

Grants Bulletin

Issue 8

Inside this issue:

Project highlights.....1
 The difference ACT funding makes.....7
 All grants awarded this period.....8
 The grants process..... 13

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 22 July and 4 November 2015 meetings begins on page 8.

This issue's grants in numbers

66 grants were made in total, to the value of £1,610,017:

Of these:

- Patients and families - 29 projects totalling £206,247
- Clinical research - 14 projects totalling £488,145
- Cutting-edge technology - 13 projects totalling £445,643
- Healing spaces - 2 projects totalling £48,851
- Developing staff - 8 projects totalling £421,131



Beads of Courage

Project highlights

Patients and their families

Beads of Courage

Background: Having a baby on the neonatal intensive care unit (NICU) can be a difficult time for any family, with an extensive stay in hospital. Treatments can include respiratory support, blood transfusions and artificial feeding, to name but a few.

Application: Lisa Campbell, play specialist on NICU requested funds to start the Beads of Courage programme. The scheme was originally designed for children in paediatric oncology, but the Rosie has become the first hospital in the UK to roll out Beads of Courage for children being treated on NICU.

Through the use of beads, families can create a visual, tactile journey of their baby's NICU journey. To start, parents have a choice of a

special bag to keep their beads in and are given the NICU admission 'turtle bead', along with beads which spell out their baby's name. All the beads have different meanings, yellow – overnight stay, red – blood transfusion, pink – respiratory support, etc. Beads are given on a daily basis depending on what the baby has gone through that day. It is then up to the parents to thread the beads in any way they like, allowing them to take time out from the stressful environment.

Continued overleaf

Our five impact areas

Regular Grants Bulletin readers will notice that this edition orders projects under new section headings. This is to help articulate how the breadth of initiatives we fund makes a difference for patients within five key areas of impact.

- Patients and their families
- Clinical research
- State-of-the-art technology
- Healing spaces
- Developing hospital staff

Comment from the committee: "Evaluation of this programme elsewhere indicates that it can be a positive coping strategy for parents."

Grant applicant: Lisa Campbell

Amount awarded: £2,000 from ACT's patient amenities fund

"The beads gave us something else to focus on when everything around us seemed out of our control. It is a visual guide into how busy a day was."



Critical care response trolley

Background: The Rapid Response Team uses a rapid response trolley to provide critical care throughout the hospital. But the trolley, which is essential in transporting equipment and consumables to patients, is not designed for the task. This risks damage to the equipment and injury to staff and patients. It is also inefficient when staff are searching for critical consumables, causing delays in care in inherently critical situations.

There is currently no commercially-available solution to this problem.

The application: The grant applicants applied for funds to develop a custom-made trolley sympathetic to the demands of the team. They

will create and maintain a full technical file to ensure the final device meets all relevant regulatory requirements to ensure safe adoption within the hospital.

All the design work will be undertaken under the quality assured design process within the Clinical Engineering Department.

Comment from the committee: "This trolley will enable faster delivery of care and reduce opportunities for error."

Grants applicant: Vilas Navapurkar

Amount awarded: £18,585 from ACT's Innovation Fund

Clinical research

Supporting research into Parkinson's

We held a call for proposals last year, inviting researchers to submit new ideas relating to research into Parkinson's.

Following a rigorous review process, four projects were selected for funding (totalling £324,540), representing a substantial body and broad range of research. These spanned from better understanding the causes of Parkinson's and using this knowledge to help create new treatments, how symptoms relate to the biological changes that take place, why some patients develop dementia more quickly than others and new, cost-effective ways to differentiate Parkinson's disease-related dementia from other dementias.

We are grateful to patients and families for their generous donations and gifts in Wills which made this possible.

Dr Caroline Williams-Gray's research examines whether the immune system has a part to play in the progression of the disease.

