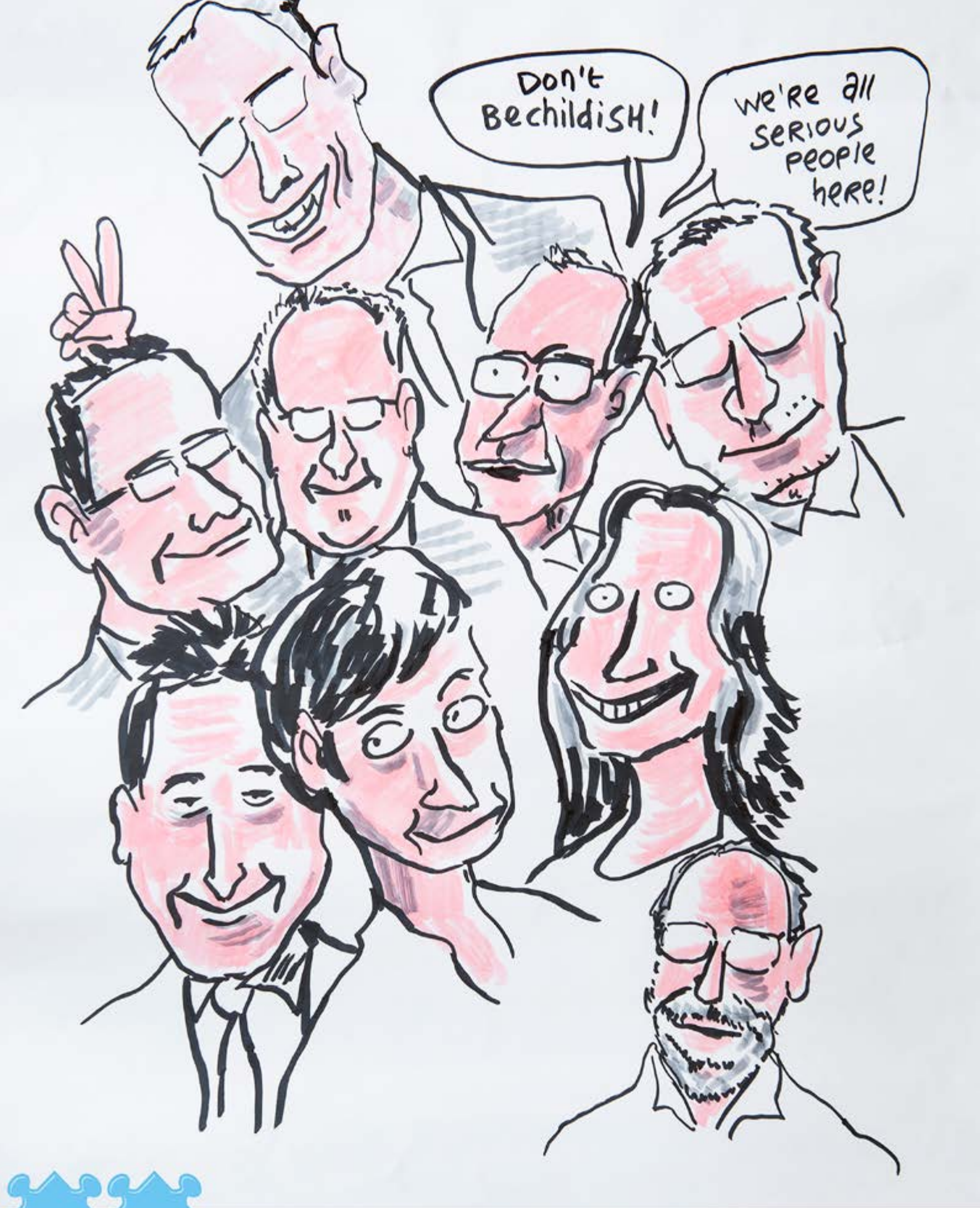
High-level roundtable sessions
Fondation Universitaire, Brussels
11-12 April, 2016

European Alliance for Personalised Medicine

'Crossing the Rubicon - 5 Different Ways – The Stakeholders' Voice'


Don't Bechildish!
We're all serious people here!

