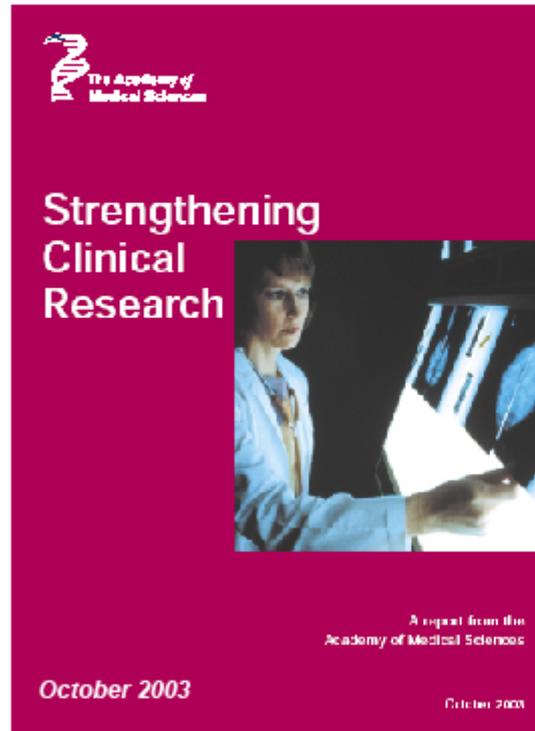


The role of the diabetologist in fulfilling the research aspirations in the new NHS

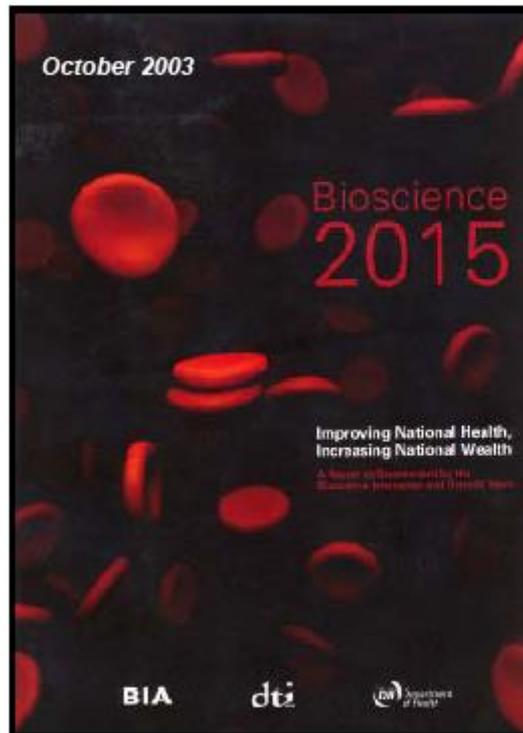
Des Johnston
Imperial College, London

Drivers for change



"There is now a **substantial gulf** between basic discoveries and **converting such discoveries into innovations** that directly benefit patients or prevent disease"

Drivers for change



"The UK has the opportunity, through the NHS, to transform the efficiency and effectiveness of clinical trials conducted here"

Improving National **Health**;
Increasing National **Wealth**

Drivers for change

RESEARCH FOR PATIENT BENEFIT WORKING PARTY

FINAL REPORT

"For us, science and research constitute a front-line service, as they too, reduce distress and pain and save lives".

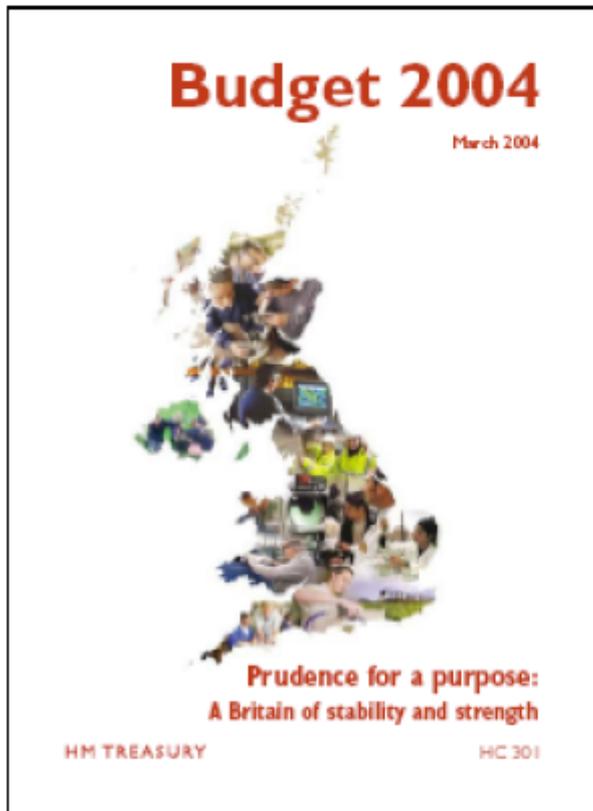
(Dr John Reid, Secretary of State for Health, 22 March 2004)

March 2004

"The most significant contribution that the NHS can make to R&D lies in the **applied** domain, such as trials, clinical effectiveness, service delivery research, and public health.

It is critical that **incentives exist to reward R&D in the applied domain, which is not the case today.**"

Drivers for change

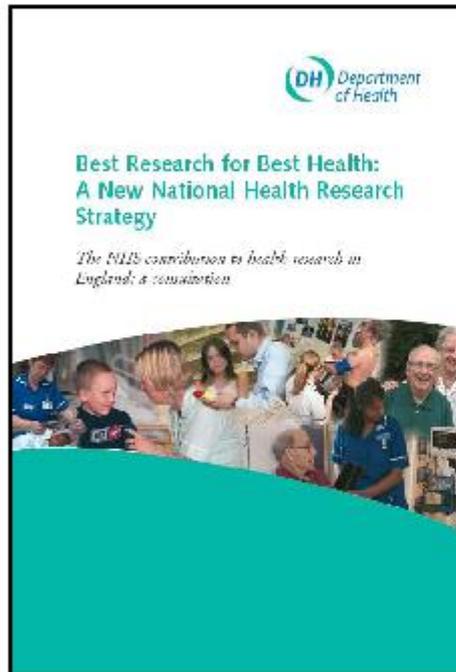


£100m increase in NHS
R&D funding
"to achieve effective and
efficient **translation** of
scientific advances into
patient care"

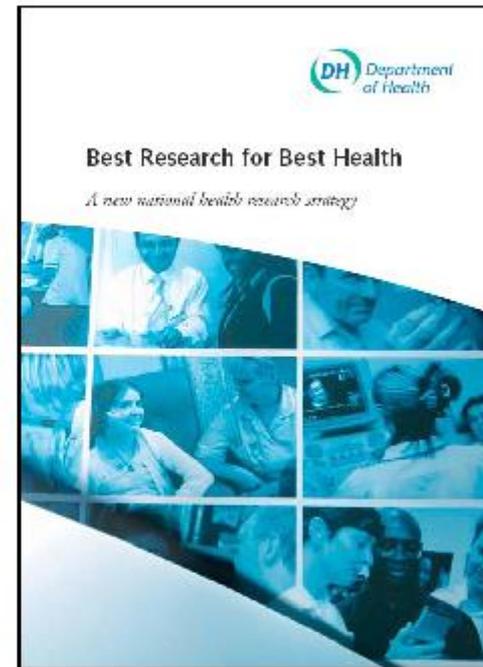
Drivers for change



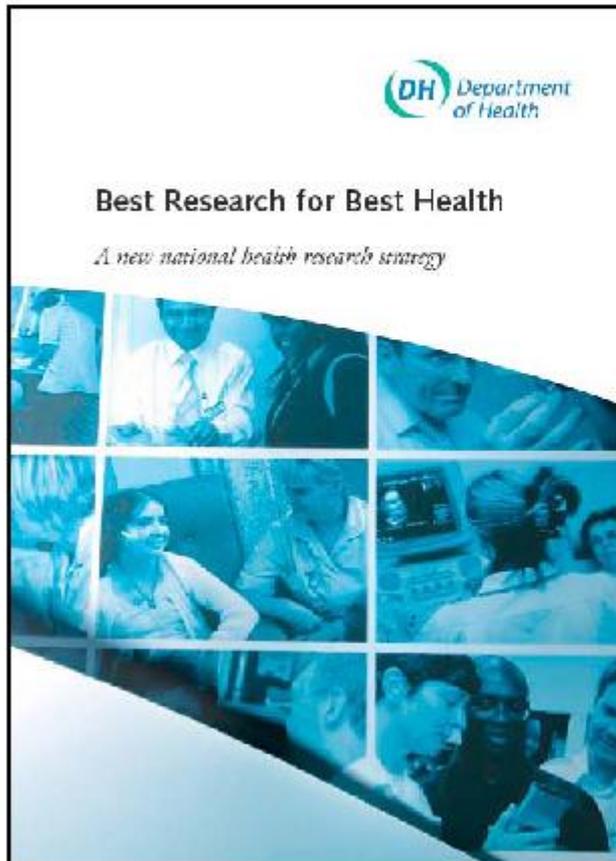
We want Britain to be the most attractive location in the world for **science**



Consultation 2005



**New Government
Strategy 2006**



Vision

To improve the health and wealth of the nation through research.

To create a **health research system** in which the NHS supports outstanding individuals, working in world-class facilities, conducting leading-edge research, focused on the needs of patients and the public.

