

South Manchester University Hospitals NHS Trust

R&D Annual Report 2006

Signature of Chief Executive or delegated authority:

I hereby confirm that the following document is the R&D Annual Report 2006 for South Manchester University Hospitals NHS Trust. I also confirm that it has been completed in accordance with the guidance issued by the Department of Health and provides an accurate representation of South Manchester University Hospitals NHS Trust's position.

Signed: _____

Designation: _____

Section 1: Contact details

Organisation Name:

South Manchester University Hospitals NHS Trust

NHS Organisation Code:

RM2

NRR Organisation Code(s):

N0226

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Section 2A-2E: NHS Research programmes

RBV Greater Manchester Cancer Programme

2A Programme identifier

1) Programme Identifier: **RBV Greater Manchester Cancer Programme**

2B Programme status

2) Status on 31 March 2006
(compared to the 2005 annual report) **Unchanged**

3,4) Incorporation of deleted programmes *Not applicable*

2C Parties involved in the programme

5) Are you the administrative organisation for this programme? **No**

6,7) *Not applicable*

2D Aims and objectives

8) Contribution of organisation to the programme

As a major cancer research site the Trust is a key partner in the new Manchester Cancer Programme, as part of the Manchester Research Alliance. South Manchester University Hospitals takes a lead role in Breast and Lung cancers.

Breast Cancer Imaging and Treatment:

1. Basic science research into factors controlling growth in situ and invasive breast cancer;
2. Development of imaging technology in the diagnosis of breast cancer;
3. Evaluation of new technology (eg sentinel node) and minimally invasive breast biopsy;
4. Entry of patients into clinical cancer trials of novel agents and NCRN trials;
5. Studies to determine the factors producing site specific metastases to bone and agents which prevent bone metastases.

Breast Cancer Risk, Detection and Prevention: The focus of this theme is to develop methods of risk assessment, early detection and prevention of breast cancer. The major investigation areas within the theme are

1. risk assessment (Family History Clinic; genetic testing; other risk predictors e.g. diet, weight and exercise; prophylactic mastectomy)
2. detection (e.g. MRI vs mammography)
3. randomised clinical trials for prevention
4. surrogate markers of the effect of treatments on the breast (breast surface temperature; nipple aspirate proteins; breast electropotential; breast density; positron emission tomography; MRI)
5. broadly-based laboratory programme to define potential new preventive agents and new approaches to prevention (stem cells; differentiation pathways; 'Breast Change'; new agents).

Breast cancer research at South Manchester will be significantly enhanced by the construction of a new Breast Care Centre at Wythenshawe Hospital which will include research space and will incorporate Europe's first breast cancer prevention centre.

Lung Cancer:

1. identification of high risk groups (epidemiological and genetic/humoral)
 2. early detection (sputum cytology and fluorescence bronchoscopy)
 3. local endobronchial therapy (photodynamic therapy/brachytherapy/chemotherapy)
 4. clinical trials of new chemotherapeutic agents and neoadjuvant chemotherapy
 5. symptom control; patient involvement in clinical decision-making
- This theme was previously incorporated into the Lung Disease programme and will continue to work closely with this programme.

Other cancers:

The Trust also contributes research activity in gastrointestinal cancers, both upper (e.g. oesophageal) and lower (e.g. colorectal) GI, urological cancers (e.g. prostate and bladder) and gynaecological cancers. Also Interventional radiology for cancers.

NCRN

The Trust is a major partner in the Greater Manchester and Cheshire Cancer Research Network and leads several NCRN accredited trials in breast and lung cancers as a Chief Investigator site as well as contributing to other NCRN trials as a local PI site. The Trust has consistently been one of the most successful recruiters to NCRN trials within the top-recruiting region nationally.

- 9) Changes made in response to feedback from the Department of Health

2E Research deliverables

Total for reporting organisation

- 10) Number of projects ongoing on 31 March 2006
- 11) Number of peer-reviewed publications (calendar year 2005)
- 12) Number of higher degrees directly funded by NHS R&D Support Funding (calendar year 2005)

42

93

2

- 13) Explanation by administrative organisation for any significant fall in deliverables since 2005 that may adversely affect the programme's rating

Not applicable

- 14) Examples of impact on health services or policy

Prof Howell was Chairman of the Steering Committee and Prof Evans sat on the Management & Steering of the MRC MARIBS trial which reported this year in the Lancet. The trial investigated the use of MRI to diagnose cancers in women harbouring BRCA1/2 mutations. The results will inform DH policy on the use of MRI in these young women (NICE Familial Breast Cancer guideline). Largest group of patients recruited from Manchester.

Prof Evans chaired the NICE Committee which produced guidelines for Family History Clinics to a large extent based on the South Manchester Model and research theme.

Our study of mammography in women at risk shows superior survival for screened compared with symptomatic women and is likely to inform the HTA trial currently in progress. Prof Howell is Vice-Chairman of the Steering Committee of this trial and Prof Evans is on the Management Committee. Manchester is the centre that has entered most patients.

We have published this year on the management of the breast contralateral to breast cancer in women with BRCA1 mutations. It shows that women in general surgical clinics are under-informed about their contralateral risks leading to impaired decision making. This paper should help change practice towards better information for women.

Ongoing research (Harvie at al) on the role of diet for primary and secondary prevention of breast cancer. Award from British Dietetic Association for work on weight gain in breast cancer patients. Local and national publicity, promoting the importance of diet & lifestyle for breast cancer patients after diagnosis. Also advised Breast Cancer Care on the dietary information sheets for breast cancer patients that they produce. Currently submitting evidence for NICE early and advanced breast cancer guidelines. Book for all women based on research findings: "Breast Cancer Prevention Diet".

Section 2A-2E: NHS Research programmes

RM2 A programmed investigation of obstructive and parenchymal lung disease

2A Programme identifier

1) Programme Identifier: **RM2 A programmed investigation of obstructive and parenchymal lung disease**

2B Programme status

2) Status on 31 March 2006
(compared to the 2005 annual report) **Unchanged**

3,4) Incorporation of deleted programmes *Not applicable*

2C Parties involved in the programme

5) Are you the administrative organisation for this programme? **Yes**

6) Other NHS reporting organisations that are party to the programme
(listed in alphabetical order) Written agreement?

Pennine Acute Hospitals NHS Trust	Yes
Salford Royal Hospitals NHS Trust	Yes
South Manchester Primary Care Trust	Yes

7) Academic organisations that are party to the programme
(listed in alphabetical order) Written agreement?

Manchester Metropolitan University	Yes
Marmaris University Istanbul, Turkey	No
St George's Medical School, London	No
University Children's Hospital, Copenhagen	No
University College London	No
University Hospital, Zagreb, Croatia	No
University of Aberdeen	No
University of Cardiff	No
University of Edinburgh	No
University of Manchester	Yes
University of Nottingham	No
University of Otago, New Zealand	No
University of Salford	No
University of Virginia, USA	No
University of York	No

2D Aims and objectives

8) Summary of programme area and objectives

Lung disease is the leading cause of hospital admission in the UK. This programme covers many aspects of the causation and management of chronic lung disease, starting before delivery, and stretching to old age. It includes one of the UK 4 lung transplant programmes. It reflects long-established national and international collaborations involving both university-based and clinically-based research partners and including innovative patient partnerships. It encompasses scientific disciplines as diverse as genomics, basic immunological pathobiology of the lung, environmental impacts, pharmacodynamic modeling and long term large cohort clinical studies, all designed to directly impact on patient care.

Themes:

Asthma, Allergy and Atopy

- Internationally renowned Manchester Asthma and Allergy Study: prospective birth cohort, now in 11th year follow up;
- Determination of the gene environmental interaction factors causing asthma and allergy;
- Identification of factors relating to low lung function in children;
- Developing radical interactions to prevent asthma/allergy;
- Investigation and care of severe asthma.