High-level roundtable sessions

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Foreword

After its highly successful 4th annual conference at Solvay Library in early April (5/6), EAPM co-ordinated a two-day series of roundtables at the Fondation Universitaire in Brussels, with Member State, Commission and wide stakeholder input, on five key challenges associated with research and personalised medicine.

The event took place over Monday and Tuesday, April 11-12, with 60 high-level attendees, and was geared towards feeding into a Commission/ICPerMed conference on personalised medicine to be held on 1-2 June, in the Belgian capital.

EAPM will organise a follow-up meeting later in the year to further these important topics.

The workshops followed on from the PerMed 'Strategic Research and Innovation Agenda' (SRIA) on Personalised Medicine, launched at a press conference last June.

The Commission, Member States and EAPM, alongside other stakeholders, are striving to develop a roadmap for research that aims to embed personalised medicine approaches into European health systems and acknowledges the need to identify "exemplars" which can be tested as models for effective translation of research into clinical benefit, as well as showing "added value".

Europe not only needs world-class research, it requires an enabling policy and regulatory framework, and an economic model, that will allow new drugs not only to be developed but also to be made available to patients who need them, wherever they need them, across Europe.

Citizens need to benefit from better co-ordination of research with all stakeholders involved, including a cross-section of legislators in the European Union.

Europe is still at the very early stages of translating research results into actual products. Research is key, as is a focus on innovation in health care.

Attendees at the workshops were made up of researchers, academics and high-level experts on many aspects of personalised medicine. The five crucial areas discussed were:

1. Developing awareness and empowerment

Through personalised medicine, the role of HCPs and patients will evolve. Patients and healthcare professionals need to develop the required awareness and a first step is to deliver best available evidence supporting the clinical and personal utility as well as the economic value of new approaches to health systems.

2. Translating basic to clinical research and beyond

In order to achieve its anticipated impact on the health and well-being of citizens, translation of discoveries and communication across the continuum of research are required. This starts with the integration of all the 'omics' data to generate and implement meaningful interventions and diagnosis.

3. Shaping sustainable healthcare

Personalised medicine will rely on healthcare systems that are able to adapt to these approaches in a timely and socially acceptable manner, while enabling the participation of all stakeholders to increase effectiveness.

As mentioned, training for health professionals is required as is the promotion of engagement and close collaboration between all stakeholders, including patients.

4. Integrating Big Data and ICT solutions

The development of personalised medicine will rely heavily on integrated Big Data analytics and ICT solutions to generate and integrate the required knowledge and infrastructure for new approaches. Technologies for data capture as well as the management and development of high-quality databases will be as instrumental as strategies to make sense of data for known and future purposes.

5. Bringing Innovation to the market

Innovative solutions represent a higher uncertainty regarding going to market. There is a need to develop new risk-based approaches for their evaluation in a context that encourages systematic early dialogue with all stakeholders providing guidance for companies.

It is clear that patients today are more aware of the clinical improvements that can be achieved through the use of personalised-medicine tools such as biomarker tests. Patients need empowerment, which means good access to information, and the ability to participate fully in discussions about the management of their disease.

Shared decision-making should become a reality and part of empowerment, but it is also about shared knowledge and, not least, education.

The following report is a synopsis of the roundtable discussions over the two days.

High-level roundtable sessions

Fondation Universitaire, Brussels
11-12 April, 2016

Where it all began

In 2013, EAPM launched its **Integrated Research Policy Roadmap** to Embed Personalised Medicine in European Health Systems

European researchers have been at the forefront of major scientific healthcare discoveries in areas such as cancer, cardiovascular disease, genetic disorders, and infectious disease.

The undeniable challenge is how best to translate this knowledge and expertise into medical advances that improve outcomes and enhance wellbeing for European patients?

EAPM recognises that translational research is a key enabler of the European Union research effort and represents the conduit through which European discovery science can be converted into new diagnostics, treatments, products and approaches that benefit European citizens and society.

Despite the significant advances that have been made, personalised medicine's undoubted potential can only be realised by a harmonised European research agenda that enables efficient and effective translation of scientific innovation, underpinning practice-changing clinical advances for our patients.

The two-day roundtable gathering reflected the key elements of the Research Policy Roadmap, as outlined in the foreword on Page 3 of this document.