Best Research for Best Health / NIHR

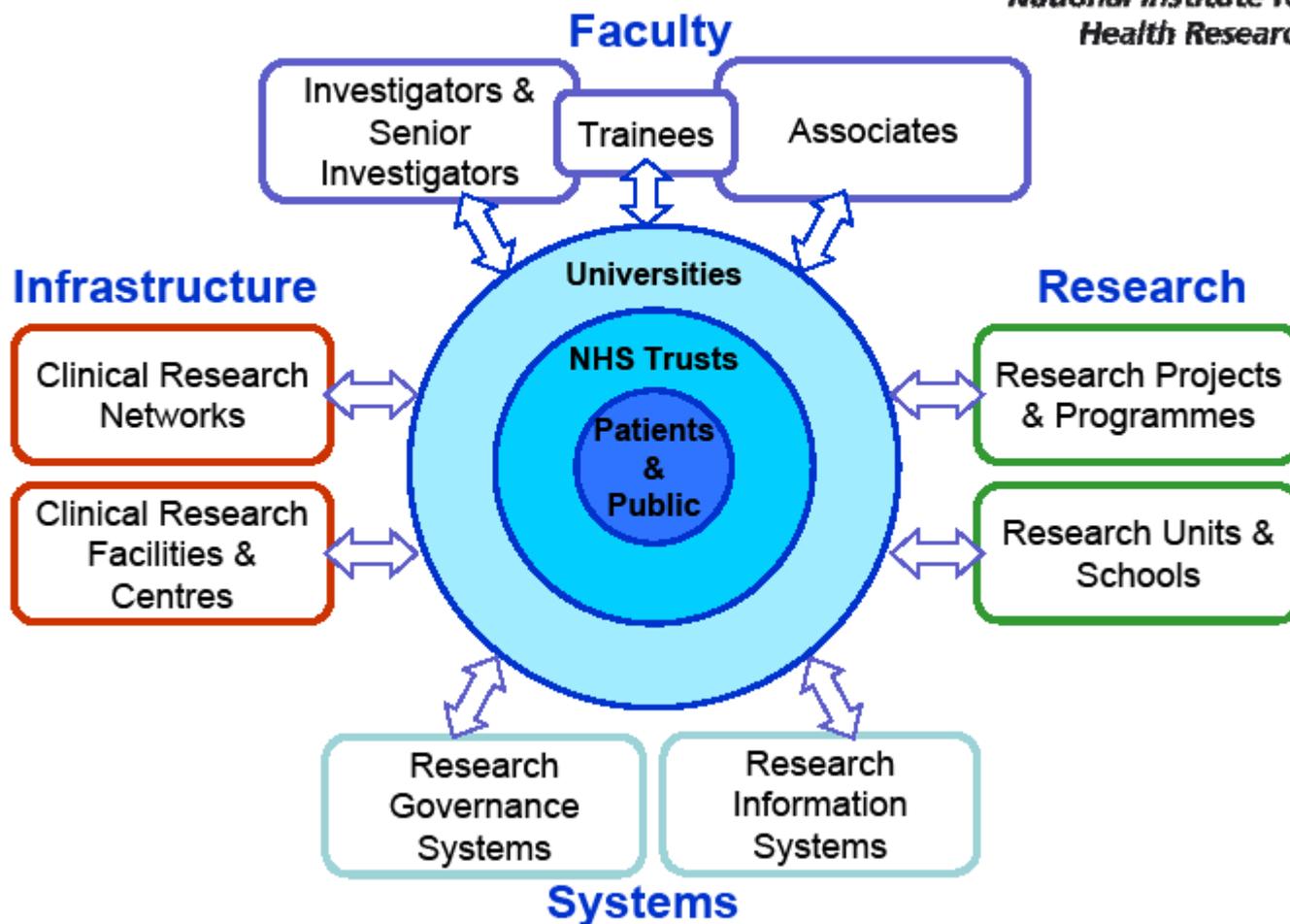
are to:

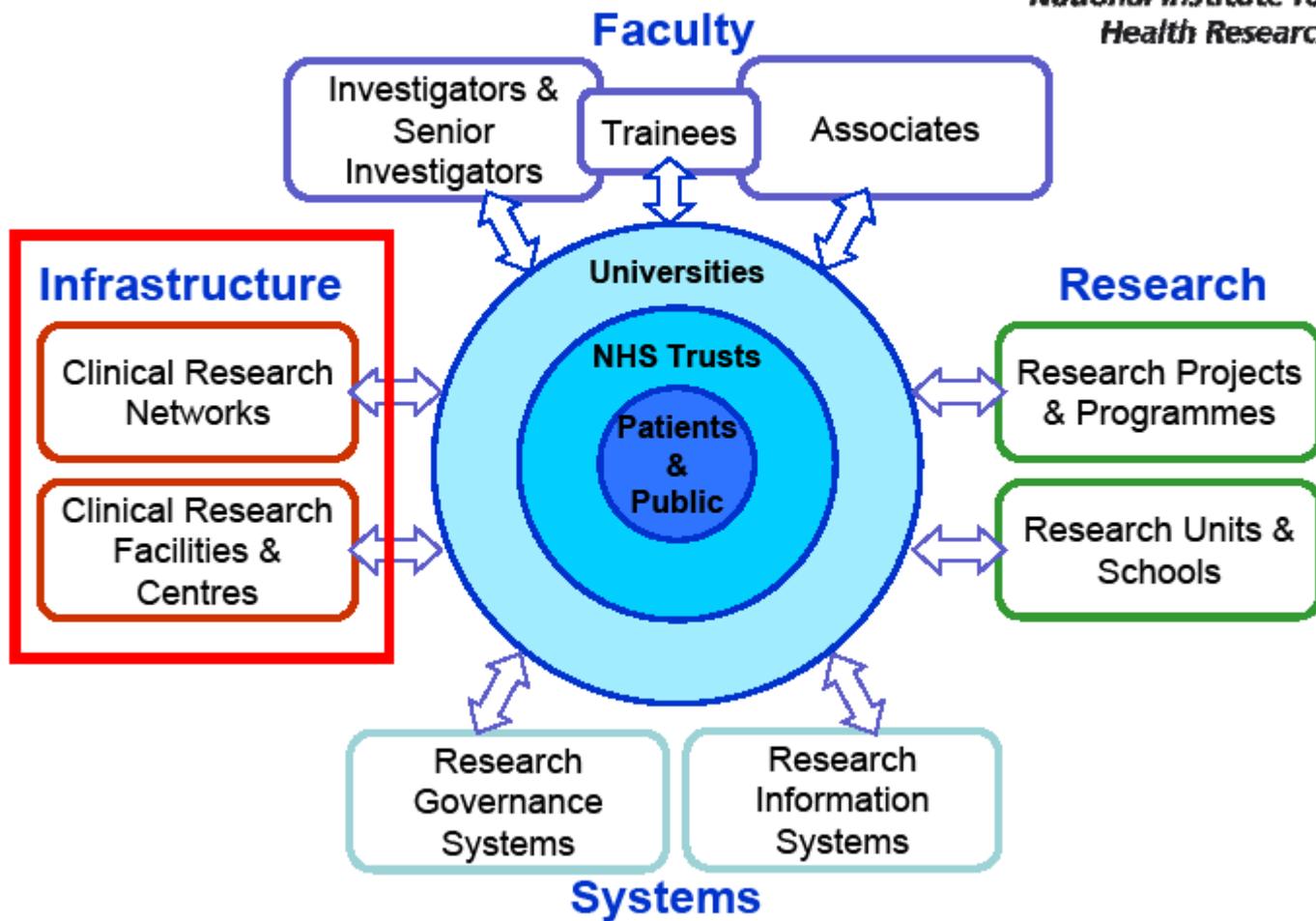
- **transform research in the NHS**
- increase the volume of **applied health research** for the benefit of patients and the public
- develop and support the **people** who conduct and contribute to applied health research

Delivered through:

- The creation of the **National Institute for Health Research (NIHR)**

A Health Research System





Infrastructure

Clinical Research
Networks

Clinical Research
Facilities &
Centres

*“...the support and facilities the NHS
needs for first class research...”*

Infrastructure

Clinical Research
Networks

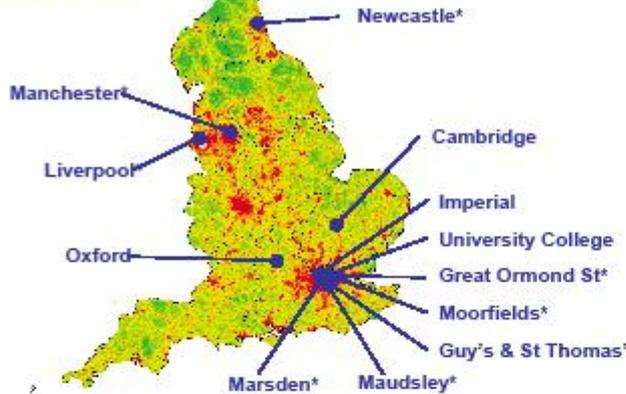
Clinical Research
Facilities &
Centres

- **Clinical Research Networks**
- **Clinical Research Facilities**
- **Experimental Medicine Facilities**
- **Biomedical Research Centres & Units**
- **Research Centres for Patient Safety and Quality**
- **Research Design Service**

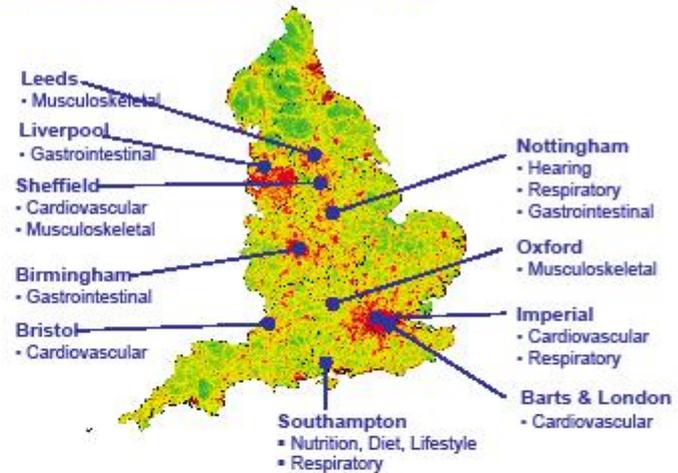


NIHR Biomedical Research Centres

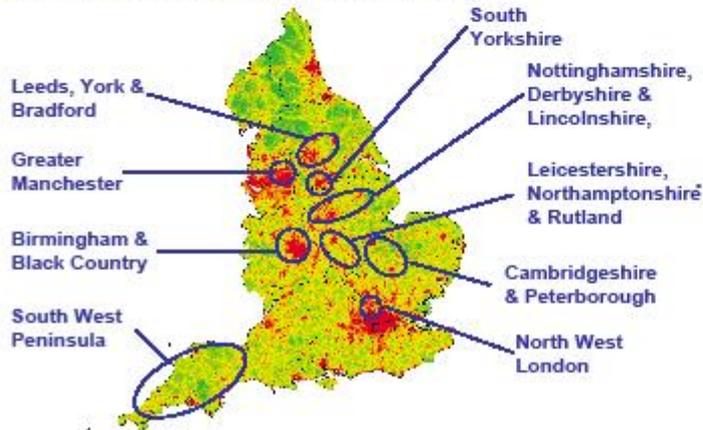
* Specialist BRCs



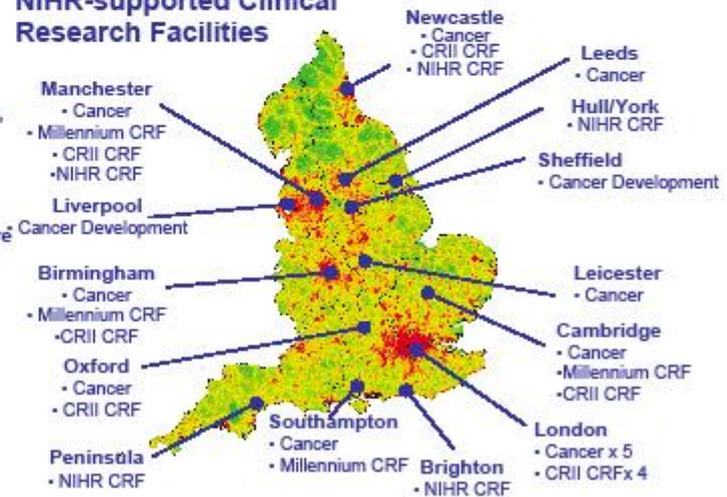
NIHR Biomedical Research Units



NIHR Collaborations for Leadership in Applied Health Research and Care (CLAHRCs)

