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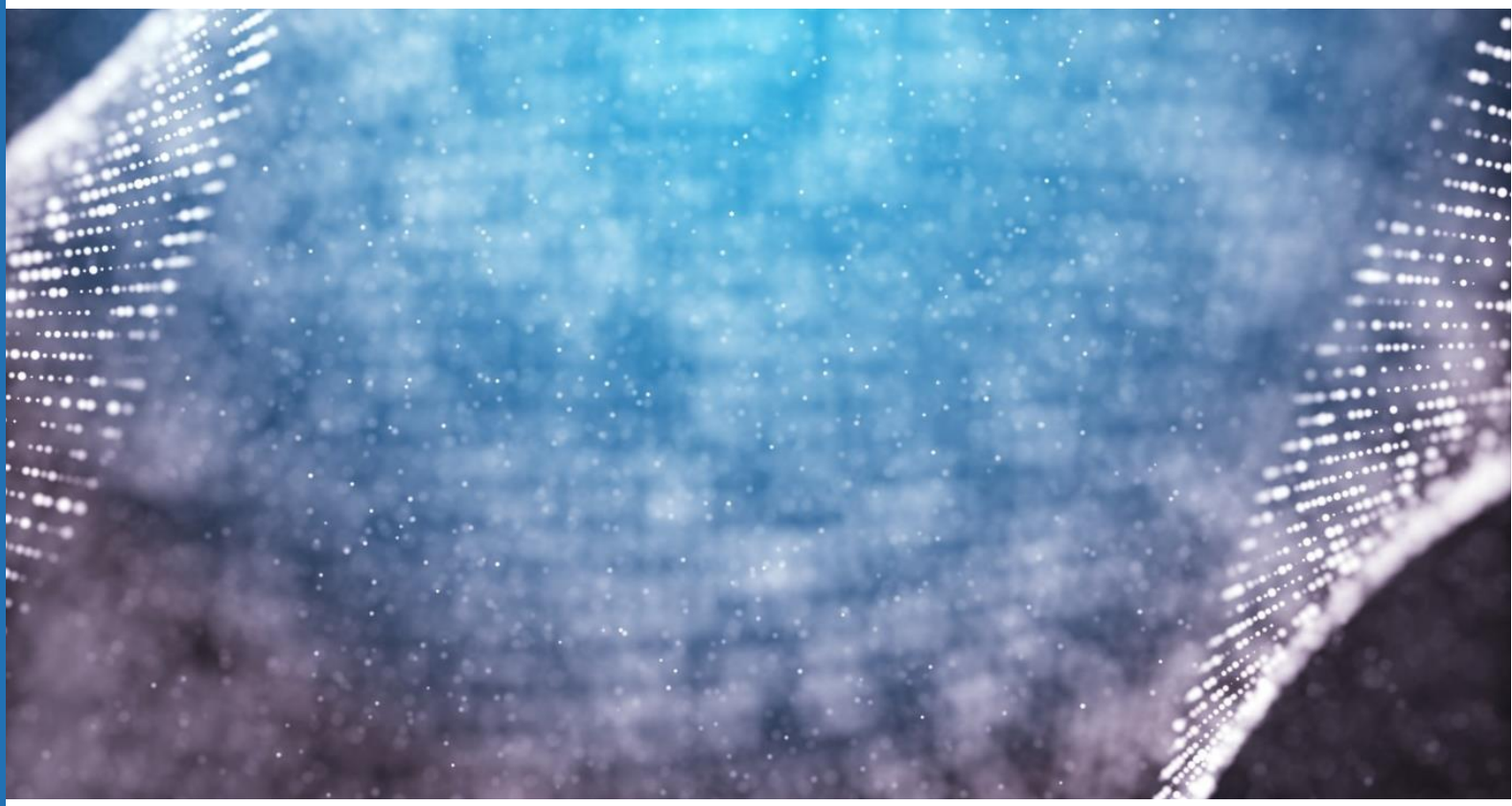

Biomedical and health research: developing a vision for Europe

Summary report of an annual lecture held on 21st March 2018

About FEAM, The Federation of European Academies of Medicine (www.feam.eu)

FEAM is the European umbrella group of national Academies of Medicine and Medical Sections of Academies of Sciences. It brings together 18 national Academies representing over 5000 among the best scientists in Europe.

FEAM's mission is to promote cooperation between national Academies of Medicine and Medical Sections of Academies of Sciences in Europe; to provide them with a platform to formulate their collective voice on matters concerning human and animal medicine, biomedical research, education, and health with a European dimension; and to extend to the European authorities the advisory role that they exercise in their own countries on these matters.

About the FEAM European Biomedical Policy Forum

The FEAM European Biomedical Policy Forum provides a platform for discussion on key policy issues for the biomedical community.

The Forum is an initiative from the Federation of European Academies of Medicine (FEAM). It aims to bring together representatives from academia, research charities, industry, European and national trade associations and professional bodies, regulators, public health bodies, and patient and consumers groups. If you would like further information on the FEAM European Biomedical Policy Forum or becoming a partner, please contact silvia.bottaro@feam.eu

Disclaimer

Opinions expressed in this report do not necessarily represent the views of all participants at the event, the Federation of European Academies of Medicine (FEAM) or the FEAM European Biomedical Policy Forum partners.

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All web references were accessed in March 2018.

Acknowledgments

FEAM is very grateful to all the speakers, panellists and moderator for their participation and valuable contribution to this event and to Dr. Robin Fears, FEAM Policy Advisor, for preparing this report.