One person in every 500 has Parkinson's, which equates to around 127,000 people in the UK. There is currently no cure and the symptoms and how quickly they progress are different for everyone. As Dr Williams-Gray explains: "If we look at people with Parkinson's who have been diagnosed at the same time and compare them 10 years later, they will have developed quite different symptoms at different rates. For example, some individuals have problems restricted to issues with movement control

which can be well-managed with medication. However, others will develop significant memory and balance problems at an early stage in their disease which are much more difficult to treat."

"If we can establish that the immune system contributes to how quickly Parkinson's progresses, it will ultimately lead to new ways of treating the disease."



Dr Caroline Williams-Gray

Predicting multiple organ failure

Background: Anti-neutrophil cytoplasm antibody (ANCA)-associated vasculitis (AAV) is a severe auto-immune disease that results in multiple organ failure. Current immunosuppression treatment is effective and has changed AAV from a fatal to a chronic disease.

However, to avoid severe side-effects, treatment doses have to be reduced over time, often resulting in disease relapse and organ damage. Relapses are common, although difficult to predict, occurring in more than 50% of patients within five years of remission.

The research: The researchers are looking to develop a blood test that will allow accurate and early detection of AAV relapse. They propose a study of blood samples from patients with AAV, using a new method that

measures all the proteins present in a sample, in a single analysis. This will allow them to test many hundreds of proteins to see if they can be used to detect relapse. Ultimately this could lead to the personalisation of treatments to prevent future relapses.

Comment from the committee: "This study builds on the established track record of the vasculitis research team in Cambridge and could lead to changes in clinical practice."

Research title: Quantitative proteomics by SWATH MS identifies the roles of complement, cytokines and chemokines in the pathogenesis of pr3-anca positive vasculitis

Grant applicant: Dr Rachel Jones

Amount awarded: £18,935 from ACT's unrestricted funds

How does lipodystrophy affect body image?

Background: Healthy women naturally have more body fat than men so tend to suffer more significant metabolic problems as a consequence of lipodystrophy. Physical appearance can also be significantly altered, for example women with lipodystrophy may have a masculine appearance (lack of fat means a less feminine body shape) and experience excess hair growth on the face and body. Some patients report this to be more distressing than the metabolic effects.

Patients often suffer from a negative body image which can have harmful psychosocial consequences including depression, disordered eating and social anxiety. These problems can then impair their compliance with key dietary interventions and medical therapies.

Evidence of how the condition affects patients' body image is currently very limited, making it difficult to ensure that clinical support is sufficiently meeting patients' needs.

The research: Researchers from the Severe Insulin Resistance Service, based in the

Addenbrooke's Treatment Centre, applied for a grant to plug that knowledge gap.

Patients will be invited to take part in in-depth, semi-structured interviews, exploring how lipodystrophy impacts on their lives and their body image. The researchers hope that information gathered from the study will help them improve clinical support services and the data collected will inform a business case for psychological support within the clinic.

Comment from the committee: "This is a well-designed study which should form the basis for future in-depth research."

Research title: A quantitative study to explore the views of those living with lipodystrophy and what implication this has on body image

Grant applicant: Claire Adams

Amount awarded: £2,435 from ACT's unrestricted research funds

Growing new organs

Background: Liver disease is a major cause of premature death in the UK, being the fifth 'big killer' after heart disease, cancer, stroke and respiratory disease.

Patients with terminal liver failure can only be saved by receiving a liver transplant, but 20% die on the waiting list owing to a shortage of organs.

Consequently, there is a need for alternative approaches to organ provision, including growing artificial livers in the lab.

The research: The grant applicants explained how organs consist of cells housed in a three-dimensional framework. By removing cells from livers unsuitable for transplantation it may be possible to produce a 'scaffold' which can then be 'seeded' with stem cells with the objective of growing new, working livers.

The applicants propose to explore this concept using an experimental model. After creating a liver scaffold, they then aim to find the best way to first 'seed' the scaffold with cells that will form blood vessels (vital support for regeneration) and then add other stem cells to the vascularised scaffold that will grow into healthy new liver cells.