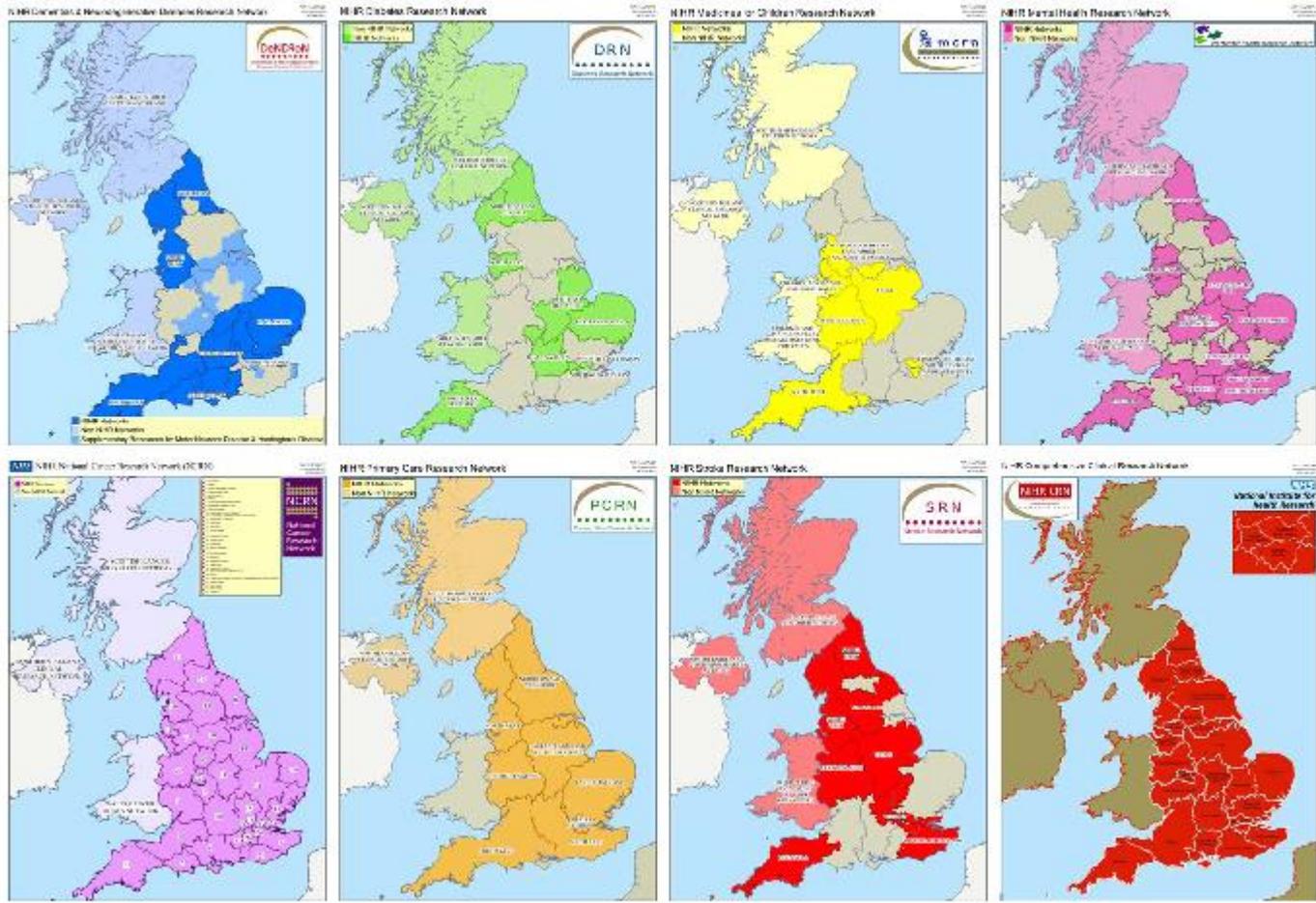


NIHR-supported Clinical Research Facilities





NIHR Clinical Research Networks



Working with Industry

Four years on, NIHR

- Has established channels for dialogue at strategic, policy and operational levels
- Achieved a common understanding on priorities for improving the cost-effectiveness of the UK trials environment
- Is providing opportunities for partnership between industry, academia and the NHS across the translational landscape

Why should we care? Funding of R&D

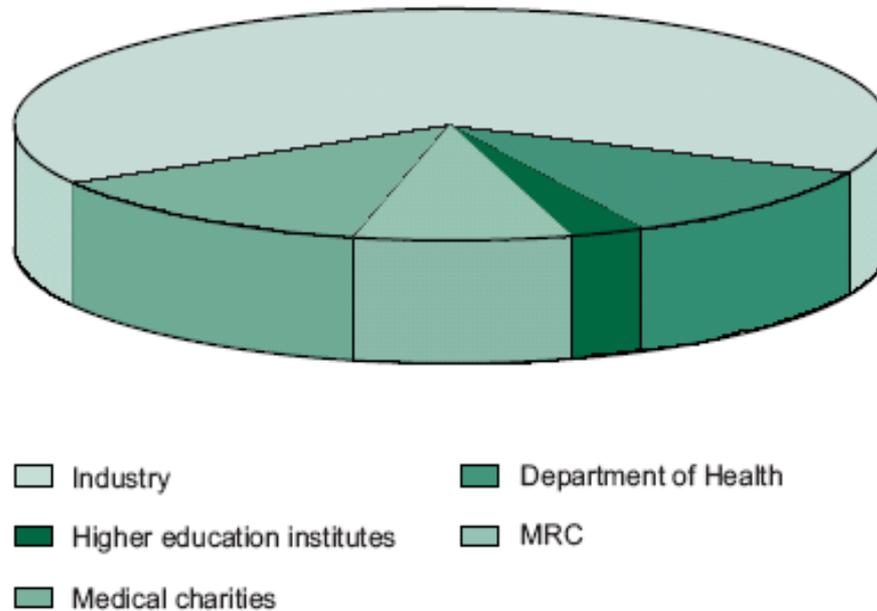
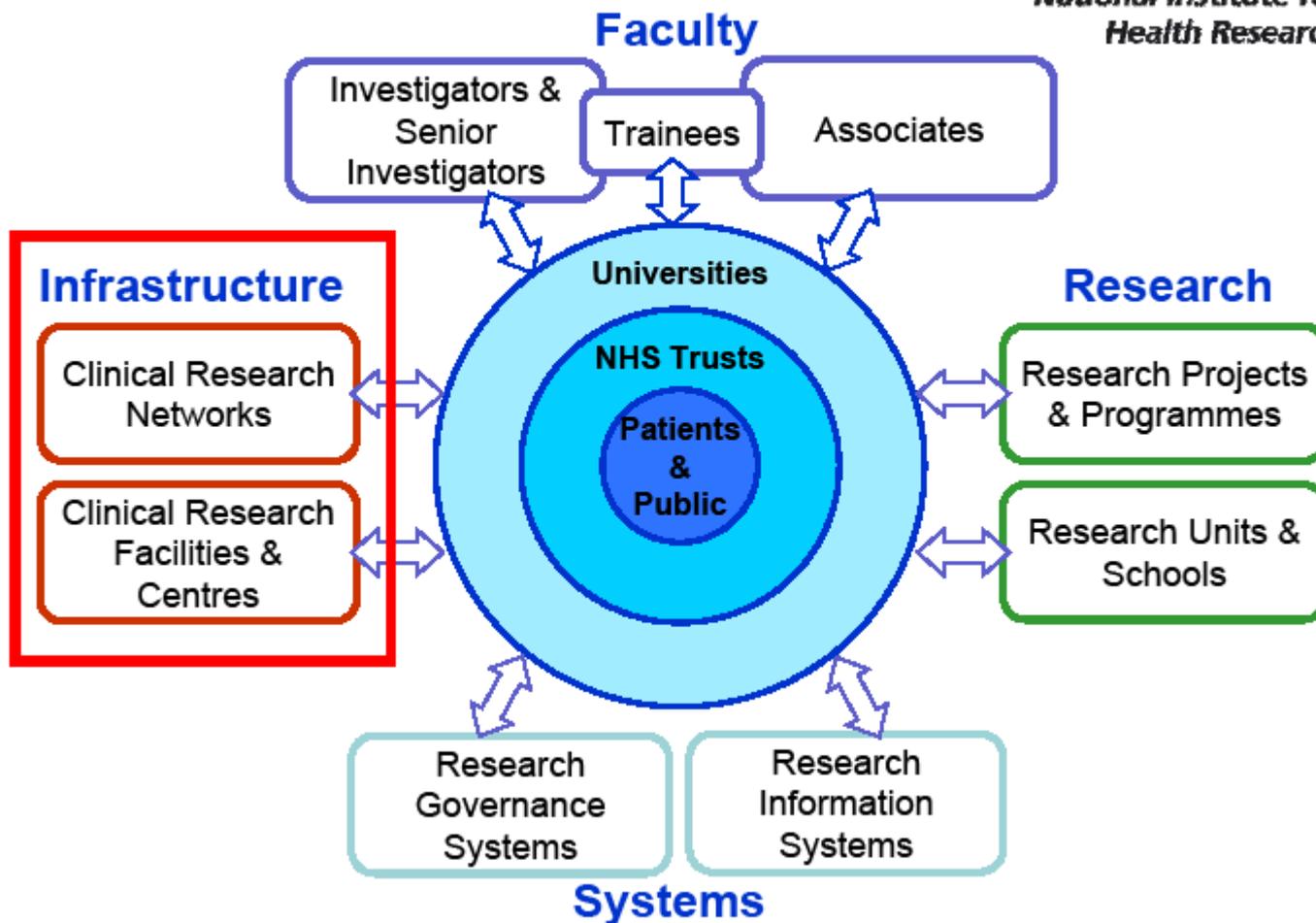
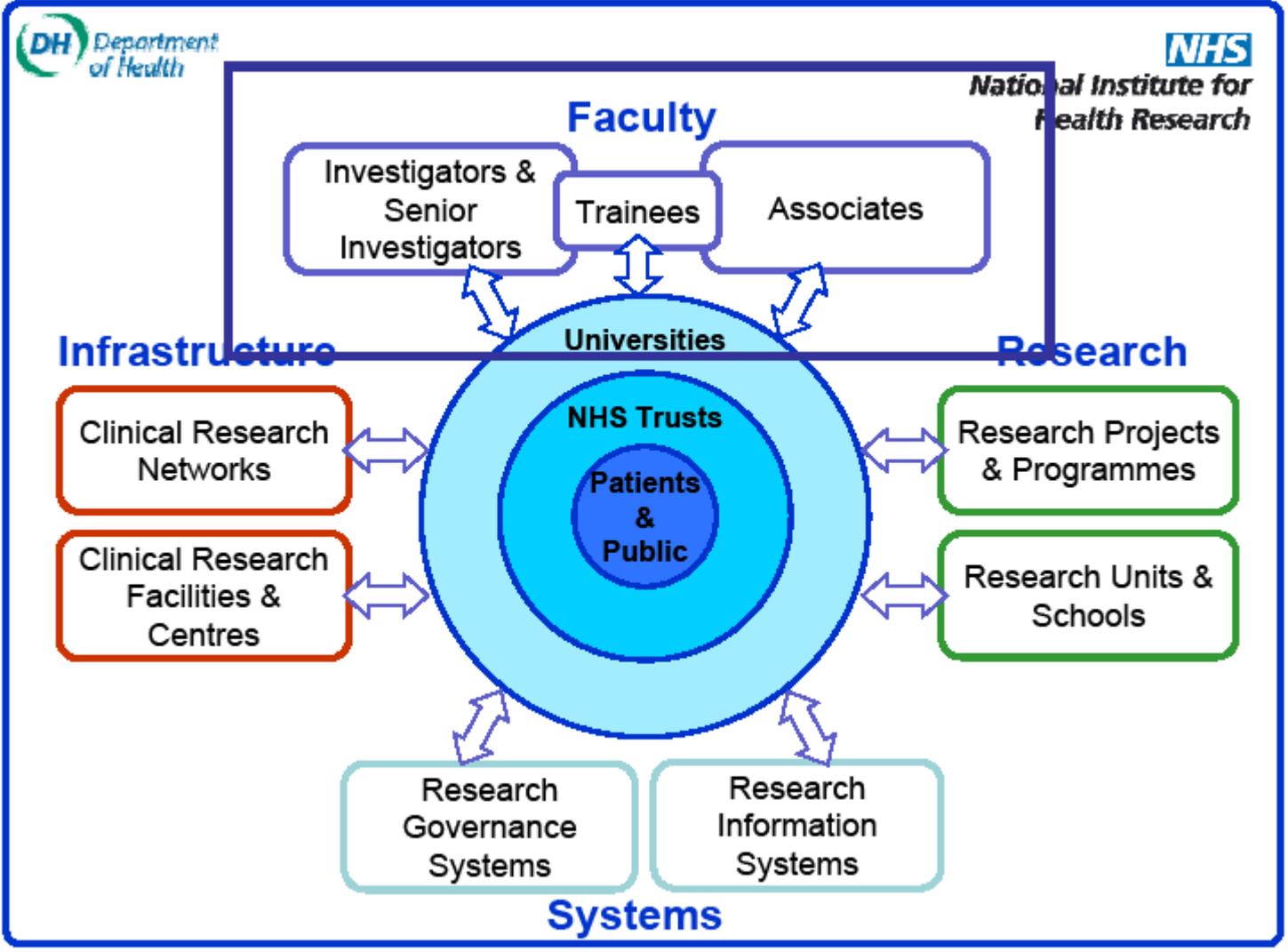