Environmental Impacts

- Examination of the effect of the home and working environment on health;
- Objective measurement of environmental exposures and the associated human responses;

- Findings are being used to develop safe, comfortable environments.

Lung Fibrosis

- Investigation of aetiological factors, markers of disease activity and new therapies in the clinical management of lung fibrosis

Cystic Fibrosis

- Clinical investigations of all aspects of cystic fibrosis including osteoporosis, diabetes, extent and prevention of cross-infection, oxygen therapy, pulmonary hypertension;
- Evaluation of novel inhalational drugs.

Chronic Obstructive Pulmonary Disease (COPD)

- Work on inflammatory basis of COPD leading to potential new therapies;
- Major collaborative link developing with Central Manchester trust on cardiovascular disease in COPD patients;
- Collaborative epidemiology with Copenhagen

Qualitative patient-focused research

- Determining patient information needs for asthma, COPD, eczema and lung cancer;
- Providing patient-friendly disease information;
- Expert patients for education in asthma.

Lung Transplantation

- One of 4 UK lung transplant centres;
- Ongoing studies on rejection / infection in transplant recipients.

Cough

- Development of an automated method for monitoring of cough (patent application filed & industrial partnership secured)
- Study of role of gastro-oesophageal reflux disease in chronic cough, simultaneous measures of cough and oesophageal impedance
- Surgical intervention of reflux disease in chronic cough
- Airway inflammation and re-modeling in chronic cough
- Cough in asthma, relationship to asthma severity, effect of current treatments and exacerbations
- Central mechanisms in the human cough reflex (fMRI and EEG dipole studies)

External funding 05/06 = £1,160,721; 04/05 = £815,321; 03/04= £748,039

(The Department of Health rated this programme in 2005 as **Strong**)

9) Changes made in response to feedback from the Department of Health

2E Research deliverables

Total for reporting organisation

Total for programme across all organisations

10) Number of projects ongoing on 31 March 2006	37	39
11) Number of peer-reviewed publications (<i>calendar year 2005</i>)	48	50
12) Number of higher degrees directly funded by NHS R&D Support Funding (<i>calendar year 2005</i>)	7	7

13) Explanation by administrative organisation for any significant fall in deliverables since 2005 that may adversely affect the programme's rating

14) Examples of impact on health services or policy

Published studies of inhaled corticosteroids in COPD showed that regular treatment reduces mortality. These studies have been used by the Scientific Committee of GOLD (Global Initiative for Chronic Obstructive Lung Disease) for their 2006 revision of Guidelines for Management of COPD.

Wythenshawe Community Ashtma Project: a unique study showing the prevalence of respiratory symptoms, temporal changes over a 12 year period and health care utilisation in a population. Accurate measurement of symptoms, risk factors (e.g. smoking) and disease prevalence is vital for health care planners to determine likely need and resource use in a population. On this basis the NHS Trusts Association commissioned the report "Trends in smoking habits in the UK".

Manchester Community Asthma Study examined the link between BCG vaccination and the development of atopic disease (asthma and allergies). The study suggests that vaccination of neonates with BCG alters the immune system development of these children so they are less likely to develop asthma and allergies. This has considerable implications and may justify a change in UK vaccination policy. Ultimately, it could help in the development of a new vaccine to prevent asthma.

Manchester Airways Group Identifying COPD (MAGIC): the study examined the extent of under-diagnosis and incorrect labelling of COPD in two general practices; to develop a questionnaire-screening tool to identify subjects with COPD. Found that COPD is under diagnosed and incorrectly labelled in General Practice. The findings have been presented to GPs at the European Respiratory Society Congress and local Primary Care Trust meetings in Manchester highlighting the problem and suggesting that active case finding and spirometry in general practice could be used to improve situation.

Published research on identification of DNA markers for a transmissible *Pseudomonas aeruginosa* cystic fibrosis strain. This research has identified a novel region in the genome of a highly transmissible stain of *Pseudomonas aeruginosa*. A PCR test for his strain has been developed and can be used to screen for the presence of the strain in clinical samples. Further work is ongoing to now fully sequence the strain in association with the Sanger Centre.

Section 2A-2E: NHS Research programmes

RM2 Arterial and venous diseases, thrombosis, coagulation and blood transfusion

2A Programme identifier

1) Programme Identifier: **RM2 Arterial and venous diseases, thrombosis, coagulation and blood transfusion**

2B Programme status

2) Status on 31 March 2006
(compared to the 2005 annual report) **Unchanged**

3,4) Incorporation of deleted programmes *Not applicable*

2C Parties involved in the programme

5) Are you the administrative organisation for this programme? **Yes**

6) Other NHS reporting organisations that are party to the programme (listed in alphabetical order)	Written agreement?
Bolton Hospitals NHS Trust	Yes

7) Academic organisations that are party to the programme (listed in alphabetical order)	Written agreement?
Imperial College School of Medicine	No
St George's Medical School London	No
University of Manchester	Yes

2D Aims and objectives

8) Summary of programme area and objectives

The programme comprises 2 themes:

Venous disease
Research is focused on venous disease including the treatment of varicose veins and the prevention and treatment of venous ulceration.
The theme includes

1. Prevention of chronic wounds, new treatment therapies for leg ulceration and prevention of recurrence upon healing.
2. Assessment and treatment of varicose veins
3. Physiology and haemodynamics of venous disease
4. Reduction in the risk of MRSA infection

Thrombosis, Coagulation and Blood Transfusion

1. Venous thromboembolism
2. Coagulation disorders and anti-coagulation
3. Autologous transfusion, cell salvage and transfusion triggers

External funding:
2005/06 = £250,194; 2004/05 = £256,263; 2003/04 = £254,677

(The Department of Health rated this programme in 2005 as **Strong**)

9) Changes made in response to feedback from the Department of Health

2E Research deliverables

	Total for reporting organisation	Total for programme across all organisations
10) Number of projects ongoing on 31 March 2006	10	12
11) Number of peer-reviewed publications (<i>calendar year 2005</i>)	14	14
12) Number of higher degrees directly funded by NHS R&D Support Funding (<i>calendar year 2005</i>)	0	0
13) Explanation by administrative organisation for any significant fall in deliverables since 2005 that may adversely affect the programme's rating		
14) Examples of impact on health services or policy	<p>Autologous blood transfusion: Our blood transfusion research team undertook the largest randomised clinical trial ever performed on acute normovolaemic haemodilution and intraoperative cell salvage in patients undergoing high blood loss surgery. The results of this study have influenced clinical practice and our team have played a key role in the publication of "a National Blood Conservation Strategy for NBTC and NBC". Blood usage in elective surgery is falling dramatically as a result.</p> <p>Venous disease: our leg ulcer research team introduced the community care of leg ulcers using multilayer bandaging. Studies on the investigation of venous disease by Doppler ultrasound techniques have lead to widespread adoption of nurse-led investigation and treatment for varicose veins. Our studies on the safety of microfoam sclerotherapy in patients with PFO have been reported to the FTA and a major international multi-centre clinical trial on the efficacy of this novel treatment for varicose veins has been restarted and will report in 2007.</p> <p>Engineered compression stockings have been developed following a major grant from the Wellcome Trust and should enter clinical practice for the prevention of deep vein thrombosis and the treatment of venous insufficiency during 2007. Our research strategy is now to investigate the prevention of venous insufficiency.</p> <p>Abdominal aortic aneurysm: our vascular unit recruited more patients to the national Endovascular Aneurysm Repair (EVAR) trial than any other hospital and was a major participant in the UK small aneurysm trials. As a result, the role of EVAR is now becoming established. Our research on the cost-effectiveness of AAA screening has contributed to the current national initiative to set up AAA screening for the UK population.</p>	