Day 1

Introduction

Irene Norstedt set the stage for the roundtables saying that the work of EAPM is appreciated, and that It is important to move together in the best possible way.

She noted that Horizon 2020 is the biggest EU Research and Innovation programme ever with nearly €80 billion of funding available over seven years up to 2020.

She added that it is seen as a means to drive economic growth and create jobs, and has the political backing of Europe's leaders and the Members of the European Parliament. They agreed that research is an investment in our future and so put it at the heart of the EU's blueprint for smart, sustainable and inclusive growth and jobs.

By coupling research and innovation, Horizon 2020 is helping to achieve this aim with its emphasis on excellent science, industrial leadership and tackling societal challenges. The goal is to ensure that Europe produces world-class science, removes barriers to innovation and makes it easier for the public and private sectors to work together in delivering innovation.

Irene also highlighted collaborative health research, PerMed and Luxembourg's Council Conclusions on personalised medicine, published in December 2015.

She went on to add that, these days, there should be compulsory training in personalised medicine. Universities and hospitals could help with this type of education.

Meanwhile, doctors need to be able to inform patients of the possibilities - either at home or abroad - of the right treatment at the right time for them.

Barriers to implementing personalised medicine have been identified in several key areas. These include:

- Stakeholder involvement, standardisation, interoperable infrastructure, European-level policy making, funding, data and research, healthcare systems.

- At the scientific level, the development of strategies have to be adjusted to clinical needs.

- At the operational level, among other things, healthcare professionals should be supported by tailored information delivery and timely delivery.

- Economics-wise, there are reimbursement difficulties because of lack of evidence, incentives, streamline, market-based approaches, HTA and approval process.

- And at the European level, coordination and cooperation across Europe is needed on, for example, biobanks, translation, reimbursement and legal and ethical issues.

There needs to be a translation of information from basic to clinical research and beyond and the potential of personalised medicine will only be realised through the integration of excellent basic science with clinical and public health research and through product development and communication in both directions. This will require the concerted action of a number of sectors, disciplines and agencies.

High-level roundtable sessions

Fondation Universitaire, Brussels
11-12 April, 2016

Roundtable 1
Developing awareness and empowerment

In the Luxembourg Council Conclusions it was stated that patients today are more aware of the clinical improvements that can be achieved through the use of personalised medicine tools such as biomarker tests.

Patients need empowerment, which means good access to information, and the ability to participate fully in discussions about the management of their disease.

Shared decision-making should become a reality and part of empowerment, but it is also about shared knowledge and, not least, education.

Maria Molnar made an opening statement for this roundtable, saying that, today, opportunities abound for patients to serve as active partners in defining and prioritising research questions and solutions.

Patients should be their own shareholders yet patient expertise is needed in how to shape healthcare.

Paradigm changes are needed to influence the future of personalised healthcare, including a switch to a patient-centred model from the physician-centred model.

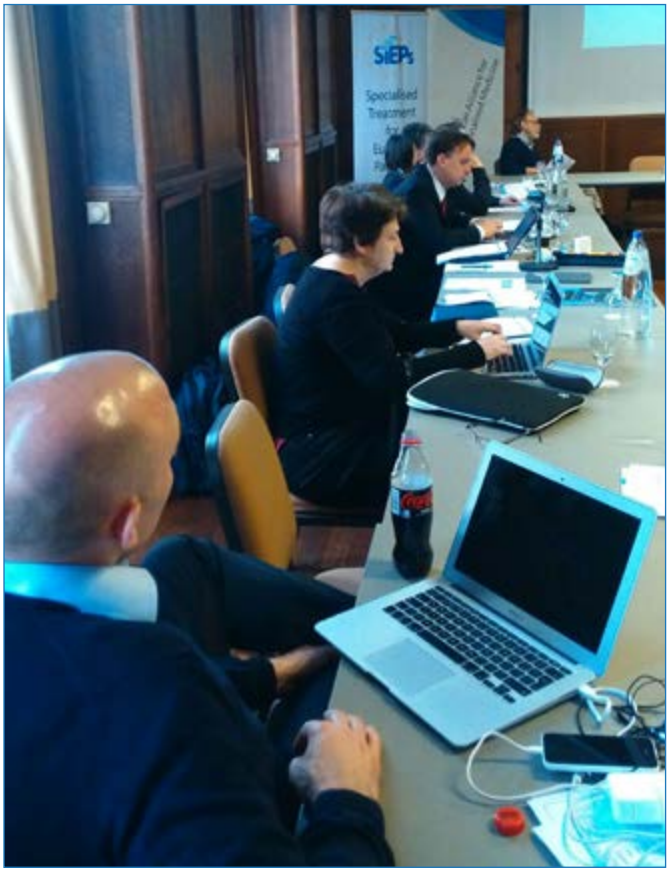
Health literacy needs to improve to enhance informed decision making – involving the patients in the decisions, sharing the responsibility, and motivating the person for a healthier lifestyle.

