MRC Evaluation Programme
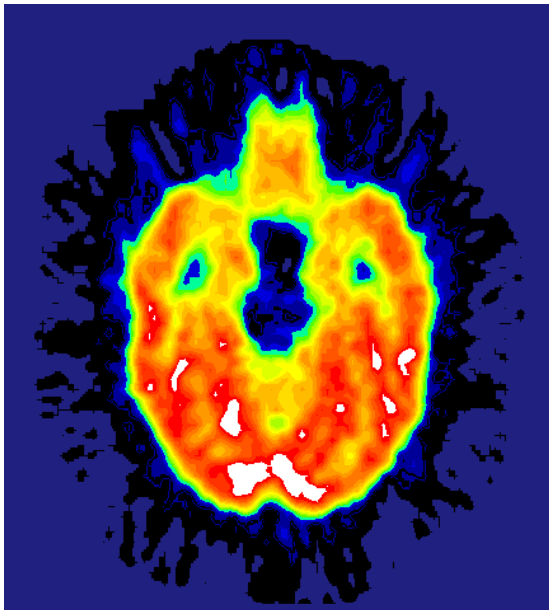
ESF meeting

17/11/09

# UK Medical Research Council Mission

The MRC is dedicated to improving human health through the best scientific research

- Encourage and support high-quality research with the aim of improving human health

- Produce skilled researchers; advance and disseminate knowledge and technology to improve the quality of life and economic competitiveness in the UK

- Promote dialogue with the public about medical research

Landmark MRC research

- Rickets caused by lack of vitamin D (1916)
- Discovery and development of penicillin (1940s)
- Pioneered randomised controlled trial design (1940s)
- Discovery of link between smoking and cancer (1950s)
- Clinical trials for radiotherapy for cancer (1960s)
- Clinical trials of chemotherapy for leukaemia (1970s)
- Humanisation of monoclonal antibodies (1970s)
- Invention of DNA fingerprinting (1980s)
- Gene for Huntington's disease discovered (1990s)
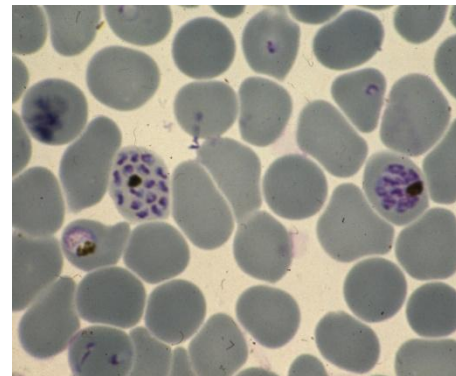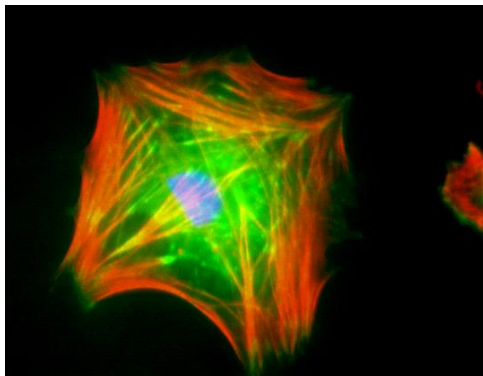
MRC Funding 2008/09

- Total gross spend on research £704 million

- Over 1,000 grants to universities, medical schools and research institutes (£266m)

- Over 500 programmes within the MRC's 28 research units (2 in Africa) and 3 institutes (£355m)

- Training awards for over 1,400 postgraduate students and 340 fellows (£68m)

- International subscriptions (£15m)

- MRC Employs over 4000 staff in UK and overseas and supports over 3000 staff on research grants

Health Research Classification System (HRCS)

