Inaugural Conference of the European Institute for Innovation through Health Data (i~HD)

‘Societal and Health Challenges in Europe’

Paris

10th March, 2016

Dr Mary Baker MBE, BA, Hon DSc
Costs of disorders of the brain

In Europe 2010:

- €798 billion across 30 countries and 19 groups of disorders
- Has increased from €386 billion in 2004

*European Neuropsychopharmacology (2011) 21, 718-779*
Distribution of costs
Total disorders of the brain

- Indirect costs: 40%
- Direct healthcare costs: 37%
- Direct non-medical costs: 23%

European Neuropsychopharmacology (2011) 21, 718-779
The world is living longer

A baby girl born in Japan has a 50/50 chance of living 100 years
Global ageing in the 21st century

‘The world stands on the threshold of a social transformation - even a revolution - with few parallels in humanity's past....

Perhaps two-thirds of all people who have ever reached the age of 65 are alive today’

Peter G. Peterson
In the 1920’s, a couple in their 80’s had 44 female relatives - 14 of these did not work outside the home environment.

In the year 2000, a couple in their mid 70’s had 13 female relatives - 3 of these did not work outside the home environment.
Fewer to care for more: a declining dependency ratio

<table>
<thead>
<tr>
<th>Country</th>
<th>1960</th>
<th>1990</th>
<th>2009/10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australia</td>
<td>6.4</td>
<td>5.2</td>
<td>4.4</td>
</tr>
<tr>
<td>Canada</td>
<td>6.8</td>
<td>5.4</td>
<td>4.5</td>
</tr>
<tr>
<td>France</td>
<td>4.8</td>
<td>4.1</td>
<td>3.5</td>
</tr>
<tr>
<td>Germany</td>
<td>5.2</td>
<td>4.2</td>
<td>3.0</td>
</tr>
<tr>
<td>Italy</td>
<td>6.1</td>
<td>4.0</td>
<td>3.0</td>
</tr>
<tr>
<td>Spain</td>
<td>6.9</td>
<td>4.3</td>
<td>3.7</td>
</tr>
<tr>
<td>UK</td>
<td>5.0</td>
<td>3.7</td>
<td>3.6</td>
</tr>
<tr>
<td>Poland</td>
<td>9.4</td>
<td>5.7</td>
<td>4.9</td>
</tr>
<tr>
<td>Average</td>
<td>6.3</td>
<td>4.6</td>
<td>3.8</td>
</tr>
</tbody>
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Dr Panos Kanavos
London School of Economics
Polypharmacy and co-morbidity
Provision of culturally relevant care

The challenge of migration
Time with the doctor

.....12 minutes
Access to medication

A very uneven playing field
Counterfeit medicines (CMs)

- 2011: in EU CMs risen to over 27 million
- WHO estimate CMs sales in developed countries is 1% and 10% in developing countries
- GMP Colombian style; ingredients include:
  - Boric acid
  - Lead-based road paint
  - Shoe polish
  - Brick dust
Way forward

- Partnership
- Trust
- Communication
- Innovation
Europe 2020 for a Healthier EU

Innovation Union
To find innovative ways to promote active and healthy ageing

Digital agenda for Europe
Focuses on developing and using digital applications to address social challenges

Agenda for new skills and jobs
Will help to highlight the economic role of mental health and the health of the workforce

European platform against poverty
Boost efforts on health promotion and prevention with a focus on reducing health inequality
EBC continues to push for better funding of brain research

<table>
<thead>
<tr>
<th></th>
<th>FP5 (pre EBC)</th>
<th>Total in FP6</th>
<th>FP7 2007 - 2013</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brain</td>
<td>115m</td>
<td>431m</td>
<td>2b (June ‘13)</td>
</tr>
<tr>
<td>Cancer</td>
<td>235m</td>
<td>914m</td>
<td>1,716b</td>
</tr>
<tr>
<td>Cardiovascular</td>
<td>54m</td>
<td>232m</td>
<td>554m</td>
</tr>
</tbody>
</table>
Innovative Medicines Initiative: Joining forces in the Healthcare Sector

2 Billion €

1 Billion €

Public Partnership
IMI portfolio: budget breakdown up to call 11
Citation impact 2010-2012

19% of IMI publications are highly cited

- Rheumatology
- Pharmacology & Pharmacy
- Endocrinology & Metabolism
- Neurosciences
- Clinical Neurology
- Biochemistry & Molecular Biology
- Psychiatry
- Genetics & Heredity
- Research & Experimental Medicine
- Immunology
- Overall

**IMI papers**
- Average 2.04

**EU papers**
- Average 1.13
Opportunities for research - JPND

- 28 countries working together to tackle neurodegenerative diseases
- €100 million made available since 2011
- New partnership with European Commission
  - €30 million call on:
    - Longitudinal cohorts
    - Animal and Cell Models
    - Risk and Protective Factors
A quick fix ...

