# **Cross-Party Group** on Life Sciences

## Tuesday 19th of November 2024 17:45 – 19:45

## Minute

## MSPs

Kenneth Gibson MSP
Graham Simpson MSP
Jackie Baillie MSP

## MSP Apologies

Brian Whittle MSP
Michael Marra MSP

## Invited Guests

Professor Deborah Williamson, Head of Public Health Microbiology at Public Health Scotland
Professor Till Bachmann, Professor of Molecular Diagnostics and Infection, AMR Strategy Lead, Edinburgh Infectious Diseases at the University of Edinburgh
Dr Poonam Malik, Chair and Co-Founder, Microplate Dx
Dr Stuart Hannah, CEO, Microplate Dx
Professor Tim Aitman, Professor of Molecular Pathology and Genetics and Director of the Centre for Genomic & Experimental Medicine at the University of Edinburgh

## Non-MSP Group Members

Alison Culpan, Director, ABPI Scotland (secretariat)
Claire Headspeath, ABPI Scotland
Katie Murray, AstraZeneca
Alex McEwan, ARM Team, Scottish Government
Alexander Weir, Senior Technical Manager, Canon Medical Research
Amina Slimani-Fersia, Lead Pharmacist Primary Care
Den Barrault, University of Edinburgh
Donna Manson, UCB
Dr Amina Slimani-Fersia, Lead Clinical Pharmacist - Primary Care - NHS Fife
Esmé Pringle, Reporter, Ettrickburn
Fiona Hamill, Johnson and Johnson
Fiona Nicolson, Burness Paull LLP
Frank Armstrong, Non-Executive Director
Frankie Toner, Public Affairs Manager, Market Access and Public Affairs, Chiesi
George Davidson, Director Of External Affairs at GSK
Gilliam McArthur, Boehringer Ingelheim
Graeme Rose, Public Affairs Lead, Devolved Nations, Novartis Pharmaceuticals UK

Limited
Greg Stevenson, Director, Greg Stevenson Consulting Limited
Heather McKinnon, Senior Director Translational Science at LifeArc
Heather Rankine, Eli Lilly and Company
Howard Stuart, Advanzpharma
Jamie Stewart, ARM Team, Scottish Government
Jenna McGregor, UCB
John Macgill, Director at Ettrickburn Limited
John Mackenzie, Director, (Scotland), The Pioneer Group
Katie Young, ARM Team, Scottish Government
Marianne L. Ismail, Chief Executive Officer
Mark Cook, Chair ILG
Matt Barclay, Community Pharmacy
Michael Barrett, SULSA
Neil MacDonald, MSD
Philip Jones, BioAscent
Professor Frank Gunn-Moore, SULSA
Professor Sir Mike Ferguson, Regius Professor of Life Sciences, University of Dundee
Richard Lockhart, Burness Paull LLP
Richard Mole, Moredun Group
Seshadri Vasan, NHS Grampian
Tom Rhodes, Pfizer
Frankie Macpherson, Reporter, Ettrickburn
Dr Madhuri Barge PhD, Associate Clinical Scientist, Royal Infirmary of Edinburgh
Dr Simon Dewar, Microbiology Consultant, Clinical Lead for Antimicrobial Stewardship, NHS Lothian

# Agenda item 1

Convener Kenneth Gibson (KG) welcomed everyone to the meeting.
Minutes of the previous meeting (September)
The minutes of the previous meeting were accepted. There were no matters arising.

# Agenda item 2

**The Pathogen Genomics Strategic Plan**
**Professor Deborah Williamson**

Deborah Williamson (DW) gave an overview of Public Health Scotland's strategy to create a comprehensive, pathogen-agnostic service that meets public health demands and fosters 'One Health' partnerships and enhance the country's ability to respond to infectious diseases.

DW said pathogens are all organisms that cause disease in plants, animals, humans and harm the environment, and that understanding their genetic makeup and spread between species is important to controlling them, by informing vaccines, diagnostics and policy development.

DW said the pathogen genomics strategy is ambitious and aims to be considered a cornerstone to public health responses, as it is already in some other countries. She said Scotland has come a long way in the last few years, the drive for pathogen genomic information having been catalysed during the COVID-19 pandemic.

DW said the key focuses of the strategy are on building infrastructure, enhancing surveillance, standardisation of data and coordination and governance.

