Addenbrooke's Charitable Trust
Registered charity number: 1048868

Grants Bulletin

Issue 7

Inside this issue:

Welcome to our latest bulletin: Addenbrooke's Charitable Trust (ACT) supports the work of Cambridge University Hospitals NHS Foundation Trust (CUH), which runs Addenbrooke's and the Rosie hospitals. We raise funds for additional and exceptional services, facilities and research.

In addition to raising money for specific appeals, we manage the hospitals' charitable funds. Grants are awarded using a transparent procedure to ensure donations are spent in accordance with supporters' wishes for the greatest benefit of patients, their families and those who support them.

With this bulletin we demonstrate the breadth and value of the initiatives and equipment which kind donors make possible. Our Grants Committee meets every three months and a full list of initiatives supported at the 4 February and 13 May 2015 meetings begins on page 6.

This issue's grants in numbers

- 44 grants were made in total, to the value of £925,296

Of these:

- 17 patient support projects – totalling £170,142
- 6 research projects – totalling £103,492
- 4 research fellowships – totalling £103,347
- 11 pieces of equipment – totalling £358,987
- 3 innovation fund projects – totalling £74,228
- 3 staff development projects – totalling £115,100

ACT-funded research into noise and newborn brain development

Research

Noise and newborn brain development

Background: Babies who are born very early (<26 weeks) are at high risk of lifelong cognitive and neurological impairments. While survival rates have improved, the prevalence of disability remains unchanged.

Regular sleep-wake cycles are essential for brain development but the immature auditory system of these tiny babies cannot easily filter unwanted sounds, which might affect sleep.

The application: Andrea Edwards, a neonatal neurosciences research nurse, is using her fellowship to study the role of noise and newborn brain development, examining how sound affects sleep-wake cycles in preterm infants in the Rosie's neonatal intensive care unit (NICU). The study is observing how babies react to everyday noises in NICU. Small non-invasive sensors are placed on babies' heads that measure changes in brain oxygen levels as well as monitor brain electrical activity. These are then correlated with noise levels inside the incubator and in NICU.

A training package is being produced for NICU staff so they can help babies achieve a better quality sleep, which will ultimately improve their brain development.

Comment from the committee:
"We hope that babies will achieve a better quality sleep which will ultimately improve their health and wellbeing."

Grant applicant:
Andrea Edwards

Amount awarded: £19,754
from ACT's unrestricted funds

Extending our research fellowships programme

Earlier in the year, we were delighted to launch a new stream to our Cambridge Clinical Research Fellowship Programme – this time for nurses, midwives and associated health professionals (AHPs). The scheme provides fellows with short-term support, of one year or less, and access to experienced mentorship. The intention is that fellows use this opportunity as a springboard to secure follow-on and more substantial funding from schemes of national importance.

Nine applications were received in the first round, four of which were approved:

Biljana Brezina

- Antibody depletion by immunoadsorption in systemic lupus Erythematosus

Gillian Gatiss

- The feasibility of using portable calorimetry to assess energy requirements in patients with liver cirrhosis undergoing serial large volume paracentesis

Emily Johnson

- An investigation into the commencement and progression of oral feeding for babies requiring care on a neonatal unit

Andrea Edwards

- Does the acoustic environment in the neonatal intensive care unit adversely impact on newborn cerebral function? (See cover story for more detail on this study)