Section 2A-2E: NHS Research programmes

RM2 Burn, Plastic and Reconstructive Surgery

2A Programme identifier

1) Programme Identifier: **RM2 Burn, Plastic and Reconstructive Surgery**

2B Programme status

2) Status on 31 March 2006
(compared to the 2005 annual report) **Unchanged**

3,4) Incorporation of deleted programmes *Not applicable*

2C Parties involved in the programme

5) Are you the administrative organisation for this programme? **Yes**

6) Other NHS reporting organisations that are party to the programme (listed in alphabetical order)	Written agreement?
Central Manchester and Manchester Childrens University Hospitals NHS Trust	Yes
Royal Free Hampstead NHS Trust	No

7) Academic organisations that are party to the programme (listed in alphabetical order)	Written agreement?
Manchester Metropolitan University	Yes
University College London	Yes
University of Lancaster	No
University of Leicester	No
University of Manchester	Yes
University of Salford	No

2D Aims and objectives

8) Summary of programme area and objectives

This programme builds on Wythenshawe Hospital's clinical role as a major burns and plastic/reconstructive surgery centre. It forms an inter-disciplinary centre of excellence for research in tissue injury and repair, with the objectives of developing an internationally recognised facility at the leading edge of translational research to develop new therapies to maximise clinical and social outcomes.

The Programme links closely to the University of Manchester Plastic & Reconstructive Surgery Group within the Medical School, with state of the art laboratory facilities focusing on peripheral nerve repair and wider links to the internationally-recognised wound healing research teams within the University.

There is also a key collaborative link to the Dept of Biological Sciences at Manchester Metropolitan University with a focus on wound infection and antibiotic resistance.

The Programme also encompasses the paediatric burns unit at Booth Hall Children's Hospital (Central Manchester and Manchester Children's University Hospitals NHS Trust).

Wythenshawe Hospital is the main NHS site for clinical trials of innovations arising from the

(The Department of Health rated this programme in 2005 as **Strong**)

- 9) Changes made in response to feedback from the Department of Health

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2E Research deliverables

	Total for reporting organisation	Total for programme across all organisations
10) Number of projects ongoing on 31 March 2006	6	6
11) Number of peer-reviewed publications (<i>calendar year 2005</i>)	16	20
12) Number of higher degrees directly funded by NHS R&D Support Funding (<i>calendar year 2005</i>)	2	2

- 13) Explanation by administrative organisation for any significant fall in deliverables since 2005 that may adversely affect the programme's rating

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- 14) Examples of impact on health services or policy

Research into the influence of pre-existing psychiatric illness on recovery in burn injury patients found that patients with pre-existing psychiatric conditions, especially psychosis, and those with self-inflicted injuries are associated with difficulties in clinical management and higher economic cost yet staff receive very little specialist training in their management. This will impact on guidelines for management of burn injury patients.

Research into the religious and ethical issues, including consent, arising from the use of biological products (tissue engineered skin, allograft and xenograft, and biological dressings) in burn patients concluded that informed consent, based on full knowledge of the constituents of the products, should be obtained. This has led to the recommendation that hospitals and manufacturers should take immediate measures to enlighten healthcare professionals of the constituents of these products so that they can obtain informed consent from patients.

Development of a new patient-based outcome measure in plastic surgery for head/neck skin lesions for use in audit, clinical trials and effectiveness studies. The POS-Head/Neck is a new surgical outcome measure that can be used to evaluate outcomes in malignant and benign head/neck skin lesions before and after surgery which is acceptable to patients and satisfies rigorous scientific criteria.

Section 2A-2E: NHS Research programmes

RM2 Invasive Fungal Diseases

2A Programme identifier

1) Programme Identifier:

2B Programme status

2) Status on 31 March 2006
(compared to the 2005 annual report)

3,4) Incorporation of deleted programmes *Not applicable*

2C Parties involved in the programme

5) Are you the administrative organisation for this programme?

6) Other NHS reporting organisations that are party to the programme
(listed in alphabetical order) Written agreement?

7) Academic organisations that are party to the programme
(listed in alphabetical order) Written agreement?

European Society for Clinical Microbiology and Infectious Diseases, Zurich	No
Institute of Genome Research, USA	Yes
Public Health Research Institute, New Jersey, USA	Yes
Swiss Institute of Allergology	No
University of Manchester	Yes
University of Texas	Yes

2D Aims and objectives

8) Summary of programme area and objectives

(The Department of Health rated this programme in 2005 as **Strong**)

9) Changes made in response to feedback from the Department of Health

2E Research deliverables

Total for reporting organisation Total for programme across all organisations

10) Number of projects ongoing on 31 March 2006	8	8
11) Number of peer-reviewed publications (<i>calendar year 2005</i>)	20	20
12) Number of higher degrees directly funded by NHS R&D Support Funding (<i>calendar year 2005</i>)	0	0

13) Explanation by administrative organisation for any significant fall in deliverables since 2005 that may adversely affect the programme's rating

14) Examples of impact on health services or policy	Licensure of voriconazole – the treatment of choice for invasive aspergillosis, not yet assessed by NICE (no antifungal drugs have been assessed by NICE)
	Licensure of caspofungin – a treatment of choice forazole resistant candida infections and empiric therapy of febrile neutropenia (no antifungal drugs have been assessed by NICE).
	Advice to asthmatics to change pillows regularly. Researchers found up to 16 types of fungi in pillows they analysed (reported in Allergy). Aspergillus fumigatus was particularly evident in synthetic pillows. This fungus commonly invades the lungs and sinuses and can worsen asthma.
	Identified the need the skin testing for fungi in severe adult asthmatics to optimise treatment (approx. 10% of 3 million asthmatics).
	Defined first and second line treatment for invasive aspergillosis (5000 patients in UK annually).
	Defined standards of care for patients with invasive fungal infections in UK (approx. 10,000 annually).

Section 2A-2E: NHS Research programmes

RM2 Medical Education

2A Programme identifier

1) Programme Identifier:

2B Programme status

2) Status on 31 March 2006
(compared to the 2005 annual report)

3,4) Incorporation of deleted programmes *Not applicable*

2C Parties involved in the programme

5) Are you the administrative organisation for this programme?

6) Other NHS reporting organisations that are party to the programme
(listed in alphabetical order) Written agreement?

Salford Royal Hospitals NHS Trust	Yes
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7) Academic organisations that are party to the programme
(listed in alphabetical order) Written agreement?

Harvard University	Yes
University of Keele	Yes
University of Leeds	Yes
University of Liverpool	Yes
University of Maastricht	Yes
University of Manchester	Yes
University of Newcastle-upon-Tyne	Yes
University of Oxford	Yes
University of Sheffield	Yes

2D Aims and objectives

8) Summary of programme area and objectives

The Medical Education Research Programme is evaluating outcomes of the new undergraduate medical curriculum at the University of Manchester (preparation of new graduates for practice vis-a-vis clinical skills, communication skills, dealing with uncertainty, time management, understanding clinical audit, looking after people from different cultures, using informatics, understanding the legal and ethical aspects of medicine). Also during 2003-2005 there has been an increasing focus on interdisciplinary and non-medical education.

Programmes objectives are:

- 1) to develop and evaluate innovative approaches to teaching and learning in undergraduate medical education (eg IT-based learning, multidisciplinary learning, clinical skills teaching);
- 2) to evaluate and maximise the abilities/quality of the graduates of the problem-based learning programme at the University of Manchester Medical School;
- 3) to develop and evaluate multidisciplinary learning strategies;

- 4) to increase competencies/skill levels in the newly qualified doctor and in other clinical professions
- 5) to develop workforce capacity.