DW highlighted both Denmark and Wales as countries with highly integrated pathogen surveillance services linking together human, animal and environmental health. She said PHS is creating links with its Welsh counterpart.

DB said implementation of the strategy will be challenging due to a number of gaps. She highlighted the need in Scotland for a fit-for-purpose public health microbiology service, of which pathogen genomics is just one component. She said there is deep expertise in universities and excellent reference laboratories in Scotland, but the overall approach is currently fragmented.

DB said Scotland could be world-leading in public health microbiology and pathogen genomics if it is able to overcome challenges in funding, standardisation, ageing lab infrastructure, and a lack of strong, centralised leadership.

# Agenda item 3

**The Edinburgh AMR Forum**
**Professor Till Bachmann**

Till Bachmann (TB) gave an overview of the network of researchers, which is focusing on developing collaborative, transdisciplinary and trans-sectoral interactions to lead on AMR. He said more than 200 researchers working on antimicrobial resistance have been brought together in the forum since its founding in 2015 as part of Edinburgh Infectious Diseases.

TB said the forum has ‘put Edinburgh on the map’ in AMR and is attracting collaborators, funders and industry. Its engagement with external partners will be further enhanced through expanding initiatives, including at the outward facing Edinburgh Futures Institute.

TB said the University of Edinburgh will soon have hosted 40 Fellows from Uganda, Malawi, Kenya and Zambia as part of the second round of the Fleming Fund Fellowship Scheme funded by the UK DHSC. He said the aim of the scheme is to improve AMR diagnostics and surveillance capacity, raise public awareness and promote responsible use of antibiotics in low- and middle-income countries, which TB explained will feedback into initiatives in Scotland.

TB gave an overview of some key links of the forum with global AMR policy and funders:

- Global AMR R&D Hub
- World Health Organisation – AMR Division
- Quadripartite – WHO, WOAH, FAO, UNEP
- AMR Industry Alliance / BEAM Alliance
- JPIAMR (OHAMR Partnership from 2025)
- ESCMID Global 2025
- National/bilateral partnerships and networks (e.g. IMPACT)

# Q&A

In response to a question about whether Scotland can learn from Australia, DW said she thinks, based on her nine years working in public health there, that Scotland is better placed than Australia to implement genomic data. DW said Australia is rich in its physical infrastructure but is data quality poor, whereas Scotland is the opposite. DB said she still maintains strong links to a lab in Melbourne and has set up a bilateral exchange between the two countries.

In response to a question on whether the new antibiotic purchasing initiative in the UK – where government pay into a centralised fund to support antibiotic development, creating an income stream for antibiotics makers that is not linked to usage – will provide useful data on the use of novel antibiotics, DW said Scotland is well placed to be able to link antimicrobial prescribing data to data on hospitalisations, primary attendance and vaccinations.

In response to questions on the role of bacteriophages, TB explained they are viruses that kill bacteria, and that researchers and innovators are increasingly looking into it. DW said University of Dundee is especially active in this area and there are ongoing discussions about bringing universities in Scotland, and elsewhere, together in a ‘phage consortium’ to attract research investment in this area.

In response to a question about the leadership gap in genomics, DW explained that the process for commissioning the pathogen genomic labs in Glasgow and Edinburgh is bureaucratic and fragmented, meaning they are not able to respond as effectively and efficiently as they could to emerging infectious diseases.

In response to a question on infrastructure shortcomings, DW explained the computational infrastructure in Scotland is not able to keep up with storing and managing the huge amount of data generated by pathogen genome analysis. She said she would like to see more centralised funding to allow greater autonomy for public health agencies to respond rapidly through emerging threats.

In response to a question on the role played by vets, DW said Professor Julie Fitzpatrick (the Scottish Government’s Chief Scientific Advisor, a vet who was previously Scientific Director of the Moredun Research Institute) co-chairs the genomic oversight board.

In response to questions on the role of new antibiotics in combatting AMR, TB said empiric (trial and error-based) prescription of antibiotics is an issue and highlighted

the need for diagnostic tests that also feed into epidemiological data bases to inform both current and future therapies. He said there needs to be more studies to demonstrate health economic and patient benefits of new technologies in this space. He said there could be challenges within Scotland's NHS Pharmacy First Scheme, more recently introduced in England, where people can now access antibiotics for example for UTIs, without the need for diagnostics.

