

Medicine

UNIVERSITY OF
Southampton

Medi
news

40 years of discovery

Making history - educating
doctors since 1971

Delivering new generations of
medical professionals and improving
treatments and care

Southampton researchers at the
forefront of discoveries

40th
Anniversary
Medicine

Welcome

Besides marking the University's Diamond Jubilee, 2012 is also the 40th anniversary of the first academic year for medical students at the University of Southampton.

Forty young men and women enrolled at our pioneering medical school in 1971. Our far-sighted Dean, Professor Sir Donald Acheson, who was to go on to become the UK's Chief Medical Officer, had drawn up an exciting and challenging curriculum that was to change medical education in this country. We explore some of our early history in an article on page 4.

Medicine remains a very popular choice for students; this year we received 5,550 applications for our 246 places, an increase of 15 per cent on the previous year. We aim to provide a modern and comprehensive medical education, underpinned by a strong foundation in the biomedical and social sciences – and our Bachelor of Medicine (BM) programme teams have again started to explore how we might renew the curriculum to ensure that those graduating in 10 years' time will continue to have the necessary skills, attributes and professionalism to practise medicine in a rapidly-changing healthcare environment.

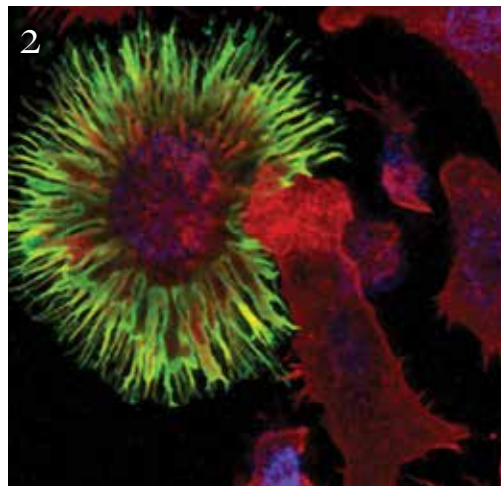
Research is key to our achievements at Southampton. Our focused strategy covers the spectrum from basic science to clinical innovation, with an emphasis on translating new discoveries into practice, working closely with the NHS, and collaborating across disciplines, particularly at the interface between biomedicine and the physical sciences, such as computing, engineering and nanotechnology. Our international research strengths encompass respiratory disease, nutrition and development, cancer sciences, and bone and joint disease, with cross-cutting themes including stem cells and regeneration, and translational immunology. Earlier this year, the University of Southampton received an extraordinarily generous gift of £10 million to boost our world-class research in cancer immunology and immunotherapy. We explain its significance on page 20.

The University has a global reputation for enterprise and innovation. In turn, Medicine has a strong history of collaborating with leading pharmaceutical companies, major players in nutrition and healthcare, and biotechnology companies. It is through business partnerships such as these, and successful spinouts, including Synairgen and Karus Therapeutics, that we maximise the impact of our academic research – and generate around 40 per cent of our annual research income.

We have come a long way since 1971.

Professor Iain Cameron
Dean of Medicine





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Students enjoy their lecture in the 1970s

40 years of innovation

Right from the start, Southampton's medical school was unique. Its founding fathers had drawn up plans for an exciting and challenging curriculum, designed to prepare doctors to work in the wider community as well as the clinic. Ahead of its time and widely regarded as pioneering, it was to play a major part in revolutionising medical education in the UK.



The school's first Dean, Professor Donald Acheson, and his team brought in several innovations to the standard medical curriculum. Students would meet patients in their first year of training, visiting them in their homes and even follow a pregnant woman through labour to motherhood. Much clinical science would be taught through the study of human systems such as reproduction, cardiovascular, respiratory and musculoskeletal, instead of formal classroom-based scientific instruction. Courses in psychology and sociology would give students a wider context for their clinical knowledge. Perhaps most controversially, much of the fourth year would be set aside for a significant research project.