Action is needed at the local, regional and European level to develop policies for health literacy in order to move from a paternalistic model of care to a shared model of care.

Denis Horgan said that health literacy can be defined as the knowledge, motivation and competence to access, understand, appraise and apply information to make decisions in terms of healthcare, disease prevention and health promotion.

Access refers to the ability to seek, find and obtain health information. Understanding refers to the ability to comprehend the health information that is accessed. Appraisal concentrates on the ability to interpret, filter, judge and evaluate the health information that is accessed.

Application refers to the ability to communicate and use the information to make a decision to maintain and improve health.



Health literacy is an European public health challenge that has to be taken seriously by policy-makers. It constitutes an emerging field for policy, research and practice. It is vital that the European Commission as well as European Union Member States take the necessary steps to increase health literacy at individual, organisational, community, regional and national levels.

For personalised medicine to reach its full potential, among many things it needs engaged and informed patients who are encouraged to discuss various treatment options, plus the possible consequences of those options, and then to arrive at an informed determination about the best option to choose.

And on these topics of communication and health literacy, families also need to know what the disease and potential treatments are and even where possibly suitable clinical trials are available.

It was emphasised that personalised medicine needs to be 'patient driven' as well as 'patient centred'. It only works when it is for and by the people, engaged as an equal partner, when it is their project.

High-level roundtable sessions

Fondation Universitaire, Brussels
11-12 April, 2016

Ian Banks spoke of the need to provide further evidence for the benefit delivered by personalised medicine to health systems, quoting figures showing that, after just one month away from work the chance of successful return has fallen to only 90%, by six months of absence it falls below 50%.

He added that worklessness carries the same health risk as smoking 10 boxes of cigarettes a day and that ill health retirement may cost a business three times the salary costs in addition to pension payment.

Peter Riegman spoke of the need to develop common principles and legal frameworks that enable sharing of patient-level data for research in a way that is ethical and acceptable to patients and the public.

And *Anastassia Negrouk* spoke of the need to incorporate patient participation in the healthcare system and increase the patient's role in all phases of research and development

Generally speaking, patients are typically seen only as passive recipients of care. A more desirable model of personalised medicine better enables patients to be participants and guides in their own health care. Patient participation in treatment decision-making is being increasingly advocated as a desirable model especially when patients present with serious illnesses, when there are different treatment options, and when the gains of treatment have to be weighed against possible adverse effects.

Frederic Destrebecq spoke about closing the treatment gap for brain disorders in Europe, pointing out that more than one-third of Europe's population are/will be affected by brain disorders.

He added that costs in Europe in 2010 were almost 800 billion euro so clearly this is a high burden on both individuals and society.

Mario Romao spoke of the need to develop mobile health applications to maximise engagement of patients with their treatment pathways and track the safety and effectiveness of these interventions.

He added that healthcare is more efficient when patients are more involved in their treatment, while pointing out that mHealth can help empower patients to self-manage their health.

Conclusions

• Improving reimbursement by exchanging information/ sharing expertise between countries

• HTA changes needed for equal access of patients to appropriate molecular diagnostics by taking action on a: better alignment and making HTA guidance legally binding, keep monitoring (funded) done by the Health Technology Assessment Network

• European Commission should create attention for development and evaluation of HL interventions in Europe

• Create involvement in all steps of research and development by including patients' organisations

• Support better integration and evaluation of the information by: combining all the professionals, bringing together clinical data and 'omics', improve data sharing, transparency.

