeutic
- Develop stewardship programmes

With 95% of global R&D occurring outside of the UK, it is vital that UK businesses look internationally.

Team of UK experts led by Innovate UK KTN, supported by Innovate UK and the Science and Innovation Network in the US.

Overall aim to improve our understanding of the research and innovation landscape in the field of AMR in the US.



### **Global Expert Mission – UK delegation**

Innovate UK KTN

Tara Padmore

Name	Organisation	Role	Expertise	
Joanna Wiecek	CircaGene	CEO	Diagnostics	
Deborah O'Neil	Novabiotics	CEO	Therapolitics and Vaccines	
Robin Cohen	Independent	AMR Expert	Therapeutics and vaccines	
Simon Doberty	Queens University Belfast	Senior Lecturer	Animal Health	
Mandy Nevel	AHDB	Head of Animal Health and Welfare	Animal Health	
Alwyn Hart	UK Environment Agency	Lead Scientist	Environmental Surveillance	
Phil Packer	Innovate UK	Innovation Lead AMR and Vaccines		
Joana Da Silva	Innovate UK	nnovate UK Data Analysts – Health and Life Science		
Gabriela Martinez	Innovate UK KTN	nnovate UK KTN KTM – Pharma and Med Tech		
Syed Ahmed	Innovate UK KTN	novate UK KTN KTM – Global Alliance		

Project Coordinator – Global Alliance





### Who did we meet

North Carolina State University - Agriculture

Roundtable discussion at the NC Biotechnology Centre

World AMR Congress

Antibiotic Research Action Centre (ARAC)

Biotechnology Innovation Organisation

BARDA and ASPE



### **Global Expert Mission – Raleigh**

### **NC State University**

The visit was aimed at understanding the animal health landscape in the US. Discussion on the impact on regulations on animal health and welfare. The conversation touched upon stewardship programmes in the US.

- The veterinary feed directive introduced in 2018 has limited the use of antimicrobials in livestock, although impact is yet to be realised.
- Rapid diagnosis on farm are not available with most diseases polymicrobial so difficult to detect and diagnose.

### NC Biotech Centre - Roundtable discussion

The meeting was attended by representatives from Locus Biosciences, LabCorp, Athem Bio, University of North Carolina and an independent consultant. Discussion focused on the three thematic areas.

- Main challenge is cost and the need to de-risk for investors.
- Developing platform technologies is a good approach to rapidly develop and scale products.
- There is a need to access clinical biobanks.
- Educating clinicians and regulatory alignment between the UK and US.





### **Global Expert Mission – World AMR Congress**

#### Key messages

- The UK's subscription (Netflix) model was referenced a lot.
- Investor sentiment is changing. The introduction of new subscription-based business model to de-risk investments is helping.
- There is still a long way to go to improve public awareness and the impact of AMR but we are heading in the right direction.
- There is a disconnect between diagnostics and therapeutics that need to be addressed.



### **UK Highlight session**





#### Meeting with ARAC

The centre brings together original research, communication and policy to advance solutions to combat antibiotic resistance.

- A lot of work in public awareness and responsible use of antibiotics by working with schools and hospitals.
- There is a unique challenge in the use surrounding diagnostics. The complex healthcare system with a diverse group
  of stakeholders including insurance companies make it difficult to develop POC diagnostics. High risk for investing in
  diagnostics.
- There is a need to develop business models for diagnostics, the technology is out there.





#### **Meeting with BIO**

Opportunity to meet with senior stakeholders from BIO and industry partners. Met with Director of Infectious Disease Policy at BIO, International Affairs and accompanied by Director of US Policy at AMR Action Fund and Director of Global AMR Policy at Shionogi.

- BIO have a challenge-based approach and the need for regulatory guidance is needed. New therapies often fail because of the incorrect regulatory path was taken.
- There is a drive to develop non-traditional interventions. However, there are very few investors interested in this.
- PACCARB recommended to establish an incubator with a focus on animal health and agriculture.