Figure 1. Funding of health-related R&D¹⁶

NIHR Clinical Research Network delivering clinical research for Industry

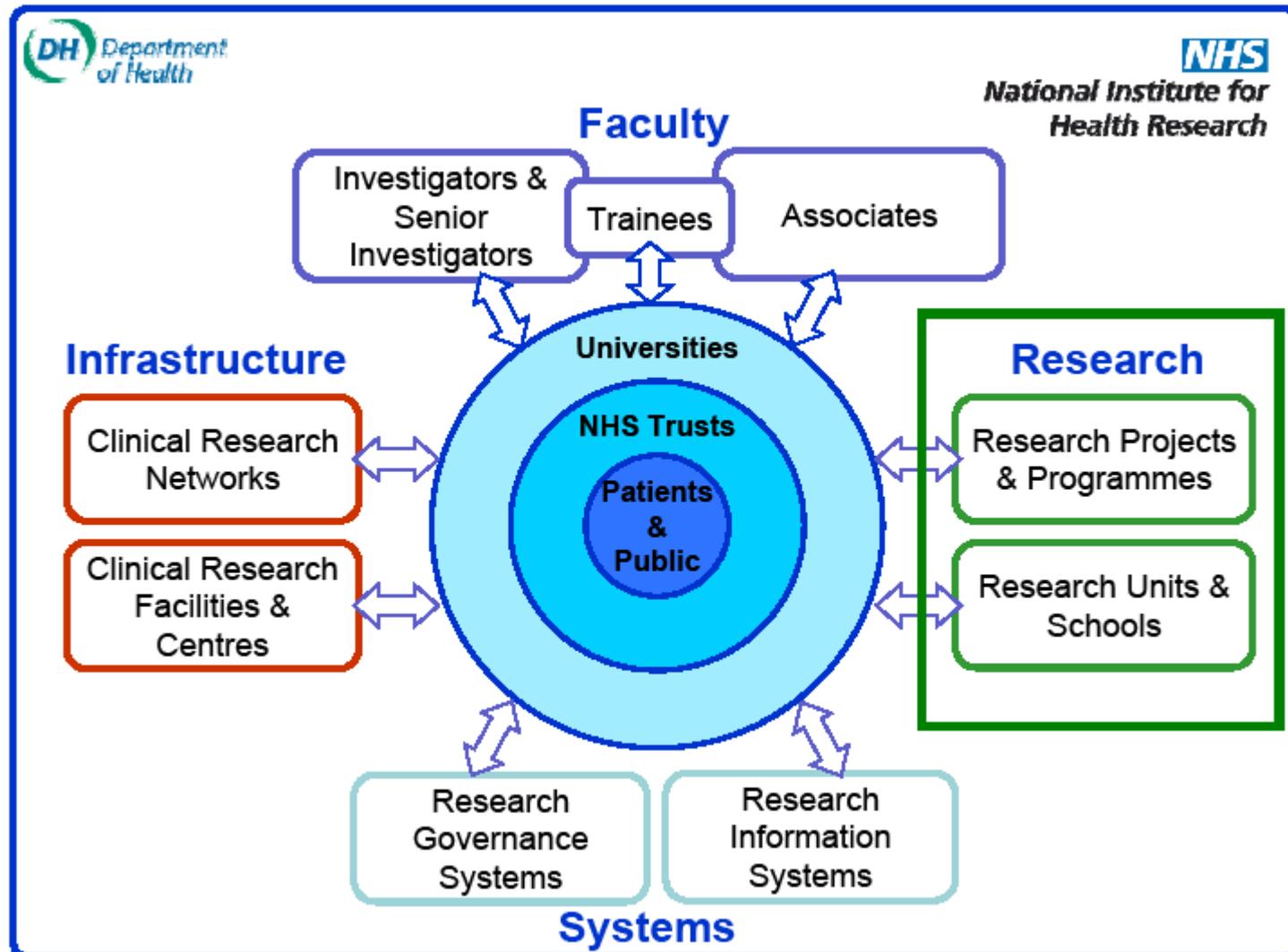
Quality	Timeliness	Reliability	Cost
<p>Trained Workforce in place (e.g. study nurses)</p> <p>Research management and governance advice</p> <p>Clinical Specialty Groups to advise and support</p>	<p>Coordinated System for gaining NHS Permission (CSP)</p> <p>Research Passport to work across Trust boundaries</p> <p>Standard agreements for the conduct of research (mCTA/CIA)</p>	<p>Protocol/ Feasibility support</p> <p>Support with management and administration of study set up</p> <p>Provision of dedicated, trained resource</p> <p>Risk assessment and performance management with sponsor partners</p>	<p>Industry Costing Template</p> <p>Performance management of underperforming sites/studies</p> <p>Increased numbers of recruitable patients at sites</p> <p>Fewer 'non-performing' sites</p>







“a vibrant community of outstanding individuals exchanging ideas about research and innovation to improve the health and well-being of the nation”



*“...leading-edge research focused
on the needs of patients and the
public...”*

Research

Research Projects
& Programmes

Research Units &
Schools



- **Research for Patient Benefit**
 - response-mode projects
- **Evaluations & Trials**
 - HTA commissioned projects
 - HTA commissioned systematic reviews
 - response-mode trials
 - Public Health
 - HSR
 - EME – for MRC
- **Service Delivery & Organisation**
 - Commissioned & responsive projects
- **Research for Innovation Speculation and Creativity (RISC)**
 - response-mode projects
- **Invention for Innovation**
 - Future Product Development streams 1-3
 - Healthcare Technology Co-operatives
- **Programme Grants for Applied Research**
 - response-mode programmes



NHS
*National Institute for
Health Research*

work

Research

Research Projects
& Programmes

Research Units &
Schools



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NHS

*National Institute for
Health Research*

work

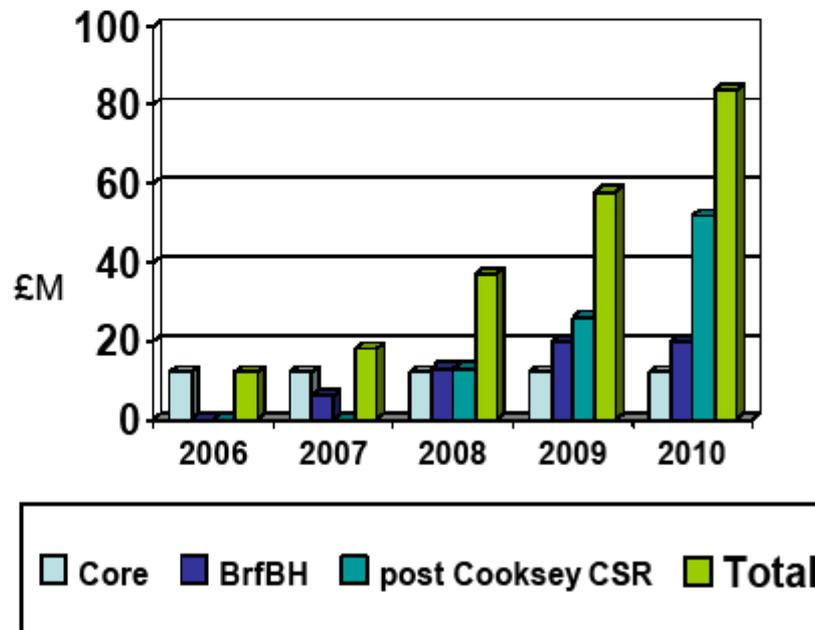
Research

Research Projects
& Programmes

Research Units &
Schools

Evaluations Budget Developments

- Increased funding under 'Best Research for Best Health'
- Increased funding from recent CSR