Profile of MRC portfolio across HRCS Research Activity in 2004, 2008 and 2009
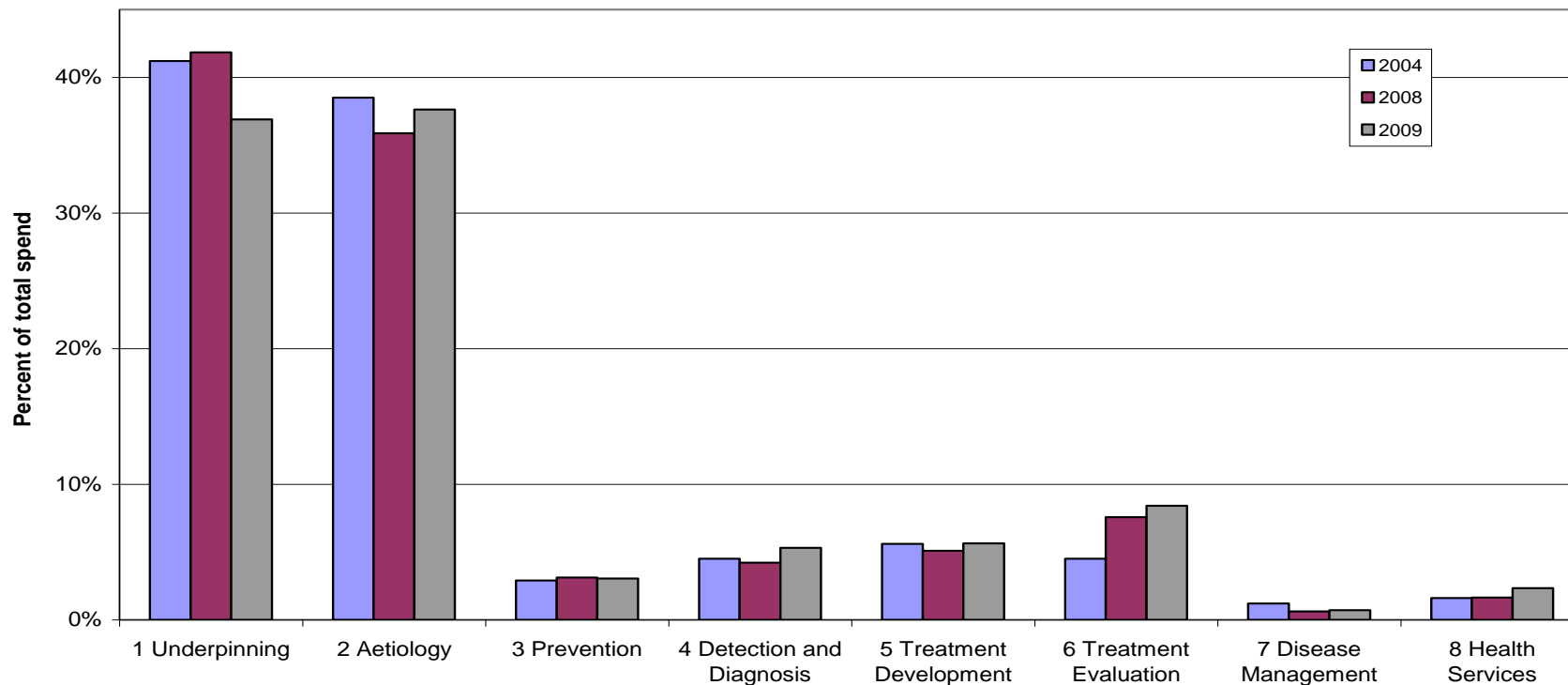
2004 – figures from UKCRC analysis
2008 – annualised commitment on live grants and fellowships at 15.7.08, 2006/07 Units and 2007/08 P and C's
2009 – annualised commitment on live grants and fellowships at 18.9.09, 2008/09 Units and 2007/08 P and C's.

MRC Evaluation Programme

- Assess progress, productivity and quality of MRC research output at an aggregated (portfolio) level

  - *Analyse the **result** of MRC funding*

- Strengthen the evidence base for development of MRC strategy

  - *Learn what works*

- Demonstrate the benefit of MRC research (economic and societal impact) to a wide audience

  - *Make a better case for medical research*

Gathering the evidence

- Move away from "final" grant reports

  – *Start a regular and long term dialogue with researchers*

- Implement an online survey to structure and capture the information

  – *repeatable and flexible to administer*

- <u>Require</u> all MRC researchers fill in the survey

  – *Consult and share information with research organisations*

MRC e-Val - Resources

- 6 months work in 2008 to implement a pilot

- 11 months work in 2009 to launch full system

- Software development by contractor (Firmstep Ltd)

- MRC investment over two years including project management and administrative support totals £600k

- Annual running costs should be approximately £80k

- In house project team has averaged 2 staff over 1.5 years.