Prevention

NOT

Prescriptions
Lifestyle choices

60% of NHS budget is spent on lifestyle issues:

- Ageing
- Infertility
- Sexual health
- Smoking
- Drug Addiction
- Alcohol
- Obesity
The role of the Education System

Are schools doing enough to encourage a healthy future for the mind and the body?
The parent’s role is crucial... to set a healthy example, for:

- Diet
- Exercise
- Outlook
‘The doctor of the future will give no medicine, but will interest his patients in the care of the human frame, in diet, and in the cause and prevention of disease’

*Thomas A Edison*

1847 - 1931
Safety versus innovation

Education of benefit/risk

Quote from cancer patient:
‘I am already in an unsafe world, a little more unsafeness doesn’t worry me’

Dr Albert Jovell
Barcelona
The Regulator and the Payer

Professor Guido Rasi
Chief Executive Officer
European Medicines Agency (EMA)

Professor David Haslam
Chairman
National Institute of Health & Clinical Excellence (NICE)
New approach to clinical trials
Clinical trials – the facts

• 30% of all clinical trials fail to recruit a single person

• 85% of clinical trials face delays due to limited participation

• Fewer than 10% of Parkinson's patients ever take part in trials, despite overwhelming interest in working with scientists to help speed treatment breakthroughs
Patient reported outcomes

- Heartburn disturbs my sleep
- I can not bend over or exercise
- My whole life is affected
- I can not eat and drink whatever I like
- GI symptoms bother me!
- I'm worried and concerned
Patient reported outcomes

Develop a measurement acceptable to European Medicines Agency (EMA) and Food & Drug Administration (FDA) in partnership with:

• Academia (University of Oxford - Ox-PAQ project)
• Clinicians
• Industry
• Regulatory, payers, patients and their families
e-Health and emerging technologies

Priorities in e-Health: Research FP7 2007-2013 DG Connect

Goals to offer e-Health solutions to:

• improve quality of care
• increase patient autonomy, mobility and safety
• help clinical decisions based on computer modelling of diseases
e-Health and emerging technologies

Priorities in **Health**: Research FP7 2007-2013 DG Connect

**ICT Solutions for e-Health and e-Inclusion:**

- home monitoring systems
- health alert systems
- molecular diagnostic systems at point of care
- home rehabilitation
- risk assessment
- electronic health records
- computer models of diseases and decisional systems based on models for selecting treatments and performing earlier diagnosis - VPH (virtual physiological human)
Today we diagnose and treat based on symptoms and a subjective interpretation of symptoms.

In the future we diagnose and treat based on biology and select medication based on an objective evaluation of the benefit/risk for the individual patient.
P4 Medicine:

Personalised, Predictive, Preventive, Participatory
Big Data
The Patient’s journey

Information is needed from:

- Clinician - about the disease
- Industry - about the medication
- Patient non-governmental organisations - about the fellow travellers
A major challenge – societal engagement

- How do we involve patients/carers in research?
- An informed patient is a cost effective patient (Wanless)
“Sciences are the ‘how’. Humanities are the ‘why’. I don’t think you can have the ‘how’ without the ‘why’,”

George Lucas, Producer, Screenwriter and Director
From the bench to the bedside

Preclinical & clinical development
~ 8 years

New drug application & review
~ 2 years

HTA review
~ 2 years

Rx
From the bench to the bedside

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HTA review
~ 2 years

Rx
‘It is not the strongest of the species that survives nor the most intelligent that survives. It is the one that is most adaptable to change.’

A quote often attributed to Charles Darwin!
Management of long term chronic illness

• The ability to *adapt* and self manage

• To be able to participate in social activity despite all limitations
The European Union has set up a yearly cycle of economic policy coordination called the **European Semester**

**Outcome Measures**

- Excellent Science
- Innovation
- Societal Impact
Health should be viewed as an investment rather than a cost

A Healthy Nation is a Wealthy Nation