• Creating a possibility for an opt-out system to be able to use/ share medical tissue/data faster to improve needs for patients depending on research that do not benefit from harmonisation, when the GDPR is an obstruction.

• European Commission should support developing health lieracy by setting concrete targets, including areas of improvement

• Commission should help sharing best practices and create a platform for collaborative ventures, support initiatives like Health Literacy Europe

• Facilitating re-use of data for multiple purposes and increasing the efficiency and impact of research findings beyond scientific journals

• Need for EU support on creating eHealth application/website to provide information on diseases and potential treatments and where possible suitable clinical trials are available

• Need to research the different patients' organisations, type of patients advocate structures.

• Funding by EC and support of hospitals and universities for providing compulsory training in personalised medicine increasing their ability and sense of competence in interpreting it and updating the curriculum of young HCPs

High-level roundtable sessions

Fondation Universitaire, Brussels
11-12 April, 2016

Roundtable 2
Translating Basic to Clinical Research and Beyond

The Luxembourg Council Conclusions stated that in order to achieve personalised medicine's anticipated impact on the health and well-being of EU citizens, translation of discoveries and communication across the continuum of research are required

Tomasz Dylag said that it is important to design/define instruments, set standards, require a minimal data set and that education is necessary.

Rob Hastings spoke about developing methods to better integrate and evaluate the information provided by genomic, epigenetic, transcriptomic, proteomic, metabolomics and microbiome analyses

He said there is a need for a handful of large-scale system changes, and that current thinking on research is out-dated very uncollaborative.

Hastings added that there is a need for systems and officials to use data in a systematic way, allowing clinicians to access and use the data. This would require investment and an enabling policy and regulatory environment.

The Luxembourg report, meanwhile, stated:

- The Commission's working document on the use of 'omics' technologies and the Precision Medicine Initiative launched in the US should inspire Member States plus the Commission to increase their efforts in this field, with the hope of gaining new insights into diseases and how to cure and eventually prevent them

- In order to achieve personalised medicine's anticipated impact on the health and well-being of EU citizens, translation of discoveries and communication across the continuum of research are required

- This starts with the integration of all the 'omics' data to generate and implement meaningful interventions. Such processes should be supported by re-classifying diseases at the molecular level and by developing pre-clinical models for validation. A European-wide process to evaluate and validate biomarkers would support this

Jesus Hernandez spoke about promoting longitudinal studies in the areas of personalised medicine, adding that tailored therapy leads to an increase in curing disease.

Also heard was that The International Consortium of Personalised Medicine intends to prepare a road map for actionable research activities that shall then be implemented by funding programmes/initiatives at various levels. This will require the appropriate health data systems and capacity to be in place

This would be followed by the generation of cohorts or the integration of existing ones into digitalised, standardised platforms, to be linked with the related data (-omic, life history, environment exposure etc) for every individual.

The follow-up clinical data should be integrated to allow e.g. understanding of the effect of variation, developing pre-clinical models to validate hypotheses resulting from molecular analyses, discovery of robust biomarkers or panels thereof, or development of theranostics.

Other specific points included:

- BBMRI-ERIC provides a network of existing biobanks and cohorts in Europe; it would be important to raise the awareness and to integrate additional existing biobanks and cohorts into the network. Biobanks shall be enriched by long term follow up of clinical data

High-level roundtable sessions

Fondation Universitaire, Brussels
11-12 April, 2016

- Quality of samples and sample data is key for qualitative outcome of research; samples shall be collected and stored according to relevant standards and norms.

- Research shall be done to investigate minimal data sets for various disease areas

- There is a need to turn retrospective disease cohorts into prospective disease cohorts and to validate data in the clinics

- Environmental factors shall be included in population and disease cohorts. It would be of advantage to be able to link electronic health records to the biobanks because it would facilitate the integration of various and large data sets

- Phenotyping of data as well as outcome measures is very important; there is a need for standardisation of methods in this area as well as for better reverse translation of getting data from therapeutic endpoints back to the bench

- Infrastructures for the proper management of medical data for research are needed; Biobanks could play a central role and might evolve from biobanks to knowledge banks.