However, while these far-sighted plans were being finalised, facilities on the ground were less than ideal. Former Senior Assistant Registrar Sheila Mooney, better known to the first students and lecturers as Sheila Broadhurst, remembered: "When the first intake of 40 students arrived in October 1971, the South Academic Block at the General Hospital was still under construction and Boldrewood was nearing completion. The Dean's office was in a house in University Road and some professorial units were accommodated temporarily in Matron's Bungalow, the Medical Hut and various houses near the Royal South Hants Hospital.

"On the main campus, the Department of Physiology and Biochemistry was still in its old buildings, awaiting the move to Boldrewood. The students, who had been forewarned, were thus welcomed as pioneers (or possibly guinea pigs) to a physically non-existent medical school."

In the late 1960s, the government had decided to establish three new medical schools to train more doctors and set up a Royal Commission to decide where they should be located. The University of Southampton had long expressed an interest in the education of doctors and already had a well-respected Department of Physiology and Biochemistry led by Kenneth Munday. Commission



members visited the University as part of the selection process.

Several months later came the announcement that Southampton was to receive funding for a new medical school, along with Nottingham and Leicester. The appointment of Donald Acheson from Oxford to lead the school set the tone. He was joined by Professor Jack Howell from Manchester, who was to succeed him as Dean; the other senior academics included James Frazer, David Bulmer, David Miller, Dennis Wright and Ralph Wright. Donald Acheson was later to write of the "profound dissatisfaction with many aspects of the education we ourselves had received and a determination to find a better way. The philosophy we shared was this: to welcome our new students as partners who ... would share in the development of the course; to foster their enthusiasm; to help them develop and exploit their own intelligence; and above all, to avoid stuffing them with facts."

The pioneers started from scratch in planning Southampton's medical school, free from entrenched opinions or traditions. They looked across the Atlantic to McMaster University in Canada, which had already adopted a new systems-based approach. This involved the teaching of different disciplines in the context of disease and early meaningful contact with patients. As Jack Howell was to write later in the *British Medical Journal*: "Introducing students to mechanisms of disease and including clinical teachers from the outset ... eases the transition from preclinical studies to clinical medicine which can seem very abrupt for some students."

In a traditional medical course, the first two years of study consisted primarily of anatomy, physiology and biochemistry and bore little relevance to disease or, indeed, people generally. There was often no significant attempt made to link together, for example, the anatomy and physiology of the heart and they may be taught at totally different times. An examination was taken at the end of the second year and then the students passed into a completely separate part of the



course which was clinical medicine. Little attempt was made to link the first and second parts of the course. In a systems-based approach, anatomy, physiology, biochemistry, pathology, pharmacology and other topics are integrated together with the principles of clinical medicine and the course concentrates on disease mechanisms and principles of therapeutics.

The 1970s was a vibrant decade with considerable changes in public attitudes towards health, such as the growing influence of the stop smoking movement. Medical education at Southampton also took the social sciences into account. Courses on the principles of epidemiology, psychology and sociology covered the importance of preventative and therapeutic procedures, the use of statistics in evaluating medical care, insights into human behaviour and learning and elements of social structure in a health context. For example, following an individual woman's experience of pregnancy and birth gave students valuable insights into the clinical and sociological aspects of reproduction.

Another major curriculum innovation was the fourth year research project, which invited students to spend six months producing an original piece of work to challenge conventional scientific wisdom. Topics in the first few years included electron microscopy, insulin secretion, drug trials, calcium and vitamin D and lung function. At the end of the year, they all presented their findings to staff and fellow students in a series of ten minute papers and answered questions from the audience.

Michael Arthur, Professor of Medicine and current Vice-Chancellor at the University of Leeds was among the second cohort of students. (He was to go on to become Head of the medical school and Dean of Medicine). "I was fortunate to be one of the first to be taught at Southampton and it was a fantastic experience," he says. "I particularly valued the opportunity to get my first taste of independent research in the fourth year;



The cast from the Medics Revue 1986 - Back to the Suture

my project involved metabolic rhythms of diabetic patients. I was so impressed by that early experience, I have ensured that it is a central feature of our strategy at the University of Leeds, where all students, across all disciplines, now experience research as a key component of their curricula.”