(The Department of Health rated this programme in 2005 as **Strong**)

- 9) Changes made in response to feedback from the Department of Health

2E Research deliverables

	Total for reporting organisation	Total for programme across all organisations
10) Number of projects ongoing on 31 March 2006	5	11
11) Number of peer-reviewed publications (calendar year 2005)	3	10
12) Number of higher degrees directly funded by NHS R&D Support Funding (calendar year 2005)	0	0

- 13) Explanation by administrative organisation for any significant fall in deliverables since 2005 that may adversely affect the programme's rating

- 14) Examples of impact on health services or policy

The translational research group has, over the last year, developed or contributed to the development of virtual managed learning environments for the following curricula:

- University of Manchester undergraduate medical curriculum
- Foundation training for newly qualified doctors
- Nurse education within the Salford Royal Hospitals Trust
- Community-wide education of diabetes health professionals, as part of the implementation of the National Service Framework for diabetes

A qualitative study of primary care consultations in multilingual settings, and educational implications found that it is routine for GPs in inner London practices to manage consultations with patients with culturally different communicative styles from their own. Specific training in identifying these problems and preventing/repairing them in the consultation is essential. This level of awareness-raising is more crucial than general discussions of culturally different health belief models.

Research into how medical trainees should be taught to open a clinical interview characterised the opening of secondary care consultations. The study identified 5 steps that could help trainees create a context for active listening that is less prone to interruption. This finding will be used to inform the delivery of education to medical students.

Research aiming to establish how ICT could apply feedback principles to experience based learning lead to the successful prototyping of an application of feedback principles to experience based learning that students found useful.

Section 2A-2E: NHS Research programmes

RM2 Medicines Management

2A Programme identifier

1) Programme Identifier: **RM2 Medicines Management**

2B Programme status

2) Status on 31 March 2006
(compared to the 2005 annual report) **Unchanged**

3,4) Incorporation of deleted programmes *Not applicable*

2C Parties involved in the programme

5) Are you the administrative organisation for this programme? **Yes**

6) Other NHS reporting organisations that are party to the programme
(listed in alphabetical order)

Written agreement?

Manchester Mental Health and Social Care Trust

Yes

Salford Royal Hospitals NHS Trust

Yes

South Manchester Primary Care Trust

Yes

7) Academic organisations that are party to the programme
(listed in alphabetical order)

Written agreement?

University of Manchester

Yes

University of York

Yes

2D Aims and objectives

8) Summary of programme area and objectives

The Pharmacy and Medicines Management services within the Manchester Trusts have continued to develop and increase their R&D strategy devoted to optimising medicines management, the delivery of pharmaceutical care to patients and demonstrating the pharmacy contribution to an evidence-based health service. There is health economy collaboration with NHS Trusts, PCTs and the School of Pharmacy and Pharmaceutical Sciences at the University of Manchester.

Pharmacy practice research is undertaken to investigate problems in day-to-day practice and the results are used to improve services. Work under the national clinical pharmacy programme for prudent antimicrobial use has resulted in a number of publications and presentations that have demonstrated improved utilisation and cost effectiveness.

The clinical tutor posts within the 3 teaching hospitals continue to evaluate the learning environment within which the undergraduate students are placed. This programme has been expanded in 2005 with the appointment of 3 additional tutors. Activity has increased with presentations at many national and international conferences, including key presentations at the Department of Health SACAR antibiotic conference, Diabetes UK, Biomedical Science Congress, Federation of Infection Societies, British Pharmaceutical Conference, Health Services Research Conference and the Greater Manchester Medicines Management Conference. An innovative prescription tracking system has been developed which won the support services category at the Greater Manchester NHS Awards in 2005

Electronic prescribing has started to be introduced in an out-patient clinic and neo-natal unit and this is being evaluated.

One of the NHS Directors of Pharmacy and Medicines Management has been awarded a personal chair within the School of Pharmacy and Pharmaceutical Sciences at the University

of Manchester.
Local NHS trusts are training registration pharmacists and clinical diploma pharmacists each year who all need to do practice research projects as part of their studies.

Ongoing projects include:

- PhD student is being funded jointly through NHS R&D and the University of Manchester as part of a developing collaborating Collaboration with School of Pharmacy around patient assessment of student's communication skills
- Medication error reporting culture
- Assessing the impact of a pharmacist team approach to patient care.
- National antimicrobial databases and links to surveillance
- Working with the Healthcare Commission to develop and evaluate medicines management and medicines usage indicators.
- Student perceptions in a pharmacy problem-based learning course
- Osteoporosis in home TPN patients.
- Information from Medicines Management Groups - how it is distributed to prescribers.
- Differences in line infections with different line lock solutions.

(The Department of Health rated this programme in 2005 as **Strong**)

- 9) Changes made in response to feedback from the Department of Health

2E Research deliverables

	Total for reporting organisation	Total for programme across all organisations
10) Number of projects ongoing on 31 March 2006	8	12
11) Number of peer-reviewed publications (calendar year 2005)	13	23
12) Number of higher degrees directly funded by NHS R&D Support Funding (calendar year 2005)	1	1

- 13) Explanation by administrative organisation for any significant fall in deliverables since 2005 that may adversely affect the programme's rating

- 14) Examples of impact on health services or policy

Developing and implementing a national template for hospital antimicrobial guidelines for uptake into each NHS acute trust.

Local work within the antimicrobial programme has resulted the development and implementation of a web-based antimicrobial formulary and guidelines in line with "Saving Lives" and "Winning Ways". Further development and evaluation of a PDA based formulary for prescribers is at concept level.

The NHS modernisation programme has ensured that automation of medication distribution has been introduced within local trusts and this has contributed to a reduction in medication errors that is being monitored by the local web-based incident reporting in line with "Building a Safer NHS for Patients – Improving Medication Safety". SMUHT is a pilot site for the new NHSLA Risk Management Standards for Acute Trusts.

A number of pharmacists have obtained accreditation for supplementary prescribing of medicines and this has led to the implementation of front-line service provision that has been evaluated through the R&D programme. These include services to patients with mental health, diabetes, cancer, cystic fibrosis as well as those requiring palliative care.

Assessment of the use of webcam, prescription tracking systems has been conducted and

electronic prescribing of complex chemotherapy regimens has be commenced.

Ongoing work includes remote access of pharmacy databases for on call purposes as well as harnessing information technology for pharmacist interventions. The work has been published or submitted for publication to inform the national agenda.

Section 2A-2E: NHS Research programmes

RM2 Multidisciplinary research on coronary artery disease, stroke, paradoxical emboli and cerebral injury

2A Programme identifier

1) Programme Identifier: **RM2 Multidisciplinary research on coronary artery disease, stroke, paradoxical emboli and cerebral injury**

2B Programme status

2) Status on 31 March 2006
(compared to the 2005 annual report) **Unchanged**

3,4) Incorporation of deleted programmes *Not applicable*

2C Parties involved in the programme

5) Are you the administrative organisation for this programme? **Yes**

6) Other NHS reporting organisations that are party to the programme
(listed in alphabetical order) Written agreement?

Bolton Hospitals NHS Trust	Yes
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7) Academic organisations that are party to the programme
(listed in alphabetical order) Written agreement?

Karolinska Hospital, Stockholm, Sweden	Yes
St Georges Medical School London	Yes
University of Liverpool	Yes
University of Manchester	Yes
University of Warwick	Yes

2D Aims and objectives

8) Summary of programme area and objectives

The programme comprises 3 research themes:

1. Cardiology, cardiothoracic surgery and cardiopulmonary transplantation.
It builds on existing academic links and clinical strengths and promotes new collaborations between South Manchester, the University of Manchester and other Trusts in Greater Manchester.