- Studies of a companion diagnostics that would be implemented regularly in the routine clinical setting shall be funded

- Research on the development of new clinical trial designs is needed aligned with the Clinical Trials Directive

Conclusions

Mechanisms to drive change

• Support the development of tailored therapies to increase the chance of curing disease

• Data sharing as key to understand genomic technology

• Raising awareness on the specific quality, technical as well as ethical and legal requirements for efficient use of medical data in research and development.

Infrastructure/resources

• Need for a sustainability plan to make sure that projects/ research will stay available on long term

• Create a data-sharing structure (multi-use) on European level

• Ensure recognition of the uniqueness of health data and related data systems in the European Science Cloud in compliance with the General Data Protection Regulation

Projects

• Funding of longitudinal studies in personalised medicine, to improve disease management

• Fund the development and implementation of medicine adaptive pathways to patients to maximise effect of (new) drugs

• Fund the appropriate data health systems

European Alliance for Personalised Medicine

High-level roundtable sessions

Fondation Universitaire, Brussels
11-12 April, 2016

Roundtable 3
Sustainable healthcare

Andreas Engert spoke about the EHA roadmap for European Hematology Research and a consensus document that describes the state of the art in European hematology research and identifies future research needs in Europe and their impact.

Its aims are to identify possible gaps in research in hematology, avoid duplicating efforts and give evidence to politicians, policy makers and funding agencies.

Anni Morsing spoke of the need to develop prospective surveillance systems for personal health data that facilitate accurate and on-going assessment of highly dynamic health information across the life course.

Max Von Olenhusen, meanwhile, highlighted different costs in different countries (using the example of Germany and Slovenia) and a need to bring the European situation closer to the global situation.

He said that outcome measurement is probably the most difficult (especially in mental diseases), but because we don't know the best measure right now doesn't mean we shouldn't already start.

There is a also a need to harmonize data access requirements and focus on what matters to patients.

Conclusions

Mechanisms to drive change

• Support the development and the accessibility of European health data sharing systems

• Support the development of a pay-for-outcome system

Infrastructure/resources

• Facilitate the collection and analysis of research done in Europe to collect valuable information on parameters

• Develop a European standard for testing biomarkers

• Standardise laws across Europe for data sharing aligned with the Data Protection regulation.

Projects

• Funding studies that develop outcome measurement and evaluation criteria, reported by the patients

High-level roundtable sessions

Fondation Universitaire, Brussels
11-12 April, 2016

Roundtable 4
Integrating Big Data and ICT solutions

The Luxembourg Council Conclusions stated that, when it comes to Big Data, there are hurdles to overcome (availability and for whom, security/safety/privacy). But without such data, personalised medicine is going nowhere.

The conclusions found that there is a need to bring stakeholders together to discuss the challenges and actions that can support and utilise health data for the benefit of patients and society.

Also, there is a problem accessing data for research. Patients should be able to decide when and where to donate their data and certainly don't want governments and regulators telling them what to do with it.

Wolfgang Ballensiefen spoke about developing a strategic research agenda and the aim to organise a organise a conference in June, while setting up a roadmap for experts, the Commission and ministries, focused on research.

Hans Lehrach, meanwhile, spoke of the need to support analytical methods and modelling approaches to develop new disease models, for example computerised twins or a virtual patient.

He emphasised that every patient is different and that no tumour has ever been seen (or treated) before. Tumours are heterogeneous, with subgroups of cell reacting differently to the therapy, he added.

Sabine Tejpar spoke about promoting the development of high quality sustainable databases including clinical, health and wellbeing information.

She added that it is important to have collaboration between academia, doctors, policymakers etc. to have access and better treatment for patients, while also pointed out that the only was to solve cancer is through data.

Meanwhile she said, there is a tension between the differing objectives of, on the one hand, return on investment, and on the other hand, maximising benefits and efficiency.

Angela Brand spoke about creating a European 'Big Data' framework and adapting legislation.

Conclusions

Mechanisms to drive change

• Support the possibility for patients to be able to decide when and where to donate their data

• Push towards collaboration between all stakeholders to have access and better treatments for patients.

Infrastructure/resources

• Facilitate the development of 'high' standardised data collection system. This is in need of a definition on what 'high' standardised data is (European Standardization Committee)

Projects

• Fund the development of a trans-European infrastructure allowing every patient access to all medically relevant data.