In response to a question on how good Scotland is at predicting the risk a pathogen will 'jump' the species barrier, DW said predictive use of genomic data is a field that she expects to take-off within the decade. She said the introduction of AI and machine learning in public health responses will also help, but that there hasn't yet been enough sequencing of animal or environmental genomes.

In response to a question on sequencing and downstream bioinformatics pinch points in Scotland, DW said there is an important role to be played by academia in bolstering clinical sequencing capacity. She said her team is currently mapping out where gaps are in computational infrastructure.

**Microplate Dx – Rapid antibiotic susceptibility testing**
**Dr Poonam Malik and Dr Stuart Hannah**

Poonam Malik (PM) gave an overview of the burden of AMR in the UK, which is causing 7,600 deaths and costing health services £180m each year. She highlighted mentions of diagnostics testing before antibiotic use in the Lord O'Neill and Lord Darzi reports on the NHS, and the UK and Scottish Government's joint 20-year vision to contain AMR.

PM said 200,000 people, predominantly women, in Scotland suffer UTIs each year and 80-90% are caused by E. coli. However, 24% of E. coli strains in Scotland are resistant to at least one antibiotic, which she explained leaves patients suffering for longer during the trial-and-error prescribing approach.

Stuart Hannah (SH) explained antibiotic susceptibility testing gives clinicians an understanding of the susceptibility of a bacteria to a medication, but it currently takes a long time. He said Microplate Dx, with its simple and cost-effective RapidPlate, diagnostic test, has sped up this process, with the ability to determine in an hour when an antibiotic is needed, and which one to prescribe, with clinical feasibility studies in two NHS sites showing a 98% accuracy rate. In Scotland's UTI patients alone, SH said the rollout could save the NHS £3m.

SH said the company is looking for support to move from hospital testing to primary care, where 83% of Scotland's antibiotics are prescribed. He said adoption and roll out of the technology to support Pharmacy First is an early ambition.

He said UTI diagnostics is its initial application, but the company is looking to expand in the future to bloodstream infections and beyond.

<u>Q&A</u>

In response to a question on cost to GPs, PM said the company's initial model would be to give out the machine for free then charge per test/consumables.

In response to a question on patient waiting times if being diagnosed and treated for a UTI in the community, PM said patients can go home after giving a sample and pick up any antibiotic prescription from a connected pharmacy when results come in, not adding any additional delay to dispensing.

In response to a question on the technology's application in blood infections, Microplate Dx's Chief Technology Officer Damion Corrigan said early results on simulated blood stream type infections have seen encouraging results. The team are currently working to increase the sensitivity of the device in order to enable it to detect the lower bacterial doses in blood and speed up waiting times for results.

In response to a question about the simplicity of the testing, PM said it was kept as simple as possible so low- and middle-income countries can still benefit, though it should always be regarded as a clinical assistance tool that will require a clinician to prescribe an antibiotic.

**The One Health Genomics Edinburgh Community**
**Professor Tim Aitman**

Tim Aitman (TA) gave real life examples of how advancement in genome tech, since the first human genome was sequenced in 2001, has benefitted patients. He said it has allowed for diagnoses in cases of rare inherited disease that wouldn't have been possible 20 years ago and highlighted the role of liquid biopsies in enabling a better understanding of the role of HPV in head and neck cancers, including in prognosis following treatment.

TA said studying the genome across species can have huge health benefits. Since being formed 18 months ago, the One Health Genomics Edinburgh Community has more than 1,000 members and runs an annual flagship meeting that brings together individuals working across the genomic research space. He said an aim of the community is to host an international One Health Genomics Symposium in 2025 in Scotland, to showcase global leadership of Scottish one health genomics.

Q&A

In response to a question on the Scottish genomic medicine strategy, TA said financial constraints have slowed the implementation of the strategy and that all available money has spent on bringing NHS services up to standard, rather than in R&D and innovation. He said he fully supports the strategy but there is a need to move quickly as Scotland is behind England and Wales.

In response to a question on the purpose of an international conference, TA said two events he had organised previously elsewhere in the UK and in Scotland generated momentum in genomics that would not be achieved otherwise. He said there is a momentum at the moment and, if the community is brought together along with

policymakers, then he believes it could lead to huge strides in genomic tech in Scotland.

**Close**
Kenneth Gibson concluded the meeting.

The next meeting of the CPG on Life Sciences will take place on Tuesday the 18th of February 2025.