

# **RESEARCH AND DEVELOPMENT DEPARTMENT**

## **ANNUAL REPORT 2012-2013**



Patient Valerie Blankhart, research nurse Sarah Knight and Director of Research & Development Dr Tim Doulton talk about participating in a clinical trial

## Forewords

Research and Development in East Kent Hospitals University NHS Foundation Trust (EKHUFT) has continued to make great progress in 2012-13. As this report clearly demonstrates, the volume of activity has significantly increased – for example, the year saw 87 studies given NHS R&D approval, up 58 per cent on 2011-12. And the outputs, too, are impressive – the report lists a total of more than 70 peer reviewed publications in 2012-13. All of this is very good news for patients in terms of driving forward the knowledge base that is essential for developing new treatments as well as improving those that are already in use. It also has great value for EKHUFT – by raising its R&D profile and making it an attractive place for individuals who wish to pursue research alongside their clinical work.

Looking to the future, in contrast to the often rather gloomy assertions about the NHS, I am confident that R&D is set to thrive in EKHUFT. I base this prediction on the comprehensive and ambitious strategy for R&D in EKHUFT that was put in place during 2012-13, the excellent collaborative links that are being strengthened with external research organisations, and, of course, on the commitment and enthusiasm of Tim Doulton and all of the staff of the R&D Department. On behalf of the Board of Directors, I should like to thank all of them for their hard work in taking R&D so successfully forward in the Trust.

**Nicholas Wells**  
**Chairman, September 2013**

In many respects 2012-13 has been another strong year for East Kent Hospitals' research teams and study participants. We have seen a very significant increase in the number of new studies opening, particularly studies of 'investigational medicinal products' (i.e. medicines) and industry-sponsored studies. This has bucked the trend of a decline in new CTIMPs noted in 2011-12.

I am grateful for the on-going support of Kent & Medway Comprehensive Local Research Network who fund much of our activity on behalf of the NIHR, and with whom we continue to enjoy constructive working relationships. We have observed a decline in the number of participants recruited to NIHR Portfolio studies in 2012-13, reflecting a shift away from some high-recruiting observational studies. However, with significant increases in the number of newly approved Portfolio studies this year I am confident that we will reverse this trend in 2013-14.

As this report demonstrates, we continue to develop our own research base. Much of this growth in investigator-led studies stems from increasingly close collaboration with our local academic partners at Universities of Kent and Greenwich, and Canterbury Christchurch University. This is best exemplified by our four successful applications for PhD studentships and jointly funded undergraduate vacation studentships, both with University of Kent, which have been facilitated by our excellent relationship with KentHealth.

Again in 2011-12 we have been able to distribute pump-priming funds to Trust researchers, to enable them to develop small and/or pilot projects, the output of which we anticipate will lead to successful applications to major external funding bodies such as NIHR. I wish the successful applicants the best of luck as they embark on their studies, and look forward to seeing the results.

Early in 2013 we launched our strategy for the coming three years, and I am grateful to Andrew DiBiase and Prof. Kim Manley for their support in developing this. One key element focusses on improving communications amongst ourselves, with external partners and, most importantly, with the patients and public we serve. I would like to thank Andrew for the work he is undertaking both in developing a new website for EKHUFT research and improving our external and patient-facing communications, and look forward to the website launch in early 2014.

Although a number of individual researchers and research teams are singled out for mention in this report, I would like to thank all those staff across the Trust who contributed to our many successes this year. I take this opportunity to invite those who have not been able to contribute to this year's report to do so in 2013-14 so that we can fully reflect the breadth and depth of research activity within East Kent Hospitals.

Finally, I would like to personally thank Art Ationu, Sue Kelly and Sandra Tapsell in the R&D Department for their contributions to this report, and for their tireless (and often unseen) work to support the delivery of research, development and innovation across the Trust.

**Dr Tim Doulton**  
**Director of Research & Development, September 2013**

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## 1. Executive Summary

1. During 2012-13 financial year East Kent Hospitals University Foundation Trust (EKHUFT, hereinafter referred to as “the Trust”) received £655,592 from NIHR (via CLRN and directly).
2. Actual income received on behalf of R&D during the year was approximately £1.16m. National Institute for Health Research (NIHR) supported research (i.e. Portfolio studies) attracted the largest portion of funding at £724k or 62% of the overall total. The Trust was allocated £99,594 from NIHR Research Capability Funding compared to £82,900 in 2011-2012. This increase reflects increased participant accrual in the previous financial year, as well as credit for having more NIHR-funded investigators.
3. R&D oversaw distribution of funds totalling £66k to Trust staff via the Internal Projects Grant Scheme.
4. Dr Michael Bedford (Research Registrar, Department of Renal Medicine) was awarded an NIHR RfPB grant of £252,043 to undertake a study on “Development of a risk model for the prediction of new or worsening Acute Kidney Injury (AKI)”.
5. In March 2013, the Trust launched its ambitious strategy for R&D covering the period 2013 to 2016.
6. During 2012-13 there were 87 studies given NHS R&D approval of which 40 are NIHR Portfolio studies, and 47 non-Portfolio studies or “own account” projects. Of these, 22 were clinical trials of investigation medicinal products (CTIMPs). Of newly approved studies 14 were commercially funded/sponsored studies (11 are Portfolio and 3 non-Portfolio). The number of newly approved studies represents a 58% increase compared to 2011-12.
7. During the year a total number of 1217 patients were recruited by Trust researchers into NIHR portfolio studies. This represents a 35% decline on 2011-12.
8. NHS R&D approval was granted within 30 days (from receipt of valid application) for 69% of NIHR Portfolio studies. The median time to obtain NHS permission was 18 days. By 31<sup>st</sup> March 2013 the Trust will be required to deliver approval within 30 days for ≥80% portfolio studies.
9. During 2012-13 Trust researchers published 73 articles in peer-reviewed journals and gave 66 oral or poster presentations at regional, national and international conferences, again representing significant increases on last year.
10. The number of higher degrees that were supervised by Trust researchers included 6 PhDs and 4 MScs during 2012-13.

## 2. Key Events in R&D during the 2012-13 Financial Year

### Internal Project Grant Scheme 2012-13

In September 2012, using funding from NIHR Research Capability Funding and the remainder of the Cardiovascular Research Fund endowment the Internal Project Grants Scheme (IPGS) was able to support the following Trust staff:

Applicant	Title of study	Amount Awarded	Duration	Start Date	IPGS/CV
Eve Hutton	"Understanding the support needs of disabled children and their families in East Kent."	£33,066	8 months	May 2013	IPGS
Romain De Cock	"The efficiency of meibomian gland probing in patients in patients with symptoms of dry eye and signs of meibomian gland obstruction."	£8,600	12 months	Jan 2013	IPGS
Helen Oakes	"The effect of group acupuncture on reducing pain and medication use in individuals with lower back pain"	£7,878.62	12 months	Jan 2013	IPGS
Yvonne Morrisey	"How can we prevent admissions caused by drug side effects with special reference to hypotensive medication?"	£4,611.70	12 months	Jan 2013	CV
Patrick Pullicino	"Effect of heart failure on cerebral infarct volume in acute stroke"	£11,850	24 months	June 2013	CV

Total IPGS	£49,544
Total Cardiovascular	£16,462
<b>Overall total</b>	<b>£66,006</b>

### Launch of RD&I Strategy for 2013-16

In March 2013, the Trust published an ambitious strategy for RD&I over the coming three years with a vision to be "Providing better care to our patients and local population by bringing sustainable transformational change to health research, development and innovation in East Kent." The strategy can be downloaded from: <http://www.ekhuft.nhs.uk/EasySiteWeb/GatewayLink.aspx?allId=282265>.

### Programme Grant Workshop

Professor Paul Little and colleagues from NIHR's Programme Grant for Applied Research (PGfAR) team were invited by the Trust and NIHR Research Design Service South-East (hosted by University of Kent) to lead a half-day workshop for research-active clinicians and local academics, aimed at providing advice and guidance on successfully applying to this prestigious funding stream (up to £2m for a programme of applied health research). This event took place on 5<sup>th</sup> March 2013 at Kent & Canterbury Hospital and was well attended by colleagues from EKHUFT and neighbouring NHS Trusts as well as researchers from a variety of local Universities. In addition to talks from Prof Little and his team, we welcomed Prof. Martin Orrell from University College London to give his perspective as a holder of PGfAR awards.

## **KentHealth PhD studentships**

In March 2013, EKHUFT-based researchers were co-applicants on 10 out of 14 applications to four KentHealth-funded PhD studentships, which provide for PhD registration fees and a stipend for selected students. It is enormously encouraging that so many EKHUFT based clinicians are looking to collaborate with colleagues at University of Kent. We wish the students and their supervisors every success over the next few years.

Successful applications from EKHUFT (and UoK co-supervisors) are:

- Chris Farmer (Renal) / Simon Coulton (UoK)
- David Schultz & Wallace Poon (Ophthalmology) / Adrian Podleanu (UoK)
- Yvonne Parks (Child Health) / Melissa Trimmingham (UoK)
- Fritz Mühlischlegel (Microbiology) / Campbell Gourlay (UoK)

**‘Acute Kidney Injury in the community’** Co-supervisors: Chris Farmer & Simon Coulton

We know that patient suffering from AKI in hospital have worse outcomes than those who do not. Our preliminary studies have shown that some patients with community acquired Acute Kidney Injury (AKI) are not admitted to hospital but despite this do have an increased mortality (British Renal Society conference, 2012, Abstract 034). However, it is still not clear if there is a causal link between AKI treated in the community and poor outcomes. The study aims to: identify the incidence and outcomes of acute kidney injury (AKI) that occurs and is managed in primary care; establish the cause of death of patients with acute kidney injury; review the management of acute kidney injury in the community; develop automated systems to identify patients with acute kidney in the community; use qualitative methods in collaboration with primary clinicians and allied health professionals to develop a care bundle for these patients with the overall aim on improving patient care.

**‘A new tool for visualisation of the retinal periphery and a platform for laser treatment’** Co-supervisors: Wallace Poon, David Schultz & Adrian Podleanu

The binocular indirect ophthalmoscope is the instrument of choice for the examination of the peripheral retina and its use has revolutionized retinal detachment surgeries. However, this technique needs many years of training and practice, and many vitreo-retinal surgeons suffer from chronic back and neck pain as a result of prolonged use of the cumbersome instrument. The aim of this research is assess the feasibility of utilizing modern image capturing capabilities and modern optics devices, to come up with a novel tool, to allow easier visualization of the retinal periphery and using this mechanism to provide a platform for laser treatment delivery. This technology would reduce the risk of work induced fatigues and injuries in surgeons, and improve efficiency in the NHS by allowing more general ophthalmologists to conduct a full and detailed retinal examination. This would also allow better application of laser treatment and enhance patient comfort.