She said that Big Data is not only -omics, but that all kinds of data must be put together. Meanwhile, we must prove to European citizens the benefit of big data analytics.

Hendrik van Poppel talked about the need to promote strategies to make sense of Big Data; from a url-oncology perspective saying that the challenge for 'Uro-Onco' research is personalised medicine.

He said urologists desperately need the ability to predict which patient has a localized cancer that is going to metastasize and cause suffering and death, and which patient has a cancer that is destined to stay in the patient's prostate for the remainder of life.

High-level roundtable sessions

Fondation Universitaire, Brussels
11-12 April, 2016

Roundtable 5
Bringing innovation to the market

Peter Hongaard Andersen stated that current EU pathways are expensive and slow in getting new therapies to patients, adding that innovation is translation of knowledge and insight into value for patients and value for society.

He added that the vision is that with biological knowledge we can see a population of different individuals and give a tailored treatment.

Regarding translation of research, he spoke about what is needed to bring it to the market and stressed that Europe needs to avoid too much regulation.

Jesus Hernandez spoke of the need to formalise a risk-based approach for the evaluation of personalised medicine, stated that empirical medicine is about trial and error, whereas precision medicine is patient adapted and tested.

He highlighted the role of HARMONY which will be a European Network of Excellence that captures, integrates, analyses and harmonises big data from high-quality multidisciplinary sources with the purpose of unlocking valuable knowledge on various hematologic malignancies (HMs). HARMONY will focus on HM disease areas with high unmet need: multiple myeloma (MM), acute myeloid leukemia (AML), acute lymphoblastic leukemia (ALL), chronic lymphocytic leukemia (CLL), non-Hodgkins lymphoma (NHL), myelodysplastic syndrome (MDS), and Pediatric HM.

The HM-specific big data platform developed by HARMONY will enable the more rapid definition of promising treatment strategies, and prediction of adverse events likely to be associated with such strategies.

To enhance applicability of the HARMONY platform as a tool to determine an individual patient's treatment options, the platform shall be taking into account demographic changes and individual patients' needs. To improve reliability and therefore the value of the data, HARMONY will specifically address the need to define standard sets of outcome measures that are of relevance to all stakeholders, and particularly informative for disease and treatment monitoring.

He added that one challenge is to include Big Data, as this will bring better health models, and better predictive models around individual patients.

Raf Pasmans spoke about high precision diagnostics for high precision medicine and mentioned a need to avoid a 'pharma hurdle' of limited use to diagnostics.

He added that current market access frameworks are fragmented, unclear or do not exist, meaning that patients are missing out.

Stakeholders need to consider the diagnostic industry as a partner to implement personalised healthcare while making it affordable across the EU, and there is a need for a lot of work at national levels because the implementation process is not very well developed.

Conclusions

Mechanisms to drive change

• Push towards translation of research (support university research), to bring it to the market

• Support the changes of HTA, by creating a more societal approach instead of only economical. Meanwhile, make HTA more common and more used, and use the Health Technology Assessment Network

Infrastructure/resources

• Support development of local access processes. Patients are missing out due to fragmented frameworks, unclear or not existing.

Projects

• Fund research (of universities etc.) on comorbidity to develop better and more specific treatments

• Develop partnership with the diagnostic industry to implement personalised healthcare. Consider working together on developing implementation processes on national levels

It is clear that the EU will not achieve its potential to deliver personalised medicine with a fit-for-purpose and sustainable health data system

To do this the EU will need to adopt an enabling policy, regulatory and funding environment, without which health system will not obtain in future with the consequent impact for patient health and care

European Alliance for Personalised Medicine

About EAPM

The European Alliance for Personalised Medicine (EAPM) , launched in March 2012, brings together European healthcare experts and patient advocates involved with major chronic diseases.

The aim is to improve patient care by accelerating the development, delivery and uptake of personalised medicine and diagnostics, through consensus.

As the European discussion on personalised medicine gathers pace. EAPM is a response to the need for wider understanding of priorities and a more integrated approach among distinct lay and professional stakeholders.

The mix of EAPM members provides extensive scientific, clinical, caring and training expertise in personalised medicine and diagnostics, across patient groups, academia, health professionals and industry. Relevant departments of the European Commission have observer status, as does the EMA.

EAPM is funded by its members.

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