Key areas within the theme are:

- Aetiology of myocardial infarction in young people
- Inflammatory processes in coronary disease and cardiac transplant vasculopathy
- Early detection of left ventricular dysfunction
- Treatment of heart failure
- Mechanisms and prevention of rejection in cardiopulmonary transplantation

2. Stroke

This theme is concerned with the secondary prevention of stroke due to cardiovascular disease and includes:

1. On going research involving national and international collaborations
2. Pilot studies

3. Epidemiological studies

3. Paradoxical emboli and cerebral injury

This theme is concerned with all aspects of paradoxical embolisation and cerebral injury and includes:

1. The role cerebral embolisation in the causation of dementia
2. Cerebral and paradoxical emboli as a cause of acute cerebral injury following surgery
3. Pilot studies on treating patent foramen ovale

External funding:

2005/06 = £578,209; 2004/05 = £770,662; 2003/04 = £456,631; 2002/03 = £496,215

(The Department of Health rated this programme in 2005 as **Strong**)

- 9) Changes made in response to feedback from the Department of Health

2E Research deliverables

	Total for reporting organisation	Total for programme across all organisations
10) Number of projects ongoing on 31 March 2006	18	18
11) Number of peer-reviewed publications (calendar year 2005)	30	30
12) Number of higher degrees directly funded by NHS R&D Support Funding (calendar year 2005)	0	0

- 13) Explanation by administrative organisation for any significant fall in deliverables since 2005 that may adversely affect the programme's rating

- 14) Examples of impact on health services or policy

Carotid Surgery in Acute Stroke: our research on the measurement of cerebral perfusion and detection of cerebral emboli during carotid and coronary artery surgery has influenced the way these procedures are performed. A randomised clinical trial on the timing of carotid surgery in patients suffering acute cerebral infarction was published in 2004 and was part of the evidence leading to a national initiative aiming to reduce the time between symptoms of cerebral ischemia and carotid surgery.

Paradoxical Embolism: our study on the frequency of patent foreman ovale in young adults suffering myocardial infarction and ischemic stroke has been accepted for publication in the Journal of the American College of Cardiology. The impact on clinical practice is profound as these results confirm that young adults suffering stroke should be investigated for a PFO to prevent recurrent strokes. Furthermore, our results indicate that mild/moderate venous to arterial circulation shunting may have little clinical significance.

Dementia studies: the results of our major case-control study in Alzheimer's disease and vascular dementia were published in the British Medical Journal in May 2006. This is the first report suggesting that cerebral emboli may be a cause of these common dementias afflicting our elderly population. This has led to further major research grants on how cerebral emboli influence the rate of deterioration in patients with dementia. The objective is to identify a potentially preventable or treatable cause of dementia which will have immense impact on health care.

RCT comparing surgery first and angioplasty first for the treatment of critical limb ischaemia. After 6 months there was no significant difference in amputation free survival but surgical costs were about 30% higher than angioplasty costs. This is the largest trial of its kind and will be used to form treatment policy for these patients. Considerable savings could be achieved if an angioplasty first strategy was employed.

Ashleigh RJ et al. A cross-site vascular radiology on-call service. The Manchester

experience. *Clinical Radiology* 2005;60:389-393.

A review of practise of a group of specialists covering the vascular radiology practise of two NHS trusts when on call has lead to the vascular surgeons in the two hospitals developing a similar rota.

The department has lead the development of proposed standards for mitral valve repair services (Bridgewater et al *Heart* 2006 In press – published on line Oct 2005). We have devised a set of auditable standards that can be applied to valve repair services. These are to be published in *Heart* and will be presented by Dr S Ray in a plenary session of the forthcoming meeting of the British Cardiac Society. Impact: this work has already created interest in Europe and the USA and we are aiming to have the standards adopted by the European Society of Cardiology.

Section 2A-2E: NHS Research programmes

RM3 Studies of the gastrointestinal tract in health and disease, and development of methods to improve patient care

2A Programme identifier

1) Programme Identifier: **RM3 Studies of the gastrointestinal tract in health and disease, and development of methods to improve patient care**

2B Programme status

2) Status on 31 March 2006
(compared to the 2005 annual report) **Unchanged**

3,4) Incorporation of deleted programmes *Not applicable*

2C Parties involved in the programme

5) Are you the administrative organisation for this programme? **No**

6,7) *Not applicable*

2D Aims and objectives

8) Contribution of organisation to the programme
The unit at South Manchester University Hospitals concentrates on research into the clinical, epidemiological and pathophysiological aspects of the functional gastrointestinal disorders. At the basic laboratory level the emphasis is on genetics, gender, neuropeptides and inflammation in relation to these disorders. Clinical studies focus on the various ways these conditions present and impact on patients' lives. Particular attention is paid to developing better treatments and exploring new therapeutic options such as recent studies on probiotics, food antibodies and hypnosis.

9) Changes made in response to feedback from the Department of Health

2E Research deliverables

Total for reporting organisation

10) Number of projects ongoing on 31 March 2006	6
11) Number of peer-reviewed publications (calendar year 2005)	11
12) Number of higher degrees directly funded by NHS R&D Support Funding (calendar year 2005)	0

13) Explanation by administrative organisation for any significant fall in deliverables since 2005 that may adversely affect the programme's rating *Not applicable*

14) Examples of impact on health services

For many years, we have been researching the use of hypnotherapy in functional gastrointestinal disorders and have shown, in a number of publications, that it is very effective. These findings have been translated into practice by the unit now providing an NHS service for patients suffering from irritable bowel syndrome which treats patients from all over the UK. The shortly to be published British Society of Gastroenterology guidelines on irritable bowel syndrome now endorse hypnotherapy as an accepted way of treating severe cases of this condition.

Our research into hypnosis continues and we have just completed a study, which has been accepted for publication, demonstrating that hypnotherapy is also effective in non cardiac chest pain. Non cardiac chest pain is a particularly debilitating condition for which there is no effective medication, thus hypnotherapy could well offer some hope for these individuals.

We have also recently completed a study on irritable bowel syndrome in the elderly (submitted for publication) which reveals that this is a major problem that is significantly under recognised. Hopefully once this information is published, this could ease suffering in these patients and also spare them much repetitive and often unnecessary, investigation.

Our paper on IgG food antibodies in IBS (Atkinson et al 2004) demonstrated, for the first time, that an exclusion diet based on the presence of IgG food antibodies can improve the symptoms of IBS (reported in the 2005 report). This work has now been reproduced by others and should therefore now lead to this approach being viewed as a legitimate way of aiding the treatment of this disorder.

Section 2A-2E: NHS Research programmes

RM3 The Greater Manchester Diabetes and Obesity Research Network (DORN) Programme

2A Programme identifier

1) Programme Identifier: **RM3 The Greater Manchester Diabetes and Obesity Research Network (DORN) Programme**

2B Programme status

2) Status on 31 March 2006
(compared to the 2005 annual report) **Unchanged**

3,4) Incorporation of deleted programmes *Not applicable*

2C Parties involved in the programme

5) Are you the administrative organisation for this programme? **No**

6,7) *Not applicable*

2D Aims and objectives

8) Contribution of organisation to the programme
South Manchester University Hospitals is a leading partner in the Greater Manchester Research Alliance and a contributing partner to the Greater Manchester Diabetes and Obesity Research Network (DORN) Programme which incorporates the diabetes and endocrinology research programmes of Trusts in Greater Manchester. This larger pan-city provides critical mass and enhanced collaborative opportunities across the region.