Comment from the committee: "Tissue regeneration is a logical additional direction of research to complement the established immunological research programme in the department of surgery."

Research title: Towards in-vitro regeneration of whole livers using biological scaffolds and stem cells

Grant applicant: Emmanuel Huguet

Amount awarded: £30,000 from a gift in a Will from Richard Crofts



Emmanuel Huguet

Novel approaches for treating lung cancers

Background: More people die in the UK from lung cancer than from any other type of cancer, and less than half are alive a year after diagnosis.

Mutations in a gene called KRAS are common in lung cancer cells, and the applicants' recent studies suggest that this gene can be an 'Achilles' heel' for such cancers, making them more aggressive, but also more vulnerable to certain drugs.

The research: The researchers plan to use cells derived from patients with lung cancers to identify drugs which could specifically target these cells and interrupt the damage caused by the KRAS gene, in particular the

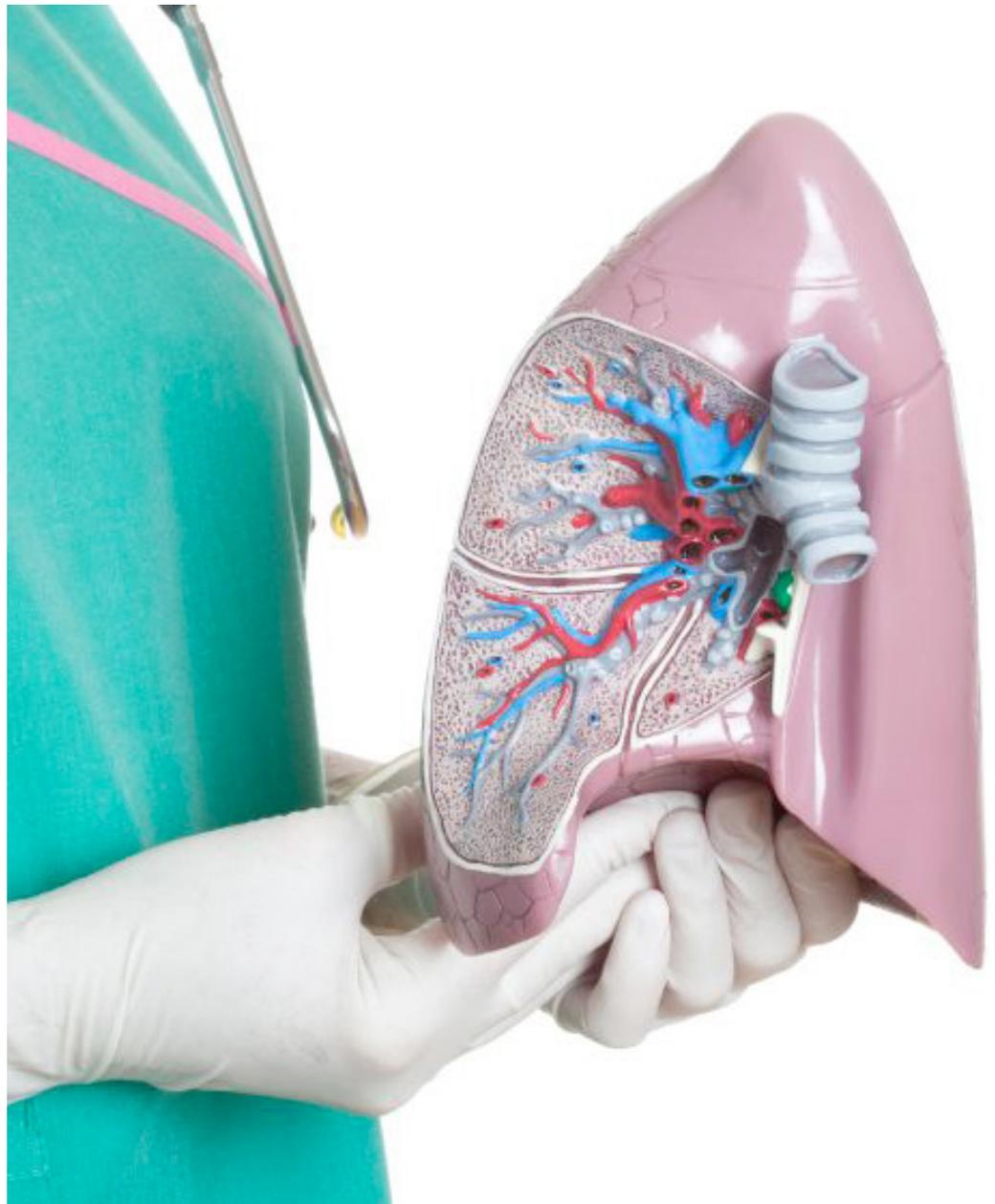
mutated KRAS gene that causes tumours to be more aggressive. The goal is to progress these drugs into clinical trials for patients.