FEAM EUROPEAN BIOMEDICAL POLICY FORUM

FEAM Federation of European Academies of Medicine

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Introduction

Improving people's health and wellbeing is a fundamental goal of research and innovation, and European cross-sectoral cooperation is of great importance to achieve this goal. EU R&D programmes have led to improved health and quality of life for its citizens. However, significant medical challenges remain to be faced and many healthcare needs are still unmet.

The ongoing debate on the next EU Framework Programme for Research and Innovation (FP9) offers the opportunity to articulate a long-term vision for biomedical and health research, and to address current gaps in support of excellent science.

To contribute to this debate, the FEAM European Biomedical Policy Forum's annual lecture brought together policy-makers and high-level representatives from across different biomedical sectors to present their vision for the future of biomedical and health research in Europe, and how the EU's funding programmes could help in achieving this. Among the topics to be covered for biomedical and health research were: thematic priorities for future research; linkage with the UN Sustainable Development Goals (SDGs); research missions; current gaps in support; and how to improve coordination and consolidation across Europe.

The agenda can be found at Annex I along with speakers' biographies (Annex II) and the list of participants (Annex III).

Summary

This is an important time for European health policy and for sustaining biomedical research and innovation. The forthcoming EU Framework Programme for Research and Innovation, FP9, provides a critical opportunity for stakeholders across the biomedical and health sectors to discuss their research vision and priorities for Europe, linkage with global goals, and defining approaches to closing gaps in support and to promoting coordination of effort.

In the first of the FEAM European Biomedical Policy Forum's annual lecture series, Dr Line Matthiessen of the European Commission (DG Research and Innovation) provided valuable insight into the drivers for prioritising biomedical and health research objectives in FP9. These drivers include: the challenges facing society, for example in terms of health and care costs, inequalities and environmental factors; and the need to promote innovative industry competitiveness. There is also the opportunity to capitalise on previous achievements in funding programmes associated with the development of human capital (including in cross-sectoral collaborative initiatives) and the paramount requirement to deliver impact. Recent proposals to increase mission-oriented approaches in FP9 are very relevant to health research: successful characteristics of a mission orientation were illustrated by the work of a consortium on rare diseases in Horizon 2020 (i.e. the International Rare Diseases Research Consortium -IRDiRC-). Increased impact can be anticipated if the scientific community and other stakeholders are mobilised to address shared goals.

High-level experts from academia, industry and patient groups responded with their perspectives on the vision for FP9. For example, there were suggestions for other health research missions with potential for EU added value to address unmet medical needs in the fields of dementia, infectious diseases/antimicrobial resistance, and mental health. Among the many significant issues arising in discussion was an emphasis on the importance of:

- Continuing commitment to basic, discovery science (investigator-driven, bottom up ideas) at a time of increasing attention to translational science: ensuring a balance between mission-oriented and fundamental research.
- Addressing the challenges of transdisciplinarity in a culture where many academics still work in silos: this may require new incentives but is essential to enable innovation and deliver more integrated approaches to health management.
- Harnessing the combined skills of academia and industry in partnerships that will also include health services and patients. There is considerable scope to facilitate all stakeholders working together to identify research priorities and clarify research design, increasing patient representation throughout research. Scientific and clinical communities must augment their efforts to engage with patients and the public to understand their priorities for unmet medical needs.
- Continuing the use of animals in scientific research. Despite progress in developing alternatives, well-regulated animal models are still needed to provide biological insight and help to tackle unmet medical needs.

- Exploring how to improve collaboration across the large part of health research that is currently organised and funded at a national level. The proposed European Council for Health Research[1] may help in underpinning coordination and synergy, and act as a single point of entry for all health research. There is a broad agenda for coordination in addition to funding. There will be new challenges for maintaining the essential mobility of scientists and their families and for building multilateral partnerships in Europe. Education and training must incorporate the acquisition of new complementary skills for researchers and health professionals, for example transdisciplinarity and the capacities for interpreting and using large data sets.

- Developing future healthcare systems for people-centred quality care with the focus shifting to health rather than disease and entailing new understanding of multimorbidity and of early pathogenesis. Among the requirements, this transformation calls for renewed commitment to digital health and digital infrastructure, with implications for training and research.

Partners in the FEAM Forum are invited to help lead the ongoing debate on what FP9 could achieve. Participants generally agreed that this event successfully demonstrated the shared objectives and philosophy of the FEAM Forum in ensuring open and timely cross-sectoral engagement among biomedical stakeholders. Collective effort is as vital to inform health research policy development as it is to underpin research design and conduct: FEAM aims to continue catalysing discussion on fostering a vibrant European research environment.

[1] See FEAM and BioMed Alliance Joint Statement on *Strengthening biomedical research for the benefit of European citizens*: https://www.feam.eu/wp-content/uploads/JointStatement_StrengtheningBiomedicalResearchInEurope_September2017.pdf

Report of the event

Welcome

In welcoming participants, **Professor Bernard Charpentier (President of FEAM)** set the context by introducing FEAM and the FEAM European Biomedical Policy Forum. By promoting cooperation between national Academies of Medicine and medical sections of Academies of Science in Europe, FEAM draws on excellent science to provide a platform to advise on key policy issues. The participation of FEAM within the Science Advice for Policy by European Academies (SAPEA)[2] consortium extends the academies' collaboration across disciplines as part of the European Commission's Scientific Advice Mechanism.

The Forum is a key new initiative by FEAM, to develop partnership for the wider biomedical community to discuss important policy issues. The Forum aims to bring together on an equal footing, regardless of size and type of organisation, representatives from *inter alia* academia, research charities, industry, European and national trade associations, professional bodies, regulators, public health groups, patients and consumer groups. This event is the first of a proposed series of annual lectures. The Forum has already organised a workshop on the use of data in cross-border biomedical research and the new regulatory challenges ahead[3]. A round-table discussion on the use of animals in scientific research, on 28 March, and a round table on precision medicine to be held in September are among future Forum activities.