Project timescales

- Design of questions (including the pilot this took almost 12 months)

- Development of the online form, database and reporting tools

- 2 months of visits to Universities and Units to talk to researchers and research support staff

- 2 weeks of user acceptance testing

- 2 weeks of "beta testing" with researchers (60 users)

- Data Gathering Period begins on the 16th of November (3000 project leaders, 6 weeks to enter data on output since 2006)

Evaluation Framework

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INPUT **OUTPUTS/OUTCOMES** **IMPACTS**

Funding for Research and Training

- **Generation of new knowledge**

- **Development of collaborative networks**
- **Leveraging funding**

- **Dissemination of research**
- **Research materials**
- **Intellectual property/licensing**
- **New products**
- **Changes to policy**

- **Improvements to health (living longer and with better quality of life)**
- **Improving the performance of existing businesses**
- **Attracting R&D investment from global business**
- **Improving public policy and public services**
- **Creating new businesses**
- **Delivering highly skilled people to the labour market**

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MRC e-Val

> Home

Help

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G0100102 - Cognitive impairment in schizophrenia - a clinical, imaging
and genetic study of co-morbidity

Publications

G0100102

>> Publications   IN PROGRESS

Collaborations and
Partnership   NOT STARTED

Further Funding For
Your Research Group NOT STARTED

Next Destination and
Recruitment   NOT STARTED

Dissemination of
results to Non-
Academic Audiences   NOT STARTED

Policy and
Educational Impact   NOT STARTED

Research Materials
(Tools, Methods and
Databases)   NOT STARTED

Intellectual Property
and Licensing   NOT STARTED

Products or
Interventions   NOT STARTED

Spin Outs   NOT STARTED

Awards and
Recognition   NOT STARTED

Knowledge and
Future Potential   NOT STARTED

Print

For this section, we need details of all the primary, peer-reviewed publications that have arisen from this
MRC funding agreement that were published, whether electronically or in print, between 01 January 2006
and 31 December 2008. Publications should only be included if they appear in refereed journals. Secondary
publications (such as editorials) and conference proceedings should not be entered here. All articles and
systematic reviews, which can be in part or fully attributed to MRC funded research, should be included.

Please note that publications attributable to multiple funding agreements can be reported under any of
the relevant funding agreements associated with a PI but that each should only be recorded once. If
entered under this funding agreement, please be aware that as part of the final submission process, the
principal investigator will be able to indicate attribution to multiple funding agreements.

1.1 - Do you have a publication to report according to   Yes
these criteria? *

⊞ Empirical comparison of maximal voxel and non-isotropic adjusted cluster ex...

Remove

⊞ Automated computation of the Gyrification Index in prefrontal lobes: method...

Remove

⊞ Structural correlates of intellectual impairment and autistic features in a...

Remove

⊞ Pre-frontal lobe gyrification index in schizophrenia, mental retardation an...

Remove

⊞ Grey matter correlates of early psychotic symptoms in adolescents at enhanc...

Remove

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Publications   IN PROGRESS

Collaborations and
Partnership   NOT STARTED

Further Funding For
Your Research Group   NOT STARTED

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Print

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Please note that publications attributable to multiple funding agreements can be reported under any of the relevant funding agreements associated with a PI but that each should only be recorded once. If entered under this funding agreement, please be aware that as part of the final submission process, the principal investigator will be able to indicate attribution to multiple funding agreements.

1.1 – Do you have a publication to report according to these criteria? *   [Yes ▼]

⊟ Empirical comparison of maximal voxel and non-isotropic adjusted cluster ex...
1.2 Is there a PubMed number for this publication? *   [Yes - I know what it i ▼]

1.2.1 – Enter PubMed number *   [16085427]

[Get PubMed Data]

1.2.2 – First Named Author (surname and forename) *   [Moorhead, T William J]

1.2.3 – Title *   [Empirical comparison of maximal voxel and non-isotropic]

1.2.4 – Journal *   [NeuroImage]

1.2.5 – Volume *   [28]

1.2.6 – Issue *   [3]

1.2.7 – Pages (x-y) *   [544-52]

1.2.8 – Month of Publication *   [November ▼]

1.2.9 – Year of Publication *   [2005 ▼]

[Remove]

⊞ Automated computation of the Gyrification Index in prefrontal lobes: method...

[Remove]

⊞ Structural correlates of intellectual impairment and autistic features in a...

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Back

Search   Favorites

Address http://mrceval.platform.firmstep.com/Attribution

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MRC e-Val

> Home

Attribution

Help

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L Fallowfield
Log Out

Please attribute outputs to all relevant funding agreements. Once this is complete, you may continue to Final Submission.