**‘New approaches to the diagnosis of autism and communication difficulties’** Co-supervisors: Melissa Trimmingham (Arts), David Wilkinson (Psychology), Julie Beadle-Brown (Tizard), Yvonne Parks (EKHUFT)

This proposal has evolved out of the interdisciplinary research project ‘Imagining Autism’ which seeks to establish ‘proof of principle’ regarding the efficacy of drama and performance-based interventions in autistic spectrum disorders. Imagining Autism uses a portable tented ‘pod’ which contains carefully designed, multi-sensory immersive environments (forest, outer space, underwater, the Arctic and underground). Children interact with practitioners, puppets and costumed characters participating in the imagined scenario. Progress is evaluated through a range of quantitative and qualitative measures. This research will address the question as to whether using such methods of interaction with the children could be incorporated into the diagnostic process for children with communication difficulties. Play-based methods from the Imagining Autism immersive will be used to help profile children with communication

difficulties, some of whom do not necessarily fall into a clear diagnosis of autism (e.g. Fragile X for example). The aim is to supplement rather than replace traditional diagnostic tools as the profile will help parents to understand the full abilities and potential of their child as well as the difficulties they face.

**‘Clinical Support Services Receives Strategic Award To Tackle Voice Prosthesis Infections in Cancer Patients’** Co-supervisors: Fritz Mühlischlegel & Dr Campbell Gourlay from the school of Biosciences.

Professor Friedrich Mühlischlegel, Consultant Microbiologist and Head of Service for Microbiology at East Kent University Hospitals Foundation Trust is delighted to confirm that a multidisciplinary team consisting of Clinical Microbiologists, Pharmacists, Head and Neck Surgeons, Speech and Language Therapist and scientists from the University of Kent has been awarded significant funds to support a PhD studentship that will research innovative approaches to combat voice prosthesis infections in cancer patients. Patients with cancer of the throat who undergo a total laryngectomy are fitted with a voice prosthesis that facilitates speech. This device is prone to infection by fungi, leading to considerable patient distress and significant additional treatment costs. Mr Alistair Balfour, Consultant Head and Neck Surgeon says: “Removal of the larynx has a huge impact on a patient's quality of life, especially their ability to talk and communicate. I am excited to be part of the team and this award provides a real opportunity to prolong the life-span of the fitted voice prosthesis”. The assembled team naturally fuses research expertise held within the University of Kent’s Fungal Group with cutting edge medical practice that will enable tackling a pressing clinical problem.

### **Joint Vacation Bursary Scheme**

On the background of a successful vacation bursary scheme in previous years, the Trust and University of Kent have again provided joint funding (total of £6k) to support four final year undergraduates from University of Kent to spend eight weeks working on health-related projects co-supervised by Trust clinicians and university colleagues in August/September 2013.

### **Other Highlights**

#### **Dr Michael Bedford – NIHR Research for Patient Benefit (RfPB) award**

Dr Michael Bedford of the Renal Department was awarded an NIHR RfPB award of £252,043 to undertake a study on “Development of a risk model for the prediction of new or worsening Acute Kidney Injury (AKI)”.

#### **Dr Chris Pocock – Co-author on *Lancet* publication**

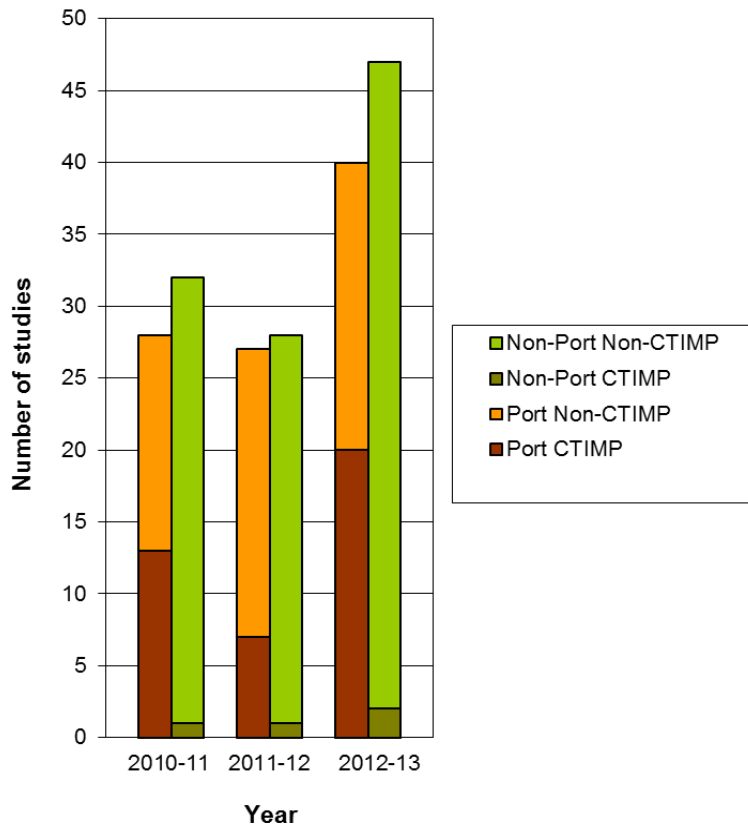
Dr Pocock (Haematology) and co-authors have published in the prestigious *Lancet* journal. Supported by Lavinia Parsons, lead haematology research nurse, Chris and the haematological oncology research team are the highest recruiters in the UK for five UK-based and two international multicentre studies.

#### **Continuing excellence in research delivery by the cancer & stroke research teams**

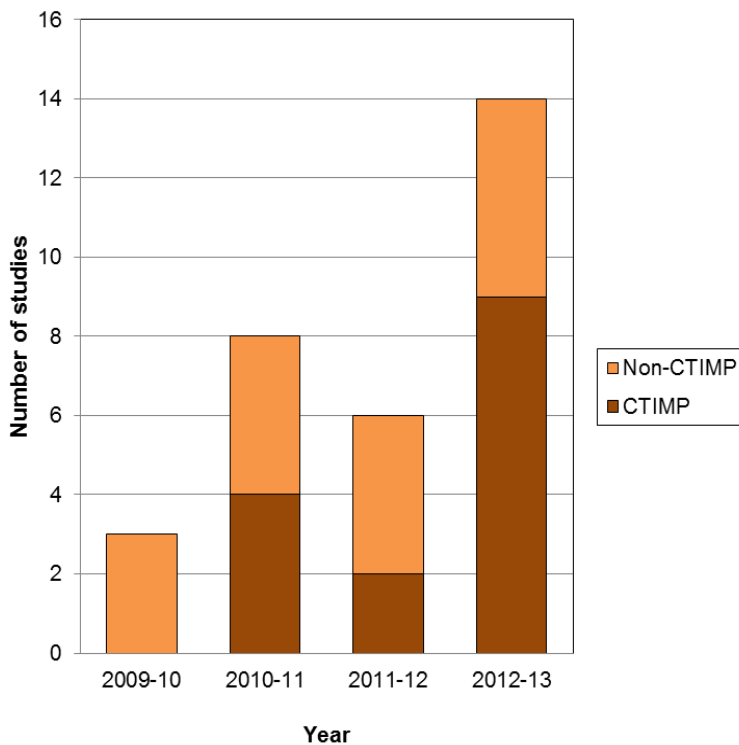
The East Kent Cancer Research Team are now recognised by industry partners as a successful ‘greenshoots’ site for breast research, facilitating the development of a ‘trials portfolio’ that dovetails both commercial and investigator-led (academic) studies thereby maximizing the availability of trials to breast cancer patients.

For a further year the East Kent Stroke Research Team are the most successful recruiters to stroke studies in NIHR Portfolio in the South-East region, outside of the major hyperacute stroke centres at St. George’s and Kings College Hospitals in London (see Appendix 2).

### 3. R&D Metrics



**Figure 1.** New studies given NHS R&D approval by financial year (broken down by CRN Portfolio vs. non-Portfolio & CTIMP vs. non-CTIMP)



**Figure 2.** New commercial studies given NHS R&D approval by financial year (broken down by CTIMP vs. non-CTIMP)

## Study activity

A total of 87 studies were given NHS R&D approval between 1 April 2012 and 31 March 2013 (**Figure 1**). 22 studies were CTIMPs (Clinical Trials of Investigational Medicinal Products i.e. drug studies), 65 non-CTIMPs, and 14 were commercially funded. 40 studies were within the NIHR Portfolio and 47 were non-Portfolio studies.

Over the three years from 2009 to 2012, new study approvals were constant between 55 and 60 per year, meaning that 87 approvals during 2012-13 represents a 58% increase on the previous year. In addition, 2012-13 saw a 230% increase in newly approved industry studies, reflecting an exciting and growing trend over the last four years (**Figure 2**).

In addition to newly approved studies, the Trust had a further 26 CTIMPs and 144 non-CTIMPs that were approved in previous years and still actively recruiting new participants, making a total of 48 active CTIMPs and 209 active non-CTIMPs (and if we include studies in follow-up, as we did in last year's report, these studies total 95 and 256 respectively).

The number of higher degrees that were supervised by Trust researchers during 2012-13 included 6 PhDs and 4 MScs.

## Participant Accrual

Total accrual to NIHR CRN Portfolio studies amounted to 1217 participants in 2012-13. This represents a 35% decline on 2011-12, which is clearly disappointing but reflects a shift away from some previous high-recruiting 'large-scale' observational studies towards more niche interventional (i.e. CTIMPs) & observational studies. Although such studies result in fewer absolute numbers of recruits, they may often provide greater insight into impacts of new treatments on patient outcomes. The increase in new study approvals during 2012-13 encourages us to believe that we will see a 'bounce back' in recruitment in the next financial year.

Data for Portfolio study accrual which is entered in near real-time via the NIHR Portal is considered to be highly accurate. Data for non-Portfolio study accrual has not been reported for 2012-13 because it requires reporting by investigators to EKHUFT R&D and significant data quality issues exist in this respect.

## NHS Permission

NHS R&D approval was granted within 30 days (from receipt of valid application) for 69% of NIHR Portfolio studies. The median time to obtain NHS permission was 18 days. By 31<sup>st</sup> March 2013 the Trust will be required to deliver approval within 30 days for ≥80% portfolio studies. A total of 36 CSP (Central System for Gaining Permissions) permissions were issued.

## Research Income

EKHUFT received £655,592 from the Kent and Medway CLRN during the financial year, to support activity related to NIHR CRN Portfolio studies. In addition, the Trust was awarded £99,594 as NIHR Research Capability Funding (RCF). The Trust also received £252,043 from the NIHR Research for Patient Benefit programme. Actual income received on behalf of Research & Development during the year totalled approximately £1.2m. The pie chart in Appendix 1 categorises the main sources of funding. NIHR supported research attracted the largest portion of funding at £724k or 62% of the overall total.