This first annual lecture provides the opportunity to hear from policy-makers and other experts from different sectors about their vision for the future of biomedical and health research to improve citizen's health and quality of life in Europe. What are the potential thematic priorities? What are the gaps to be filled in support of excellent science? What should be done to improve coordination and consolidation of biomedical research? Without pre-empting the discussions, it is relevant to note that FEAM, together with the Alliance for Biomedical Research in Europe recently published a Statement[4] calling on the EU Institutions and Member States to take advantage of the opportunities presented by the upcoming FP9 to strengthen the environment for clinical and health research in Europe, including the creation of a European Council for Health Research (Box 1).

[2] www.sapea.info

[3] *Use of data in cross-border biomedical research: what are the challenges ahead for Europe?* November 2017. https://www.feam.eu/wp-content/uploads/FEAM-Forum_Data-workshop-report_Final.pdf

[4] *Strengthening biomedical research for the benefit of European citizens.* https://www.feam.eu/wp-content/uploads/JointStatement_StrengtheningBiomedicalResearchInEurope_September2017.pdf

Box 1: Recommendations from FEAM and the BioMed Alliance

1. More support for collaborative multidisciplinary translational biomedical research.
2. Continuity in funding for successful networks established in previous Framework Programmes.
3. Recognition of the importance of precision medicine-based, patient-centred solutions in designing clinical trials.
4. Special training programmes for the next generation of research-oriented clinicians and clinically-oriented researchers.
5. Creation of the European Council for Health Research that will support biomedical and clinical research in Europe.

Keynote lecture

The keynote speaker **Dr Line Matthiessen (Acting Director, European Commission DG Research and Innovation Health Directorate)**, presenting *A vision for European biomedical and health research*[5], observed that this is a very important time for EU policy making. The proposal for the EU's long-term budget together with proposals for FP9 are expected very soon. Also in the coming months will be a series of policy initiatives relevant to the health sector. These include: Digital Transformation of Health and Care; Improving Health Security in the EU (a one-health approach to countering the threat from infectious diseases); Council Recommendations on Vaccination; and a Review of Activities on Personalised Medicine.

In developing the vision for biomedical and health research, various challenges can be identified:

- Increasing and unsustainable health and care costs (associated with chronic diseases and ageing populations)
- Environmental factors in health, e.g. lifestyle, pollution, climate change. How much is avoidable?
- Increasing risks of infectious disease, particularly associated with antimicrobial resistance
- Health inequalities and access to health and care
- Maintaining innovative and competitive European health and care industry.

Dr Matthiessen invited feedback from participants on how to tackle these challenges, with the objective of designing FP9 to have the desired impact. Developing new programmes can build on what has already been achieved in supporting research and innovation and this includes: extensive

[5] The presentation by Dr Line Matthiessen is available at the following link: https://www.feam.eu/wp-content/uploads/FEAM-fin-wn.pdf

collaboration across sectors, across Europe and with the rest of the world, significant European human capital development in health research, and the world's biggest public-private health research partnership (Innovative Medicines Initiative - IMI). The coordination of national funding programmes has also been strengthened although there may be further opportunities for better alignment of the various national research initiatives. Additional diversity in the EU support for research and innovation is exemplified by participation in the global consortia of health research funding agencies and the development of other financial instruments such as loans to SMEs, leveraging other sources of investment in risky areas (such as infectious disease research).

A wide range of significant achievements from previous support is illustrated by:

- Scientific publications, whose high impact reflects the influence of cross-border collaboration in producing excellent science
- New compound candidates from Innovative Medicines Initiative (IMI) for testing across Europe
- Rapid response to help eradicate Ebola
- Leveraging other funds to change breast cancer practice in using Mammaprint technologies
- Working with Member States to progress personalised medicine
- The ESPOIR project development of an accepted new heart valve replacement methodology for children.

These achievements cover the spectrum of activity from basic research through to application, and underscore why long-term investment is often needed for impact in translating research into practice: an important point for the biomedical community collectively to continue explaining to policy-makers.

How can we secure more impact? The interim evaluation of Horizon 2020 found a well-performing programme, on track to deliver EU added value. But there is also room for improvement, particularly in terms of the translation of strategic challenges and objectives into specific topics and in the need to bring research and innovation closer to the public. The Lamy report[6] recommended that impact-focused, mission-oriented approaches be established. In designing FP9 to reduce fragmentation of funding and deliver further impact, various criteria have been proposed in selecting missions[7]:

- Bold, inspirational with wide societal relevance
- A clear direction: targeted, measurable and time-bound
- Ambitious but realistic research and innovation actions
- Cross-disciplinary, cross-sectoral and cross-actor innovation
- Incorporating multiple bottom-up solutions.

[6] *LAB – FAB – APP - Investing in the European future we want*, Report of the independent High Level Group on maximising the impact of EU Research & Innovation Programmes. July 2017, European Commission, DG Research and Innovation.

[7] Discussed in detail in the report by Professor Mariana Mazzucato, *Mission-oriented research and innovation in the European Union. A problem-solving approach to fuel innovation-led growth.* February 2018, European Commission, DG Research and Innovation.

While relatively straightforward to describe the criteria, it may be harder to implement in practice in missions at the EU level. Nonetheless, key factors for successful implementation can be identified:

- Engagement of diverse stakeholders
- Commitment to measurement of progress and impact
- A portfolio of instruments to foster bottom-up solutions
- Flexibility, pro-active management and building in-house capabilities; with public engagement throughout.