Beyond curriculum design, the medical school in Southampton was breaking new ground on admissions. There was no ‘quota’ on female students; all applicants were judged on their merits and roughly equal numbers of young men and women were accepted. Applications were welcomed from older students and even those who had taken unusual combinations of A levels including arts subjects. The process relied on exam results and school reports, rather than interviews. Professor Acheson later explained: “... at interviews, unconscious bias might lead us to favour unfairly young men and women with like backgrounds, manners and deportment to ourselves.”

Just before Donald Acheson stepped down as Dean and headed to McMaster for a sabbatical year, the school had a visit from Sir George Pickering, Regius Professor at Oxford, who was touring medical schools to gather material for a book. “The boldest and in many ways the most successful new curriculum is that of the University of Southampton,” he

wrote. “I would like to hazard the opinion that this venture of Southampton’s is the most important experiment in medical education in my lifetime. It should provide the young graduate with the discipline and habits of mind of the scholar and thus fit him for the opportunity of self education which he will enjoy ... for the rest of his life.”

By 1976, when the first graduates donned their gowns, student numbers had increased to 130 a year; and Southampton’s Bachelor of Medicine degree had secured formal approval by the General Medical Council and the Privy Council. Many of the features of Southampton’s innovative curriculum were subsequently endorsed in the GMC’s recommendations on undergraduate medical education entitled *Tomorrow’s Doctors*. Southampton Dean Professor Charles George, who became Chairman of the GMC’s Education Committee was charged with ensuring that they were adopted across the UK, frequently in the face of considerable opposition from traditionalists.

As always, life in the early days was not all about work. “One advantage in 1971/2 was that there were more staff than students. There was great enthusiasm on both sides and the staff-student parties run by the Faculty Office laid the foundations for the social events which are now an essential part of the student calendar,” recalled Sheila Mooney.

“The Christmas Revue began as an entertainment during one of these parties and clearly demonstrated the ready ability of senior medical staff to revert to and enjoy student humour!” Donald Acheson remembered the summertime ‘River Boat Shuffle’ which saw the entire faculty embarking on a chartered Solent ferry to sail to the Isle of Wight and back with a break on the island for refreshments.

While the teaching of doctors remained key at Southampton, research became increasingly important in the 1970s and 80s. Throughout the decades, Southampton has combined cutting edge research in the laboratories with the application of these discoveries to patients, now known as ‘bench to bedside’ research.

Southampton has attracted countless talented scientists to further their careers in many fields of research. Stephen Holgate is Medical Research Council (MRC) Professor of Immunopharmacology, world-renowned for his achievements in lung research. He is also the longest-serving member of staff, after joining in 1975. As a clinical lecturer, he worked with Jack Howell and Charles George.

Following a period at Harvard, Stephen Holgate returned to Southampton. “A key to enabling me to build a successful research career was the tremendous facilitatory



Princess Margaret opens the Tenovus Building.
Picture courtesy of The Southern Daily Echo



atmosphere created by this new medical school; the pervading atmosphere was one of encouragement and excitement,” he says. “Medicine at the University is now up there with the best in the country and it has been a privilege to help create some of the foundations for this.” Stephen’s research spans the decades from early work understanding how asthma develops and why sudden attacks occur, to the discovery of the first novel asthma gene (ADAM33) in collaboration with US researchers in 2001. Stephen Holgate was also a leading figure in the creation of the University of Southampton spin-out company Synairgen, which is developing new treatments for asthma and related diseases.