Comment from the committee: "There were over 44,000 new cases of lung cancer in the UK last year, so we are strongly supportive of this study which could improve the outcomes for so many people."

Research title: Developing novel therapeutic approaches for KRAS amplified lung cancers

Grant applicant: Gary Doherty

Amount awarded: £20,000 from ACT's cancer research fund



State-of-the-art technology

Screening for congenital cataracts

Background: Babies are screened for cataracts within three days of birth and at the six week GP check. Severe cataracts require surgical removal by eight weeks of age; if delayed the child will never have good sight in the affected eye. Cataracts affecting both eyes will cause blindness if missed.

The current screening test uses the 'red reflex', the reddish reflection of light from the back of the eye, but the technique is not easy and research indicates that 50% of cataracts are missed. This results in delays in diagnosis and a poorer visual outcome.

The application: Dr Louise Allen has proposed an alternative technique using an infra-red light source and camera which improves reflectivity and should improve the detection of congenital cataracts. Her team has developed a prototype device, comprising an infra-red diode and digital camera, and a grant was requested to fund its development, which would be a precursor to a full clinical trial.



A screenshot of a cataract test using Dr Allen's prototype equipment

Comment from the committee: "If successful, this project could reduce lifelong loss of vision and consequential impact on social support and educational requirements."

Grants applicants: Louise Allen and Ian Hosking

Amount awarded: £25,260 from ACT's Innovation Fund



Healing spaces

Acorn House and Chestnut House

Background: Acorn House and Chestnut House provide free, homely accommodation for families with a child or baby receiving treatment at Addenbrooke's and the Rosie, respectively. These 'Homes from Home' are clean and comfortable, with private bedrooms and communal living areas so families can stay close to their children in hospital, helping to alleviate the emotional and financial strains during these difficult periods.

Across the two houses last year, 776 families were supported, the majority of them from outside the local area.

The application: The cost of running the two houses is almost £140,000 annually. This includes the salary and staffing costs of the two House Managers and two Assistant House Managers. Also included in this are insurance, cost of cleaning materials and repairs, maintenance and service costs. A grant was requested toward running costs.

Comment from the committee: "This service is much appreciated by all who use it."

Grant applicants: The Sick Children's Trust

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

Developing hospital staff

Cambridge Clinical Research Fellowships

ACT's Cambridge Clinical Research Fellowships support promising clinicians who wish to embark on a programme of research training. The scheme sits at the earliest stage in the pipeline of nurturing the next generation of clinical academics by providing short-term support (one year or less) and access to

experienced mentorship and supervision. In this period, eight fellowships were awarded in areas as diverse as osteoarthritis, renal cancer and diabetes. For further information about the eight projects please visit: act4addenbrookes.org.uk/researchfellowships.

The difference ACT funding makes A brighter future for patients needing brain surgery

In the summer of 2014, we launched a campaign to raise £304,369 for a new fluorescence microscope to revolutionise brain surgery for patients with tumours, aneurysms and brain injuries.