EU missions can be perceived as occupying a strategic place between the global SDGs and a portfolio of specific projects and other measures.

For example, in Horizon 2020, the work to address the global challenge of rare diseases illustrates the characteristics of a mission-oriented approach. This work entailed tackling a large number of diseases and large unmet medical needs but small patient populations for individual diseases, with scarce and scattered research resources. The International Rare Diseases Research Consortium (IRDiRC) was established in 2011 to comprise public and private sector funders, foundations and patient organisations. Very ambitious goals were set – 200 new therapies for rare diseases and the means to diagnose most rare diseases by 2020. These goals were achieved 4 years earlier than expected, illustrating the potential for demonstrating greater impact when the scientific community and other stakeholders are mobilised to tackle shared goals.

One possible future health mission, presented in the Mazzucato report is to decrease the burden of dementia by coordinating activity across different sectors and patient-centred projects, a topic that was also explored subsequently in the Panel discussion. It is important to appreciate that while FP9 will aim for more mission orientation generally, specific missions will probably account for a limited part of the budget.

In closing her keynote presentation, Dr Matthiessen emphasised that FP9 should be regarded as an evolution from Horizon 2020, capitalising on what has already been achieved and with health research as a core part. Following the European Commission's proposal for FP9 this year, the timeline will involve co-decision by the European Parliament and Council ready for launch in 2021. Partners in the FEAM Forum are invited to help lead the continuing debate on what FP9 could achieve.

High-level panel discussion: A vision for European biomedical and health research

Panel discussion was moderated by the journalist **Jacki Davis**, who challenged Panellists to articulate their vision (for the next 10 years), their priorities and how to achieve them.

Professor Robert Lechler (Vice-Principal, Health, and Executive Director of King's Health Partners Academic Health Sciences Centre, President of the UK Academy of Medical Sciences) noted that biomedical research in Europe is a success story but there is need to work hard to sustain this competitive position, particularly in view of Brexit. Priorities are:

- Retaining commitment to addressing fundamental questions in discovery science at a time when there is increasing attention to translational science
- Tackling big societal challenges – to do this requires public engagement
- Greater focus on health rather than disease – more emphasis on prevention and early intervention
- Addressing the challenges of transdisciplinarity – often difficult to make happen because many academics work in silos and there is need to incentivise engagement across disciplines
- Harnessing the combined skills of academia and industry, e.g. by optimising integration of diagnostic-therapeutic activities
- Sustaining international collaboration – the EU has a good multilateral track record and this must continue.

In subsequent discussion, Professor Lechler identified some of the most important specific areas for EU health research. These include understanding mental health, where the burden of illness is high, especially in young people. It is noteworthy that 50% of mental ill health has antecedents before 14 years of age, often of developmental origin. Other research priorities are associated with multimorbidity, especially in ageing and to understand mechanisms underlying mental and physical comorbid disorders; and obesity, especially childhood obesity.

Dr Paul Stoffels (Chief Scientific Officer, Johnson & Johnson) highlighted how the health industry takes a global perspective on opportunities and has found Europe to be a particularly effective location for building industry-academia links: it is important to consider how FP9 can continue this support for industry. There are significant scientific challenges associated with ageing populations and the goals for healthy ageing – necessitating action on chronic diseases and dementia. In supporting the point made by Professor Lechler, tackling these challenges requires early diagnosis and preventive actions based on collaboration between academia, health services, patients and industry.

Professor Karin Sipido (Department of Cardiovascular Sciences, KU Leuven, Chair of the Scientific Panel for Health) emphasised that while Framework Programmes have European added value, it is still the case that 90% of all public research funding in Europe is allocated at the national level. Thus, it is important to try to improve collaboration between national funders to achieve more synergy across Europe, and more impact. How then should a shared vision for health research for all of society be developed to incorporate all funders? Subsequent discussion returned to this question.

Dr Nick Meade (Director of Policy, Genetic Alliance UK) agreed with Dr Matthiessen that future funding developments should be evolutionary. The achievements of IRDiRC underscored the continuing unmet medical needs associated with lack of treatment for many rare diseases. Thus, a key criterion for future funding should be unmet medical need. There must be engagement with patients and the public to understand their priorities for unmet needs and patients should be involved in the co-design of research projects more extensively.

Following the Panellists' initial contributions, various topics were explored further with the audience. Among issues emphasised by the Panel and other discussants were:

EU added value

This objective must be a driver of FP9, but how should it be measured? The example of rare diseases discussed previously illustrates research added value but sometimes the impacts, e.g. of bringing scientists together, are harder to quantify. The Innovative Medicines Initiative (IMI) provides a good example of EU added value in collaboration involving academia and industry but also patients and regulators, such as in the work on validating new biomarkers. The European Reference Networks to share knowledge on rare diseases[8] also exemplify EU added value in involving patient contributions and providing opportunities for patients to participate in research and help co-design research. The European Reference Networks have also the potential to become a great database resource for academic researchers, e.g. to pursue longer term follow-up of patients. However, presently, research is not embedded in the European Reference Networks and this could be improved through increased synergy between the different programs within the European Commission and with Member States.

Mission-oriented research

What might be the right balance between mission-driven and fundamental science? The proposed allocation of 10-20% of the FP9 budget to specific missions seems reasonable. While, of course, it is critically important to retain investigator-driven fundamental scientific inquiry, that is supporting bottom-up ideas, it is also important to appreciate that missions are not incompatible with basic research. It may often be vital to address fundamental science questions as part of a mission. A collective mission can be motivating to all involved, across the research spectrum, can serve to attract new sources of support (e.g. venture capital) and mobilise public interest in discovery as well as translational research.