### **GCP training & Research Governance seminars for staff**

GCP training and updates were held on 24/04/2012 and 07/11/2012 with a total of 80 attendees over these dates. R&D Trust wide Research Governance seminars were given to Research Nurses and Trust staff on 06/11/2012 with a total of 13 attendees registered on the day.

### **Statistical Advice**

Statistical advice was provided by Paul Bassett (StatsConsultancy Ltd) to 20 Trust researchers by phone and/or e-mail and to 4 Trust researchers in face-to-face meetings.

#### 4. Overview of Research Activity during 2012-13 Financial Year

##### **Palliative Care: Dr Claire Butler, Pilgrims Hospices**

Dr Andrew Thorns is chair of the local palliative care research priority group which reached the targets set by the CLRN for recruitment, sites and study numbers. Rose Ward is our CLRN funded palliative care research nurse.

Studies that we have been involved in include:

*Evaluation of Pilgrims Hospices Rapid Response Hospice at Home service in East Kent* (RfPB 0808-16126; CI Dr Claire Butler). The study was permitted a 6 month extension to end of October 2012 to enable completion of the economic analysis data set. The final report was submitted to NIHR on time with full recruitment to the primary outcome measure. The service continues to be funded by the CCGs for 2013/4.

*SOB II*. This CRN Portfolio study was led by a group in Yorkshire. Pilgrims recruited 20 patients in this period and made a significant contribution to the successful completion of the study.

*ChemdEL*. CRN Portfolio study, started in February 2013. Pilgrims contributed to the database until recruitment closed.

*When is it acceptable for palliative patients to participate in clinical trials?* A comparison survey of palliative care professionals and patients. This study has been supported by EKHUFT and examined this important area with the aim of increasing research recruitment. The work has been presented at national and European conferences and is currently being written for publication.

##### **Other research output**

Invited to present the Hospice at Home data at Cicely Saunders Institute, King's College, London (23/1/13).

##### **Renal Medicine: Drs Edmund Lamb, Chris Farmer, Paul Stevens & others**

The Kent Kidney Care Centre has a research strategy linked to the understanding and prevention of chronic kidney disease (CKD) and acute kidney injury (AKI), resistant hypertension and the better management of established renal failure. The group contributes to many studies in the UKCRN portfolio and is the lead centre for several studies.

In the past year Farmer, Stevens *et al.* have developed the following research themes:

Stop Acute Kidney Injury (SAKI): We have recently commenced an NIHR funded project using regional databases to identify and highlight people at high risk of acute kidney injury. This research has involved patients in the design as per previous research programmes. In addition it has a large qualitative element which examines multidisciplinary user responses to alert systems. This will involve structured interviews, group discussions and questionnaires.

Acute Kidney Injury in the Community: We have secured funding for Helen Hobbs to pursue a PhD investigating Acute Kidney Injury in primary care, including aetiology and outcomes.

Development of Clinical Alert Systems: With a commercial company we are developing a system to alert junior doctors.

Other research themes: Preoperative ASA scores and the risk of acute kidney injury; prescription ACE/ARB and the risk of acute kidney injury

In collaboration with the University of Kent (School of Pharmacy, Claire Peppiatt-Wildman and Scott Wildman) we have investigated the effect of calcineurin inhibitors on renal medullary blood flow in an *in vitro* model. This work has been presented nationally.

Externally funded UKCRN portfolio studies where we are the lead centre include:

1. Evaluation of kidney function in older people; funded by RfPB.
2. Investigation of a novel marker of renal function, serum cystatin C in peritoneal dialysis patients; funded by British Renal Society.
3. Biological variability of markers of acute kidney injury, including NGAL, KIM-1, cystatin C and others; funded by RfPB.
4. Bone ALP as an outcome marker in haemodialysis patients; funded by British Renal Society.

In 2012 we responded to a HTA funding call for a project entitled "Accuracy of glomerular filtration rate (GFR) estimation using creatinine and cystatin C and albuminuria for monitoring disease progression in patients with stage 3 chronic kidney disease". We were successful in this application and the award will commence in 2013/14.

UKCRN Portfolio studies where we are a participating centre include:

1. PEXIVAS: An interventional study comparing high- and low-dose steroid regimens with or without adjunctive plasma exchange in people with ANCA-associated vasculitis (PI Dr Tim Doulton)
2. PD-CRAFT: An observational study in peritoneal dialysis patients which aims to better predict who will get encapsulating peritoneal sclerosis, a rare complication of PD treatment (PI Dr Tim Doulton)
3. TrUST. Transplant urethral stent study (PI Dr Michelle Webb)
4. ReMIND. Rituximab induction in renal transplantation (PI Dr Michelle Webb)
5. Alexion, aHUS registry study. An observational, non interventional, multicentre, multinational study of patients with atypical HUS (PI Dr Michelle Webb)
6. RITUXICAN. Rituximab in chronic humoral rejection (PI Dr Michael Delaney)
7. KALIBRE. Genetic biomarkers in renal transplantation (PI Dr Chris Farmer)
8. Predicting 5-aminosalicylate nephrotoxicity in patients with inflammatory bowel disease (PI Dr Michael Delaney/Dr AF Muller)
9. ATTOM. Access to transplantation and transplant outcome measures (PI Dr Chris Farmer)
10. PRED4: Predicting serious drug side effects in gastroenterology (PI Dr Michael Delaney/Dr AF Muller)
11. GAMBIT. Bringing markers of transplantation tolerance into the clinic (PI Dr Chris Farmer)
12. FEPOD1. Frail Elderly Patient Outcomes on Dialysis (longitudinal study comparing assisted PD to HD) part 1 (PI Sr Sally Krause)
13. FEPOD 2. Frail Elderly Patient Outcomes on Dialysis (longitudinal study comparing assisted PD to HD) part 2 (PI Sr Sally Krause)
14. BiCARB. Does oral sodium bicarbonate therapy improve function and quality of life in older patients with chronic kidney disease and low-grade acidosis? (PI Dr Paul Stevens)
15. UK Calciphylaxis Registry (PI Dr Michael Delaney)

Other non-portfolio studies include:

1. Diagnostic accuracy of a point of care device for urinary albumin measurement in a primary care setting.
2. Variation of the bone-specific isoform of alkaline phosphatase in haemodialysis patients
3. HyCKS: Two studies, supported by East Kent Hospitals Cardiovascular Research Grant award, that are investigating the prevalence of resistant hypertension in East Kent and relationship between BP variability and progression of CKD (CI Dr Tim Doulton).

## Other research output

### LETTERS

McTaggart MP, Cannon LPS, Kearney EM. Effect of Patent Blue V dye on sample interference indices on the Abbott Architect. *Ann Clin Biochem* 2012; 49: 510-511.

### BOOKS, CONTRIBUTIONS TO BOOKS, GUIDELINES & REPORTS

Lamb EJ, Price CP. Kidney Function Tests. In: Burtis CA, Ashwood E, Bruns DE, Tietz Textbook of Clinical Chemistry and Molecular Diagnostics, Elsevier, 5<sup>th</sup> edition, Chapter 25, pp 669-708, 2012

Delaney MP, Price CP, Lamb EJ. Kidney Disease. In: Burtis CA, Ashwood E, Bruns D, Tietz Textbook of Clinical Chemistry and Molecular Diagnostics, Elsevier, 5<sup>th</sup> edition, Chapter 48, pp 1523-1608, 2012

### PRESENTATIONS AT NATIONAL & INTERNATIONAL MEETINGS

Bedford M, Farmer C, Irving J, Stevens P. Acute Kidney Injury (AKI): an Acceptable Risk of Treatment With ACE Inhibitors and Angiotensin Receptor Blockers? Poster presented at European Renal Association 2012. 49th ERA-EDTA Congress, organised in Paris, France, May 2012

Bedford M, Farmer C, Irving J, Stevens P. Acute kidney injury (AKI): an acceptable risk of treatment with ace inhibitors and angiotensin receptor blockers? Oral presentation at BRS 2012. British Renal Society Conference 2012, Manchester, UK, May 2012

Dainton M, Keith S, Rowstone T. Equipping haemodialysis staff to deliver a self-care education programme to patients - an example of collaborative working. Poster presented at British Renal Society Conference 2012, Manchester, UK, May 2012

Doulton TWR, Irving JE, Stevens PE, Farmer CKT. Prevalence of resistant hypertension in Kent, United Kingdom. Oral presentation at British Hypertension Society meeting, Cambridge, September 2012.

Farmer C. IT solutions for detecting and preventing AKI. Oral presentation (invited speaker; delivered by M Bedford due to ill health) at BRS 2012. British Renal Society Conference 2012, Manchester, UK, May 2012

Farmer C, Irving J, Hemmelgarn B, Coresh J, Stevens P. Is there an association between one-year changes in kidney function and mortality? Oral presentation at BRS 2012. British Renal Society Conference 2012, Manchester, UK, May 2012

Farmer C, Irving J, Hemmelgarn B, Coresh J, Stevens P. Is there an association between short Term changes in kidney function and mortality? Oral presentation at European Renal Association 2012. 49th ERA-EDTA Congress, organised in Paris, France, May 2012

Farmer C, Irving J, Hobbs H, Wheeler T, Klebe B, Stevens P. Clinical decision support in primary care leads to reduced late referral and a reduced requirement for chronic renal replacement therapy. Oral presentation at BRS 2012. British Renal Society Conference 2012, Manchester, UK, May 2012

Farmer C, Irving J, Hobbs H, Wheeler T, Klebe B, Stevens P. Clinical decision support in primary care leads to reduced late referral for chronic renal replacement therapy. Poster presented at European Renal Association 2012. 49th ERA-EDTA Congress, organised in Paris, France, May 2012

Hobbs H, Irving J., Bedford M, Wheeler T, Stevens P, Farmer C. Does acute kidney injury managed entirely in the community have similar outcomes to hospital acquired acute kidney injury? Oral presentation at BRS 2012. British Renal Society Conference 2012, Manchester, UK, May 2012

Hobbs H, Irving J, Bedford M, Wheeler T, Stevens P, Farmer C. Does acute kidney injury managed entirely in the community have similar outcomes to hospital acquired acute kidney injury? Oral presentation at European Renal Association 2012. 49th ERA-EDTA Congress, organised in Paris, France, May 2012

O'Riordan SE, Kilbride H, Lamb EJ, Eaglestone G, Knight S, Delaney MP, Farmer CKT, Dalton N, Stevens PE. Accuracy of the MDRD and CKD-EPI GFR-estimating equations in older people Oral presentation at British Geriatrics Society, Llandudno, UK, May 2012. Age and Aging 2012;41( Suppl. 2):

St Ange A, Jenkins K. Benefits of Home Visits in Conservative Management. Poster presented at British Renal Society Conference 2012, Manchester, UK, May 2012

Stevens PE. Acute Kidney Injury and Chronic Kidney Disease: Chicken and Egg. Oral presentation (invited speaker) at Renal Association 2012, Annual Meeting of the Renal Association, Gateshead, UK, June 2012.