On 2 December 2015, the first patient underwent surgery, with surgeons using this new equipment which utilises photo-dynamic imaging. Rikin Trivedi, Consultant Neurosurgeon at Addenbrooke's, describes the difference it makes for patients:

"This piece of cutting-edge equipment helps us deliver life-saving care. The fluorescence capability of the microscope facilitates a level of quality control that helps us to achieve outstanding surgical results for our patients.

We are absolutely delighted to have this second microscope.

In the past, our team which treats patients with aneurysms, and our colleagues who treat patients with brain cancer, could only use the one microscope, in turns. It meant that this precious piece of equipment had to be wheeled between theatres. Not only did this put this delicate machine at risk of damage but it also had an impact on the way procedures could be scheduled. Now, with a second microscope in place, both cancer and aneurysm patients can receive surgery at the same time and unforeseen complications will no longer cause distress to patients waiting for surgery.

Thank you for all the wonderful support from the community that has made this possible."

For more information on this equipment, visit: act4addenbrookes.org.uk/neurosurgery



All grants awarded this period

Grant title and amount awarded	How this benefits patients
<p>Four research studies into Parkinson's</p>	<p>We held a call for proposals last year, inviting researchers to submit new ideas relating to research into Parkinson's. For further information on the research funded visit: www.act4addenbrookes.org.uk/parkinsons</p>
<p>Eight Cambridge Clinical Research Fellowships</p> <p>Amount awarded: £421,131</p>	<p>For further information visit: www.act4addenbrookes.org.uk/researchfellowships</p>
<p>A qualitative study to explore the views of those living with lipodystrophy and what implication this has on body image</p> <p>Amount awarded: £2,435</p>	<p>The information gathered will help improve clinical support services for patients with lipodystrophy.</p>
<p>Quantitative proteomics by SWATH MS identifies the role of complement, cytokines and chemokines in the pathogenesis of pr3-anca positive vasculitis</p> <p>Amount awarded: £18,935</p>	<p>Anti-neutrophil cytoplasm antibody (ANCA)-associated vasculitis (AAV) is a severe auto-immune disease that results in multiple organ failure. The researchers are looking to develop a blood test that will allow early diagnosis of AAV relapse.</p>
<p>Addenbrooke's Bereavement Care Service: can it work elsewhere?</p> <p>Amount awarded: £20,000</p>	<p>The research aims to improve advice for GPs on the best way to support bereaved people.</p>
<p>Clinical validation of non-contrast enhanced magnetic resonance thoracic venography</p> <p>Amount awarded: £12,000</p>	<p>Some patients with damaged veins currently need to be injected with dye to assess the scale of the problem. The researchers have developed an alternative method that needs no injection, avoiding associated risks. This study will compare the new with the current method.</p>
<p>Equipment for biofeedback and posterior tibial nerve stimulation for children with daytime urinary symptoms</p> <p>Amount awarded: £14,180</p>	<p>The paediatric urology team is introducing a new muscle retraining service for children who experience daytime wetting. It is hoped these developments will lead to a significant reduction in the problem.</p>