What other missions might be considered in health research? Antimicrobial resistance exemplifies many of the issues for the global, longer-term research challenges, the opportunity to fund in novel ways (e.g. via Innovative Medicines Initiative -IMI- and the European Investment Bank), the need for health implementation to include action by Member States, and in ensuring that health is appropriately integrated with other policy areas.

[8] https://ec.europa.eu/health/rare_diseases/european_reference_networks_en

Both rare diseases and infectious diseases can be seen to reflect market failure, where EU added value could be anticipated. Are there other examples of market failure where the public sector should invest if the private sector does not? Paediatrics and mental health could both be considered in this category. Nonetheless, in addressing market failure, it should be recognised that there must also be a mechanism introduced for market pull, it may not be sufficient to concentrate only on research push.

Measuring impact

Impact is easier to measure if the research project has well-defined goals for the process (e.g. patient involvement) as well as health endpoints. Intermediate outcomes may also be an important metric of research and innovation progress. For example, in the pharmaceutical sector, impact may ultimately be measured in regulatory or economic terms as well as health terms, but progress in drug development requires assessment of interim achievements, e.g. toxicology endpoints or attaining proof-of-principle in using biomarkers.

In academia, the recent experience of the UK in assessing research quality in higher education institutions[9] has been helpful in introducing the concept of measuring impact. Again, it has been found that encouraging the culture of academia working together with industry and patients maximises the likelihood of achieving greater impact. Discussants agreed that involving patients as partners helps to ensure a collective focus on impact. FP9 can help in this by training patients to participate in clinical research.

Use of animals in scientific research

This topic is to be addressed in detail in another FEAM Forum event (Roundtable discussion on use of animals in scientific research, 28 March 2018). In the present discussion it was emphasised that there are many collaborative research programmes seeking to reduce the use of animals, e.g. in toxicology testing. Sharing experience among Innovative Medicines Initiative (IMI) partners shows that it is possible to avoid duplicating animal research. There are also continuing opportunities to do more research in humans and with human tissue *in vitro*. Nonetheless, despite progress in developing alternatives, Panellists concluded that well-regulated animal models are still needed to provide fundamental insight and tackle unmet medical needs.

Future healthcare systems

Discussants had highlighted the imperative for long-term commitment to research networks, including research on health outcomes. But how can we transcend current disciplinary silos to create a more integrated approach to health management, including tackling comorbidities? There also needs to be more integration to reduce the disconnects between the scientific and policy-making communities.

Are patients seeing the progress made in innovation? Digital health and digital infrastructure – including patients owning their health records – will become a significant part of future systems for people-centred quality care (as well as contributing to research in other ways, e.g. elucidation of risk factors). It is important for FP9 as well as health services to ascertain how to support better use of health data to retain public trust in their use in research.

Reiterating another point made previously, future systems will gain by their focus on health rather than disease: this requires stratifying risk, targeting interventions and targeting the social determinants of health inequality.

[9] www.ref.ac.uk

European Council for Health Research and other actions for maximising European coordination

If successful, the proposed European Council for Health Research would help to address fragmentation in funding and in objectives, would provide synergy and coordination between Member States' activities and support continuity in clinical effort and patient involvement. As an overarching platform, it could function as a single point of entry for all health research, combining mission-oriented and bottom-up approaches.

There is a broad agenda for coordination in addition to funding. For example, Brexit brings new challenges for maintaining the essential mobility of scientists and their families and for building multilateral partnerships in Europe as part of the global community. Education and training (including the exchange of younger researchers between laboratories) are critically important for future scientists, physicians and other health professionals.

Some of these issues, e.g. for the medical curriculum, may be primarily for resolution by Member States but there is a general requirement to incorporate training on new skills for the future, e.g. to emphasise transdisciplinarity and capacities for interpreting and using large data sets. It is also important to remember the need to continue training the current workforce. There should be increased patient involvement in medical training and additional training exchanges between industry and academia.

In closing the discussion, Jacki Davis invited Panellists to identify one thing to do if they could be Commissioner of Research and Innovation for a day. The responses – reaffirming many of the points made previously – encompassed shifting the emphasis to disease prevention, health promotion and healthy living, and facilitating structures to enable all stakeholders to work together to identify research priorities and clarify research design, increasing patient representation throughout.

Concluding remarks and next steps

Providing the final remarks, **Professor Stefan Constantinescu (Vice President of FEAM)** concluded that this event had very well matched the proposed aims and philosophy of the FEAM Forum, to ensure an open and timely debate on European health policy issues of common interest among biomedical stakeholders, thereby contributing to the support of a cohesive, coherent and creative biomedical sector. The importance of collective effort, from the lab to the bedside of patients, had been exemplified throughout the event. Important opportunities and challenges for biomedical and health research were extensively debated in terms of the identification of thematic priorities, the necessity of closing current gaps and the value of improving coordination and consolidation of research across Europe, including the definition of the future collaboration with the UK. Professor Constantinescu added one other point relevant to the discussion on education – it is also vital to motivate young people to become future researchers. For example, more can be done to engage with high school students to explain scientific bottlenecks to be resolved, including those associated with fundamental mechanisms in cell biology and steps in drug development.

In publishing this report from the event, FEAM aims to continue informing the debate on fostering a vibrant European research environment. The success of the event was dependent on the enthusiasm and commitment of many contributors. Professor Constantinescu thanked the speakers, Panellists, and moderator, and all who participated in the discussion. Thanks were also expressed to the FEAM staff and Forum partners, without whom the event would not have been possible, to the UK's Department of Business, Energy and Industrial Strategy for providing a grant, to the UK Academy of Medical Sciences for their support in facilitating the grant and, together with other member Academies for their continuing support to FEAM.