Growing human pain neurons

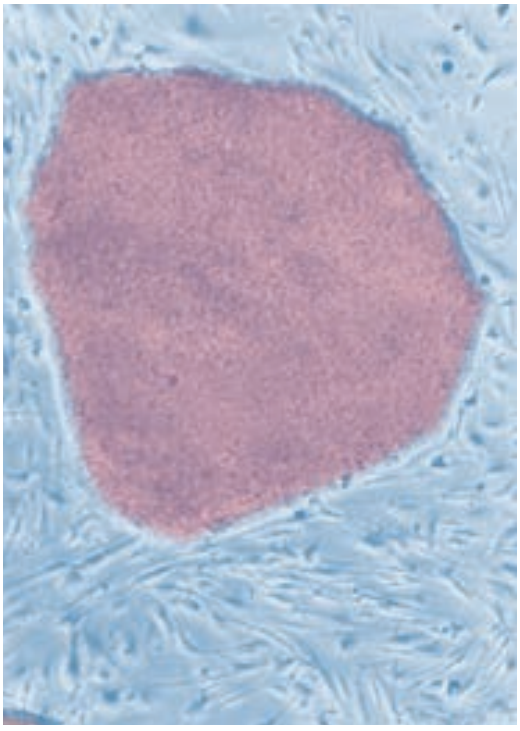
Background: Pain originates in pain neurons when they 'sense' tissue damage. However, some patients experience abnormal pain states, where these neurons do not respond to pain signals and they cannot feel heat for example.

Looking at rare individuals who have never felt pain, the clinical pain team at Addenbrooke's has been examining how pain neurons develop and what happens when they malfunction.

The team has already found mutations in some genes which mean that these neurons do not respond to stimuli that would normally hurt. However, they do not know why this occurs. Greater understanding is being hampered by the fact that pain neurons are highly specialised cells which cannot be extracted from humans for study and are difficult to grow in culture.

The research: A new technology has now emerged where stems cells, extracted from blood or skin samples, can be induced to become pain neurons.

The pain team requested funding for a pilot research study to establish how to obtain stem cells from individuals and grow nerve cells in culture in the laboratory. This will form the ground work that will allow the team to develop the research further and examine how genetic changes cause abnormal pain states.



Comment from the committee: "Researchers are hoping to use the learning from this study to develop new approaches to pain treatment and new analgesics for pain relief."

Research title: To grow human pain neurons for investigating clinical pain states

Grant applicants: Professor Geoff Woods and Professor David Menon

Amount awarded: £20,000 from ACT's unrestricted funds

Screening for oesophageal and gastric cancers

Background: Oesophageal and gastric cancers have very poor prognosis if not detected at early stage, when curative treatment is still an option.

In the UK, periodic camera tests of the oesophagus (endoscopy) are recommended for patients who have been diagnosed with a precursor condition called Barrett's oesophagus.

Cambridge researchers have developed a test called 'Cytosponge' (a sponge on a string that is swallowed and collects cells from the oesophagus for analysis as it is retracted) to screen patients and reduce the number requiring endoscopy. However, a similar test for surveillance of the stomach is not currently available in Europe. In Asia, a simple blood test is applied to define patients at high risk for stomach cancer who should undergo endoscopy of the stomach.

The research: The aim of this research is to assess the feasibility and efficacy of the combination of both tests (the Cytosponge and the blood test) in the primary care setting to identify patients at risk of developing gastric or oesophageal cancer.

The study will use blood samples already collected from patients with dyspepsia (impaired digestion) and reflux disease and have already undergone the Cytosponge test.

The researchers will analyse how the results of the blood test relate to the findings obtained with Cytosponge and assess the amount of further information gained by this additional test. The study will also determine whether looking for a specific protein (called trefoil factor 3: TFF3) in the blood may be more useful to identify patients at risk of the most severe forms of gastric cancer.

Research title: Serological gastric cancer risk assessment in patients with dyspeptic symptoms or gastro-oesophageal reflux disease

Grant applicant: Ahmad Miremadi, Jan Bornschein

Amount awarded: £15,050 from ACT's cancer research fund

The difference ACT's funding makes

Scientists create 'mini bile ducts' to discover new drugs that could prevent the need for liver transplantation

Bile ducts act as the liver's waste disposal system, and malfunctioning bile ducts are behind a third of adult and 70 per cent of children's liver transplantations. Cystic fibrosis is one of the most common inherited disorders that can damage bile ducts.