- **School for Primary Care Research**
- **School for Social Care Research**
- **Research Units**
- **Clinical Trial Units**
- **Collaborative Public Health Initiatives**
 - National Prevention Research Initiative
 - UKCRC Public Health Research Centres of Excellence
 - UKCRC Translational Infection Research Initiative
 - MRC / NIHR cohorts

Research

Research Projects
& Programmes

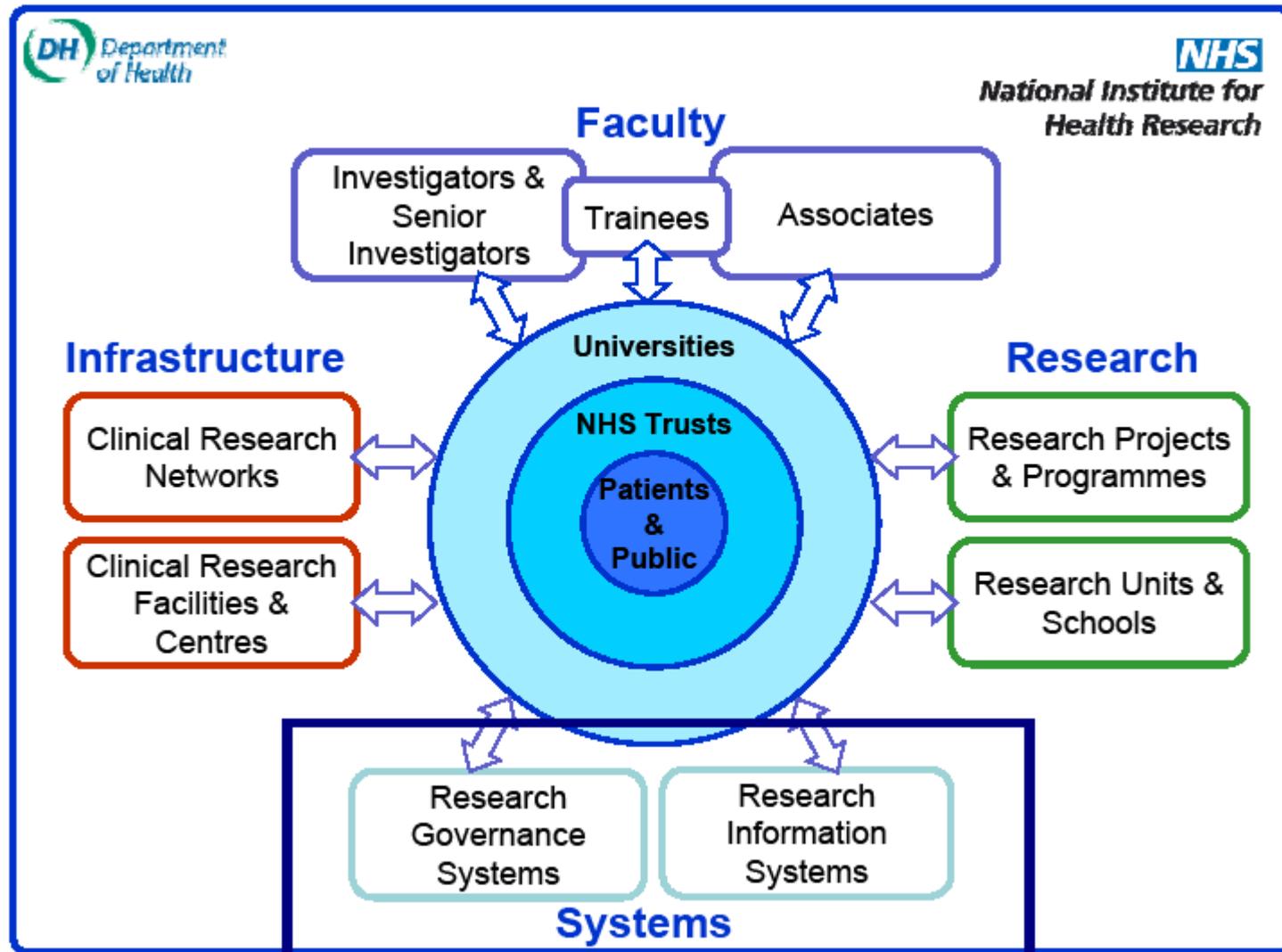
Research Units &
Schools



INVENTION EVALUATION ADOPTION DIFFUSION



This pathway covers the full range of interventions - pharmaceuticals, biologicals, biotechnologies, procedures, therapies and practices - for the full range of health and health care delivery - prevention, detection, diagnosis, prognosis, treatment, care.



*“...facilitating research and
safeguarding patients...”*

Research
Governance
Systems

Research
Information
Systems

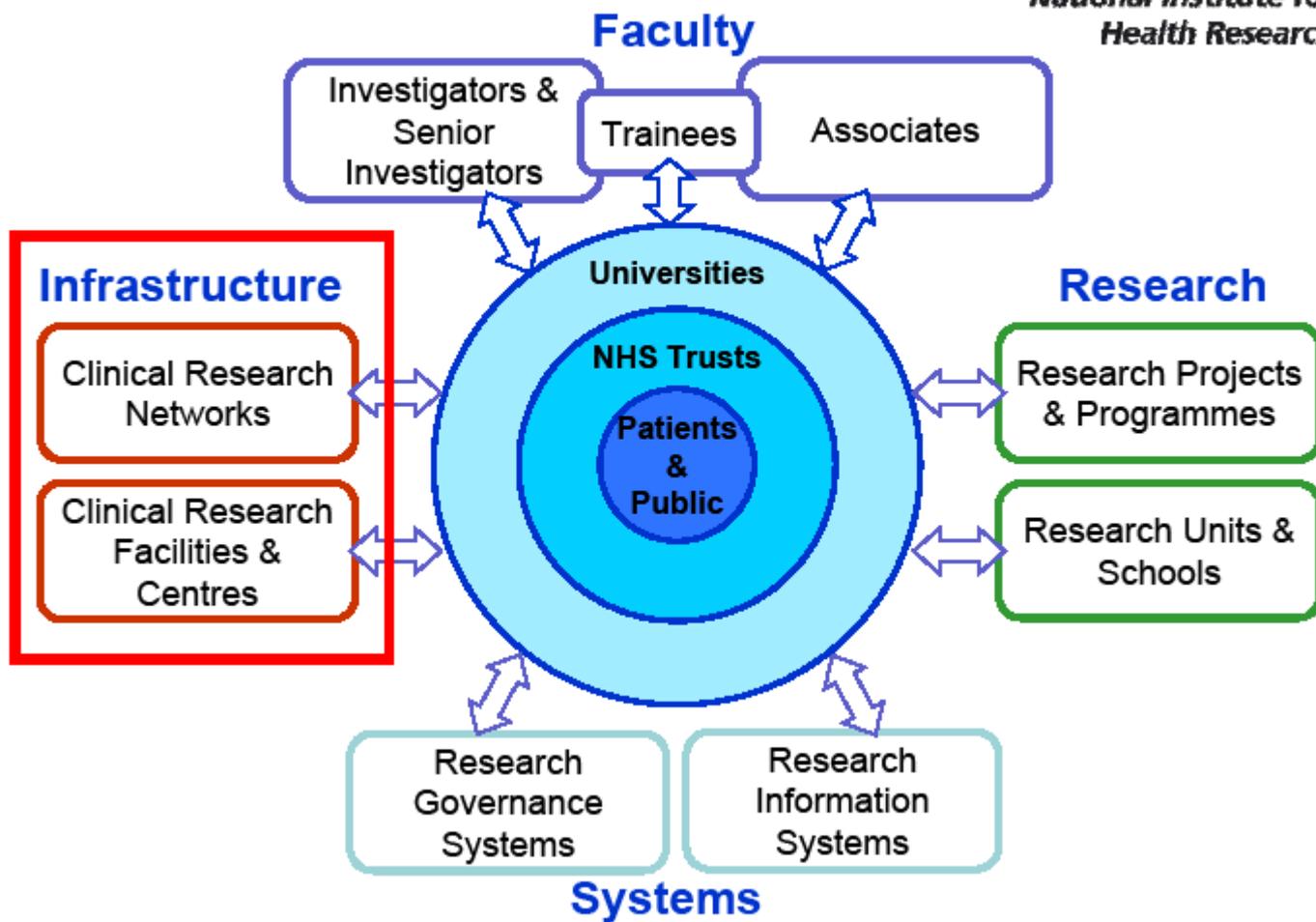
Systems

- **Integrated Research Application System (IRAS)**
- Research Capability Programme
- **NIHR Coordinated system** for gaining NHS permission
- **National Research Ethics Service** & UK Regulatory and Governance Advice Service
- **Research Passports**
- Model **Clinical Trials Agreements**
- Research governance and management as an integral part of the NIHR **Clinical Research Network**

Research
Governance
Systems

Research
Information
Systems

Systems



Clinical Research Networks



- NHS Infrastructure (e.g. research nurses)
- Currently 8 networks
- UK-wide
- Working with industry - Industry Roadmap Group
- Interfaces with funders

Background to creation of topic specific networks

- Designed to support optimal approaches to disease prevention, diagnosis and treatment (emphasis on clinical trials)
- Topic-specific networks in cancer, diabetes, stroke, neurodegenerative diseases, mental health, medicines for children
- Each has its own co-ordinating centre
- Primary Care Research Network
- Comprehensive Research Network

NIHR Topic Specific Research Networks



Professor Gary Ford
Director, Stroke Research Network



Professor Ros Smyth
Director, Medicines for Children Research Network



Professors Martin Rossor and Ian McKeith
Co-Directors, Dementias and Neurodegenerative Diseases Research Network



Professors Janet Darbyshire & Peter Selby
UKCRN CC and PCRN



Professor David Cameron
Director, National Cancer Research Network



UK Mental Health Research Network



Professor Til Wykes
Director, Mental Health Research Network



Professor Des Johnston
Director, Diabetes Research Network

Why diabetes?