### Meeting with BARDA/ASPE

BARDA play a key role in implementing the government's national AMR strategy. BARDA funds the development of therapeutics and diagnostics in AMR but they need to link to the US bio threats agenda.

- They provide non-diluted funding in addition to guidance and support for companies. Currently have a portfolio of projects including, small molecule development and alternatives such as phage and microbiome therapies.
- BARDA in partnership with J&J Innovation launched the Blue Knight Programme in the US that provides SMEs/start-ups with physical residency at one of the JLABS incubators.


### Summary and Recommendations

Dr. Phil Packer, Innovation Lead – AMR & Vaccines Innovate UK

phil.packer@innovateuk.ukri.org



#### **Summary of Findings**

- The GEM identified areas for synergising UK-US policies to facilitate research and innovation and therefore there is every reason for the US and the UK to align and streamline their activities. In addition, the GEM recognised areas for long-term engagement.
- There is a need in both the UK and the US for new and improved vaccines, antibiotics, antimicrobials and alternatives such as phage and microbiome based therapies, new microbiological diagnostics, new ways of extracting antibiotics from residual water, and better ways of monitoring the development of resistances (and adjusting policy accordingly). This includes the One Health, and in turn, One Medicine idea where, for example, vaccines or antibiotics are developed for both human and animal use. This is based on the premise that in many cases it is the same bacteria in humans and animals that need to be controlled.
- Parallel to these developments is the rapidly growing supply of better and new technologies and technology platforms that can be used to combat AMR.
- Consideration should be made of the new possibilities of internet and data technologies, artificial intelligence and new molecular biological techniques such as CRISPR.
- Alignment of legislation, for example where the use of antibiotics is concerned, would be beneficial.
- The challenges faced with AMR also present commercial opportunities for business.
- The GEM highlighted the need for international cooperation and a clear appetite for collaboration with the UK as a key partner
- There are a number of priority areas for further discussion with the US :



# Diagnostics

#### Innovative Products and Services (Human Healthcare)

- The development of integrated, rapid point-of-care testing for primary care and community care
- Digital solutions including AI technologies for decision making to support health care professionals
- •Enhancing genomic data sharing and better access to isolates in biobanks

#### Innovative products and services (animal healthcare)

- •Benefit from the potential for delivering point of care diagnostics for farming
- •Use of AI technologies for predicting outbreaks

#### Synergising UK and US policies

Improve regulatory alignment

#### Long-term UK-US engagement

• Development of rapid Point-of-Care tests for various farming diseases

# Therapeutics and vaccines

#### Innovative Products and Services (Human Healthcare)

- Vaccine delivery/carrier systems
- Novel vaccine designs, including those that can be leveraged in the animal world, biosecurity as well as education for better prevention and cure
- Vaccines for common pathogens
- Gene editing, phage technologies, antimicrobial peptides, reciprocal access to bio banks, developing platform technologies, mRNA and autogenous vaccines
- Phage therapies to treat bacterial infections

#### Innovative products and services (animal healthcare)

• Bring advanced RNA vaccine technology into the veterinary side

#### Synergising UK and US policies

- Join forces with BARDA to boost the research and development of novel vaccines and antifungals
- Improve regulatory alignment
- Synergising veterinary use of antimicrobials

#### Long-term UK-US engagement

- Joint research, development and commercialization of novel antibiotics and microbiome therapeutics
- Long term funding collaborations with BARDA (and USDA)
- Joined up strategic R&D around animal models

# Surveillance and Environment

#### **Innovative Products and Services**

• Share know how or develop software technologies for effective surveillance

#### Synergising UK and US policies

- Initiate the collaborations between UK Environmental Agency and US Environmental Protection Agency
- Clarify aims and strategies for Surveillance

#### Long-term UK-US engagement

- A common definition of One Health
- Engage with CDC and EPA through NIAMRRE for environmental Surveillance

# Dr. Joanna Wiecek

CEO CircaGene



# THE AMR PROBLEM & why diagnostics matter

# AMR GEM September 2022

# PROBLEM

Antimicrobial resistance poses a major threat to human health around the world. Global burden for AMR in 2019 was estimated at 4.95mln deaths associated and 1.27mln attributable to AMR<sup>1</sup>. The Review on Antimicrobial Resistance, commissioned by the UK Government, argued that AMR could kill 10 million people per year by 2050<sup>2</sup>.

