The Manchester Academic Health Science Centre

Chris Griffiths
Manchester Academic Health Science Centre

- Academic Health Science Centres
- Why Manchester?
- Vision
- Structure
- Goals
- Achievements
Academic Health Science Centres

A Virtuous Circle

Excellence in Education

Excellence in Research

DIFFUSION of INNOVATION

Improved Patient Care
The Birth of the NHS

Aneurin Bevan
5 July 1948

Park Hospital,
Trafford,
Manchester
## Manchester

### Why Now?

#### Health inequalities

<table>
<thead>
<tr>
<th>Category</th>
<th>Manchester</th>
<th>UK Average</th>
<th>England Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adults who smoke</td>
<td>33.8</td>
<td>24.1</td>
<td>40.9</td>
</tr>
<tr>
<td>Binge drinking adults</td>
<td>28.4</td>
<td>18.0</td>
<td>28.9</td>
</tr>
<tr>
<td>Healthy eating adults</td>
<td>21.5</td>
<td>26.3</td>
<td>14.2</td>
</tr>
<tr>
<td>Physically active adults</td>
<td>10.9</td>
<td>11.6</td>
<td>7.5</td>
</tr>
<tr>
<td>Obese adults</td>
<td>25.8</td>
<td>23.6</td>
<td>31.2</td>
</tr>
<tr>
<td>Under-15s 'not in good health'</td>
<td>11.5</td>
<td>11.6</td>
<td>11.1</td>
</tr>
<tr>
<td>Incapacity benefits for mental illness</td>
<td>27.5</td>
<td>27.5</td>
<td>27.5</td>
</tr>
<tr>
<td>Hospital stays related to alcohol</td>
<td>26.0</td>
<td>26.0</td>
<td>26.0</td>
</tr>
<tr>
<td>Drug misuse</td>
<td>20.4</td>
<td>9.9</td>
<td>34.9</td>
</tr>
<tr>
<td>People diagnosed with diabetes</td>
<td>4.1</td>
<td>3.7</td>
<td>5.9</td>
</tr>
<tr>
<td>New cases of tuberculosis</td>
<td>34.0</td>
<td>15.0</td>
<td>102.0</td>
</tr>
<tr>
<td>Hip fracture in over-65s</td>
<td>46.3</td>
<td>47.9</td>
<td>89.8</td>
</tr>
<tr>
<td>Life expectancy - male</td>
<td>73.0</td>
<td>77.3</td>
<td>73.0</td>
</tr>
<tr>
<td>Life expectancy - female</td>
<td>78.6</td>
<td>81.6</td>
<td>78.3</td>
</tr>
<tr>
<td>Infant deaths</td>
<td>6.7</td>
<td>5.0</td>
<td>10.3</td>
</tr>
<tr>
<td>Deaths from smoking</td>
<td>353.8</td>
<td>225.4</td>
<td>355.0</td>
</tr>
<tr>
<td>Early deaths: heart disease &amp; stroke</td>
<td>142.4</td>
<td>84.2</td>
<td>142.4</td>
</tr>
<tr>
<td>Early deaths: cancer</td>
<td>165.8</td>
<td>117.1</td>
<td>167.8</td>
</tr>
<tr>
<td>Road injuries and deaths</td>
<td>59.5</td>
<td>56.3</td>
<td>104.6</td>
</tr>
</tbody>
</table>
Manchester LA has life expectancy at birth of 72.3

Male life expectancy at birth (quintile)

- **Longest life** (77.7 to 79.5 years)
- **Longer than average life** (77.0 to 77.7 years)
- **Around average life** (76.1 to 77.0 years)
- **Shorter than average life** (74.9 to 76.1 years)
- **Shortest life** (72.0 to 74.9 years)

Kensington and Chelsea LA has life expectancy at birth of 80.3...

Source: Office for National Statistics
Examples of our health impact

• Changed NHS practice in suicide prevention

• Changed policy in payment for general medical services

• Demonstrated that dental screening did not improve health

• Changed NHS practice with respect to prevention of falls in the elderly

• Influenced NICE guidelines in management of psychiatric illness, dentistry, stroke, psoriasis and rheumatic disease
Translational Medicine in Manchester – why?

Excellent examples of research publications to ‘the world’

Clinical need unmet

UK Leading Clinical Trials capability but how many lead to local change in clinical practice before anyone else?

Excellent examples of patient care & innovation adoption from ‘the world’

Clinical need fulfilled

The dichotomy: we have some excellent research and patient care but some of the worst health indicators in England
Translational Medicine in Manchester – why?