- Affects ~5% of population of England
- Diagnosed diabetes increased from 1.4 to 2.6 million since 1996
- Type 2 diabetes 92% of total

Diabetes UK: March 2010

The importance of diabetic complications

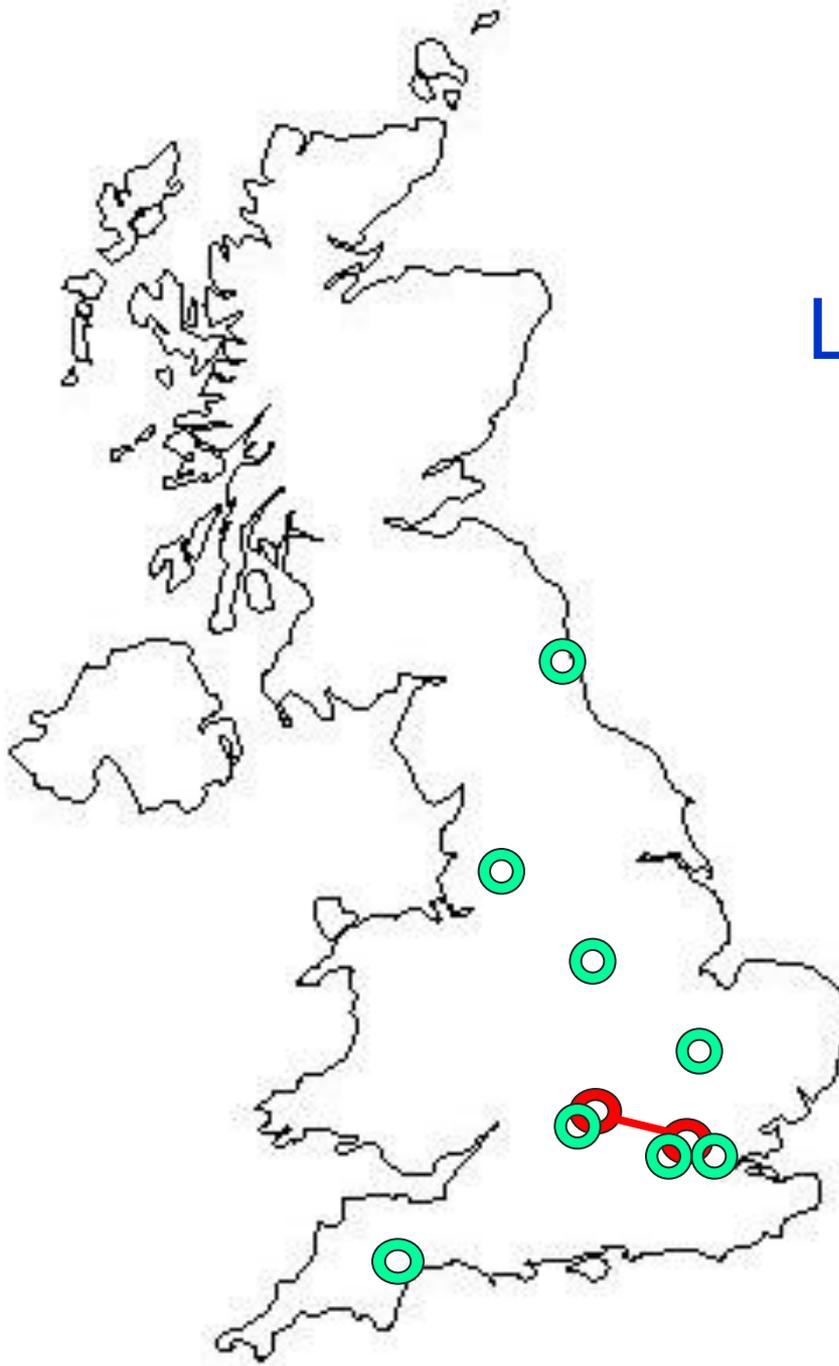


- Life expectancy reduced by 15 years in type 1 and by 5-7 years in type 2 diabetes
- Mortality from coronary heart disease and stroke 2-4 times higher
- Diabetes is the most common cause of non-traumatic amputation (Fox & MacKinnon, 1999)
- Diabetes is leading cause of visual impairment (Evans, 1995) and of end-stage renal failure in the UK (Ansell et al, 1999)

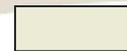
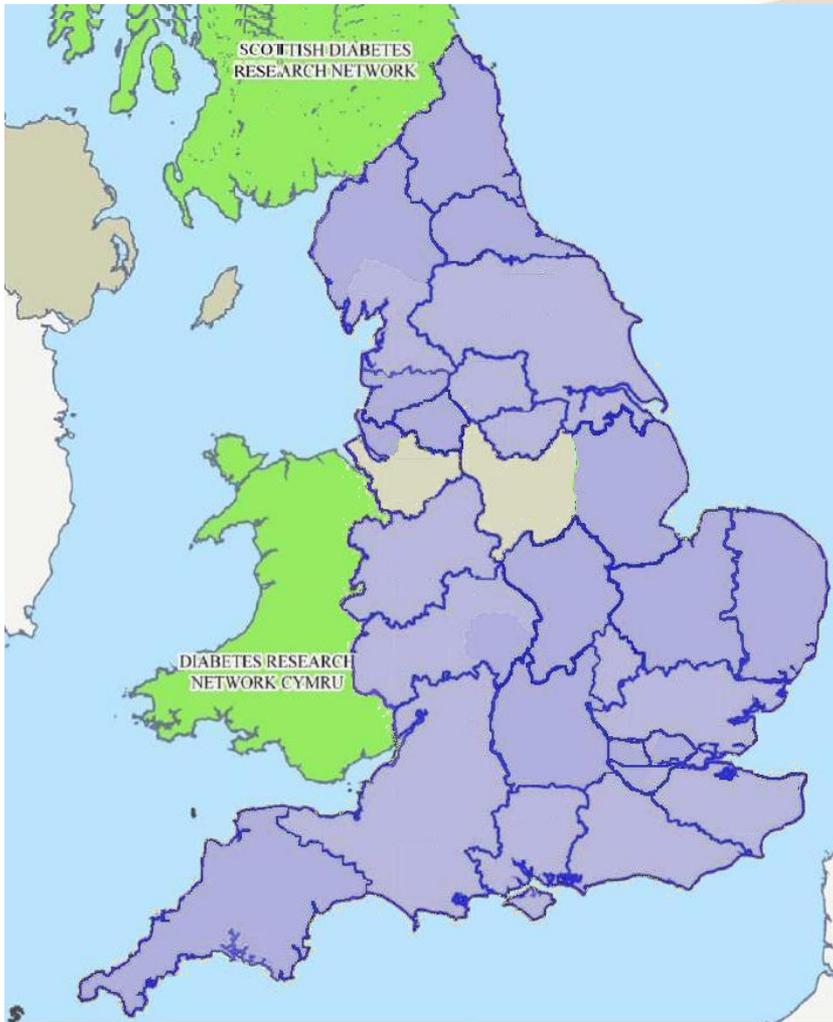
Importance of diabetes

- Cost – diabetes care consumes 5-15% of health care budgets in the Western world
- Most of cost is due to complications and mostly circulatory problems
- Decision partly political

Local Research Networks



SW Peninsula
Thames Valley
North West London
North East London
Eastern England
South East Midlands
North West
North & East Cumbria



CLRN Areas with nominated Leads for diabetes



CLRNs that have not identified any diabetes research

Local Research Network Resources

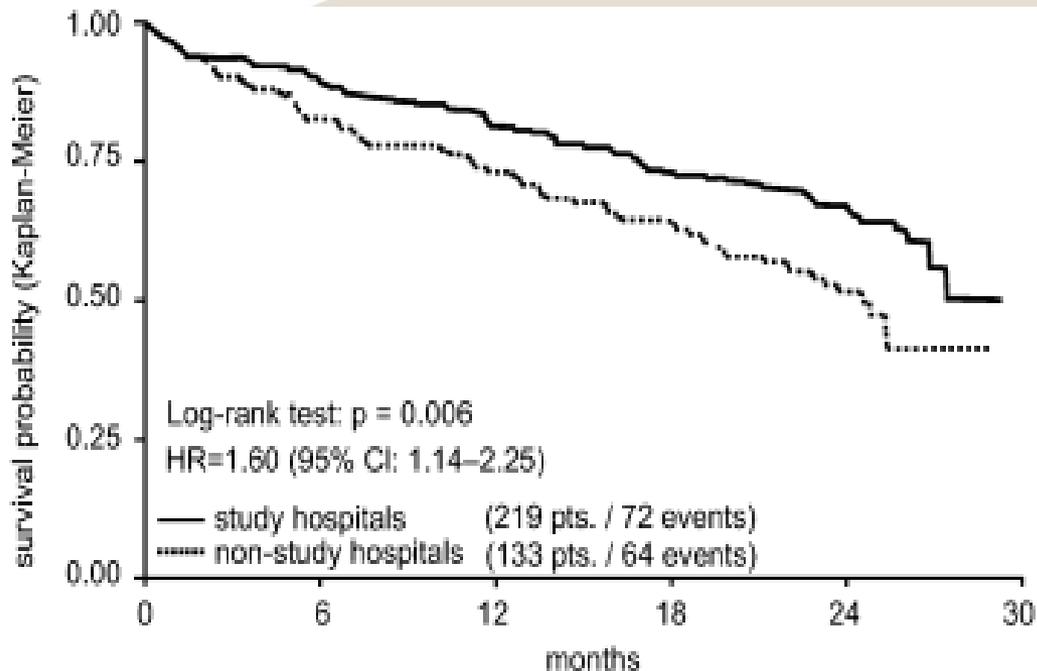
- primary and secondary care
- consultant and GP sessions
- research staff
- managerial, administrative support
- other costs (e.g. pharmacy)

The Network – Types of Research

- Clinical treatment trials
- Technology assessments in real world
- Prevention studies
- Epidemiology
- Population genetics
- Pharmacogenetics
- Health Care Delivery
- Health Economics

Impact of participation in clinical studies on outcome in ovarian cancer

Du Bois et al, *Int J Gynecol Cancer*
2005, 15, 183.