9) Changes made in response to feedback from the Department of Health

2E Research deliverables

Total for reporting organisation

10) Number of projects ongoing on 31 March 2006 **2**

11) Number of peer-reviewed publications
(calendar year 2005) **26**

12) Number of higher degrees directly funded by NHS R&D Support Funding
(unspecified year type) **0**

13) Explanation by administrative organisation for any significant fall in deliverables since 2005 that may adversely affect the programme's rating *Not applicable*

14) Examples of impact on health services or policy
Development of a novel measure of Quality of Life in acromegaly. Research underlined the marked impact that acromegaly has on patients' QOL and provide the first evidence validating a new tool, AcroQoL, against well-authenticated measures of QOL. This indicated the potential of AcroQoL as a patient-friendly measure of disease

activity.

Research into how to maintain peak bone mass (PBM) in adolescents with childhood-onset Growth Hormone Deficiency (GHD) lead to a recommendation that all GHD teenagers should be encouraged to remain on GH therapy until at least their mid-20s.

Research into the effects of Orlistat (obesity treatment) in patients with diabetes found improvement in glycaemic control and weight loss. Orlistat appeared to reduce the need for concomitant diabetes medication irrespective of weight loss, a reduction that is likely to represent a large cost offset for Orlistat treatment.

Section 2A-2E: NHS Research programmes

RW3 Rehabilitation and Ageing

2A Programme identifier

1) Programme Identifier: **RW3 Rehabilitation and Ageing**

2B Programme status

2) Status on 31 March 2006
(compared to the 2005 annual report) **Unchanged**

3,4) Incorporation of deleted programmes *Not applicable*

2C Parties involved in the programme

5) Are you the administrative organisation for this programme? **No**

6,7) *Not applicable*

2D Aims and objectives

8) Contribution of organisation to the programme
South Manchester University Hospitals rehabilitation research relating to chronically ill, disabled and elderly people is conducted principally within the Departments of Rheumatology, Elderly Care, Physiotherapy, Speech Therapy and the Disablement Services Centre. Continence research, which is also part of this programme, is undertaken within the Department of General Surgery and the Cystic Fibrosis Unit. There is also rehabilitation research activity embedded within other programmes e.g. the research of the Consultant Cystic Fibrosis Physiotherapist, within the Lung programme.

Examples of research themes include the innovative work of Disability Services on rehabilitation of amputees and design of new devices for the disabled (e.g. new award-winning wheelchair designs currently under commercial development); legal capacity to consent for elderly patients; collaboration of Elderly Care with the Mental Health Trust for patients with dementia.

9) Changes made in response to feedback from the Department of Health

2E Research deliverables

Total for reporting organisation

10) Number of projects ongoing on 31 March 2006 **11**

11) Number of peer-reviewed publications
(calendar year 2005) **4**

12) Number of higher degrees directly funded by NHS R&D Support Funding
(unspecified year type) **0**

13) Explanation by administrative organisation for any significant fall in deliverables since 2005 that may adversely affect the programme's *Not applicable*

rating

- 14) Examples of impact on health services or policy

Research in disablement services has resulted in a new powered wheelchair design with improved stability, ease of use and aesthetics for disabled patients.

Research into chronic low back pain in traumatic lower limb amputees found that low back pain in amputees is a significant problem equal to that of pain in the phantom limb and suggested a biomechanical (myofascial) rather than a degenerative aetiology.

Section 2A-2E: NHS Research programmes

RW3 Service Delivery and Management Research

2A Programme identifier

1) Programme Identifier: **RW3 Service Delivery and Management Research**

2B Programme status

2) Status on 31 March 2006
(compared to the 2005 annual report) **Unchanged**

3,4) Incorporation of deleted programmes *Not applicable*

2C Parties involved in the programme

5) Are you the administrative organisation for this programme? **No**

6,7) *Not applicable*

2D Aims and objectives

8) Contribution of organisation to the programme
The South Manchester University Hospitals component of the programme comprises a range of studies to define organisation and delivery issues within clinical services; evaluate novel service delivery mechanisms and organisational change e.g. impact on waiting times, and including their clinical and socio-economic impacts; study the information needs of clinical staff and methods of learning. There is a particular focus on the patient experience, including choice and involvement in their care.

9) Changes made in response to feedback from the Department of Health

2E Research deliverables

Total for reporting organisation

10) Number of projects ongoing on 31 March 2006

10

11) Number of peer-reviewed publications
(calendar year 2005)

8

12) Number of higher degrees directly funded by NHS R&D Support Funding
(calendar year 2005)

0

13) Explanation by administrative organisation for any significant fall in deliverables since 2005 that may adversely affect the programme's rating
Not applicable

14) Examples of impact on health services or policy

Implementation of a cross-site vascular radiology on-call service. The workload suggests that a vascular radiology on call service is justified in Manchester. There have been no major problems with its implementation and operation. This is a

consultant led service, with very few cases being devolved to a specialist registrar (SpR).

Development of a web-enabled Hospital Incident Reporting system It currently reports 4000 incidents a year. The database is structured to undertake detailed analysis of incidents and clusters in order to inform root cause analysis and design process change and education programmes to address behavioural change.

Groundbreaking publication of mortality data in adult cardiac surgery for named surgeons: a retrospective examination of prospectively collected data on coronary artery surgery and aortic valve replacement.

Section 2A-2E: NHS Research programmes

RW3 Wellcome Trust Clinical Research Facility (Manchester)

2A Programme identifier

1) Programme Identifier:

2B Programme status

2) Status on 31 March 2006
(compared to the 2005 annual report)

3,4) Incorporation of deleted programmes *Not applicable*

2C Parties involved in the programme

5) Are you the administrative organisation for this programme?

6,7) *Not applicable*

2D Aims and objectives

8) Contribution of organisation to the programme

Note: This programme is currently funded directly by the Department of Health and administered by Central Manchester and Manchester Children's University Hospitals NHS Trust. From 2004/05, collaborating partners were also required to make an additional contribution to the facility's running costs as previously agreed.

9) Changes made in response to feedback from the Department of Health

2E Research deliverables

10) Number of projects ongoing on 31 March 2006

11) Number of peer-reviewed publications
(unspecified year type)

12) Number of higher degrees directly funded by NHS R&D Support Funding
(unspecified year type)

13) Explanation by administrative organisation for any significant fall in deliverables since 2005 that may adversely affect the programme's rating *Not applicable*

14) Examples of impact on health services or policy

Impacts:

1. A higher quality of clinical research for all research projects using the facility conducted by partners including South Manchester University Hospitals.
2. Short term and long term training opportunities for staff, investigators and post-graduate students using the facility with particular emphasis on clinical care, the research process, GCP, clinical and research governance.