Title (click to view Funding Agreement)	G0000735	Other - MRC	Other - Non MRC
Adelaide revisited: from healthy public policy to Health in All Policies.	☑☒ 🏠	☐	☐
Collaboration with KCL	☑☒ 🏠	☐	☐
TEST SCHEME	☑☒ 🏠	☐	☐
Research Fellow _individual fellowship	☑☒ 🏠	☐	☐
School Visit - Edinburgh - TEST	☑☒ 🏠	☐	☐
TEST SHORT NAME	☑☒ 🏠	☐	☐
TEST SHORT NAME	☑☒ 🏠	☐	☐
TEST DISCOVERY	☑☒ 🏠	☐	☐
TEST COMPANY	☑☒ 🏠	☐	☐
TEST AWARD	☑☒ 🏠	☐	☐

Save   Final Submission

Welcome Welcome to UAT Testing

Internet

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Preliminary bibliometric/productivity measures for Units/Institutes

- Analysis of citation impact, normalised by field, by staffing, and Unit spend for a preliminary dataset of publications.

- Two MRC institutes stood out as consistently producing papers with high impact (between 50 and 60% of 2007 papers have a citation impact above the world average in the first year)

- Ideally several years of publication output are needed to provide a robust analysis of citation impact

- A holistic view of output, including training, commercialisation, dissemination, policy impact etc. is needed

- Capturing all the inputs

2 – Collaborations - Guidance

- Collaborations that have resulted in output (as evidenced by publications, new products and processes etc.)

- Outputs that have arisen from 2006 onwards

- Aspects may be noted as in confidence if you cannot disclose details at this stage (for example, if the collaboration is governed by a non-disclosure agreement.)

- This section is for recording basic facts about collaborating partners. Specific outputs resulting from these collaborations should be reported under the appropriate sections later within the form.

Collaborations – entering data

- Select partners from database of organisations

- Capture financial contributions

- Describe "in kind" contributions from partners

- Note the contribution that MRC researchers made

- Describe any impact

2008 Pilot data - Collaborations

- 2008 pilot (25% of the portfolio), between 10 and 20% of MRC researchers established productive interactions with the private sector

- These involved over 60 unique organisations

- The collaborations generated over £7 million of direct financial support

- A wide variety of non-financial contributions such as training, access to facilities and materials etc.

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3 - Further "Follow on Funding"

We would like to understand if work on this MRC funding agreement has resulted in additional funding for your research group, either from the MRC or from another funding provider.

- Select funding provider from database of organisations
- Capture funding scheme
- Capture total amount awarded

Our 25% sample had successfully won funding in excess of £200 million, 20% of researchers had obtained funding from outside the UK.
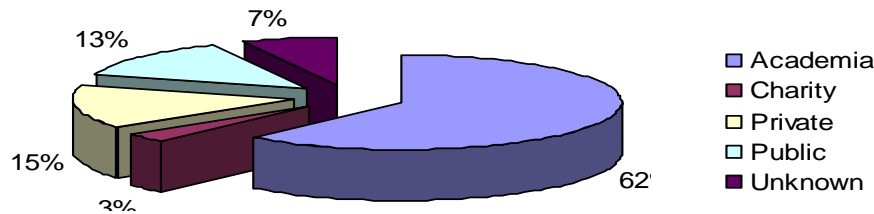
4 - Next Destination

The next destination for members of your research group who have left your team since 2006 and were funded wholly or partly from this funding agreement.

- The role of each leaver when employed on the MRC funded project
- Role (if known) for each leaver in their next destination
- Sector for next destination