Pts. at	219	184	161	141	73	study hospitals
risk	133	107	92	80	36	non-study hospitals

Research Portfolio

- Non-commercial and commercial
- Non-commercial automatic adoption if:
 - Government or AMRC funded
 - Open national competitive process
 - Peer review

Database: WWW.UKCRN.org

The Network – Types of Research

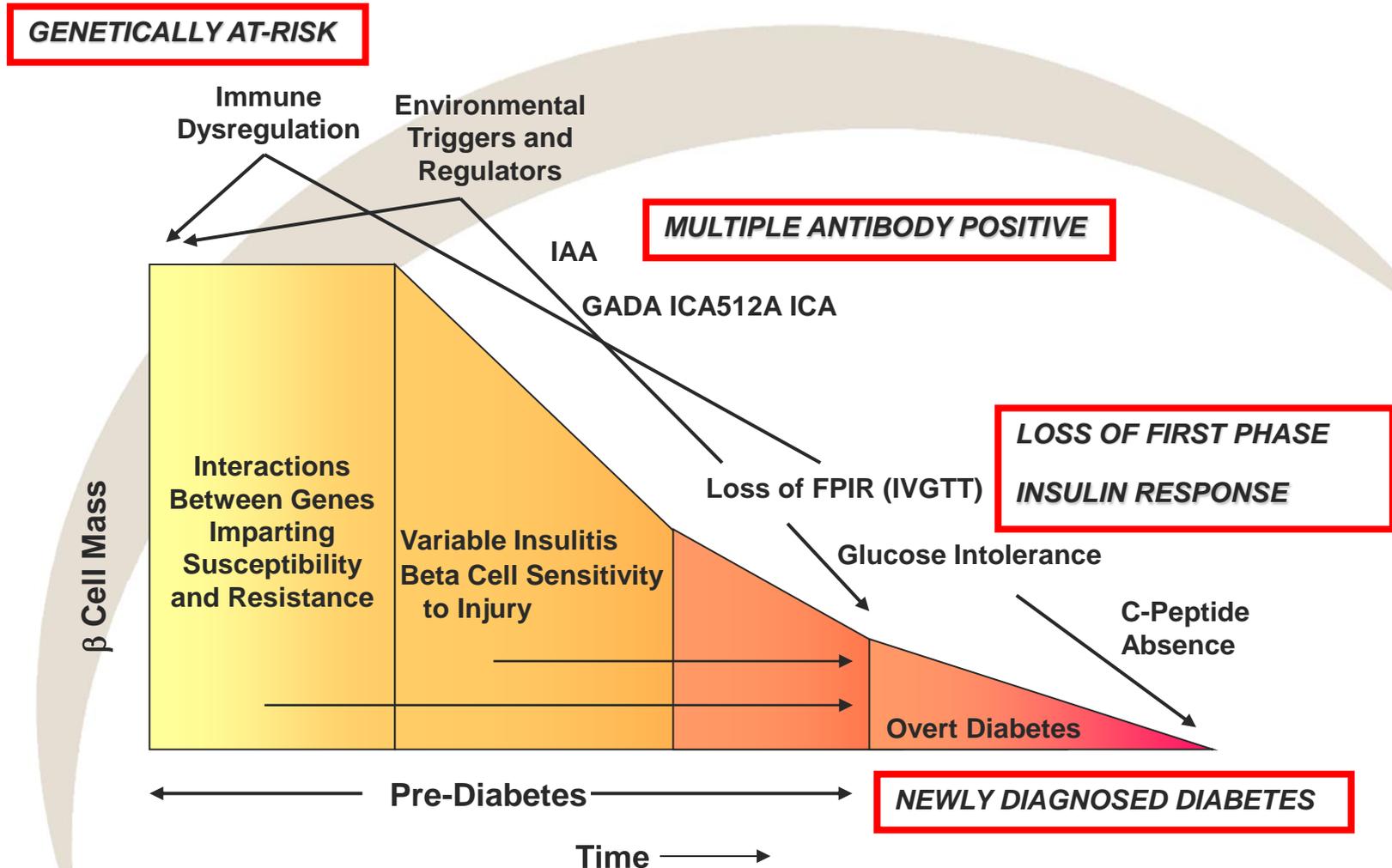
- All types
- Difficult studies e.g. uncommon complications, unusual presentations, difficult to access groups, large numbers required, early intervention trials in type 1 diabetes

The Diabetes Research Network

– Type 1 infrastructure project

- Therapeutic trials of agents aiming to reverse established disease (e.g. anti-CD3 antibodies, anti-CD20 antibodies, antigen-specific tolerance vaccination)
- Often need treatment to commence within 6-12 weeks

Natural History of Type 1 Diabetes



The Diabetes Research Network

– Type 1 infrastructure project

- 200 adults and 300 children per year with incident type 1 diabetes (within 6-12 weeks)
- 300 siblings per year
- Clinical and demographic information on database
- Sample repository including DNA
- Potential for additional information and samples

Sample collection proposal

Samples collected
from DRN Sites

Samples sent to
Porton Down for
preparation and
storage

European collection
of cell cultures Porton
Down

200 μ l Serum aliquot
sent to Bristol for
autoantibody status
measurements

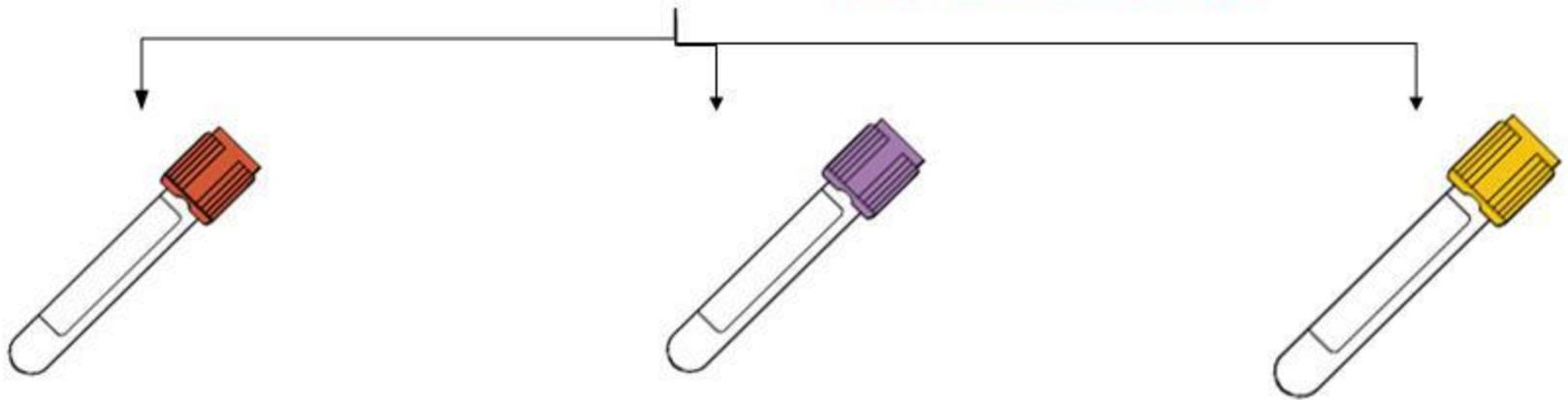
Bristol (Polly
Bingley's lab)



Patient or sibling



Blood samples collected and sent to the ECACC for preparation and storage



6ml blood sample for preparation of serum

10ml for DNA Extraction collected in EDTA treated tubes

6ml for PBL & EBV transformation collected in ACD treated tubes



ADDRESS Database Patient Baseline form



- Demographic data
- Diabetes classification
- Medical and social history
- Pregnancy
- Medication
- Family History
- Clinical measurements
- Biochemistry

The Diabetes Research Network

– Type 1 infrastructure project

- I. Ascertain the patients within 6 weeks of diagnosis and consent (different levels)
- II. Ascertain the siblings and obtain consent
- III. Create computerised database
- IV. Create sample repository
- V. Infrastructure for access

Agents for prevention of type 1 diabetes - mechanisms

1. Antigen-specific tolerance
2. Immune mimicry
3. Anti-inflammatory
4. Monoclonal anti-CD3

The Diabetes Research Network – Type 1 infrastructure project

- I. Intervention and prevention trials**
- II. Aetiopathogenesis studies
- III. Epidemiology
- IV. Other studies/trials

Diabetes Research Network – the future

- Five year plan accepted
- Emphasis on value for money
- Ability to react to opportunities

The Diabetes Research Network – Success



- 279 studies adopted
- 136 studies recruiting
- 96,527 patients recruited

The Clinical Research Network Portfolio

- **Recruitment Data Information**
- The table below shows the latest UKCRN Portfolio recruitment figures
- [Snapshot at 15 February 2010](#)



TOPIC	Current Total Number of Studies Open or in Set up
Comprehensive	1254
Primary Care	111
Cancer	405
Dementias and Neurodegenerative Diseases	109
Diabetes	141
Medicines for Children	123
Mental Health	234
Stroke	93
TOTAL	2470

Cumulative figures this financial year (1 April 2009 – 31 March 2010) at 15 February 2010

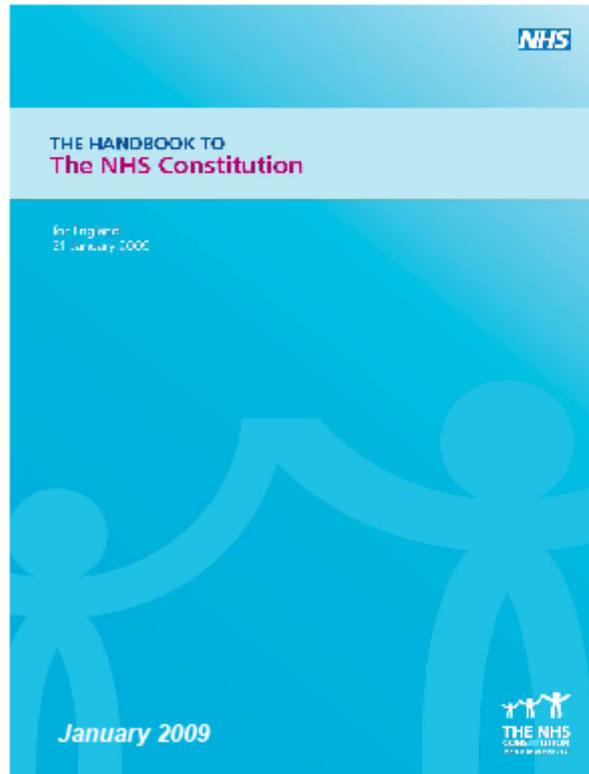
TOPIC	Number of Studies Open to Recruitment during 2009/10	Total Number of Studies Reporting Recruitment during 2009/10	Total Recruitment 2009/10
Comprehensive	1308	1154	160141
Primary Care	144	133	58737
Cancer	402	378	31733
Dementias and Neurodegenerative Diseases	114	107	6009
Diabetes	137	121	29899
Medicines for Children	99	90	5421
Mental Health	209	186	23696
Stroke	88	74	6745
TOTAL	2501	2243	322,381

The NHS Constitution



“The NHS aspires to the highest standards of excellence and professionalism... through its commitment to innovation and to the promotion and conduct of research to improve the current and future health and care of the population.”