An accurate diagnosis of illness, when performed at the point of prescription, can reduce the unnecessary use of antibiotics, as well as save lives and money. By reducing the time needed for pathogen identification, diagnostics can inform an optimal antimicrobial treatment and limit the overuse of antibiotics.

But in practice, most prescribing and administration of antibiotics is carried out in the absence of any information about the nature of the infection. In part, that's because there is no quick, reliable and affordable diagnostic test available.

Global burden of bacterial antimicrobial resistance in 2019: a systematic analysis. DOI: https://doi.org/10.1016/S0140-6736(21)02724-0
 Antimicrobial Resistance: Tackling a crisis for the health and wealth of nations (Chaired by Jim O'Neill): https://amr-review.org



# POST – MISSION reflections

VESTMEN

# Mr. Robin Cohen

AMR Expert Independent



#### Vaccines - Learnings from AMR Global Expert Mission



- Critical component in reducing antibiotic use - prevention before disease
- Limited focus currently in AMR
- Rapid advances in technology may allow more effective vaccines with broader and more durable efficacy - but this is not focussed on AMR, rather pandemic preparedness
- Animal health vaccine technology is just as critical as human health

# Global Expert Mission - personal and professional growth

A huge organisation, filled with great people willing to help



GEM allowed us to make contacts and understand how to engage, how to navigate and how to collaborate with BARDA - key to UK companies success in AMR and ID space



Personally, I made some great contacts with whom I intend to maintain connections and collaborate with on a number of projects going forward.

### **GEM Networking**

KTN - I learned more about how we can work together!

Government Agencies - access to grant and non-diluting funding

Animal Health Professional Contacts - how to approach animal health from a human health background



Human Health Professional Contacts - technology collaborations

Academic Contacts - scientific collaboration and advice

# Dr. Deborah O'Neil

#### CEO Novabiotics





### **Deborah O'Neil**

Delegate perspective from the 2022 US AMR GEM

Therapeutics

### **Perspective** – in general

- How well received we, and the missions objectives, were
- Willingness of US counterparties to engage and collaborate
- UK's leadership in tackling AMR recognised
- Alignment on most if not all AMR topics discussed with a diverse group of stakeholders
- Similar/same challenges for UK and US companies developing new therapeutics to combat AMR

### **Recommendations to take forward**

• Business support to enable UK businesses to access to the US market

- Market intel, funders, businesses
- Facilitating more alignment between MHRA and FDA in antimicrobial development
  - Tools, preclinical models and the clinical pathway
- UK-US innovation challenges for discovery and development of;
  - Non traditional antimicrobial therapies
  - Antifungal therapies

# **Dr. Mandy Nevel**

### Head of Animal Health and Welfare AHDB





AMR Global Expert Mission US, September 2022

# Animal Health and Welfare perspective

Mandy Nevel



### Diagnostics

 Technology has investment but is fragile
 Larger market Better stewardship and more dependence on diagnostics
Focus on priority diseases
Good technology /research capabilities  Less likely to use diagnostics
 Behaviour / mindset needs to change

 Less £ invested in animal health
 Small market ?viability



#### Therapeutics and vaccines



investment in therapeutics

systems allow companies to autogenous

• Good stewardship and veterinary engagement

- Largely under the control of vets
- (therapeutics) Excellent
- research facilities and ability to build on human developments
- Pro-vaccine

- Stewardship is
- fragmented • Financial model needs to change
- Veterinary awareness low (pockets)
- General nervousness around vaccines 'vaccine free'