Grant title and amount awarded	How this benefits patients
<p>Paediatric cardiac scanner</p> <p>Amount awarded: £12,500</p>	<p>With this new equipment it will be possible to scan sick young patients with complex problems on the paediatric ward, rather than taking them elsewhere in the hospital to be seen.</p>
<p>Laughter Specialists</p> <p>Amount awarded: £15,000</p>	<p>This laughter and humour therapy will help improve young patients' wellbeing, especially at times of stress.</p>
<p>Paediatric dental trolley</p> <p>Amount awarded: £2,120</p>	<p>This trolley helps staff to deliver comprehensive dental treatment to children with cleft, who are more susceptible to developing tooth decay.</p>
<p>To improve the only sleep assessment service in the East of England for children with severe illnesses</p> <p>Amount awarded: £10,433</p>	<p>Some children experience severe, sometimes life-threatening sleep problems. To help with diagnosis, ACT funded the Addenbrooke's paediatric sleep service in 2008. Staff have so far run sleep assessment studies on over 1,000 children from the East of England. This new equipment will safeguard and improve the service.</p>
<p>Patient amenities fund projects</p> <p>Amount awarded: £28,428</p>	<p>The patient amenities fund is for applications of less than £2,000 and encourages hospital staff to think about how they could enhance the patient experience in their departments. Twenty one projects were funded in this period. The Beads of Courage programme, featured earlier in this Bulletin, is an example of the projects funded.</p>
<p>Integrating physical and psychological care for patients with long-term physical conditions</p> <p>Amount awarded: £39,500</p>	<p>This is a one-year project to provide cognitive behavioural therapy in the diabetes service with the aim of improving outcomes for patients with long-term conditions.</p>
<p>Novel neonatal cataract screening trial</p> <p>Amount awarded: £25,260</p>	<p>Development of this prototype for cataract screening could reduce lifelong loss of vision.</p>
<p>Gastrointestinal wound healing system</p> <p>Amount awarded: £24,739</p>	<p>Joining tubes in the body is called an anastomosis eg: joining two parts of a bowel following removal of cancerous tissue. This project will finalise the design and create a device for delivering a vacuum-assisted wound closure to help reduce leakage and risk of severe infection, even death.</p>

Grant title and amount awarded	How this benefits patients
<p>Critical care response trolley</p> <p>Amount awarded: £18,585</p>	<p>This trolley will enable the Rapid Response Team to deliver care more quickly, and reduce opportunities for error.</p>
<p>Surgical ambulatory care</p> <p>Amount awarded: £28,851</p>	<p>This project will deliver a new surgical ambulatory care service on one of Division A's wards. The aim is to provide emergency patients with surgical treatment, safely and appropriately, without overnight stay. This will allow patients to return home faster and free up beds for those who need to be admitted as inpatients.</p>
<p>Osteoporosis exercise website and media app</p> <p>Amount awarded: £10,000</p>	<p>The website and app will enable patients with osteoporosis and their clinicians to tailor their care pathway to individual requirements by incorporating a reporting, monitoring and progression system.</p>
<p>Perinatal B850 monitors and accessories</p> <p>Amount awarded: £61,780</p>	<p>These maternal infant care monitors are used for critical care babies who need a ventilator. Observations of these babies need to be recorded at all times; the monitors enable the medical staff to do this.</p>
<p>Purchase and installation of Femtosecond laser</p> <p>Amount awarded: £191,000, with thanks to the Cambridge Eye Trust for their kind donation of £150,000</p>	<p>With this state-of-the-art laser, it will be possible for patients with more complex cases to be managed within the Addenbrooke's ophthalmology service, improving patient care.</p>
<p>Developing novel therapeutic approaches for KRAS amplified lung cancers</p> <p>Amount awarded: £20,000</p>	<p>This research into targeting the KRAS gene could result in novel treatments for lung cancer sufferers.</p>
<p>Identification of synthetic lethal interactions in acute myeloid leukaemia with NPM1 mutations</p> <p>Amount awarded: £17,200</p>	<p>This research into mutations in the gene NPM1 could lead to the development of new anti-leukaemia drugs.</p>