Appendix to section 2E: attachment containing list of publications

Current attachment: [RM2 MASTER LIST OF PUBLICATIONS.xls](#) (129.5 KB)

Section 2F: Research activity that does not form part of programmes

Projects ending after 31st March 2005 ordered by title:

1) Project title	2) Externally funded?	3) Primary external funder	4) Ongoing in 2006/07?	5) Main base?
A randomised controlled trial comparing aesthetic arch wires and nickel titanium arch wires in initial alignment	Yes	University of Manchester	Yes	Yes
A study of the effectiveness and cost effectiveness of information skills training and librarian mediated searching in the North West	Yes	North West Healthcare Libraries Unit	No	No
An investigation into neonatal skin care regimes in the UK and their effect upon neonatal skin barrier function	Yes	Smith & Nephew Foundation	No	No
An investigation into the association of antenatal Pain Catastrophizing score and labour outcome	No		Yes	Yes
Attitudes to depression and implications on help-seeking among immigrant African nurses	Yes	University of Manchester	Yes	Yes
Cost benefit evaluation of TLi Fetal Fibronectin test (Fullterm)	Yes	Mast Diagnostics	Yes	Yes
Endothelial function of women with pre-eclampsia following clinical intervention with the PDE5 inhibitor sildenafil citrate	Yes	Pfizer	Yes	No
EPICure 2: Population based outcomes for births before 27 weeks gestational age in England in 2006	Yes	Medical Research Council	Yes	No
Establishment of a uterine artery embolisation interventional procedure registry	Yes	NICE	No	No
Exploring the relationship between severity of dysphonia and voice-related quality of life	No		No	Yes
INIS - International Neonatal Immunotherapy Study	Yes	Medical Research Council	Yes	No
Investigations into cochlear dead regions in patients with Menieres Disease (MD)	No		No	No
Low vision services in the UK - a comprehensive survey of low vision services available across the country covering hospitals, primary care organisations, local societies for visually impaired people, special needs teachers, social services departments a	Yes	Royal National Institute of the Blind	No	No
National audit of patient perception of the delivery of combined orthodontic/orthognathic surgical treatment in NHS hospitals	Yes	British Orthodontic Society	Yes	No
Psychological consequences of and mediating factors in dealing with having a loved one admitted to an Intensive Care Unit	Yes	University of Manchester	Yes	Yes
Stressed or know someone who is? A focus group approach to stress in midwifery staff in an NHS Trust environment	No		No	Yes
Teenage pregnancy: dietary measures to improve nutrition and pregnancy outcomes	Yes	The Community Fund	Yes	No
The Association of Anaesthetists of Great Britain and Ireland (AAGBI) survey of expected and unexpected intraoperative deaths and its effect on anaesthetists	Yes	Association of Anaesthetists of Great Britain and Ireland	No	No
The comparison of blood pressure at arm, ankle and calf	No		Yes	Yes
The establishment of a human tissue bank within De Montfort University, Leicester, collecting, processing and distributing non transplantable human tissue to approved biomedical institutions in the UK and Europe	Yes	The UK Human Tissue Bank	Yes	No
The impact of information technology on the work, role and status of NHS staff	Yes	Manchester Metropolitan University	Yes	Yes
Vitamins in Pre-Eclampsia (VIP) trial	Yes	Wellcome Trust	No	No

Summary

This is calculated automatically from the records shown above. It should match the numbers in the first row of Table 2 columns I and J

Ongoing externally funded projects	11
Ongoing projects without external funding	2

Section 3: Financial information and tables

Table 1: R&D support funding resources and associated spend in 2005/06

1A: Resources

	Amount (£)
a) Balance brought forward from 2004/05 (overspend is negative; underspend is positive)	0
b) Allocation in 2005/06 (including RM&G and EU Directive funding)	3,243,023
c) Ad hoc funding in 2005/06 (ie invoiced and received in year, <u>not</u> total approved)	0
d) RM&G funding in 2005/06 (accounted for in Section 4 if applicable)	0
e) Total NHS R&D support funding available in 2005/06	3,243,023

1B: Expenditure

	A. Total Spend (£)	B. Percentage of 1.k	C. Total number of ongoing projects
1.a) Research Council Work	104,717	3 %	6
1.b) University Work	290,880	9 %	19
1.c) Charity Work	1,116,878	34 %	71
1.d) DH/NHS R&D Programme work	360,691	11 %	19
1.e) Other work	81,446	3 %	4
1.f) (Sum 1a - 1e)	1,954,612	60 %	119
1.g i) R&D outside of HSG (97) 32-commercial partner	686,476	21 %	38
1.g ii) R&D outside of HSG (97) 32-other	0	0 %	0
1.h) R&D that has no external funder	453,772	14 %	19
1.i) Training	44,500	1 %	
1.j) Management costs	103,663	3 %	
1.k) Total spend using NHS R&D support funding (Sum 1f - 1j)	3,243,023	100 %	176

1C: Balance

	Amount (£)	Percentage of 2005/06 resources (1A row e)
Balance carried forward to 2006/07 (overspend is negative; underspend is positive)	0	0 %

1D: External funding

	Amount (£)
2) External funding for spend shown in 1a - 1h above	5,844,022
3) External income to organisation from externally funded R&D	746,882

Table 2: Spend on programmes and by national priority

Columns A-G

A) Programme identifier	B) SFS Funding allocated 2005/06 (£)	C) PNF Funding allocated 2005/06 (£)	D) Actual SFS spend (£)	E) Actual PNF spend (£)	F) Variance	G) Explanation of variance
Non-programme activity:						
	64,560	21,520	144,721	120,601	SFS: £80,161 (124%) PNF: £99,081 (460%) Total: £179,242 (208%)	There was an unplanned increase in non-programme activity due to our participation in several national multicentre studies outside our main programme areas during 2005/06 e.g. teenage pregnancy, low vision services, pre-eclampsia.
Programmes declared in Section 2A-2E:						
RBV Greater Manchester Cancer Programme	494,463	253,262	494,463	253,262	SFS: £0 (0%) PNF: £0 (0%) Total: £0 (0%)	
RM2 A programmed investigation of obstructive and parenchymal lung disease	519,508	212,194	385,922	205,021	SFS: £-133,586 (-26%) PNF: £-7,173 (-3%) Total: £-140,759 (-19%)	Variance due to the extraction of the lung cancer element of the programme into the new Greater Manchester Cancer Programme (previously reported).
RM2 Arterial and venous diseases, thrombosis, coagulation and blood transfusion	107,709	32,173	108,541	12,060	SFS: £832 (1%) PNF: £-20,113 (-63%) Total: £-19,281 (-14%)	Lower than anticipated PNF activity
RM2 Burn, Plastic and Reconstructive Surgery	129,766	63,915	72,360	48,240	SFS: £-57,406 (-44%) PNF: £-15,675 (-25%) Total: £-73,081 (-38%)	Lower than anticipated SFS and PNF activity and associated costs in 2005/06
RM2 Invasive Fungal Diseases	139,881	0	96,481	0	SFS: £-43,400 (-31%) PNF: £0 (0%) Total: £-43,400 (-31%)	Lower than anticipated SFS costs for the programme
RM2 Medical Education	108,138	53,262	60,300	36,180	SFS: £-47,838 (-44%) PNF: £-17,082 (-32%) Total: £-64,920 (-40%)	Lower than anticipated SFS and PNF activity and associated costs in 2005/06
RM2 Medicines Management	42,932	32,388	72,360	24,120	SFS: £29,428 (69%) PNF: £-8,268 (-26%) Total: £21,160 (28%)	Higher SFS activity in 2005/06 than anticipated
RM2 Multidisciplinary research on coronary artery disease, stroke, paradoxical emboli and cerebral injury	205,301	182,059	217,081	144,721	SFS: £11,780 (6%) PNF: £-37,338 (-21%) Total: £-25,558 (-7%)	Lower than anticipated PNF activity in 2005/06
RM3 Studies of the gastrointestinal tract in health and disease, and development of methods to improve patient care	43,363	290,197	72,360	156,780	SFS: £28,997 (67%) PNF: £-133,417 (-46%) Total: £-104,420 (-31%)	Partial shift in activity from PNF to SFS and reduction in PNF costs
RM3 The Greater Manchester Diabetes and Obesity Research Network (DORN) Programme	42,610	54,231	36,180	12,060	SFS: £-6,430 (-15%) PNF: £-42,171 (-78%) Total: £-48,601 (-50%)	Lower than anticipated SFS and PNF activity and associated costs in 2005/06
RW3 Rehabilitation and Ageing	42,609	75,750	120,600	72,360	SFS: £77,991 (183%) PNF: £-3,390 (-4%) Total: £74,601 (63%)	Significantly higher SFS activity in 2005/06
RW3 Service Delivery and Management Research	75,750	96,409	144,721	94,994	SFS: £68,971 (91%) PNF: £-1,415 (-1%) Total: £67,556 (39%)	Significantly higher SFS activity in 2005/06
RW3 Wellcome Trust Clinical Research Facility (Manchester)	36,534	0	36,534	0	SFS: £0 (0%) PNF: £0 (0%) Total: £0 (0%)	