Annex I - Agenda

21 March 2018 (14:30 – 18:30)
Hotel Steigenberger Wiltcher's, Avenue Louise 71, 1050 Brussels, Belgium / Ballroom

14:30-15:00	**Registration and coffee**
15:00-15:15	**Welcome and Introduction** • Bernard Charpentier, President, Federation of European Academies of Medicine (FEAM)
15:15-15:45	**Keynote lecture** • Line Matthiessen, Acting Director, Health Directorate, European Commission, Directorate-General for Research and Innovation
15:45-17:20	**High-level panel discussion: A vision for European biomedical and health research** *Moderator:* Jacki Davis, journalist **Panellists:** • Line Matthiessen, Acting Director, Health Directorate, European Commission, Directorate-General for Research and Innovation • Robert Lechler, Vice-Principal (Health) and Executive Director of King's Health Partners Academic Health Sciences Centre, President of the UK Academy of Medical Sciences • Paul Stoffels, Chief Scientific Officer, Johnson & Johnson • Karin Sipido, Professor of Cardiology, Department of Cardiovascular Sciences, KU Leuven, Chair of the Scientific Panel for Health • Nick Meade, Director of Policy, Genetic Alliance UK *The panel discussion will include a Q&A with the audience*
17:20-17:30	**Concluding remarks and next steps** • Stefan Constantinescu, Vice President, Federation of European Academies of Medicine (FEAM)
17:30-18:30	**Networking cocktail**

Annex II - Speakers' biographies

Bernard Charpentier

President, Federation of European Academies of Medicine (FEAM)

Prof. Bernard Charpentier received his MD and graduated in Nephrology from Paris University School of Medicine in 1975. He is full Professor in Medicine in Paris-Sud 11 University since 1983, medical Consultant and was Head of the Department of Nephrology, Dialysis and Transplantations in the University Hospital of Bicêtre (1992-2011). He was Director of several CNRS-INSERM-University Paris-Sud 11 research units devoted to Immunology and Immunoregulation (CNRS UPR 277-420; INSERM U542-1014). He is (co)author of more than 400 pubmed-indexed publications on Nephrology and Transplantation. He was member of several Editorial Boards of immunology and transplantation journals and of immunology, nephrology, and transplantation societies. He acts as a consultant for several International, European and National Advisory Committees. He is member of the Ethical and Sanction Committee (CODEEM) (2011-2017) of the French Pharmaceutical Companies Union (LEEM).

He was Dean of the Faculty of Medicine Paris-Sud (1998-2008), President of the French Medical Deans' Council (2003-2008), President of the French Transplant Society (1997-2000), President of the European Society for Organ Transplantation (ESOT) (2005-2007), Co-Chairman of the XVth ESOT Congress (Paris-2009). He was elected as Fellow of the French Academy of Medicine (2010), Council Member of the Federation of European Academies of Medicine (FEAM-2012), FEAM Vice-President (2014) and now FEAM President (2015). He is member of the « Science Advice for Policy by European Academies » (SAPEA) of the European Commission. He is Commandeur de la Légion d'Honneur, Officier de l'Ordre du Mérite, Chevalier des Palmes Académiques, Médaille d'Honneur du Service de Santé des Armées. His field of interest are mainly focused in transplantation medicine, basic immunology, immunoregulation and immunosuppressive drugs.

Line Matthiessen

Acting Director, Health Directorate, European Commission, Directorate-General for Research and Innovation

Line Matthiessen was trained as an MD at the University of Odense, Denmark and received her PhD in Neurosciences from the University of Paris VI, France in 1993. She is acting Director of the Directorate for Health, in the Directorate-General for Research and Innovation at the European Commission. In this role, her responsibilities include providing overall strategic orientation and management of the Health Research Directorate; initiating or providing support for legislative, regulatory and policy issues in the area of health research and innovation, including intellectual property; in consultation with a large number of stakeholders, establishing research priorities for the Health Research programme of the EC; representing the EC in European and international meetings including in negotiations with governments, non-governmental organisations, patient organisations, etc. as well as working on novel financial instruments in collaboration with colleagues in DG RTD and the European Investment Bank.

Dr Matthiessen is also the Head of Unit responsible for Fighting Infectious Diseases and Advancing Public Health in the Directorate-General for Research and Innovation. The unit promotes and supports EU research and innovation activities in the area of

global health with emphasis on HIV/AIDS, malaria and tuberculosis, emerging epidemics, neglected infectious diseases and antimicrobial drug resistance, health promotion, health systems and services. The unit also supports the implementation of the European and Developing Countries Clinical Trials Partnership (EDCTP) and the Global Research Collaboration for Infectious Disease Preparedness (GLOPID-R).

Robert Lechler

Vice-Principal (Health) and Executive Director of King's Health Partners Academic Health Sciences Centre, President of the UK Academy of Medical Sciences

Robert Lechler qualified in Medicine and trained in general medicine and nephrology. His research training included a PhD in transplantation immunology at the Hammersmith and a Wellcome Trust-funded post-doctoral fellowship at the NIH in Bethesda, USA. He returned to the Hammersmith in 1986 and became Head of the Department of Immunology in 1994, Dean of Hammersmith Campus at Imperial in 2001 and Head of Division of Medicine in 2003. He moved to King's College London as Head of the School of Medicine in September 2004 and was appointed Vice Principal (Health) there in October 2005. He continues to direct a research group in transplantation immunology. In 2009 he was appointed Executive Director of King's Health Partners and in 2012 was awarded a Knighthood in the Queen's Birthday Honours for services to academic medicine. He was elected as President of the Academy of Medical Sciences from December 2015.