In 2012, we awarded a Cambridge Clinical Research Fellowship to Dr Fotios Sampaziotis. In collaboration with other researchers, he went on to create, for the first time, fully functional three-dimensional bile ducts in the lab using stem cells. These mini bile ducts can be used as a system to test and develop new drugs for biliary disease. It was discovered that VX809 – an experimental compound originally designed to treat the effects of cystic fibrosis in the lungs – could be the first treatment to prevent the damage cystic fibrosis causes to the liver and bile duct. The research also showed that the bile duct replicas grown in the lab can be used to model diseases such as Alagille Syndrome (a genetic disorder that can affect the liver, heart, and other parts of the body) or even validate new drugs in disorders like polycystic liver disease.

The study was published in Nature Biotechnology in July 2015. Dr Sampaziotis said: "identifying new experimental drugs could have huge implications but such treatments would need to be tested in clinical trials before being recommended to patients."

Dr Paul Colville-Nash, programme manager for stem cell, developmental biology and regenerative medicine at the MRC, said: "This work could also one day open the way to researchers building new bile ducts that will replace damaged segments of the liver."

Equipment grants

3D motion capture

Background: Ex-service personnel with prosthetic limbs can now receive improved follow-up care and support thanks to a motion capture laboratory at Addenbrooke's funded by the Ministry of Defence. Through reflective markers placed on patients' skin and monitored through four 3D motion capture cameras, the new gait analysis service allows staff to assess whether the force involved in walking, for example, is appropriate or potentially causing harm.

The application: The clinical engineering team asked ACT to fund an additional six cameras so this new service can be extended to benefit other patients with gait difficulties including children with cerebral palsy, patients with traumatic brain injury or those suffering from a stroke.

Comment from the committee: "There are no similar facilities for NHS patients in the East of England and the benefit of this service will be considerable, including fewer emergency referrals, fewer equipment modifications and a reduced need for medical and surgical interventions."

Grant applicant: Dr Thomas Stone

Amount awarded: £18,822 from ACT's unrestricted funds

Portable ultrasound machine for thoracic procedures

Background: In 2008, the National Patient Safety Agency highlighted the excess deaths associated with the unguided insertion of chest drains and recommended that they should only be inserted under ultrasound guidance. The British Thoracic Society has subsequently issued guidelines extending this recommendation to include pleural aspiration, a procedure that involves a small needle or tube being inserted in the space between the lung and chest wall to remove fluid that has built up around the lung.

The application: The respiratory team asked ACT for funds to purchase a portable ultrasound machine so scans can be performed by the bedside. This will make it easier to identify patients needing this procedure, and avoid patients having to unnecessarily visit other departments for scans. It is hoped that the new equipment will result in patients receiving treatment faster.

Comment from the committee: "We are supportive of this application which will improve the patient experience and streamline services."

Grant applicant: Dr Pasupathy Sivasothy

Amount awarded: £24,000 from ACT's unrestricted funds and £4,000 from the pleural development fund

Dance workshops helping to prevent falls

Patient support grants

Preventing falls in hospital

Background: Patients who have an extended stay in hospital can become lethargic which can impact on their mental and physical health. It can delay their return home and compound their listlessness.

The application: We received an application from the hospital falls prevention co-ordinator to run a series of 50 dance workshops for inpatients at risk of falling. The two-hour sessions are for patients of all abilities, regardless of their mobility levels. Some have very limited movement and others have dementia, but all patients can take part at their own pace. These sociable and engaging workshops are designed to enhance patients' wellbeing, positively impacting on their recovery times so they can return home more quickly.

As part of the grant application, funds were requested to independently evaluate the programme to demonstrate its impact on falls prevention and reduction.

Comment from the committee: "We are confident that this will result in an improved patient experience and have a positive impact on patient health and wellbeing."