Grant title and amount awarded	How this benefits patients
<p>Defining mechanisms of axonopathy by understanding endosomal tubule fission machinery</p> <p>Amount awarded: £15,000</p>	<p>Hereditary spastic paraplegias (HSPs) are neurological conditions that cause progressive leg weakness and stiffness. The researchers will be investigating how three suspected HSP genes might link together to move proteins and membrane from one location within neurons to another. Understanding what goes wrong in this process will help towards developing new treatments.</p>
<p>Towards lung generation – characterisation of human embryonic lungs</p> <p>Amount awarded: £13,855</p>	<p>Researchers will use human lung stem cells (ie: cells which can be induced in the lab to form different types of lung cells) to produce an artificial model to allow them to study mechanisms involved in the development and regeneration of lungs. This information will be useful in finding new ways to treat lung disease.</p>
<p>Towards in-vitro regeneration of whole livers using biological scaffolds and stem cells</p> <p>Amount awarded: £30,000</p>	<p>The applicants will be exploring an experimental model to determine the next steps for growing artificial livers in the lab. This has the long-term aim of making more livers available for transplant.</p>
<p>System Y Hardware</p> <p>Amount awarded: £2,614</p>	<p>This application will lead to the development of a self-check-in-system for patients visiting the radiotherapy department.</p>
<p>Acorn House and Chestnut House – family accommodation</p> <p>Amount awarded: £20,000</p>	<p>Families with children receiving treatment in the hospitals will continue to be able to stay together with this on-site accommodation.</p>
<p>Giggle Doctors</p> <p>Amount awarded: £10,000</p>	<p>Children receiving difficult and often distressing treatment will be cheered and distracted by these play experts.</p>
<p>Addenbrooke's Museum</p> <p>Amount awarded: £80,000</p>	<p>Thirteen display cabinets and eight wall mounted displays will commemorate the hospital's 250th anniversary, permanently displaying artefacts from the Addenbrooke's archives. Alongside this, a community engagement programme will involve community groups in developing a response to the archive.</p>

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
<p>2 x V60 NIV Ventilators for the Rapid Response Team</p> <p>Amount awarded: £23,645</p>	<p>These machines will allow staff to provide non-invasive ventilation in a safe, efficient and effective way, allowing patients to be cared for in the appropriate place and reducing admissions to intensive care for non-invasive support. The machines are able to provide high flow rates and accurate oxygen titration. This is vital with the acutely unwell patient group looked after by the Rapid Response Team.</p>
<p>Refurbishment of Cambridge Brain Bank</p> <p>Amount awarded: £53,018</p>	<p>The Cambridge Brain Bank (CBB) collects and provides tissue in various forms to researchers both locally and nationally. Brain Bank donations in East Anglia are set to increase due to a number of exciting projects that the CBB will be involved in over the coming years. With this funding, equipment can be updated and the area refurbished.</p>
<p>3 x portable monitors for ward G5 Transplant Unit</p> <p>Amount awarded: £20,479</p>	<p>G5 is an acute surgical area where patients recovering from theatre receive ECG monitoring for 24 hours, and regular central venous pressure checks. This is vital so staff can watch for early signs of raised potassium post renal transplant and ensure that the patients are receiving adequate fluid replacement therapy.</p> <p>These updated monitors will mean that the process of care is more streamlined and optimised for each patient.</p>
<p>3100A Oscillator</p> <p>Amount awarded: £22,789</p>	<p>The oscillator is primarily used for patients in respiratory distress. When patients are in a situation that requires very high volumes to ventilate them it can damage their lungs which, in turn, has a significant effect on their outcomes. The oscillator allows ventilation at rapid rates, but at much lower pressures. This results in patients recovering better, leading to extubation or moving on to conventional ventilation.</p>

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.

The grant giving committees

Committee	Chair	Frequency	Meeting date	Application notes
Research advisory committee	Dr John Bradley	Four times a year	13/4/2016	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 /4/2016	Application deadline: 24/03/2016
Innovation fund	Colin Weston	Twice a year	July TBC	Application deadline: TBC
Patient amenities fund	Ann-Marie Ingle	Twice a year	06/07/2016	Application deadline: 17/06/2016

Addenbrooke's Charitable Trust (ACT)

Box 126, Addenbrooke's Hospital, Hills Road, Cambridge CB2 0QQ
01223 217757

hello@act4addenbrookes.org.uk act4addenbrookes.org.uk

Registered charity no: 1048868