The Medical Research Council has long recognised Southampton’s medical school as a centre of excellence. Donald Acheson set up a new MRC Research Unit in Environmental Epidemiology at Southampton in 1979, after his term as Dean ended. Initially, it focused on occupational and environmental causes of disease within the UK; its second Director Professor David Barker broadened its remit to examine the developmental origins of adult disease when he took over in 1984. David Barker’s work was inspired by observation of the prominence of cardiovascular disease in the poorer regions of the country and revolutionised the approach to thinking about the way in which long term health can be influenced by early life events in childhood and before birth. His work is now recognised worldwide and, for example, was featured as the cover story in Time magazine in October 2010. ‘The Barker hypothesis’ has now been applied to many other medical conditions and research in this field continues today at Southampton, led by Professor Mark Hanson. The research centre established by Donald Acheson is now the MRC Lifecourse Epidemiology Unit led by Professor Cyrus Cooper.

Cancer research has always been an important area of specialism at Southampton. Director of Cancer Sciences, Professor Martin Glennie, who graduated from the

University of Southampton in 1977, stayed on to study for a PhD researching the role of antibodies with pioneering professors George and Freda Stevenson and has spent most of his career at Southampton. He praises the commitment of cancer charity Tenovus to finding cures for cancer. Its trustees financed a building at Southampton General Hospital at a time when funding was difficult to obtain; it was officially opened by Princess Margaret in 1971: “Their generosity helped support our work on antibodies and put Southampton on the map for cancer research,” he explains.

While much important work continues to take place in the Tenovus Building, the scope of cancer research has expanded at Southampton with the support of the leading charities Cancer Research UK and Leukaemia and Lymphoma Research. Breakthroughs are reflected in the swift development of clinical treatments continuing Southampton’s longstanding commitment to translational medical research.

The medical school celebrated its 25th anniversary in 1996. Events included keynote lectures from Baroness Jay, Anthony Clare and Lewis Wolpert. Students and alumni enjoyed anniversary balls and even a staff and student bed race. Dr Clair du Boulay, who graduated in 1976, chaired the steering committee for the celebrations and wrote in the Southampton Health Journal of exciting plans for a Clinical Sciences Research Centre to integrate molecular biology and genetics with tissue and cell biology, as the essential basis for biomedical research.

As a result of two successful bids for extra student numbers, Southampton’s intake rose from 146 to 206 in 2002 then to 246 in 2004 with the introduction of the new BM6 and BM4 programmes. The medical programmes remain extremely popular with over 5,000 applications each year for the 246 places.

The original five year (BM5) undergraduate medical programme offers clinical experience from year one in a research intensive environment, state-of-the-art facilities and an integrated approach to help the

student develop the skills of a doctor as a scholar, professional and practitioner. The BM6 programme is designed to widen access into the medical profession and has achieved national recognition as an example of good practice. It involves studying for an extra year on a specially designed year zero course before joining students on the BM5 programme. The BM4 programme enables graduates in any subject to achieve a BM degree in four years, drawing on existing knowledge, skills, understanding and life experiences. There are over 1,400 applications for the 40 BM4 places.

Teaching and research remain key at Southampton today, but the enterprise agenda is also important. The University of Southampton has a global reputation for enterprise and innovation. In turn, Medicine has a strong history of collaborating with leading pharmaceutical companies, major players in nutrition and healthcare, and biotechnology companies. It is through business partnerships such as these that Medicine maximises the impact of its academic research – and generates around 40 per cent of its annual research income. In addition, five spin-out companies have been formed to commercialise research; two now have a market worth of around £75million.


Compared to the ancient seats of learning in Oxford and Cambridge, Southampton’s medical school is a newcomer. Yet, much has been achieved over the last 40 years. Thousands of Southampton-trained doctors are practising in every continent and research carried out in the laboratories is respected worldwide. The next phase will see the development of an innovative medical degree to be taught both at Southampton and at Kassel in Germany, and an increasing focus on innovative research to improve patient care, in close collaboration with the University Hospital Southampton NHS Foundation Trust. One thing is certain. Many more achievements lie ahead over the next 40 years.