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Not enough translation of Manchester research findings to improve Manchester/NW health and healthcare
The Major Challenges

Integrating research and education with NHS service commitments

Avoiding duplication of effort and parochial decision-making

Making research infrastructure world-class and pan-Manchester

Reducing delay in the delivery of innovation

Bringing quality patient experience and outcome to the fore
Why Now?

- 2001: Wellcome Trust Clinical Research Facility
- 2004: Greater Manchester Research Alliance
- 2005: Manchester Cancer Research Centre
- 2006: NHS partners External Review of Research Strengths
- 2007: Greater Manchester Health Research project began
- 2008: MAHSC created; Company Limited by Guarantee
High Quality Care For All

NHS Next Stage Review Final Report
Governance arrangements vary in U.S.

- Fully integrated; e.g. Johns Hopkins, Duke
- Cluster models; e.g. Stanford, Harvard
- Looser alliances; e.g. Yale

Elsewhere

- Full integration is more usual; Singapore
5 Designated AHSCs March 2009

Cambridge University Health Partners
University of Cambridge
Cambridge University Hospitals NHS FT
Cambridgeshire and Peterborough NHS FT
Papworth Hospital NHS FT

Imperial College Academic Health Sciences Centre
Imperial College London
Imperial College Healthcare NHS Trust

King's Health Partners
King's College London
Guy's and Thomas's FT
King's College Hospital FT
Maudsley FT

UCL Partners
University College London
University College London Hospital NHS FT
Great Ormond Street Hospital for Children NHS Trust
Moorfields Eye Hospital NHS FT
Royal Free Hampstead NHS Trust

MAHSC
Manchester Academic Health Science Centre

7 Equal Partners
Diverse

- University of Manchester
- The Christie NHS FT
- Central Manchester University Hospitals NHS FT
- Mental Health & Social Care Trust
- Salford Royal NHS FT
- Salford Primary Care Trust
- University Hospital of South Manchester NHS FT

- £2.3 billion annual spend
- 35,000 people employed
Manchester Academic Health Science Centre

The University
RAE 2008, Strengths in Health-related Subjects

<table>
<thead>
<tr>
<th>Unit of Assessment</th>
<th>Quality Rank</th>
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</thead>
<tbody>
<tr>
<td>Cardiovascular medicine</td>
<td>4</td>
</tr>
<tr>
<td>Cancer studies</td>
<td>1</td>
</tr>
<tr>
<td>Primary care/community based clinical subjects</td>
<td>2</td>
</tr>
<tr>
<td>Dentistry</td>
<td>1</td>
</tr>
<tr>
<td>Nursing and midwifery</td>
<td>1</td>
</tr>
<tr>
<td>Pharmacy</td>
<td>2</td>
</tr>
<tr>
<td>Biological sciences</td>
<td>3</td>
</tr>
<tr>
<td>Pre-clinical and human biological sciences</td>
<td>3</td>
</tr>
</tbody>
</table>

Source: Research Fortnight
Manchester Academic Health Science Centre
The Trusts

Central: Biomedical Research Centre
largest pregnancy research group in Europe
National Technology Adoption Centre
cardiovascular medicine

Christie: largest phase I/II cancer clinical trials unit; co-located PET, MR imaging;
biomarkers; close industry partners

Mental Health: leads multi-site cohort studies in early adult psychosis;
six NIHR programme grants; National Drug Evidence Centre; first memory clinic
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The Trusts

Salford PCT: award-winning research active Primary Care Trust; lead for ten other Manchester PCTs; emphasis on implementation into clinical practice

Salford: expertise in linking electronic records to health outcomes; quality assessment; hub for stroke network; shares R&D division with PCT

South: Translational Research Facility in respiratory medicine; heart/lung transplantation; hosts CLRN; national aspergillosis centre
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Our Partners

Strategic Health Authority

NICE

Industry
• U K Trade and Investment
• Astrazeneca
• GlaxoSmithKline
• ICON

AHSCs
• University of Pittsburgh Medical Centre
• Nijmegen Medical centre
The Critical Path of Research

Figure 1: The critical path of research from basic science to healthcare delivery identifying the important gaps in translation. From A Review of UK Health Research Funding, Sir David Cocksey, December 2006.
Manchester Academic Health Science Centre Platforms

- Biomedical Research Centre
- Manchester Cancer Research Centre
- Wellcome Trust Clinical Research Facility
- Biomedical Imaging Institute
- Phase I Trials Facilities
- NW E-Health
- GM Comprehensive Local Research Network
- Manchester Integrating Medicine with Innovative Technology
- Collaboration for Leadership in Applied Health Research and Care
The Critical Path of Research