Grant applicant: Debra Quartermaine

Amount awarded: £9,000 from ACT's unrestricted funds

Hospital brain injury co-ordinator

Background: Headway Cambridgeshire (HWC) has funded a Hospital Brain Injury Co-ordinator at Addenbrooke's since 2003, supporting families and patients affected by traumatic brain injury. This service has been in great demand since Addenbrooke's was declared as the major trauma centre for the East of England.

The application: HWC requested funding from ACT for a second member of staff to be based at the hospital; this time focusing on other brain injuries, not just those caused by trauma. While the ways in which injuries are caused may differ, the acute and long-lasting social, physiological and emotional effects of the individual and families are similar.

The new role will bring important benefits for patients, their families and the hospital by providing emotional support, assistance with co-ordination between families and clinicians and supporting a seamless discharge into community services.

Comment from the committee: "This project will provide new and additional services to disadvantaged members of the public that the hospital has no obligation or sufficient resources to provide."

Grant applicant: Mary Goode

Amount awarded: £18,046 from ACT's unrestricted funds

A warm thank you

In February a presentation was made to Mr Ralph Robinson (left) on his retirement from the grants committee. Tribute was paid to his commitment and loyal support both as trustee of the Fund for Addenbrooke's (between 1999 and 2005) and as a long-standing member of the Grants Committee since its inception in 2005.

The February meeting was also Dr Peter Gough's last Grants Committee both as committee chair (having held the post since April 2009) and trustee of ACT. Stephen Davies (ACT Chief Executive) thanked Dr Gough for his thoughtful chairmanship over the past six years.

All grants awarded this period

Grant title and amount awarded	How this benefits patients
Serological gastric cancer risk assessment in patients with dyspeptic symptoms or gastro-oesophageal reflux disease Amount awarded: £15,050	Researchers aim to develop a relatively non-invasive, cost-effective test useful in the primary care setting to identify patients at risk of developing gastric cancer.
Quantitative proteomic analysis of leukaemia stem cells Amount awarded: £9,900	Acute myeloid leukaemia (AML) is the most common acute blood cancer in adults and is fatal in over 70% of patients. Researchers hope to gain a greater understanding of the biology of leukaemia stem cells and identify ways of eradicating them, which is fundamental to improving the poor prognosis of AML.
Role of hypoxia-induced stress on uterine natural killer cells and reproductive success in murine pregnancy Amount awarded: £18,742	Uterine white blood cells are important in regulating placental blood vessels. This research will study the function of uterine white blood cells under conditions of oxidative stress (as which might occur prior to pre-eclampsia) and how this relates to development of the placenta and pregnancy outcomes.
Utility of MRI in the assessment of carotid atheroma inflammation – a pilot study Amount awarded: £19,800	Narrowing of the main arteries in the neck is caused by the presence of fatty deposits in the blood vessel wall. Fatty deposits with increased levels of inflammatory blood cells (called macrophages) are risk areas for stroke or heart attack. The aim of this study is to assess the value of a new method (a combination of an MRI scan and a special dye) in identifying high-risk areas in the vessel wall.
Hospital Brain Injury Co-ordinator Amount awarded: £18,046	The postholder will provide emotional support to patients and families with brain injuries.
Additional cameras for 3D motion capture (gait analysis) system Amount awarded: £18,822	Patients with gait difficulties will need fewer equipment modifications, fewer medical and surgical interventions and will be less likely to undergo emergency referrals.
Meeting nutritional needs of liver patients through provision of late evening snack Amount awarded: £2,808	This six-month study is examining whether an additional late evening snack helps patients with liver problems at risk of malnutrition maintain their fat and protein stores.