- Any difficulties in recruiting/retaining staff with particular skills
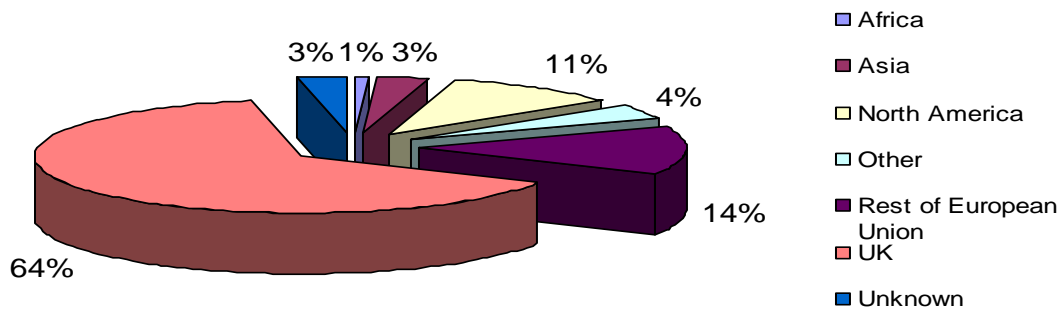- Details of the skills required and level of person sought
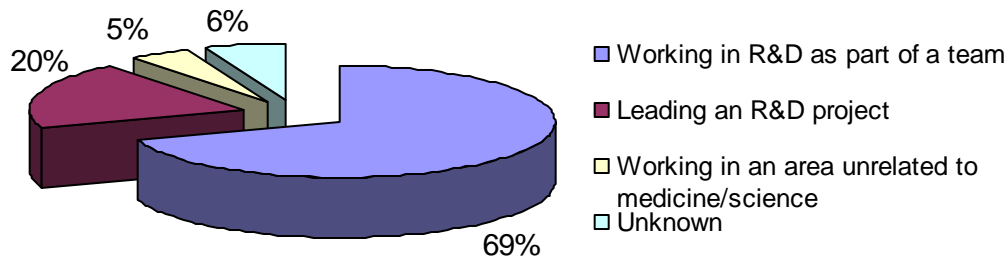
Next destination for leavers

Next Destination SECTOR

- Academia
- Charity
- Private
- Public
- Unknown

62%
7%
13%
15%
3%

Next Destination LOCATION

- Africa
- Asia
- North America
- Other
- Rest of European Union
- UK
- Unknown

3% 1% 3%
11%
4%
14%
64%

Next Destination ROLE

- Working in R&D as part of a team
- Leading an R&D project
- Working in an area unrelated to medicine/science
- Unknown

6%
5%
20%
69%

We collected the title of job role vacated, category (and where known the job title) of next role, as well as employment sector and location for leavers (567 leavers)

Headline figures include 15% of leavers go to work in the private sector, more leavers go to work in the EU than North America and a surprising 20% go to lead their own research project.

9 - Products/Interventions

Information which is relevant to new products or interventions realised since 2006, where there has been an MRC funded research contribution.

- Type of intervention (drug, device, surgical etc.)
- Developmental stage reached (proof of concept – on the market)
- Brief description
- Note of any impacts

20 examples of Pharmaceutical Products in Development

ID	Title	Target identification	Target validation	Proof of concept _ mechanism	Hit identification	Hit to lead compound	Optimisation of lead compound	Prototype development	Pre_clinical _ADMET	Phase II clinical trial _patients_
31644	The concept of blocking Bim-mediated apoptosis to aid reconstitution of HBV-specific CD8	x								
34842	Prostaglandin receptors	x								
80978	Potential therapeutic target in alcoholic hepatitis	x								
81246	New target identification for B-cell malignancies		x							
83714	anti-CD38 antibody		x							
8407	Vascular tissue engineering			x						
34324	TRAIL Mutants			x						
37430	Idea that combined allergen and anti-bacterial approaches may benefit patients with atopic disease			x						
54448	Anti-DR3 / TL1A			x						
77303	anti-obesity agent			x						
80978	New use for existing off-patent pharmaceutical product			x						
17074	Small molecules to treat alpha-1 antitrypsin deficiency				x					
17011	galanin/galr2					x				
862	p53 Reactivating Drug						x			
6544	Selective 11hsd1 inhibitor						x			
51084	Anti-IL-25 antibody						x			
85246	Mouse monoclonal antibody (MAb) AP33							x		
32282	TCR gene therapy against cancer								x	
67302	BMS-214662								x	
10150	Use of anti-Ige therapy in non-atopic asthma									x

Pulling the evidence together

Professor Mark Pepys (UCL): Therapuetics for Amyloid Diseases

1st translational gap *2nd translational gap*

Basic Research → **Applied Research** → **Healthcare Practice & Policy**

MRC Programme Grant
Programme Grant support since 1979 identified serum amyloid P component as a potential therapeutic target in amyloidosis and Alzheimer's disease

Outcomes
SAP scintigraphy developed

Collaboration with Roche
High Throughput Screen for inhibitors of ligand binding by serum amyloid P (SAP) component

Outlicence to GSK in 2009
Addition of antibody component to potential therapy

Wellcome Trust Seeding Drug Discovery Initiative (SDDI)
£3.89 million for treatment and prevention of transthyretin amyloidosis