Glossary:
- **BRC** - Biomedical Research Centre
- **MCRC** – Manchester Cancer Research Centre
- **WT CELL** - Wellcome Trust Centre for Cell-matrix Research
- **MIB** - Manchester Interdisciplinary Biocentre
- **FLS** - Faculty of Life Sciences
- **BII** - Biomedical Imaging Institute
- **WMIC** - Wolfson Molecular Imaging Centre
- **Phase 1** – Phase 1 Clinical Trials Unit
- **WT CRF** - Wellcome Trust Clinical Research Facility
- **GM CLRN** - Comprehensive Local Research Network
- **e-Health** (data management)
- **NPCRDC** - National Primary Care R&D Centre
- **CLAHRC** - Collaboration for Leadership in Applied Health Research and Care
- **MIMIT** - Manchester Integrating Medicine and Innovative Technology
- **HIEC** - Health Innovation and Education Clusters
Goals

1. **Improve** the health and wellbeing of the population through the development and application of innovative healthcare and research.

2. **Disseminate** innovation in technology and care nationally and internationally.

3. **Educate** effectively in all aspects of healthcare, healthcare management, and biomedicine in support of workforce development.

4. **Lead** on quality of care and public engagement.

5. **Partner** more widely and more beneficially with the commercial sector.

6. **Contribute** significantly to innovation, enterprise and economic development in the city region and the North West of England.

7. **Attract** the best national and international health researchers and healthcare workers.
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Building Blocks

Governance, Organisation and Management: a federated approach with harmonisation of processes based on best practice

Clinical Themes: leading capabilities combined with strong communication and cross working across the translational medicine spectrum

Enabling Infrastructure: pan-MAHSC resource and alignment with national programmes supported by fully trained staff
Governance and Management

MAHSC Board of Governors
6 NHS Chief Executives, University President, Director, 3 Non-Executives

Director

MAHSC Executive Management Team
Director, Chief Operating Officer, Clinical and Enabling Academic Section Heads, 6 Trust Medical Directors, University representative

Chief Operating Officer

MAHSC Office PA

Research Operations Manager

MAHSC Research Operations Group
Research Operations Manager, Heads of R&D Offices, GM CLRN

Clinical Academic Section Heads
- Cancer,
- Cardiovascular,
- Human Development,
- Inflammation & Repair,
- Mental Health

Enabling Academic Section Heads
- Infrastructure & Technology,
- Evaluation,
- Implementation & Health of the Public
- Education & Training

Blue represents staff part or whole funded by MAHSC
Company Limited by Guarantee
Manchester Academic Health Science Centre

Structured for Delivery

<table>
<thead>
<tr>
<th>Clinical Academic Sections</th>
<th>Infrastructure and technology</th>
<th>Evaluation</th>
<th>Implementation and Health of the Public</th>
<th>Education and training</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cancer</td>
<td>DNA banks</td>
<td>CLRN interface</td>
<td>Health economics</td>
<td>Postgraduate Integrated academic training programme</td>
</tr>
<tr>
<td>Cardiovascular</td>
<td>Tissue banks -omics</td>
<td>Biostatistics</td>
<td>Health services</td>
<td></td>
</tr>
<tr>
<td>Human Development</td>
<td>Imaging</td>
<td>Bio-health informatics and epidemiology</td>
<td>Primary care</td>
<td></td>
</tr>
<tr>
<td>Inflammation and Repair</td>
<td>e-Health</td>
<td></td>
<td>Quality assessment</td>
<td></td>
</tr>
<tr>
<td>Mental Health</td>
<td></td>
<td></td>
<td>Health inequalities</td>
<td></td>
</tr>
</tbody>
</table>

**NEED UNMET**

**NEED FULFILLED**
Strategic plan: from our five year vision

E-health
• e-Lab infrastructure gives access to anonymised linked records from all aspects of NHS care for a population of 2.5 m

Clinical trials
• An integrated facility across the partners accessible via single portal enabling studies from biomarker and first-in-man to population level interventions

Implementation
• Implementation embedded in the organisation through knowledge transfer agents
e-Enablement Assets

- North West Institute for BioHealth Informatics (NIBHI) is lead asset.