Paul Stoffels

Chief Scientific Officer, Johnson & Johnson

Paul Stoffels is a visionary leader who inspires and drives transformational innovation to bring years of life and quality of life to millions of people around the world.
As Chief Scientific Officer, Paul spearheads the Johnson & Johnson research and product pipeline by leading teams across the pharmaceutical, medical devices and consumer segments to discover and develop healthcare solutions to address unmet needs. He is also a pioneer in global public health and steers the company's strategy to make innovative medicines and technologies accessible in the world's most vulnerable communities and resource-poor settings.
Paul's commitment to fueling innovation and finding the best science, wherever it exists, is the driving force behind the launch of Johnson & Johnson Innovation in 2013, which he now leads to foster science and technology through strategic partnerships, licensing and acquisitions.
Paul also oversees JJDC, the oldest corporate venture fund in the life science industry, has responsibility for safety of all products of the Johnson & Johnson Family of Companies worldwide, and is also member of the Johnson & Johnson Executive Committee and chairs the Johnson & Johnson R&D Management Committee.
Previously, in his role as Worldwide Chairman, Pharmaceuticals, Paul led the transformation of the pharmaceutical research and development pipeline for Janssen Pharmaceutical Companies of Johnson & Johnson, driving a fundamental shift in the R&D paradigm that is now a model in the industry for productivity and innovation. Under his leadership, Janssen rejuvenated its pipeline, launching multiple new medicines and making a difference for people all over the world.
Prior to this, Paul held various R&D leadership roles within the pharmaceutical sector of Johnson & Johnson. He joined Johnson & Johnson in 2002 with the acquisition of Virco and Tibotec, where he was Chief Executive Officer of Virco and as Chairman of Tibotec, and led the development of several breakthrough products for the treatment of HIV that helped to transform this devastating disease from a death sentence to a chronic and treatable condition.

Paul studied Medicine at the University of Diepenbeek and the University of Antwerp in Belgium and Infectious Diseases and Tropical Medicine at the Institute of Tropical Medicine in Antwerp, Belgium. He began his career as a physician in Africa, focusing on HIV and tropical diseases research.

Karin Sipido

Professor of Cardiology, Department of Cardiovascular Sciences, KU Leuven, Chair of the Scientific Panel for Health

Karin Sipido is Professor of Medicine and Head of Experimental Cardiology at the KU Leuven, the University of Leuven, Belgium. She received her MD degree and training in Internal Medicine and Cardiology in Antwerp, Belgium, and her PhD at KU Leuven. She trained in cardiac cell biology at the University of Maryland and at Johns Hopkins University, Baltimore. She has worked as a clinical consultant in Cardiology in Leuven and was visiting professor at the University of Maastricht, NL, and UMC Utrecht, NL. She is elected member of the Academia Europaea, Fellow of the European Society of Cardiology, Fellow of the American Heart Association and of the International Society for Heart Research.

Her academic research is focused on cellular mechanisms of heart failure and arrhythmias. She is member of the editorial board of several leading journals in the cardiovascular domain; she was Associate Editor of the *European Heart Journal* and Editor-in-Chief of *Cardiovascular Research* 2013-2017.

She has been chair of the KU Leuven Research Council and Research Coordinator for Biomedical Sciences. At KU Leuven, she is presently chair of the Council for Research Policy of the university.

She has served on the board of the European Society of Cardiology where she was also chair of the Council Basic Cardiovascular Sciences and member of the EU affairs committee. She was liaison member of the Council Basic Cardiovascular Sciences of the American Heart Association. She was founding member and President of the Alliance for Biomedical Research Europe 2013-2015. Currently she chairs the Scientific Panel for Health under the provision of the European Commission H2020 program.

Nick Meade

Director of Policy, Genetic Alliance UK

Nick Meade is Director of Policy at Genetic Alliance UK (geneticalliance.org.uk), the UK charity of over 200 patient organisations supporting all those affected by genetic conditions. Genetic Alliance UK's policy work focuses on research and innovation to facilitate progress towards cures and treatments for unmet health need, on the commissioning of healthcare services and access to therapies, on genetic testing and genomic technologies, and on reproductive choice. Nick represents patients on panels and committees in the UK and Europe, including National Institute for Health and Care Excellence (NICE) and the Patient and Consumer Working Party of the European Medicines Agency. Genetic Alliance UK is a member of EGAN, the patients network for health and medical research, and a member of Eurordis, the European Organisation for Rare Diseases.

Stefan Constantinescu

Vice President, Federation of European Academies of Medicine (FEAM)

Stefan N. Constantinescu is Professor of Cell and Molecular Biology at Université catholique de Louvain. He coordinates the Cell Signaling and Molecular Hematology Pole of de Duve Institute at UCL and is a Member of Ludwig Institute for Cancer Research, at the Brussels Branch. Trained as an MD at the Carol Davila University of Medicine and Pharmacy in Bucharest, he uncovered in 1989 a major pediatric AIDS outbreak in Romania that has changed blood transfusion practices and impacted the pediatric AIDS field. His PhD thesis concerned mechanisms of signaling by type I interferons. He undertook postdoctoral work with Prof. Harvey F. Lodish at Whitehead Institute at Massachusetts Institute of Technology (1995-2000) on oncogenesis via erythropoietin receptor and is an independent group leader since 2000.