Grant title and amount awarded	How this benefits patients
Portable ultrasound machine for thoracic procedures Amount awarded: £28,000	Patients suffering from respiratory diseases will receive treatment faster with this new equipment.
Upgrade of the pool room and birthing environment on the delivery unit at the Rosie Hospital Amount awarded: £37,198	Offering women the facility of using water as an aid to normalising their labour and birth is well-evidenced. The upgrade of the delivery unit's pool room facilities, fixtures and fittings will improve dignity, privacy and outcomes for women with complicated pregnancies.
Storz fibre-optic stack and bronchoscope Amount awarded: £35,520	This equipment allows staff to capture images and video clips of patients' bronchi (the air passages to the lungs) to share findings with relevant specialists – preventing the need for patients having to undergo repeat bronchoscopies.
To grow human pain neurons for investigating clinical pain states Amount awarded: £20,000	Researchers will use the learning from this study to develop new approaches to pain treatment and new analgesics for pain relief.
Epigenetics in paediatric IBD – investigating DNA methylation in the intestinal epithelium Amount awarded: £20,000	Inflammatory bowel disease in children is increasing. This research aims to find out more about what causes IBD and better understand why there is such a large variation in symptoms and progression of the disease.
Dance and falls prevention Amount awarded: £9,000	This programme will result in an improved patient experience and have a positive impact on patient health and wellbeing.
Mindfulness pilot Amount awarded: £1,800	This pilot in two wards (neurosciences and paediatrics) will help determine whether this type of initiative can assist clinical staff to improve their individual and team health and wellbeing and, in so doing, increase the quality of patient care.
Microsurgery Institute Amount awarded: £28,146	This training programme will deliver improved technical skills that are transferable to direct patient care in the surgical operating theatre.
Petals counselling service Amount awarded: £20,000	Petals provides counselling for people affected by stillbirth, miscarriage and trauma relating to pregnancy loss and birth. This grant funds 500 sessions.

Grant title and amount awarded	How this benefits patients
Antibody depletion by immunoadsorption in systemic lupus erythematosus Amount awarded: £42,572	Systemic Lupus Erythematosus (SLE) is an illness of the immune system. Findings from this feasibility study could provide a rationale for how a life-saving but invasive treatment called immunoadsorption works in SLE.
Does the acoustic environment on the NICU adversely impact on newborn cerebral function? Amount awarded: £19,754	As a result of this study, it is hoped that babies will achieve a better quality sleep which will ultimately improve their health and wellbeing.
The feasibility of using portable calorimetry to assess energy requirements in patients with liver cirrhosis undergoing serial large volume paracentesis Amount awarded: £15,480	This study will help staff to better understand patients' energy needs, keeping them better nourished and able to fight infections, develop less fluid and live longer.
An investigation into the commencement and progression of oral feeding for babies requiring care on a neonatal unit Amount awarded: £25,541	Researchers will review literature concerning initiating and progressing oral feeding for preterm babies with actual practice and examine thoughts, beliefs and education around infant feeding by parents and staff. If the research identifies gaps in evidence base, knowledge and/or barriers to practice improvement, suggestions will be made for supportive interventions.
Patient amenities projects Amount awarded: £13,270	The patient amenities panel awards grants of up to £2,000 that support enhancements to the patient experience. eleven projects were funded in this period.
Conversion to create an ultrasound scanning room in the Cambridge Breast Unit Amount awarded: £38,974	Now dedicated space has been prepared to house the new ultrasound (funded by last year's Addenbrooke's Breast Cancer Appeal) patients can be seen more quickly, using the latest technology, so they can receive accurate diagnoses and prompt treatment.
UroNav Fusion Biopsy System and DynaCAD workstations Amount awarded: £79,000	With this equipment, MRI radiologists will be able to offer all patients a tailored assessment of their prostate cancer which may make biopsies unnecessary or minimise the number needed to achieve a confident diagnosis.

Making a difference for patients by supporting future initiatives

If you have been inspired by the range of equipment, research and patient support projects highlighted in this edition of the Grants Bulletin and might be interested in supporting future programmes, please do get in touch with the ACT team.

Whether you have a particular area of interest or would like your contribution to be directed wherever the need is greatest, then the team would be very happy to speak to you about the initiatives that currently need support.