40 years of discovery

A fluorescence microscopy image showing various cells. A large, prominent cell in the center-right is stained with green and blue, with a dense, spiky appearance. Other cells are stained in red and blue, scattered across the dark background.

Medicine at Southampton is world renowned for the quality of its research. Over our first 40 years, we have achieved a great deal in many fields and pioneered research in the developmental origins of adult disease. Here are a selection of our research highlights.

Killer T cells (red) being educated by 'presenter' cells (green) to recognise cancer cells, during vaccination with DNA cancer vaccines.



Transforming cancer treatment with DNA vaccines

Southampton researchers have developed a pioneering new DNA vaccine that could revolutionise the way cancer - particularly leukaemia - is treated in the future.

Leukaemia is a malignant disease of the bone marrow and blood that causes around 220,000 deaths worldwide each year. The new vaccine aims to tackle this disease head on by strengthening a person's immune system against a gene (known as Wilm's Tumour gene 1) that is present in almost all forms of leukaemia.

The DNA vaccine is now being trialled, for the first time in the UK, at centres in Southampton, London and Exeter. The trial is being coordinated nationally by the University of Southampton Clinical Trials Unit (UoSCTU). Over the next two years, a selected group of volunteers with either chronic or acute myeloid leukaemia will receive the vaccine.

The volunteers will be treated in a ground-breaking new way. A technique called electroporation will be used that delivers controlled, rapid electrical pulses to make cell membranes more permeable or 'leaky' so that they can absorb and retain the vaccine injected into muscle or skin tissue more easily.

Professor Christian Ottensmeier, Director of Southampton's Experimental Cancer Medicine Centre, who co-led the study with researchers from Imperial College London, explains: "We have already demonstrated that this new type of DNA vaccine is safe and can successfully activate the immune systems in patients with cancer of the prostate, bowel and lung. We believe it will prove to be beneficial to patients with acute and chronic myeloid leukaemia."

The research is funded by the charity Leukaemia & Lymphoma Research and the Efficacy and Mechanism Evaluation programme, which is financed by the Medical Research Council and managed by the National Institute for Health Research. The electroporation technique was developed by the US pharmaceutical company Inovio. UoSCTU receives core funding from Cancer Research UK and Clinical Trials Unit (CTU) support funding from the National Institute for Health Research (NIHR).

Linking the health of mothers with their babies

The Southampton Women's Survey (SWS), one of the pivotal studies developed and maintained by the University's Medical Research Council (MRC) Lifecourse Epidemiology Unit, is the only study in the developed world to have assessed women from the general population before they became pregnant, then followed them through a subsequent pregnancy to understand the mother's influence on the developing fetus and child.


Diets and lifestyles have changed dramatically in recent years, but little is known about the effects of many of these changes on women's health and the health of their children. The SWS is helping to fill this knowledge gap by providing insights into the link between a mother's diet and lifestyle, both before and during pregnancy, and her baby's health and development.

The survey interviewed over 12,500 women aged between 20 and 34 to find out about their diet, physical activity, alcohol consumption and other lifestyle factors. More than 3,000 women who later became pregnant were monitored during the pregnancy; ongoing assessment of their children is tracking various indicators including growth, bone development, sleep patterns and lung function.

By comparing the initial survey data with information gathered from ongoing monitoring, the researchers hope to gain a better understanding of the development of conditions such as osteoporosis, obesity and allergies. The study will also inform health promotion strategies by finding out more about the factors that affect young women's diet and lifestyle choices.

Early results have already revealed some interesting trends. "We've shown that the way in which a mother eats before pregnancy changes little through pregnancy and it determines the quality of diet she provides for her child," says Professor Hazel Inskip of Southampton's MRC Lifecourse Epidemiology Unit, who is leading the study. The survey has also shown that very few women follow healthy eating and lifestyle recommendations before becoming pregnant, even when the pregnancy is planned, indicating a need for wider promotion of pre-pregnancy guidance.