Stevens PE. Information Challenges in Clinical Practice. Oral presentation (invited speaker) at NICE CKD Quality Standards

Stevens PE. Oral Presentation (invited speaker) at the Acute Kidney Injury Academy 2012. Definitions of AKI, scoring systems and epidemiology. AKI Academy, London, November 2012.

Stevens PE. Oral Presentation (invited speaker) at RCP Advanced Medicine Course. Mechanisms and management in acute kidney injury. Royal College of Physicians, London, February 2013

Stevens PE. Oral Presentation (invited speaker) at Prise en charge de la maladie rénale chronique : stratégie, évaluation & résultats. Comment Gérer Les Flux De Patients Adressés Pour MRC. Lyon, France, March 2013

Stevens PE. KDIGO Clinical Practice Guideline on Evaluation and Management of CKD 2012 – Key Changes. Oral presentation (invited speaker) at Focus 2012, National Meeting of the Association for Clinical Biochemistry, Liverpool, UK, May 2012. Ann Clin Biochem 2012;49(suppl.1)

Stevens PE. KDIGO Clinical Practice Guideline on Evaluation and Management of CKD 2012. Oral presentation (invited speaker) at BRS 2012. British Renal Society Conference 2012, Manchester, UK, May 2012

Stevens P, Irving J, Wheeler T, Klebe B, Farmer C. Identification of chronic kidney disease in primary care and the influence of computerised clinical decision support. Oral presentation at BRS 2012. British Renal Society Conference 2012, Manchester, UK, May 2012

Stevens P, Irving J, Wheeler T, Klebe B, Farmer C. Identification of chronic kidney disease in primary care and the influence of computerised clinical decision support. Poster presented at European Renal Association 2012. 49th ERA-EDTA Congress, organised in Paris, France, May 2012

### **Grant awards**

Development of a risk model for the prediction of new or worsening Acute Kidney Injury (AKI) Bedford, Farmer, Stevens NIHR £252,303 HS&DR Project - 11/2004/28

University of Kent PhD Stipend C Farmer H Hobbs circa £12,000 annually

## **New higher degree supervision**

Helen Hobbs PhD University of Kent

## **Quality and operations Directorate: Daniel Marsden**

A participatory action research study is planned to be used to implement and evaluate a Healthcare Passport in the Trust and a number of other health and social care settings. Interested volunteers have been identified at a public launch of the passport in January 2012, but have yet to be invited to opt in to the project. Active learning methods will be used to support the implementation of the passport, by developing action plans and testing these in practice; and to develop an evaluation tool.

The project leader has had to spend some considerable time to ensure that he can enable the participation of all stakeholders including people with learning disabilities. This will include Disclosure and Barring checks and the securing of research passports. The process has also been complicated as he is using this project for his MSc dissertation and so I have had to satisfy both university and trust research governance processes before seeking IRAS approval. The IRAS form has been submitted, and while the project had been accepted onto the Portfolio, the Research Ethics Committee were unhappy with the application and unclear as to the methodology, the methods and outcomes of the project. The main causes of this were concerns that the project had not been articulated effectively to a lay audience, and that issues of Safeguarding had not been adequately expressed. This will mean a fresh IRAS application will need to be submitted, which will further delay the commencement of the project

## **Neurology: Dr Mike Samuel**

Our current work is partly based on a previous clinical audit [Identification and Management of Depression in Parkinson's (NICE CG91)]. The research project is entitled "Psychological distress in Parkinson's: A model of help-seeking behaviour". The qualitative study is complete, patients and carers have been interviewed, interviews transcribed and analysed. Lay volunteers were recruited and trained to assist with the qualitative analysis - 1 carer and 2 people with Parkinson's Disease. A manuscript is currently in preparation to be submitted for publication. A new questionnaire was designed from the qualitative study for use in the subsequent study. This was submitted successfully for REC and NHS R&D approval. Participants are currently being interviewed for the quantitative study.

This project forms part of a part-time PhD programme at King's College London, Institute of Psychiatry. The student, who is the researcher on the project, has successfully upgraded to PhD candidate status.

Scoping exercise of mental health services available to people with Parkinson's: The questionnaires have been designed, respondents identified and mailings started. We are currently awaiting responses

## **Other research output**

Simpson AC, Samuel M & Brown RG (2012). A survey of the identification and management of depression in people with Parkinson's disease. Poster presentation at the Movement Disorders Society's International Congress of Parkinson's Disease and Movement Disorders, Dublin, Movement Disorders, 27: S1-S523.

Simpson AC, Samuel M, Lawrence V & Brown RG (2012). Help-seeking for mood problems in Parkinson's. Poster presentation at the Institute of Psychiatry PhD Student Showcase.

## **Maternity: Madeleine Harris, Consultant Midwife**

Midwives from East Kent have been involved in the Healthy Eating and Lifestyle in Pregnancy (HELP) Study. This is a cluster randomised trial to evaluate the effectiveness of a weight management intervention in pregnancy on weight at 12 months following birth, gestational weight gain and pregnancy and birth outcomes. The study is sponsored by Cardiff University and funded via the National Prevention Research Initiative.

The Maternity Department at QEQM Hospital is one of 20 participating units and was randomised into the intervention arm of the study. 35 overweight pregnant women from the Thanet area were consented to participate in the study. They were asked to attend a weekly 1.5 hour support group run jointly by 'Slimming World' and midwives. Attendance at the group was weekly from recruitment in early pregnancy until 6 weeks postpartum. All the women in the study are being followed up until a year after birth.

Around 1 in 5 pregnant women in the UK are obese. In addition to poor general health, obesity is associated with pregnancy complications. Evidence suggests there is potential for influencing not only the health of the mother, but also that of her baby and the rest of her family. The HELP study is still in progress and the value of the weight management intervention used in this trial is yet to be determined

## **Haemophilia: Drs Gillian Evans & David Stephensen**

The Haemophilia Centre is currently leading on an NIHR CRN Portfolio study (HIPPO) investigating physical performance outcomes in young children with haemophilia with funding from a 3-year NIHR Clinical Lectureship for Allied Health Professionals. A systematic review of the measurement properties of performance-based and clinical tests used to record physical function in children with haemophilia has been completed and is currently in review for publishing in the journal of Haemophilia. Building on this work we are the clinical lead for 2 doctoral research programmes investigating gait adaptations and muscle characteristics more closely in an older group of adolescent and young adult haemophiliacs. Our programme of research will identify factors associated with impaired physical function which may be preventable or modifiable with medical treatment and physiotherapy intervention. Additionally this research will add to our understanding of the early clinical manifestations together with the pathway from joint haemarthrosis to haemophilic arthropathy, the rate of progression and the factors during childhood that influence this progression providing a biomechanical and physiological basis for physiotherapy interventions.

The Haemophilia Centre is also a recruitment site for an international NIHR CRN Portfolio study (AHEAD) which is an observational study to describe the joint health outcomes of individuals with haemophilia, and the haematology department is the second highest recruiter to the ITP registry study in the UK.

### **Other research output**

Single centre experience of reduced intensity rituximab in the treatment of acquired haemophilia  
Roomallah B, Evans G, Elliott K. Poster Presentation at British Society for Haematology 2012.

#### *Book Chapters*

Lobet S. & Stephensen D. Physiotherapy in the Management of Haemophilia, In Lee C., Berntop E. & Hoots W. (Eds) Textbook of Haemophilia 3<sup>rd</sup> Edition, Wiley-Blackwell (In Press)

### **New higher degree supervision**

PhD, University of East London, "*Are there changes in muscle function and gait in adolescents with haemophilia?*"

PhD, University of East London, *“Alterations in muscle and gait characteristics in young adults with haemophilia: Impact of continued prophylaxis”*

PhD, University of East London, *“What is the impact of early adult rheumatoid arthritis on the biomechanical and functional characteristics of the foot and lower limb”*

### **Neonatal Medicine: Dr Vimal Vasu**

During the last year the neonatal unit team has continued recruitment to clinically important large multicentre research trial such as the Probiotics in Preterm Infants (PiPs Trial). There is also an evolving programme of collaborative research between the neonatal unit and the School of Biosciences, University of Kent to investigate telomere biology in preterm infants. Routinely collected anonymised data from neonatal patients continues to be used to help improve our understanding of preterm related morbidities and health outcomes (The National Neonatal Collaborative Necrotising Enterocolitis Study (NNC-NEC); Preterm growth reference, a case-control study of the treatment received and the outcome of babies with Down syndrome compared with babies without Down syndrome who are admitted to a neonatal intensive care unit : Analysing data from the National Neonatal Research Database).

### **Other research output**

Parkinson JRC, Vasu V, Hyde MJ, Fitz-Simon N, Modi N. The association between intrahepatocellular lipid and regional adiposity in preterm infants at term age. Neonatal Society Spring Meeting, London 2012.

### **Haematology: Dr Chris Pocock**

The focus of our research is in oncological haematology. For the period April 2012 to March 2013 we have been the leading UK recruiters in the following trials:

Investigator lead:

1. REMoDL-B (Phase 3, first line high grade B NHL)
2. PACIFICO (Phase 3, front line older follicular NHL)
3. ADMIRE (Phase 2b, front line young CLL)
4. RIALTO (Phase 3, frontline older CLL)
5. MYELOMA XI (Phase 3, non-intensive arm, frontline older myeloma)

Commercial:

1. GALLIUM (Roche, Phase 3, frontline younger follicular NHL)
2. MABCUTE (Roche, Phase 3, relapsed indolent NHL)

### **Other research output**

The following abstracts were presented at the British Society for Haematology meeting, Glasgow, April 2013:

Posaconazole prophylaxis obviates the need for empirical escalation of antifungal therapy during chemotherapy for acute myeloid leukaemia (AML) and high-risk myelodysplastic syndrome (HR-MDS). CA Roughley\*, J Lindsay, K Saied, V Ratnayake, C Pocock BSH annual Meeting Abstracts: Br. J. Haematology, April 2012, Supplement 1, 157: 152 (Poster session).

The addition of rituximab to fludarabine and cyclophosphamide (FC) improves overall survival in newly diagnosed mantle cell lymphoma (MCL): Results of the randomised UK National Cancer Research Institute

(NCRI) trial. S Rule\*, P Smith, P Johnson, S Bolam, G Follows, J Gambell, P Hillmen, A Jack, S Johnson, A Kirkwood, A Kruger, C Pocock, J Seymour, M Toncheva, J Walewski, D Linch. BSH annual Meeting Abstracts: Br. J. Haematology, April 2012, Supplement 1, 157: 26 (Oral session).

Late toxicity of imatinib mesylate during therapy for chronic myeloid leukaemia (CML): What happens if you stop imatinib? – A BSH update for 2012. ME Young\*, C Pocock BSH annual Meeting Abstracts: Br. J. Haematology, April 2012, Supplement 1, 157: 153 (Poster session).