- Current assets include:
  - Salford and Wirral e-Lab Pilot Studies: e-care records linked across primary and secondary care in Salford (220K) and Wirral (330K)
  - Obesity Epidemiology and Public Health Informatics/Obesity e-Lab: focus on research & new insights into obesity epidemic and public health measures to tackle it
  - An MRC-funded project (IMPACT) fusing informatics, epidemiology and economics - scenario planning for health policy, initially cardiovascular

- e-Health+: research cluster/network to enable a more citizen-led approach to improving health
Infrastructure and technology

Cancer
Cardiovascular
Human development
Inflammation and repair
Mental health

DNA banks
Tissue banks
-omics
Imaging
e-Health

Evaluation

CLRN interface
Biostatistics
Bio-health informatics and epidemiology

FEDERATION OF AHSCs IN UK, INTERNATIONAL LINKAGE

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FEDERATION OF AHSCs IN UK, INTERNATIONAL LINKAGE

**Infrastructure and technology**
- DNA banks
- Tissue banks
- Omics
- Imaging
- e-Health

**Evaluation**
- CLRN interface
- Biostatistics
- Bio-health informatics and epidemiology

**Main Challenges**
- Cancer
- Cardiovascular
- Human development
- Inflammation and repair
- Mental health

MAHSC FIVE YEAR KPIs
- Delivery of e-enabled population database of ≥ 2.5M (anonymised linked records).
- Delivery of a co-ordinated bio-repository across MAHSC members.
# Clinical Trials Approach

<table>
<thead>
<tr>
<th>Project</th>
<th>Current Status</th>
<th>Required</th>
<th>MAHSC KPIs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clinical Trials Coordination Unit (CTCU)</td>
<td>Proposal to the Board 22 July</td>
<td>Funding for enhancing resource to support an NIHR registered Christie CTCU to deliver Manchester wide service</td>
<td>28, 2, 3</td>
</tr>
<tr>
<td>Joint Research Office</td>
<td>Review for the Board 22 July</td>
<td>Process harmonisation, SOPs (ongoing), Co-location of University/NHS staff. A dedicated Clinical Trials Office working loosely with GMCLRN with the Research Office. Development of Detailed plan to be worked up by MAHSC R&amp;D Directors Group.</td>
<td>25, 26, 15, 16</td>
</tr>
<tr>
<td>Coordinated Clinical Trials Research Facilities</td>
<td>Working Group structure identified</td>
<td>Working Group initiation awaits outcome of strategic review on Wellcome Trust Clinical Research Facility by Steering Committee under new Chair, Dr John Stageman.</td>
<td>2.3, 15, 16</td>
</tr>
<tr>
<td>E-enabled trials feasibility and recruitment systems</td>
<td>GMCLRN working on FARSITE programme with NWeH</td>
<td>Pilot development utilising 5 GP practices in Salford underway. Approval for whole of Salford in place (~60 practices). Stage 2 will recruit further 29 Greater Manchester practices already aligned with GMCLRN [by end of stage 2 this will encompass total population of ~500 000]</td>
<td>3, 29</td>
</tr>
</tbody>
</table>
Research and Innovation Culture

- 1% clinicians leading research
- 10% clinicians engaged in research
- 100% clinicians supporting research
Strategic plan: from our ten year vision

• More than 10 demonstrable health benefits
• More than 100 new senior national/international health researchers
• More than 1,000 research-enabled healthcare workers trained
• Trebled commercial partnerships in drugs and devices
• Health-conscious population of "citizen scientists" created
What have we done so far?

Pilot Projects

Citizen Scientists
Encourage, inspire and support the public, especially the local community, to engage in research activity in order to improve recruitment to trials in the first instance.
Development a cadre of citizen scientists who support the needs of clinical research.

MIMIT Industrial Liaison Programme (SMEs)
Access to industry partners to deliver developed technology in response to unmet need (highlighted by MIMIT partnered clinicians)
Source of potential partners for collaborative funding bids
Development of marketable technologies that deliver patient benefit

Co-Morbidity Biobanking
Work on data links, public engagement and access will address central aims of MAHSC communications and harmonisation.
Building of a regional hub and spoke structure to develop resource to test hypotheses in co-morbidity eg diabetes and cardiovascular disease
Demonstrator for European project
What have we done so far?

Harmonisation

Research costing
Will enable accurate, consistent and transparent costing and inclusion of all party costs

Contracts
Will eliminate time wasted through negotiation of non-standard contracts

Reporting and Management Information
Will enable identification of cross-institutional projects and provide data against research KPIs.

Establishing R&D Office Key Performance Indicators (KPIs)
To ensure all R&D teams work to same standard and timescales

MAHSC Research Office
Approval for virtual co-located R&D Office
Successes

- MRC Clinical Research Training Fellowship Programme in Clinical Pharmacology (with Liverpool)
- OLS Clusters: Inflammatory Respiratory Disease & Joint and Related Inflammation
- Proton Beam Therapy Centre with UCL Partners and Birmingham
- Modernising Scientific Careers Early Adopter site
Equity and excellence: Liberating the NHS