It has also shown that the level of vitamin D in the mother's blood during pregnancy is associated with the strength of the baby's bones at birth and during childhood. This has led to a trial of vitamin D supplementation for pregnant women, called MAVIDOS (Maternal Vitamin D Osteoporosis Study).



Hazel comments: “Ultimately we would like to use the results to inform the Department of Health and Government on health policy, and to assist women who are planning to become pregnant.”

Professor Cyrus Cooper, Director of the MRC Lifecourse Epidemiology Unit, says: “The Southampton Women’s Survey is an internationally unique study that relates the diet, body composition and lifestyle of women before pregnancy to the health of their offspring.

“It has demonstrated important ways in which we can optimise the well-being of children through interventions made during intrauterine life; for example the maternal supplementation of vitamin D to enhance the bone development of the baby.”

The MRC Lifecourse Epidemiology Unit is a major research institute at the University of Southampton. Its mission is to investigate important, preventable causes of common chronic musculoskeletal and metabolic disorders. In particular, it focuses on the interplay between factors acting at different stages of the lifecourse from before conception through to old age.

New insights into improved health through genetics

The University of Southampton’s broad research programme ranging from the study of single gene disorders to the way molecular genetics can contribute to the diagnosis and treatment of cancer ensures our researchers are at the forefront of the application of genetic technology to the understanding of human health.

Southampton academics in this field include a pioneer in the study of human genetics, Professor Patricia Jacobs. As a cytogeneticist, Patricia’s work seeks to understand hereditary diseases and conditions by studying the structural and numerical abnormalities of chromosomes. Patricia and the endocrinologist John Strong were the first scientists to discover an extra chromosome in humans, specifically the 47,XXY constitution in males with Klinefelter Syndrome.

This additional genetic material results in, among other things, tall stature and infertility. The discovery was groundbreaking not only because it identified the cause of these patients’ clinical phenotype, but because it was one of the earliest pieces of evidence that the Y chromosome is responsible for ‘maleness’ - until that point it was widely believed that only the X chromosomes had a role in determining a person’s sex.

Since then Patricia has made a succession of important contributions which have fostered a fundamental understanding of the role of chromosome abnormalities and their relationship to human health; this work has had a direct impact on patient care.

Understanding of the link between our genes and our health has been advanced by a range of Southampton projects including Professor Karen Temple’s work on the characterisation of childhood developmental disorders. Karen’s research into the genetic causes of transient neonatal diabetes has led to changes in the treatment for newborn babies with diabetes. She is also recognised for her identification of a number of syndromes caused by genetic imprinting abnormalities.

Our researchers have also made a link between genes and blood cancers. A study showed that susceptibility to a series of blood cancers, known as myeloproliferative disorders, is linked to a particular area of the patient’s DNA, which is prone to developing mutations. This is an important step forward as it helps scientists to understand why some people might be predisposed to acquiring genetic mutations that lead to cancers.

Southampton’s collaborative approach in this field of research includes strong links with the Wessex Regional Genetics Laboratory, an NHS genetics and genomics centre which hosts much of the University’s genetics research. It is based at the Salisbury Health Care NHS Foundation Trust.

New approaches to asthma treatment

Southampton’s researchers have discovered how a gene for susceptibility to asthma contributes to the development of the disease. Their work sheds light on how the condition develops in young children and offers the potential for new treatments for asthma and other serious illnesses.

Around 5.4 million people in the UK are currently receiving treatment for asthma, a potentially life-threatening condition that can have a big impact on people’s daily lives.

The asthma susceptibility gene ADAM33 was discovered in 2002 by Professor Stephen Holgate, in collaboration with two US companies (the Genome Therapeutics Corporation and the pharmaceutical company Schering-Plough). It is associated both with early life origins of asthma and with impaired lung function. The Southampton study described the biological function of

the gene for the first time, providing new insight into the progression and development of asthma. The ADAM33 protein is usually tethered in the cell membrane, but in asthma this tether is broken.