 Small market – often non-viable to market products

- Reducing availability/abi lity to import
- Complex and expensive to licence (relative)
- Lack of regulatory discussion on phages/micro biome



### Environmental surveillance







iPlayer

Veather

Sport

### **Opportunities**/gaps

#### Superbug fight 'needs farmers to reduce antibiotic use'

- Build on UK stewardship to in US
- Financial capacity in US is could be joined up with UK
- Registration of new production - could design so that mut recognition?
- Environmental surveillance increasingly important and from the outset to share kn practice







(1) 22 November

Home Cost of Living War in Ukraine Coronavirus Climate UK World Business Politics Tech

Home

Science & Environment

### Superbug fight 'needs farmers to reduce antibiotic use'

③ 22 November

 Resistance to antifungals is a significant issue that has lacked investment

Devon, Norrolk and the wye valley and in the slurry from four intensive dairy farms and in one chicken litter sample.

tensive

e.

### Inspiring our farmers, growers and industry to succeed in a rapidly changing world

# **Dr. Simon Doherty**

#### Senior Lecturer Queens University Belfast







Delegate reflections on the One Health / AMR GEM – Animal Health

Dr Simon Doherty BVMS CertAqV MRQA CBiol FRSB ARAgS FRCVS

Institute of Global Food Security, School of Biological Sciences, QUB

InnovateUK Global Expert Mission to North Carolina & Washington DC, September 2022

# One Health Commission

 "One Health is a collaborative, multisectoral, and trans-disciplinary approach - working at local, regional, national, and global levels - to achieve optimal health and well-being outcomes recognizing the interconnections between people, animals, plants and their shared environment."





# **Opportunities**

- high-level legislation around One Health and antimicrobial stewardship
- dynamic, streamlined regulation of innovative products – rapid diagnostics, biologicals inc phages
- development & maintenance of biobanks
- developing the narrative around 'organic' and 'zero antibiotics' – as little as possible, as much as is necessary
- One Health Education it's not all about R&D and trade & investment... need for robust knowledge exchange





### Reports







# **Contacts**



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#### simondocvet





# Panel Discussion and Q&A

Moderator: Joana Da Silva, Dr. Phil Packer



#### **Global Expert Mission – Panel Discussion**



Dr. Deborah O'Neil CEO, Novabiotics



Dr. Mandy Nevel Head of Animal Welfare, AHDB



Dr. Joanna Wiecek CEO, CircaGene



Dr. Simon Doherty Senior Lecturer, QUB



Dr. Lance Price Co-Director, ARAC



Robin Cohen Independent, AMR Expert



# **Next Steps**



IUK will review the outputs of the Mission to the US and all other global missions and do what is in the best interest of AMR innovators

The USA will be a priority for collaboration
 A report on the AMR GEM to the USA will be published
 The way forward is still being decided. Options being

considered include:

**GBIP to the USA** 

Establishment of an incubator Specific Bilateral calls with the USA

The IUK Global programme will continue with a GBIP to Germany and another inward mission next year.



Innovate UK
## Next Steps...

- You can download the report from <a href="https://ktn-uk.org/news/global-expert-mission-reports/">https://ktn-uk.org/news/global-expert-mission-reports/</a>
- For more information on the Global Expert Mission <u>https://ktn-uk.org/programme/global-expert-missions/</u>
- UK Business support through Innovate UK Edge <u>https://www.innovateukedge.ukri.org/</u>
- The JPIAMR will launch a Call in 2023 on developing new tools, technologies and methods on AMR diagnostics and surveillance. Please visit <u>https://www.jpiamr.eu/calls/diagnostics-surveillance-call-2023/</u> for more information.
- Antimicrobial Chemotherapy Virtual Conference 2023, organised by the Global Antibiotic R&D Partnership (GARDP) taking place on 1-2 February 2023. Please visit <u>https://acc-conference.com/</u> to register.

## **Contacts for further information:**

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## Thank you