First analysis of a phase II multicentre trial of rituximab, gemcitabine, cyclophosphamide, vincristine and prednisolone (R-GCVP) for patients with newly diagnosed diffuse large B cell lymphoma (DLBCL) considered unsuitable for anthracycline containing chemo-immunotherapy. An NCRI lymphoma clinical studies group trial. CRUK/07/007. P Fields\*, WM Townsend, A Webb, CFE Pocock, P Smith, A Kirkwood, N El-Mehidi, PW Johnson, J Radford, DC Linch, D Cunningham. BSH annual Meeting Abstracts: Br. J. Haematology, April 2012, Supplement 1, 157: 30 (Oral session).

The following abstract was presented at the European Haematology Association meeting in Amsterdam, June, 2012

A phase 2 trial of Azacytidine in chronic myelomonocytic leukaemia. W Drummond, M. Boissinot, P Cauchy, N Cross, S Hartley, J Kell, C Pocock, A Szubert, J Brown, P Cockerill, D Bowen. Haematologica; 97 (s1) Abstract 0986

### **Physiotherapy: Benjamin Chitambira**

My research is centred on use of optokinetic chart stimulation to directly rehabilitate the central nervous system's balance networks in acute stroke, critical illness myopathy and traumatic brain injuries. Dramatic improvements in patient care have been noted with some cases where permanent disability would have occurred being reversed. The direct improvements in the brain's balance system make patients' regaining of functional independence quicker as balance is a pre-requisite to function. A retrospective case control series carried out in 2012-2013 has demonstrated that use of optokinetic chart stimulation significantly improves recovery of upper limbs in dense acute stroke patients as well as significantly reduce wrist and hand spasticity. This has been a significant improvement in patient care as evidence has shown that upper limb rehabilitation has been a problematic area for many years, in dense acute strokes.

In the local NHS more therapists now recognise balance problems and vertigo in neurological patients and now go beyond just mobilising such patients. My expertise has been sought on how optokinetics could be implemented in other countries and direct communications have occurred with scientists in other countries.

Positive implications for the Trust include the reduction of length of rehabilitation for dense strokes which reduces the cost of rehabilitation. It also reduces the number of people needed for manual handling which cuts on human resources costs. There is an indirect benefit in that when the brain's balance system is rehabilitated, patients rely less on support from therapists hence musculoskeletal injuries of therapists become less.

### **Other research output**

Presented at Therapies Excellence in Clinical Practice Day in September 2012 on "Use of optokinetic chart stimulation speeds up recovery of voluntary movements, mobility and function in severely disabled subdural haemorrhages. This work has since been published in the Brain Injury journal in June 2013

## **Cardiology: Dr Konrad Grosser**

Participation in the international randomised controlled ATLANTIC trial. This trial compares early oral loading with the antiplatelet drug Ticagrelor in the ambulance (en route to the cardiac catheter lab for primary angioplasty for ST elevation myocardial infarction) versus in catheter lab oral loading. This study successfully integrated co-operative research involving ambulance services and secondary care in the field of interventional cardiology.

## **Neurophysiology: Mr Kamalakannan Jothi and Dr Jeremy Bland**

Carpal Tunnel Syndrome (CTS) is a recognizable pattern of symptoms and signs, which are caused by compression of the median (middle) nerve as it passes through the carpal tunnel at the wrist.

This condition affects individuals by causing pain, numbness, tingling sensations and sometimes weakness in the fingers and may extend to shoulder and neck areas. The cause for most cases is unknown (idiopathic) though some common conditions are associated with an increased incidence, including obesity, pregnancy, hypothyroidism, arthritis, diabetes, and trauma. Diagnosis is primarily clinical and the condition is easily recognized from the characteristic symptoms in straightforward cases but diagnostic support is provided by investigations such as nerve conduction studies and ultrasound imaging.

Treatment may include splinting, local steroid injection at wrist, activity modification, physical or occupational therapy (controversial), medications, and surgery. Treatment with local therapeutic ultrasound has been suggested to be effective but existing trials are inconclusive.

Wrist splinting is only partially effective with a success rate of 34%, steroid injection is followed by frequent relapses and there remains uncertainty about the safety of serial injections. Surgery is effective but has a small but significant incidence of permanent complications. Any demonstrably effective and safe addition to the therapeutic options would be a significant advance in treatment. Therapeutic ultrasound at present appears a promising option, having a very good safety record but so far uncertain evidence of efficacy.

In our trial patients, with mild carpal tunnel syndrome, confirmed by nerve conduction studies, will all be given wrist splints so that no patients will be left untreated. They will be randomly allocated to either therapeutic or sham ultrasound therapy (20 sessions over 7 weeks) and followed up for 1 year. The patients, operators of the ultrasound equipment and assessors will all be blind to treatment allocation.

The effect of treatment on symptoms will be assessed using a validated questionnaire and nerve conduction studies will be repeated at completion of the ultrasound treatment, 6 and 12 months. This study is designed to find out to whether therapeutic ultrasound is an effective treatment for carpal tunnel syndrome (CTS).

## **Neurorehabilitation: Dr Mohammed Sakel**

Dr Mohammed Sakel leads a diverse research programme in neurorehabilitation in collaboration with three departments at University of Kent (Law, Neuropsychology, and Electronics), the Biomedical Unit of King's College London, Queen's Square, MRC Centre for Neurodegenerative Conditions and various Canadian/European Rehabilitation centres & Canterbury Christchurch University. Such a diverse research programme along with our annual regional neurorehabilitation conference on is commensurate with EKHUFT's role as the leading service for brain injury in Kent.

During 2012-13 we completed our MRC funded study on vestibular stimulation. Dr Sakel has been invited to be one of the three panel members of 2013 American Congress of Rehabilitation Medicine's annual congress on cross border research between US, EU & Australasia.

Completed studies include:

1. SPAsticity in Practice (SPACE). Prospective, observational, non-interventional, open label, multi-national, non-randomised study. Industry sponsor: Merz. Recruitment completed.
2. Principal Investigator for “Does Caloric Vestibular Stimulation (CVS) improve consciousness in persistent vegetative state? University funded PhD study recruitment completed.
3. A systematic review & meta-analysis on vestibular stimulation.
4. A systematic review on brain computer interface

### **Other research output**

Two of our pieces of research were included in the 2013 Parliamentary Report on R&D in Assistive Technology (<https://www.gov.uk/government/publications/assistive-technology-for-disabled-and-older-people-research-and-development-work> - Pages 80 & 118)

Conference presentations (abstracts):

- 3 original papers (2 posters & 1 platform) in ACRM November 2012
- 1 poster & 1 invited lecture on “Are we neglecting neglect ?” Dec 2012, IRF conference.
- 2 original papers in International Conference: ICRAN, Valencia, March 2013.
- 4 original papers in World Congress on Neuromodulation, Berlin, 2013 June.
- 2 original papers accepted for World Congress Neurology, 2013.

Kokosy, T. Floquet, G. Howells, H. Hu, M. Pepper, M Sakel, C. Donzé, “SYSIASS – An Intelligent Powered Wheelchair”, *Conference on Systems and Computer Science (ICSCS'2012)*, Lille, France, August 29-31, 2012 (<http://dces.essex.ac.uk/staff/hhu/Papers/ICSCS2012-SYSIASS-project.pdf>)

Bai L, Pepper MG, Yan Y, Spurgeon SK and Sakel M, ‘Application of low cost inertial sensors to human motion analysis’, *Proceedings of IEEE International Instrumentation and Measurement Technology Conference (I2MTC 2012)*, pp. 1280-1285, Graz, Austria, 13-16 May 2012.

### **Grant awards**

EU grant of 1.6 million Euro from 2012 to 2015 for “Cognitive Assistive Living Ambient System (COALAS)”. Dr Sakel is co-investigator.

Collaboration with & funded by Christchurch University for “From in-patient rehabilitation into community: a qualitative study to evaluate the experiences of adults with severe traumatic brain injury.” Collaboration with & funded by Christchurch University.

### **New higher degree supervision**

PhD student for the study on CVS study on minimally conscious state mentioned above.

### **Radiology: Dr Miguel A Bertoni**

I started research activity in the Department of Radiology in October 2010. Since then I have commenced to organize translational investigation in the areas of Quantitative Radiology (Imaging), Post-Image Processing, Imaging in Neurosciences, particularly stroke imaging, Limbic System Imaging, Neurorehabilitation and Neuropsychiatric Imaging mainly intended to cognitive related conditions as Mild Cognitive Impairment and Dementia, and Imaging in Depression. Multidisciplinary groups are consolidated and working in the fields of Stroke, Visualization of Neural Paths (Tractography), Neurorehabilitation, Neuropsychiatric Conditions and Dementia. The activities include development and improvement of neurostructural imaging analyses with clinically available and academic post processing tools, comparing results against validated academic

datasets and brain atlases. Clinical tools devoted to neurostructural analyses, brain perfusion, and metabolism have been optimized and recently improved with the new imaging technology available in EKHUFT. In vivo spectroscopy of neuropsychiatric conditions has been consolidated and started as an advanced imaging tool in neuropsychiatric conditions. An additional group clinical research is being organized with A&E, Radiology, Psychiatry and Neurorehabilitation, concerning Traumatic Brain Injury subjects, thought to be of very high clinical and social impact, as evidence seems to suggest. I actively participate in teaching activities within and outside The Trust, participating also in regional, national and international fora. I have obtained funding in the Internal Grant Scheme for a Spasticity Project, which is on its way to obtaining local NHS R&D approval, after obtaining REC approval. The steering group is meeting regularly and the project will start collecting data once the R&D approval is granted. I have applied for additional funding to be able to achieve an anonymized imaging database in stroke, trauma injury and neuropsychiatric conditions, considering radiology has one of the most comprehensive and richest datasets in the United Kingdom, which started with stroke imaging and continued with the other conditions regular imaging. Immediate objectives are appropriate post processing IT tools, adequate to receive, post process and analyses of complex imaging datasets adequate to handle imaging from recently acquired clinical technology.

Projects in progress:

1. Imaging assessment of neuropsychiatric conditions
2. Imaging assessment of mild cognitive impairment
3. Imaging assessment of acute stroke
4. Imaging assessment of spasticity
5. Diffusion tensor tractography
6. Functional MRI
7. Spectroscopy MRI in neuropsychiatric conditions

Teams already formed and external collaborations:

1. Stroke (stroke medicine, imaging, neurorehabilitation, psychiatric impairment, academics)
2. Neuropsychiatric conditions (psychiatry, imaging, academics)
3. Neurorehabilitation (neurorehabilitation, imaging, academics)
4. Tractography in brain tumours (with Professor E Gonzalez-Toledo, Louisiana State University, Louisiana, US)
5. Evaluation and implementation of academic post processing software for segmentation of the brain (Dr Andriy Fedorov, Harvard University, Massachusetts, US)
6. DTI in ataxia and multisystem atrophy syndrome (Dr Ratnarajah, University of Singapore and Dr Hojjatoleslami, University of Kent)

Impacts of research: Clinically, main areas with high impact and clinical relevance are:

*Stroke:* The Trust is recognized nationally as lead in Stroke Medicine with a very high overall success and reversal rate, diminished mortality and shortened admission time. Considerable effort has been made to ensure adequate imaging processes in these patients, to increase clinical governance robustness and to disseminate results. One international (European presentation) has been carried out and one relevant paper in the process of finalizing initial submission state

*Dementia & Neuropsychiatric Conditions:* A new imaging service has been started to assess and to assist dementia patients and those with Mild Cognitive Impairment in close collaboration among Primary Care, Psychiatry and Radiology. A new regional Multidisciplinary Meeting under organization, to be held weekly, increasing and ensuring robustness of clinical governance processes.