His research focuses on molecular bases of blood formation and cancer, and on fundamental aspects of cytokine receptor and transmembrane protein structure and function. His laboratory at de Duve Institute (UCL) and Ludwig Cancer Research has contributed to the identification and study of the driver mutations in human myeloproliferative neoplasms Polycythemia Vera, Essential Thrombocythemia and Myelofibrosis (JAK2 V617F, W515 mutants of Tpo receptor, mechanism of oncogenesis by calreticulin mutants). He was elected to both the Royal Academy of Medicine in Belgium, and the Romanian Academy of Medical Sciences, and is Vice-President of FEAM since 2016.

Jacki Davis

Moderator

Jacki Davis is an experienced journalist, speaker and moderator of high-level events both in Brussels and in EU national capitals, the editor of many publications, a regular broadcaster on television and radio news programmes, and a Senior Adviser and member of the Governing Board of the European Policy Centre think tank.

Jacki has been based in Brussels for 25 years, and was previously Communications Director of the European Policy Centre think tank; Editor-in-Chief of E!Sharp magazine; and launch editor of European Voice, the Brussels-based weekly newspaper then owned by The Economist (now Politico). Jacki has moderated many conferences in Brussels and in EU Member States, and also has extensive experience in planning events.

Annex III - Participants' list

Last Name	First name	Position	Organisation
Bastos	Luisa	Animals in Science Programme Leader	Eurogroup for Animals
Bohm	Elizabeth	Head of International	Academy of Medical Sciences (UK)
Bottaro	Silvia	FEAM Forum Policy Officer	Federation of European Academies of Medicine (FEAM)
Bouillon	Roger	Professor	Clinical and Experimental Endocrinology, KU Leuven
Castillejos	Carlos	VP, External Affairs – Science & Medicine	Johnson & Johnson
Charpentier	Bernard	President	Federation of European Academies of Medicine (FEAM)
Chlebus	Magda	Executive Director Science Policy and Regulatory Affairs	EFPIA
Collen	Sarah	Senior EU Policy Manager	NHS European Office
Constantinescu	Stefan	Vice President	Federation of European Academies of Medicine (FEAM)
Coppenrath	Marilyn	Innovation & Public Affairs Manager	pharma.be
Corazza	Andrea	Director	FTI Consulting
Crasto De Stefano	Isabell	Consultant	Eacon
Davis	Jacki	Moderator	Meade Davis Communications
Dietl	Monica	Senior Advisor	Science Business
Fears	Robin	Policy Adviser	Federation of European Academies of Medicine (FEAM)
Folger	Eva	Intern	Bundesverband der Pharmazeutischen Industrie (BPI)
Garel	Pascal	Chief Executive	European Hospital and Healthcare Federation
Goerlitz	Lisa	Advocacy Officer	Deutsche Stiftung Weltbevoelkerung (DSW)
Guinard	Catherine	EU Public Affairs Manager	Cancer Research UK
Hrbkova	Kristina	Trainee	Czech Liaison Office for Research, Development & Innovation (CZELO)
Jarrett	Wendy	Chief Executive	Understanding Animal Research
Kaul	Tabea	Intern	Helmholtz Association of German Research Centres e.V
Kipling	Jeff	Science Policy Adviser	Federation of European Academies of Medicine (FEAM)
Kozhaeva	Olga	Senior Policy Affairs Coordinator	European Society for Paediatric Oncology (SIOPE)
Lechler	Robert	Vice-Principal (Health) and Executive Director, President	King's Health Partners Academic Health Sciences Centre, Academy of Medical Sciences (UK)
Legros	Laurence	Executive Director	Federation of European Academies of Medicine (FEAM)

Last Name	First name	Position	Organisation
Livermore	Tom	Senior Policy Officer	Academy of Medical Sciences (UK)
Loisance	Daniel	Head of Committee of Foreign Affairs	French Academy of Medicine
Malinina	Jelena	Analyst	RPP
Matthiessen	Line	Acting Director, Health Directorate	European Commission, DG RTD
Mauricaitė	Donata	Policy Analyst	Lithuania RDI Liaison Office
Meade	Nick	Director of Policy	Genetic Alliance UK
Mobasser	Hamed	Scientific Policy Officer	Federation of European Academies of Medicine (FEAM)
Obermüller	Stefan	National Expert	Main Association of Austrian Social Security Institutions
Persichetti	Sarah	European Affairs Intern	Interel
Preising	Andreas	Head Corporate Office EU	Boehringer Ingelheim
Psalti	Ioanna	Advisor	European Glaucoma Society Foundation
Rouaud	Carole	Senior policy adviser	Standing Committee of European Doctors (CPME)
Scholte	Marijn	Policy Officer	European Brain Council
Serafinavičiūtė	Brigita	Head of Office	Lithuanian RDI Liaison Office LINO
Siefen	Miriam	Intern	Boehringer Ingelheim
Simulescu	Loredana	EU Policy Officer	Alliance for Biomedical Research in Europe
Sipido	Karin	Professor	Department of Cardiovascular Sciences, KU Leuven, Chair of Scientific Panel for Health
Stoffels	Paul	Chief Scientific Officer	Johnson & Johnson
Tassignon	Marie-José	Fellow	Belgian Royal Academy of Medicine (KAGB)
Tolliday	Bob	Communications and Media Manager	European Animal Research Association (EARA)
van den Broeck	Felix	Intern	Neth-ER
van Nieuwland	Alex	Liaison Officer	Eindhoven University of Technology
van Riet	Jonas	EU Policy Officer	European Society of Radiology
Varga	Timea	Project Consultant	APCO Worldwide
Ward	Brian	Director of Advocacy	European Respiratory Society
Wren	Louise	Policy Manager UK/EU	Wellcome Trust

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