Table 2 Total	2,053,124	1,367,360	2,062,624	1,180,398	SFS: £9,500 (0%) PNF: £-186,961 (-14%) Total: £-177,461 (-5%)	
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Table 2: Spend on programmes and by national priority

Columns H-J

A) Programme identifier	H) Total external funding 2005/06 (£)	I) Ongoing externally funded projects	J) Ongoing projects without external funding
Non-programme activity:			
	119,140	11	2
Programmes declared in Section 2A-2E:			
RBV Greater Manchester Cancer Programme	1,774,710	39	3
RM2 A programmed investigation of obstructive and parenchymal lung disease	1,160,721	32	5
RM2 Arterial and venous diseases, thrombosis, coagulation and blood transfusion	250,194	9	1
RM2 Burn, Plastic and Reconstructive Surgery	158,497	6	0
RM2 Invasive Fungal Diseases	516,769	8	0
RM2 Medical Education	71,790	4	1
RM2 Medicines Management	308,748	6	2
RM2 Multidisciplinary research on coronary artery disease, stroke, paradoxical emboli and cerebral injury	578,209	15	3
RM3 Studies of the gastrointestinal tract in health and disease, and development of methods to improve patient care	198,831	5	1
RM3 The Greater Manchester Diabetes and Obesity Research Network (DORN) Programme	7,091	2	0
RW3 Rehabilitation and Ageing	268,385	10	1
RW3 Service Delivery and Management Research	430,937	8	2
RW3 Wellcome Trust Clinical Research Facility (Manchester)	0	0	0
Table 2 Total	5,844,022	155	21

Table 2: Spend on programmes and by national priority

Columns K-R

These columns show the best estimate possible of the amount of NHD R&D Funding spent during 2005/06 on each of the specified national priority areas (£)

A) Programme identifier	K) Cancer	L) Coronary heart disease	M) Children's services	N) Diabetes	O) Emergency care	P) Mental health	Q) Older people	R) Reducing inequalities
Non-programme activity:								
	0	0	96,481	0	0	12,060	0	0
Programmes declared in Section 2A-2E:								
RBV Greater Manchester Cancer Programme	748,024	0	0	0	0	0	0	0
RM2 A programmed investigation of obstructive and parenchymal lung disease	0	0	108,541	0	0	12,060	0	0
RM2 Arterial and venous diseases, thrombosis, coagulation and blood transfusion	0	0	0	0	0	0	0	0
RM2 Burn, Plastic and Reconstructive Surgery	0	0	0	0	0	0	0	0
RM2 Invasive Fungal Diseases	0	0	0	0	0	0	0	0
RM2 Medical Education	0	0	0	0	0	0	0	0
RM2 Medicines Management	12,060	0	0	0	0	0	0	0
RM2 Multidisciplinary research on coronary artery disease, stroke, paradoxical emboli and cerebral injury	0	241,201	0	0	0	0	0	0
RM3 Studies of the gastrointestinal tract in health and disease, and development of methods to improve patient care	0	0	0	0	0	0	0	0
RM3 The Greater Manchester Diabetes and Obesity Research Network (DORN) Programme	0	0	12,060	24,120	0	0	0	0
RW3 Rehabilitation and Ageing	0	0	0	0	0	0	48,240	0
RW3 Service Delivery and Management Research	0	0	0	0	0	0	12,060	0
RW3 Wellcome Trust Clinical Research Facility (Manchester)	0	0	0	0	0	0	0	0
Table 2 Total	760,084	241,201	217,081	24,120	0	24,120	60,300	0

Table 2: Spend on programmes and by national priority

Columns S-Y

These columns show the best estimate possible of the amount of NHD R&D Funding spent during 2005/06 on each of the specified national priority areas (£)

A) Programme identifier or activity name	S) Waiting times	T) Improving the patient experience	U) Building capacity to deliver health and social care	V) Renal disease	W) Respiratory disease	X) Chronic neurological disease	Y) Genetics
Non-programme activity:							
	0	24,120	24,120	0	0	0	0
Programmes declared in Section 2A-2E:							
RBV Greater Manchester Cancer Programme	0	72,360	0	0	156,781	0	964,881
RM2 A programmed investigation of obstructive and parenchymal lung disease	0	12,060	0	0	590,943	0	48,240
RM2 Arterial and venous diseases, thrombosis, coagulation and blood transfusion	0	0	0	24,120	0	0	12,060
RM2 Burn, Plastic and Reconstructive Surgery	0	12,060	0	0	0	0	0
RM2 Invasive Fungal Diseases	0	0	0	0	96,480	0	36,180
RM2 Medical Education	0	0	71,790	0	0	0	0
RM2 Medicines Management	0	0	24,120	0	0	0	12,060
RM2 Multidisciplinary research on coronary artery disease, stroke, paradoxical emboli and cerebral injury	0	24,120	0	0	24,120	0	0
RM3 Studies of the gastrointestinal tract in health and disease, and development of methods to improve patient care	0	48,240	0	0	0	0	0
RM3 The Greater Manchester Diabetes and Obesity Research Network (DORN) Programme	0	0	0	0	0	0	0
RW3 Rehabilitation and Ageing	0	0	0	0	0	36,180	12,060
RW3 Service Delivery and Management Research	24,120	48,240	36,180	0	0	0	0
RW3 Wellcome Trust Clinical Research Facility (Manchester)	0	0	0	0	0	0	0
Table 2 Total	24,120	241,200	156,210	24,120	868,324	36,180	1,085,481

Table 2: Spend on programmes and by national priority

Columns Z-DD

These columns show the best estimate possible of the amount of NHD R&D Funding spent during 2005/06 on each of the specified national priority areas (£)

A) Programme identifier or activity name	Z) Degenerative neurological disorders (including Alzheimer's)	AA) Medicines for children	BB) Public health	CC) Stroke	DD) Primary care
Non-programme activity:					
	0	0	0	0	0
Programmes declared in Section 2A-2E:					
RBV Greater Manchester Cancer Programme	0	0	0	0	0
RM2 A programmed investigation of obstructive and parenchymal lung disease	0	0	0	0	0
RM2 Arterial and venous diseases, thrombosis, coagulation and blood transfusion	0	0	0	12,060	0
RM2 Burn, Plastic and Reconstructive Surgery	0	0	0	0	0
RM2 Invasive Fungal Diseases	0	0	0	0	0
RM2 Medical Education	0	0	0	0	0
RM2 Medicines Management	0	0	0	0	0
RM2 Multidisciplinary research on coronary artery disease, stroke, paradoxical emboli and cerebral injury	12,060	0	0	36,180	0
RM3 Studies of the gastrointestinal tract in health and disease, and development of methods to improve patient care	0	0	0	0	0
RM3 The Greater Manchester Diabetes and Obesity Research Network (DORN) Programme	0	0	0	0	0
RW3 Rehabilitation and Ageing	0	0	0	12,060	0
RW3 Service Delivery and Management Research	0	0	0	0	0
RW3 Wellcome Trust Clinical Research Facility (Manchester)	0	0	0	0	0
Table 2 Total	12,060	0	0	60,300	0

Comments on Table 1 and Table 2

This space is provided for organisations to explain further any variation in finance tables or to provide additional comments as required.

Section 4: PCT (Research Management and Governance)

This section does not apply to South Manchester University Hospitals NHS Trust