*Mild Traumatic Brain Injury:* These patients, representing an important group, are being detected and looked after with adequate imaging and other diagnostic tools. Primary Care and Regional Multidisciplinary Fora have manifested interest in working coordinated to ensure detection, assessment and appropriate care level

*Spasticity*: Improved Imaging Assessment Techniques have been implemented to increase assessment of patients with this devastating and handicapping condition in close collaboration between the Departments of Neurorehabilitation and Radiology

### **Other research output**

Invited contributions

Bertoni M: Neuroimaging of the Amygdala. In: Amygdala, edited by D Barbara Ferry, Centre de Recherche en Neurosciences de Lyon; Université Claude Bernard, Lyon, France. In Tech Publishers. ISBN 980-953-307-188-1

Presentations, Papers and Lectures in Scientific Fora

Congress of Radiology, (N 6291), Vienna 2012, Bertoni M, Bertoni I, Hojjatoleslami A, Sakel M: Voxel based morphometry of hippocampi and amygdale with manual and automated volume measurements. European abstract published by European Radiology J 2012

Bertoni M, Bertoni I, Hojjatoleslami A, Sakel M: Voxel based morphometry of hippocampi and amygdale with manual and automated volume measurements. European Congress of Radiology, (N 6293), Vienna 2012, abstract published by European Radiology J 2012

Bertoni M: Head Injuries, imaging aspects and clinical implications. Brain Injury Symposium, Learning Centre, Maidstone Hospital, June 2012

### **Higher degree supervision**

I lecture and assist MSc students of the University of Kent during their courses and their thesis projects. I am assisting medical graduate for his MSc neuropsychiatric thesis project.

### **Paediatric Occupational Therapy: Dr Eve Hutton**

Over the last year the Research for Patient Benefit Study PB PG 0110 21045 has reached a number of important landmarks. First, Occupational Therapists and Physiotherapists across Sussex, Surrey and Kent were trained to deliver the A-Z of postural care intervention program (2- hour workshop and follow-up visits/calls). This intervention aimed to increase knowledge, understanding in postural care and improve confidence in providing postural care. Subsequently, 10 workshops were run across the three areas, with 75 teaching assistants. Teachers and parents of physically disabled children recruited on to the 6-week intervention. Participants completed a baseline assessment of postural care knowledge, understanding and confidence and once again at the end of the 6-week period. The quantitative analysis of this data is ongoing, with results available in 2013-14. In addition, focus groups with participants and children of the parents who participated are being planned with the aim of gathering further insight in to the potential effectiveness of the intervention. In terms of positive outcomes, by improving carers' knowledge and understanding about the importance of postural care to a child's functioning, learning, and social development, the overall well-being of the child will be improved. It is also hoped that bringing therapists, parents and teachers together will promote collaborative working. Greater engagement with therapy programmes are likely to generate costs savings in terms of better use of therapy time and specialist equipment.

### **Other research output**

Conference and poster presentations are planned for 2013-14 at the annual College of Occupational Therapists conference in June 2013. The research team also have poster submissions accepted for the

British Psychological Society - Division of Health Psychology - Conference in September 2013 and the EACD conference in October 2013. We have also submitted a poster abstract to the Association of Paediatric Chartered Physiotherapists for the conference to be held in 2013. Eve Hutton and Sarah Hotham will present preliminary findings at an EKHUFT research symposium in 2013. The research team are preparing an article for the Journal of Interprofessional Care, reporting the first stage of the research findings.

### **Grant awards during 2012-13 FY**

IPGS Grant from EKHUFT. Duration of 8 months and titled 'Understanding the Support Needs of Disabled Children and their Families in East Kent

### **Clinical Biochemistry: Dr Edmund Lamb**

In collaboration with the Kent Kidney Care Centre there is a research strategy linked to the understanding and prevention of chronic kidney disease (CKD) and the better management of established renal failure.

Projects include:

1. Evaluation of kidney function in older people; funded by RfPB.
2. Investigation of a novel marker of renal function, serum cystatin C in peritoneal dialysis patients; funded by British Renal Society.
3. Biological variability of markers of acute kidney injury, including NGAL, KIM-1, cystatin C and others; funded by RFPB.
4. In 2012 we responded to a HTA funding call for a project entitled "Accuracy of glomerular filtration rate (GFR) estimation using creatinine and cystatin C and albuminuria for monitoring disease progression in patients with stage 3 chronic kidney disease". We were successful in this application and the award will commence in 2013/14.
5. Bone ALP as an outcome marker in haemodialysis patients; funded by British Renal Society.

Some of our research arises from MSc projects undertaken by our trainee clinical scientists:

1. Dr Malcolm McTaggart - diagnostic accuracy of a point of care device for urinary albumin measurement in a primary care setting.
2. Dr Elodie Hanon - systematic review relating to preanalytical conditions for PTH measurement
3. Dr Sunita Sardiwal - variation of the bone-specific isoform of alkaline phosphatase in haemodialysis patients

We also have a research interest on the relationships between exercise, markers of atherogenesis and heart disease. We are currently collaborating with "Women's health and activity at middle-age (WHAM!)" with the University of East Anglia and the Institute of Food Research. A new study entitled the "comparison of metabolic equivalents between post heart attack and healthy males during a standard exercise treadmill test" has just been funded by the EKHUFT R&D internal project grant scheme. This is a collaborative study involving Canterbury Christ Church University, University of Kent and EKHUFT.

### **Other research output**

#### LETTERS

McTaggart MP, Cannon LPS, Kearney EM. Effect of Patent Blue V dye on sample interference indices on the Abbott Architect. Ann Clin Biochem 2012; 49: 510-511.

#### BOOKS, CONTRIBUTIONS TO BOOKS, GUIDELINES & REPORTS

Lamb EJ, Price CP. Kidney Function Tests. In: Burtis CA, Ashwood E, Bruns DE, Tietz Textbook of Clinical Chemistry and Molecular Diagnostics, Elsevier, 5<sup>th</sup> edition, Chapter 25, pp 669-708, 2012

Delaney MP, Price CP, Lamb EJ. Kidney Disease. In: Burtis CA, Ashwood E, Bruns D, Tietz Textbook of Clinical Chemistry and Molecular Diagnostics, Elsevier, 5<sup>th</sup> edition, Chapter 48, pp 1523-1608, 2012

#### PRESENTATION LIST

Lamb EJ. Assessment of GFR and proteinuria: what have KDIGO changed? Oral presentation (invited speaker) at Focus 2012, National Meeting of the Association for Clinical Biochemistry, Liverpool, UK, May 2012. Ann Clin Biochem 2012;49(suppl.1):xx

Lamb EJ. KDIGO guideline for CKD: implications for the laboratory. Oral presentation (invited speaker) at Pathpoint 2012, congress of the Federation of South African Societies of Pathology and the Association of Pathologists of East, Central and Southern Africa, Cape Town, South Africa, September 2012.

Lamb EJ. Managing CKD-MBD using PTH: can we do better? Oral presentation (invited speaker) at joint meeting of the Scottish Renal Association and Scottish Region of the Association for Clinical Biochemistry, Aberdeen, November 2012.

Lamb EJ. Managing CKD-MBD using PTH: is it useful? Oral presentation (invited speaker) at Pathpoint 2012, congress of the Federation of South African Societies of Pathology and the Association of Pathologists of East, Central and Southern Africa, Cape Town, South Africa, September 2012.

Lamb EJ. Biomarkers of AKI – horizons. Oral presentation (invited speaker) at AKI Consensus Conference, Royal College of Physicians of Edinburgh, Edinburgh, UK, November 2012.

McTaggart MP, Kearney EM. Clinical audit of serum protein electrophoresis requesting. Poster presented at ACB National Audit meeting, June 2012.

McTaggart MP, Mirbahai L, Kearney EM. A prospective study highlighting the clinical benefit of the use of the serum free light chains assays in detecting B-cell malignancies. Ann Clin Biochem 2012; 49 (suppl 1): 120-21.

#### **Orthodontics: Dr Andrew DiBiase**

During 2012/2013 the orthodontic department continued its research into the effectiveness and clinical outcomes of different treatment modalities and the psychosocial aspect of malocclusion. The work we have done on bullying has generated a lot of interest in orthodontics and the wider dental community resulting in a website being set up to offer advice and support for patients. We are currently recruiting to two randomised control trials (RCTs) linked to GKT and Dundee University: a multicentre RCT on the use of skeletal anchorage funded by the British Orthodontic Society and a study looking at the use of a vibratory force to speed up tooth movement. Members of the department won two awards for papers published in 2012: the Chapman Prize from the British Orthodontic Society and the Federation of European Orthodontists (FEO) award for the best scientific paper of 2012. Two theses were completed as part of an MSc in Orthodontics from Kings College, London by our StRs. Dr Fleming also completed, submitted and was awarded his PhD. We were sad to see Dr Fleming go as he took a senior lecturer post at the Royal London Hospital Dental Institute.

## Other research output

Books: "Clinical Case in Orthodontics" Martyn Cobourne, Padhraig Fleming, Andrew DiBiase, Sophia Ahmad, Wiley-Blackwell 1<sup>st</sup> Edition June 2012

Presentations:

Jad Seehra "Malocclusion, orthodontics and bullying" Chapman Prize Lecture, British Orthodontic Conference, Bournemouth Sept 2012

Andrew DiBiase "The Truth: Is it out there?" British Orthodontic Conference, Bournemouth Sept 2012

## New higher degree supervision

PhD "An assessment of arch dimensional change with self-ligating brackets: Systematic review and a randomised controlled trial". Padhraig Fleming, Queen Mary and Westfield, University of London.

MSc "PAR Scores and patient satisfaction following orthodontic treatment". Rohini Babber, Kings College London

MSc "The social impact of orthognathic treatment in Caucasian Class III malocclusion patients". Aliza Jesani, Kings College London

## Medical Physics: Dr Matthew Pepper

The department has two jointly funded projects with the School of Engineering and Digital Arts, University of Kent.