Thank you. You can make a difference.

Grant title and amount awarded	How this benefits patients
KMAT TRENION 3D HD Video System and Stereo Splitter Amount awarded: £35,893	This system facilitates and encourages closer supervision of trainees during operations. Reviewing the operation after surgery enables both trainee and surgeon to review what went well and the improvements needed. The footage can also be used to produce high quality teaching material to maximise the efficiency of neurosurgical training.
Iscus Flex Microdialysis Analyser Amount awarded: £30,943	This machine is used in the clinical management of patients with traumatic brain or neurological injuries on the neuro critical care unit as well as supporting research. It enables staff to monitor three patients at one time, allowing further monitoring of patients requiring microdialysis.
S6 Portable machine and 2 x EchoPAC PC BT13 software Amount awarded: £48,732	This portable machine delivers high-quality imaging in restricted spaces such as wards and intensive care areas, meaning that portable echoes and diagnostic testing can be carried out more efficiently across the hospital.
Transitional care ward equipment Amount awarded: £43,103	The Charles Wolfson Ward is a key stepping-stone from hospital to home to ensure poorly babies receive the right kind of medical care, in a loving home-from-home environment.
Improving quality of care for children with Inflammatory Bowel Disease (IBD) – using Epic to join an international quality improvement (QI) network Amount awarded: £69,820 (spread over three years)	The introduction of the new eHospital IT system EPIC provides a unique opportunity to join an established international care network (ImproveCareNow), which has been shown to significantly improve the quality of care, clinical outcomes and cost-effectiveness in children with IBD.
Developing a safer and more accurate device for biopsies of suspected prostate cancer: CAMPROBE Amount awarded: £29,700	This study aims to assess patient acceptance, rates of complications and side-effects of prostate biopsy using the CAMPROBE (Cambridge Prostate Biopsy Device). If successful it will justify a larger study to consider CAMPROBE as a safer and more accurate alternative for patients undergoing standard biopsy procedures.

The grants process

The Grants Committee advises ACT's trustees in setting their grant-making strategy and priorities. Applications are received via the following committees which review each application and make recommendations to the Grants Committee for ratification.

Some grants are made from designated or restricted funds, where supporters have stipulated how they would like their donations to be spent. Other grants are made from unrestricted funds, which are vitally important because they give ACT trustees the flexibility to meet patients' needs as and when they arise across the hospitals.

As unrestricted funds are limited, ACT is striving to encourage more supporters to give unrestricted donations, so more projects like those listed in this bulletin can be funded.

Charitable funding is allocated to projects and initiatives over and above what the NHS would normally finance. It can, however, be used for routine refurbishment or to meet statutory NHS requirements if it can be shown that there is substantial benefit, such as accelerating advances in medical care or increasing the quality of service provision over and above that possible through NHS funding alone.

Grant title and amount awarded	How this benefits patients
Staff accommodation welfare support programme Amount awarded: £85,154 (spread over two years)	This new project is helping hospital staff find suitable housing, boosting morale and assisting those 'returning to work'.
Medical 3D printing service (grant extension) Amount awarded: £27,678	With this 3D printer, funded with thanks to the Alborada Trust, clinicians can now be actively involved in the 3D design process, ensuring the resulting models fully meet each individual patient's requirements.

The grant giving committees

Committee	Chair	Frequency	Meeting Date	Application notes
Research advisory committee	Dr John Bradley	Four times a year	13/1/2016	A maximum of six applications will be considered. These will be processed in the order received. There are no fixed application deadlines.
Professional advisory committee (for non-research applications)	Dr Rob Ross Russell	Four times a year	14 /1/2016	Application deadline: 21/1/2015
Innovation fund	Colin Weston	Twice a year	18/01/016	Application deadline: 8/1/2016
Patient amenities fund	Ann-Marie Ingle	Twice a year	02/12/2015	Application deadline: 20/11/2015

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