Set up of UK NHS National Amyloidosis Centre at UCL
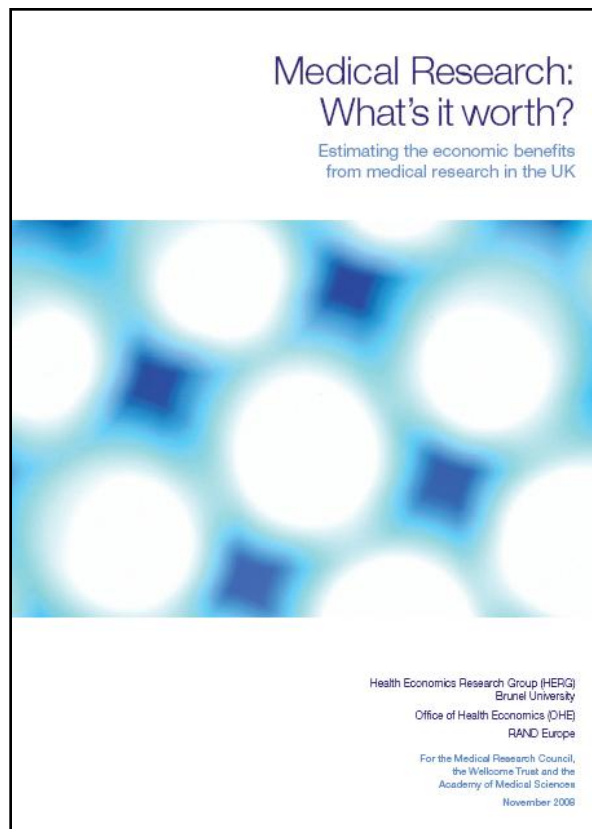Funded by Department of Health via NSCAG totals £3.5 million per year

Outcomes
The Amyloidosis Centre caseload now 2000 per year

Outputs/Outcomes

• 2002 Nature paper identified as highlight by the American Chemical Society
• Lead compound developed into a drug licensed UCL for clinical testing in humans
• Mechanism for CPHPC clearance of SAP protected by granted patents and set up of Pentraxin as a UCL spin out company
• Open label clinical studies in Altzheimer's disease showed efficacy in depleting SAP
• Other research groups have used this approach to design drugs targeting cholera and shiga toxins
• Professor Pepys has also applied the approach to design successfully the first inhibitor of human C-reactive protein

Medical Research: What's it worth?

**Medical Research:
What's it worth?**

Estimating the economic benefits
from medical research in the UK

Health Economics Research Group (HERG)
Brunel University
Office of Health Economics (OHE)
RAND Europe

For the Medical Research Council,
the Wellcome Trust and the
Academy of Medical Sciences

November 2008

- Consistent time series for medical research funding in CVD and MH from 1975-1992

- Clear conceptual framework relating to GDP gain from "spillovers"

- Estimation from literature of the magnitude of this GDP return

- Development and application to CVD and MH, of a 'bottom-up' approach to estimate health gain in terms of QALYs

- Analysis of UK guidelines (5 CVD and 12 MH) to provide indicators of lags and proportion of benefits attributable to UK

- Suggestions for developing research agenda

- Strong quantitative argument for investment in medical research

Research CHANGES lives
MRC STRATEGIC PLAN 2009-2014

Each section of the strategic plan includes:

- objectives

- information about the current situation

- future desired scenario

- explanation of how we will reach this goal

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Picking research that DELIVERS

SETTING RESEARCH PRIORITIES
WHICH ARE MOST LIKELY TO DELIVER
IMPROVED HEALTH OUTCOMES

STRATEGIC AIM ONE

Research to PEOPLE

BRINGING THE BENEFITS OF EXCELLENT
RESEARCH TO ALL SECTIONS OF SOCIETY

STRATEGIC AIM TWO

Going GLOBAL

ACCELERATING PROGRESS IN
INTERNATIONAL HEALTH RESEARCH

STRATEGIC AIM THREE

SUPPORTING scientists

SUSTAINING A ROBUST AND FLOURISHING
ENVIRONMENT FOR WORLD-CLASS MEDICAL RESEARCH

STRATEGIC AIM FOUR

Concluding remarks

- MRC is seeking to obtain data on output from the whole of its portfolio

- Case studies can be useful to illustrate pathways, but should be set in context of overall performance

- Use a range of outputs to give holistic view of productivity

- Keep the approach to attribution simple

- Seek to capture all inputs where possible – this will get easier as funding agencies work together

- Properly acknowledge scientific impact

- Continue to seek expert input on describing economic impact

- How to assess impact – reach and significance?