1. Facial Gestures for Accessing Assistive Technologies: Utilising a low cost camera [Kinect TM] to detect facial movements e.g. eyebrow movement, for assisting communication. PhD student approaching write up of thesis & presented two papers at international conferences.
2. The Development of a multiparameter instrument utilising inertial sensors for the assessment of upper limb movement during Neurorehabilitation. PhD student writing thesis; Ideas Factory Grant from University of Kent to develop the clinical system; clinical evaluation of system on neurorehabilitation patients; two papers in international conferences.

In addition, through the University of Kent research link, the Department is now involved in three EU funded projects in rehabilitation technology applications:

1. The Development of an Intelligent and Autonomous Powered Wheelchair [SYSIASS] - Interreg IVA, 2 Seas <http://www.sysiass.eu/>. Preliminary clinical evaluation of an intelligent powered chair in France; development of an Intelligent powered wheelchair for clinical Evaluation at EKHUFT; two papers at international conferences; project presence and presentation at Interreg 2 Seas annual Event [SeaMe.tv](http://SeaMe.tv).
2. COALAS project [COgnitive Assisted Living Ambient System]: EU Interreg IVA Channel project. New project with UK and French Partners <http://www.coalas-project.eu/>. Publication accepted for conference in Sept 2013.
3. INTERREG IVB North West Europe: Health cluster for capitalising integrated, innovative and transferable health care models and solutions for healthy ageing and independent living in NWE and beyond. Proposal accepted March 2013.

## Other research output

Guness SP, Deravi F., Sirlantzis K., Pepper M., Sakel M., (2012). Evaluation of Vision-Based Head-Trackers for Assistive Devices. 34th Annual International IEEE EMBS Conference, August 28 - September 1, 2012, Hilton Bayfront Hotel in San Diego, California, USA.

Sakel M., Deravi F., Sirlantzis K., Pepper M., Guness SP (2012). Developing a vision based gesture recognition system to control assistive technology in neuro-disability. 2012 American Congress of Rehabilitation Medicine, October 09 - October 13, 2012, Vancouver, Canada.

L. Bai, M.G. Pepper, Y. Yan, S.K. Spurgeon, M. Sakel, "Application of Low Cost Inertial Sensors to Human Motion Analysis," Proceedings of IEEE International Instrumentation and Measurement Technology Conference (I2MTC 2012), pp. 1280-1285, Graz, Austria, 13-16th May 2012.

L. Bai, M.G. Pepper, Y. Yan, S.K. Spurgeon, M. Sakel 'Application of Inertial Sensors to Monitoring Rehabilitation Training on Patients with Neurological Disorders', 26th November, 2012, Recent Advances in Assistive Technology and Engineering, RAatE 2012, Coventry, UK..

Ben McElroy B, Gillham M, Howells W, Kelly S, Spurgeon S and Pepper M: Real-time Sensor Data for Efficient Localisation Employing a Weightless neural system: 1st International Conference on Systems and Computer Science, Lille, France, August 29-31, 2012

Annemarie Kokosy A, Floquet T, Howells g, Hu H, Pepper M, Sakel M and Donzé C. SYSIASS – an intelligent powered wheelchair: 1st International Conference on Systems and Computer Science, Lille, France, August 29-31, 2012

#### **Grant awards**

EU Interreg IVA Channel. 118.590 Euros, COALAS [COgnitive Assisted Living Ambient System]: 01/12/2012 – 30/06/2015.

Ideas Factory – University of Kent – Evaluation of a low cost Inertial Sensor System for Measuring Upper Limb Motion during neurorehabilitation £9600

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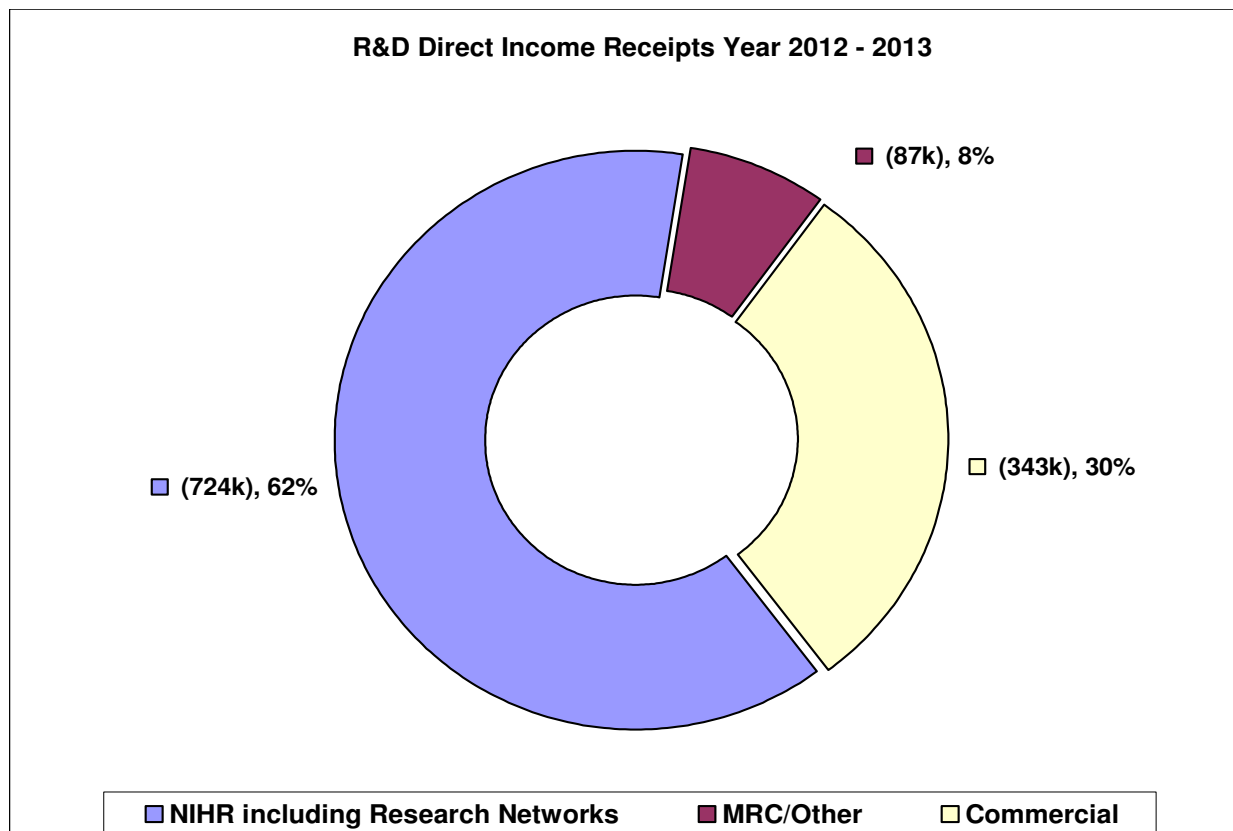
## Appendix 1: Financial report: April 2012 to March 2013

The schedule below shows the outturn allocations by funding stream that supports Research & Development across EKHUFT.

Research and Development					£000's
Summary Financial Statement for Year to Date to March 2013					
Source of Funding for Year 2012 - 2013	Pay	Non Pay	Other	Host Fees	Total
<b>Comprehensive Local Research Network (CLRN)</b>					
- Mgt	49			4	53
- Allied Health Professional	10			-	10
- Nursing & Midwifery	280			23	303
- Clinical Study Support/ Research Facilitation	80			6	86
- Pharmacy	116			12	129
- Principal Investigator	9			-	9
					-
- Non pay including Travel etc		8			8
- Support Service Departments		38			38
- Estate Refurbishment		16			16
- Equipment		5			5
sub-total CLRN	544	67	-	45	656
<b>EKHUFT Funding</b>	133			12	145
<b>Kent and Medway Cancer Research Network (KMCRN)</b>		10	10	7	28
<b>South-East Stroke Research Network (SES RN)</b>	57			3	60
<b>Department of Health (NIHR)</b>					
- Research Capability Funding (RCF)			100		100
- Stroke (EEG Study)			64		64
- Palliative Care (Hospices at Home)			50		50
- Occupational Therapy (Postural Care)			100		100
- Physiotherapy (Clinical Lectureships)			84		84
sub-total Department of Health (NIHR)	-	-	397	-	397
<b>Commercial</b>			166		166
<b>Other</b>					
- MRC/Charities/Other Research Bodies			76		76
- Investment Scheme			113		113
- PCT/Other	38				38
sub-total Other	38	-	188	-	226
<b>Total</b>	<b>772</b>	<b>77</b>	<b>762</b>	<b>67</b>	<b>1,678</b>

The allocations are made up of a combination of Direct Receipts and carry-forward accruals from the previous financial year. Funding for projects can often cover more than one financial year therefore any unused allocation, depending on source and prior agreement will be carried forward to maintain continuity of the funding for the lifetime of the projects.

Actual income received on behalf of Research & Development during Year 2012 – 2013 totalled @ £1154k. The pie chart below categorises the main sources of funding. NIHR supported research attracted the largest portion of funding @ £724k or 62% of the overall total.

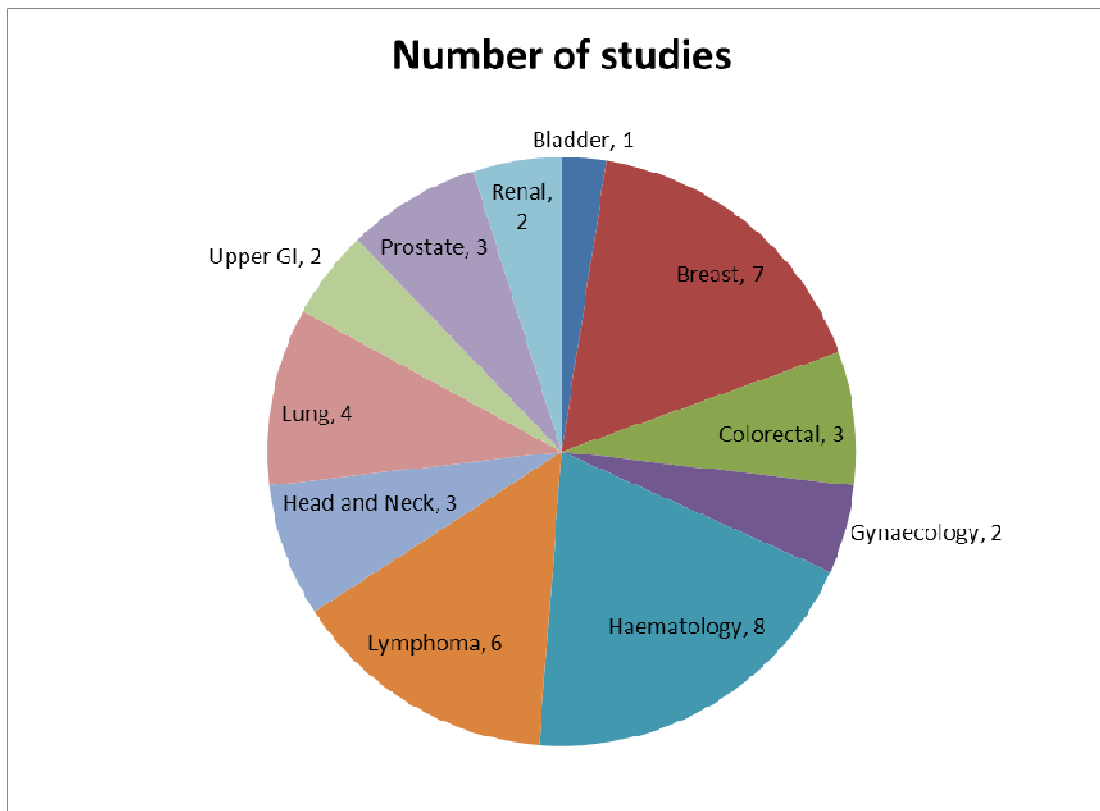


The total carry-forward position for the Directorate was £1201k at outturn comprising a variety of different funding sources.