Handbook to the NHS Constitution



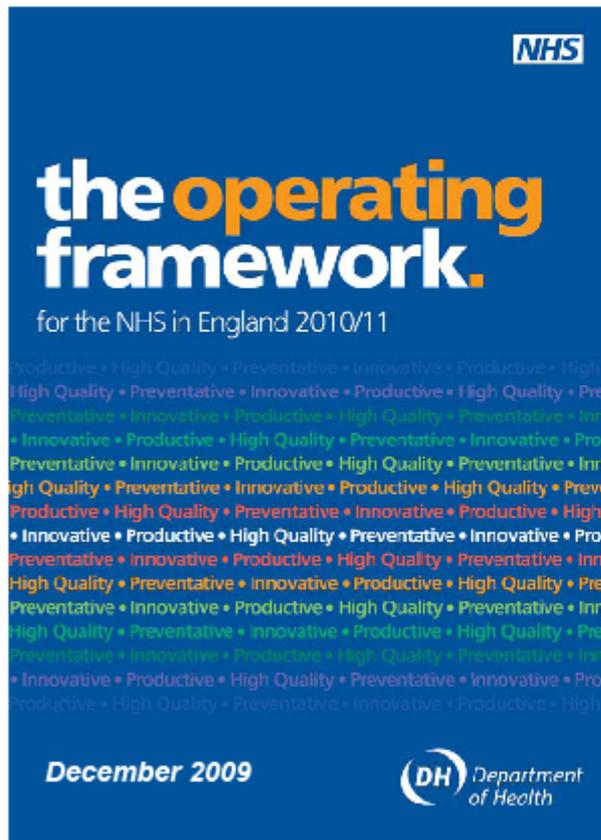
“Research is a core part of the NHS. Research enables the NHS to improve the current and future health of the people it serves. The NHS will do all it can to ensure that patients, from every part of England, are made aware of research that is of particular relevance to them. The NHS is therefore putting in place procedures to ensure that patients are notified of opportunities to join in relevant ethically approved research and will be free to choose whether they wish to do so.”

The Next Stage Review: High Quality Care for All



“We will continue to transform health research in the NHS by implementing, consolidating and building on the Government’s strategy, Best Research for Best Health, for the benefit of patients and the public.”

The NHS Operating Framework

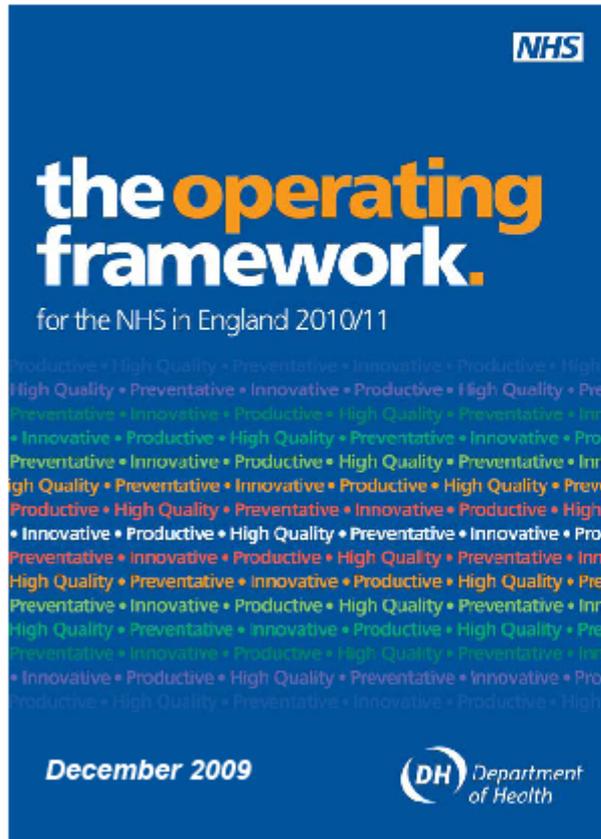


“All NHS organisations must play their full part in supporting health research.

To achieve the national ambition set out in the OLS blueprint publication, all providers of NHS care will want to continue to **increase their level of participation and performance in hosting research funded by noncommercial and commercial research funders.**

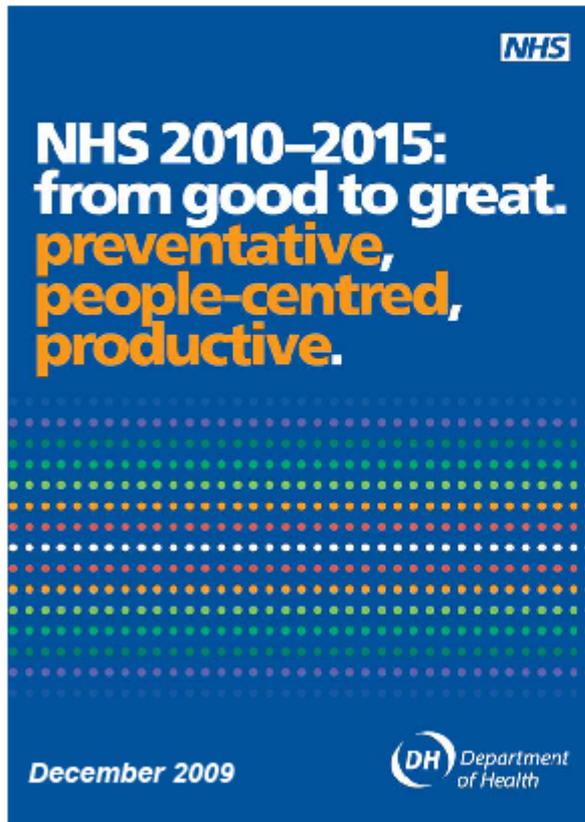
As part of that, in their Quality Accounts we propose that NHS providers should include the number of patients recruited to clinical research.”

The NHS Operating Framework

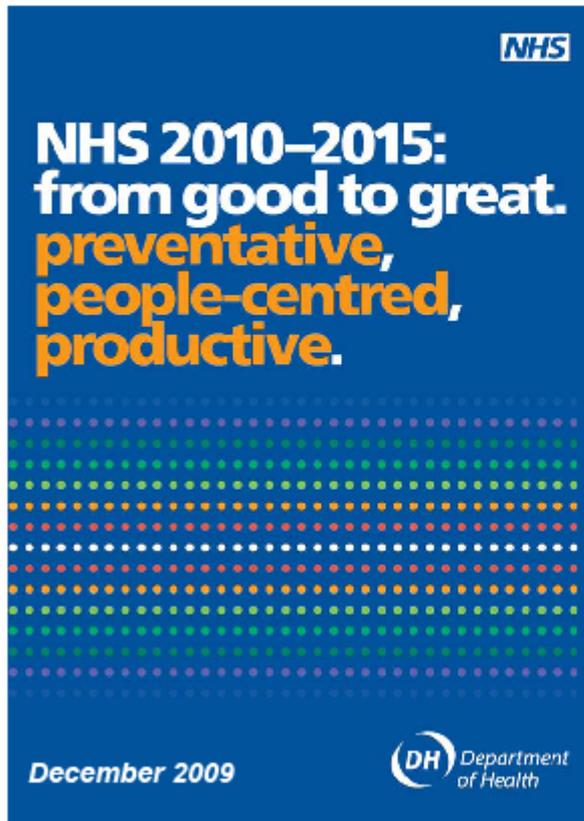


“SHAs, as part of their duty to innovate, are expected to support the work of the NIHR Clinical Research Networks locally and to develop the collaborative capacity of the NHS to join in research studies and trials.

In doing so they can identify where there are any shortcomings.



“As we move into a more challenging financial climate, research and innovation will become even more important in identifying the new ways of preventing, diagnosing and treating disease that are essential if we are to continue to increase both the quality and productivity of services into the future.”



“As we move into a more challenging financial climate, research and innovation will become even more important in identifying the new ways of preventing, diagnosing and treating disease that are essential if we are to continue to increase both the quality and productivity of services into the future.”

Quality Accounts

Health Bill [HL]	
CONTENTS	
PART 1	
QUALITY AND DELIVERY OF NHS SERVICES IN ENGLAND	
CHAPTER 1	
NHS CONSTITUTION	
1	NHS Constitution
2	Duty to have regard to NHS Constitution
3	Availability and review of NHS Constitution
4	Other revisions of NHS Constitution
5	Availability, review and revision of Handbook
6	Report on effect of NHS Constitution
7	Regulations under sections 3 or 4
CHAPTER 2	
QUALITY ACCOUNTS	
8	Duty of providers to publish information
9	Supplementary provisions about the duty
10	Regulations under section 8
CHAPTER 3	
DIRECT PAYMENTS	
11	Direct payments for health care
12	Jurisdiction of Health Service Commissioners
13	Direct payments: minor and consequential amendments
CHAPTER 4	
INNOVATION	
14	Innovation prizes

Subject to Parliamentary approval, all NHS providers will be required by law to publish Quality Accounts

NHS providers who conduct research will be required to include in their Quality Accounts:

“the number of patients recruited in the previous year to clinical research (i.e. research which has received Research Ethics Committee approval).”

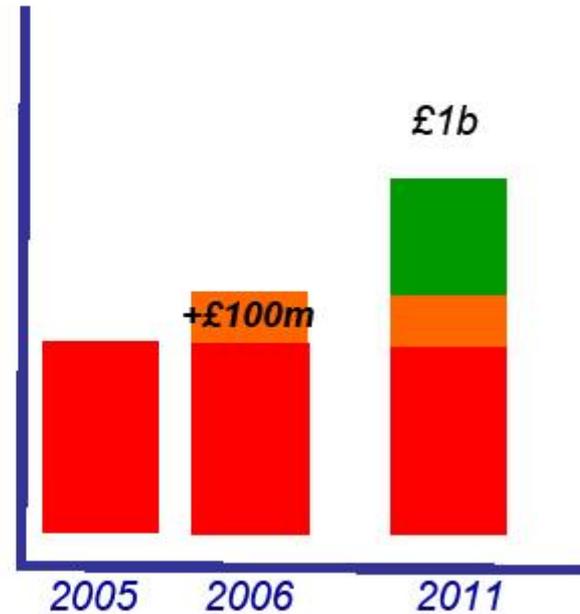
SHA Duty to Promote Innovation



SHAs will produce an Annual Innovation Report which sets out progress including:

“the actions the SHA has taken to support the work of the NIHR Clinical Research Networks locally and to develop the collaborative capacity of the NHS to join in research studies and trials.”

<p>The NHS</p>	<p>NHS Constitution NHS commitment to the promotion and conduct of research</p> <p>NHS Operating Framework All NHS Organisations must play their full part in supporting research</p>
<p>Strategic Health Authorities</p>	<p>Duty to Promote Innovation SHAs to support NIHR Clinical Research Networks locally; SHAs to develop the capacity of the NHS to support research</p> <p>NHS Operating Framework SHAs to identify any shortcomings in their local organisations' support for research</p>
<p>Primary Care Trusts NHS Providers</p>	<p>NHS Operating Framework All providers to continue to increase their level of participation and performance in hosting research funded by non-commercial and commercial research funders.</p> <p>Quality Accounts All providers to report on the number of patients in clinical research</p>
<p>NHS Patients</p>	<p>Handbook to NHS Constitution The NHS will do all it can to ensure that patients are made aware of research that is of particular relevance to them</p>



Where to find more information

- www.UKDRN.org
- DRNinfo@imperial.ac.uk