## Appendix 2: Cancer Research in East Kent

Cancer research activity in East Kent Hospitals has excelled in 2012/13. Clinical trials are now available locally for the majority of tumour types and referral pathways have been agreed across Trusts in Kent and Medway to maximise treatment opportunities for cancer patients.

In 2012/13, the cancer portfolio was made up of 43 studies in eleven tumour groups (**Figure 1**).



**Figure 1**

Radiotherapy is an important treatment option and this area of the portfolio has expanded in year with four new studies opening. The surgical portfolio has also maintained momentum, with three new studies opening in year.

The availability of new treatments has been maximised by dovetailing the academic portfolio with Industry sponsored studies. The teams in East Kent have been particularly successful in securing five new Industry studies in year (three in Haematology and two in Breast) through a competitive national bidding process.

The emphasis continues to be on the delivery of treatment and in 2012/13 a record number of patients chose to take part in cancer treatment trials for both solid and Haematological malignancies (**Figure 2**).

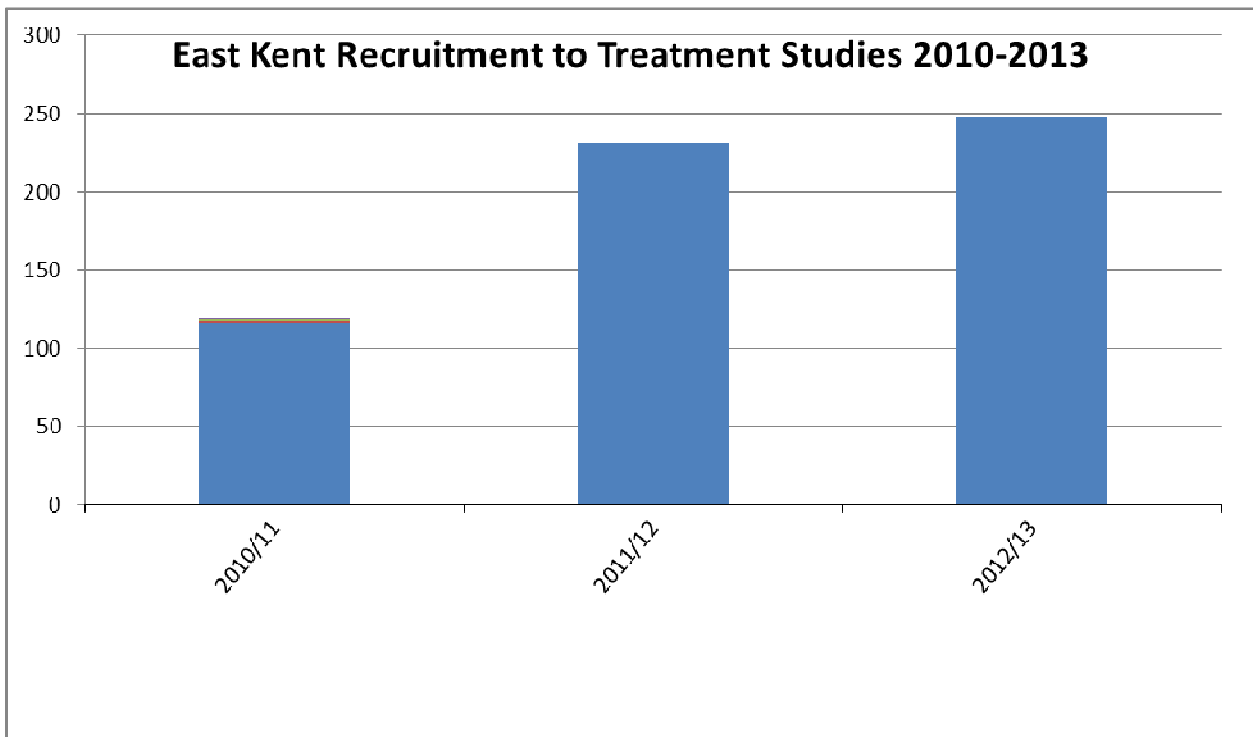


Figure 2

## Appendix 3: Stroke Research in East Kent

### Research Staff

Stroke research leads at EKHUFT:

Hospital name	Centre Lead	Research Nurse
Kent and Canterbury	Dr I Burger	Audrey Thomson
William Harvey	Dr D Hargroves	Linda Cowie
QEQM	Dr G Gunathilagan	Sally Jones

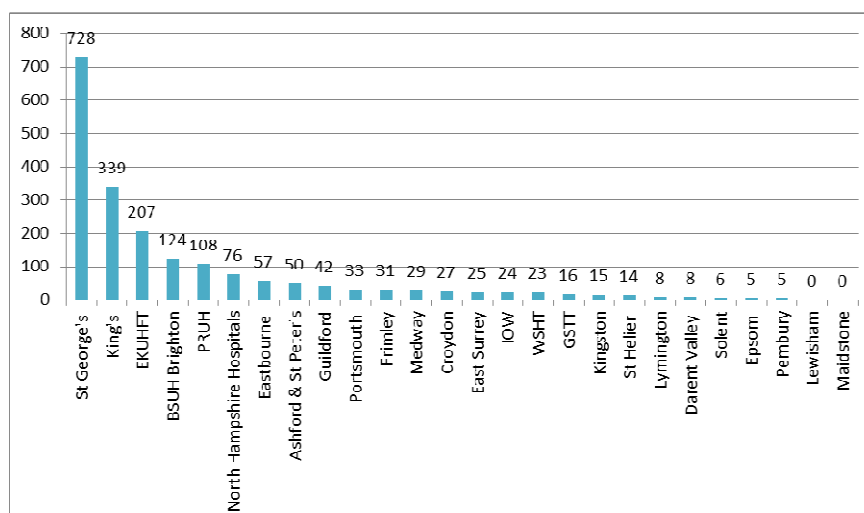
### Recruitment

EKHUFT is one of the 28 acute trusts that constitute the South East Stroke Research Network. This network was the highest recruiting stroke network in the country in 2012-13:

Stroke	Total
England	3,121
South East SRN	3,121
Peninsula SRN	2,790
North West SRN	2,384
Thames SRN	2,377
West Midlands SRN	2,035
Trent SRN	1,933
North East SRN	1,023
Yorkshire SRN	978
<b>England Total</b>	<b>16,642</b>

**Table 1.** 2012-13 data by network

The SESRN covers four CLRNs: South London; Kent & Medway; Surrey & Sussex; Hampshire & Isle of Wight. Sites in Kent and Medway recruited a total of 249 stroke patients in 2012-13. The majority of these (207, 83%) were from research activity at EKHFT, this put the trust in third place for recruitment in the South East network behind the two sites, King's & St George's, both sites which receive additional funding to support their hyperacute stroke research status :

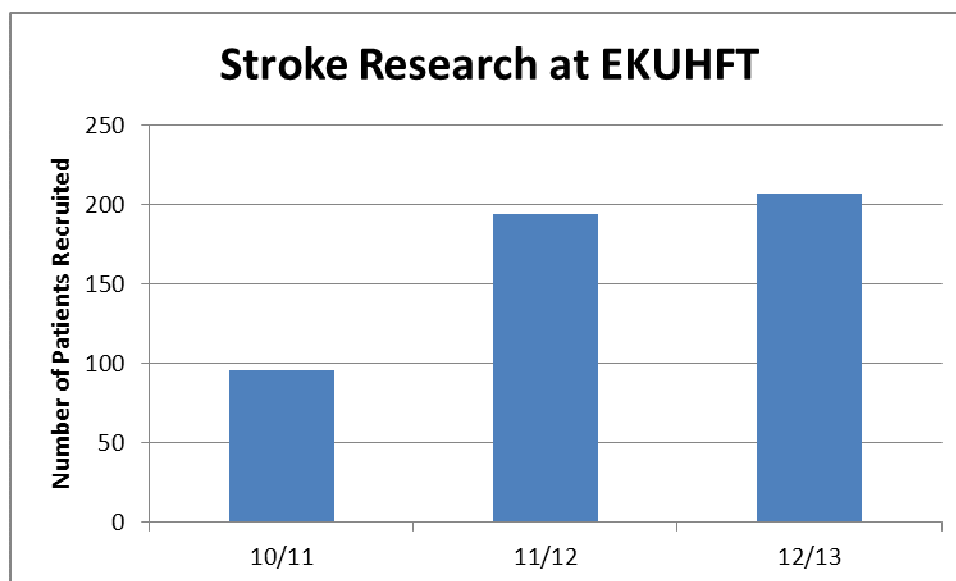


**Figure 1.** 2012-13 recruitment by site (SESRN data)

EKHUFT Research & Development Annual Report 2012-13

Author: Dr Tim Doulton, Director of Research & Development

Stroke recruitment at EKHFT has increased each year:



**Figure 2.** Trend in recruitment activity

A range of studies were active at the trust during the period and over 75% of recruitment was to randomised controlled trials. Active studies cover acute, rehabilitation, & translational research:

Study	QEQM	WHH	K&C	Total
ACST-2	0	0	3	3
AVERT	6	0	0	6
BMET	7	0	4	11
CADISS	0	0	1	1
CLOTS 3	0	0	3	3
CROMIS 2	8	7	20	35
DNA Lacunar	1	0	0	1
IRIS	0	4	0	4
PODCAST	1	0	0	1
SOS	28	23	31	82
Stroke INF	11	14	10	35
TARDIS	10	8	0	18
Vestibular Stimulation	0	5	2	7
<b>Total</b>	<b>72</b>	<b>61</b>	<b>74</b>	<b>207</b>

**Table 2 recruitment 2012/13 by site and study**

The K&C site was noted for a significant contribution to the ACST-2 trial being the third highest recruiters in the UK and the QEQM site received the SESRN award for recruitment to a highly diverse portfolio.