Since ADAM33 is an enzyme, the research team reasoned that the untethered enzyme could attack proteins it should not normally encounter. They discovered that the cells lining the inner surface of blood vessels become a target for ADAM33, causing the formation of new blood vessels in a process called 'angiogenesis'. These blood vessels can carry more inflammatory cells into the airways, causing swelling and changes in airway structure, which in turn results in breathing difficulties.

Professor Donna Davies, one of the project's leads, comments: "Treatments which specifically target the ADAM33 enzyme may be effective in modifying the natural history of the disease. However, the importance of angiogenesis in many physiological and pathological processes broadens the range of the diseases in which the enzyme could be implicated, the most obvious being cancer and atherosclerosis, or thickening of the arteries."

Reducing the threat of antibiotic resistance

Medical researchers at Southampton have made a significant contribution towards reducing the global threat of antibiotic resistance. Their studies have provided an evidence base for more effective antibiotic

prescribing practices in the UK and around the world.

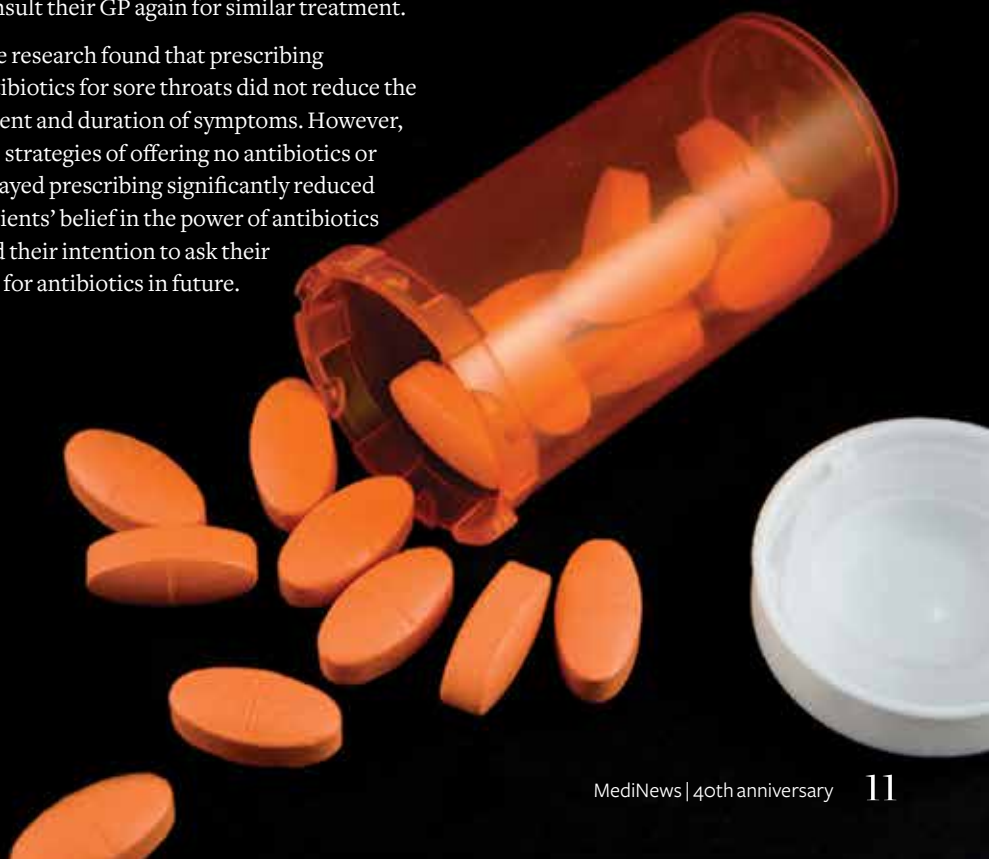
One of the major drivers for rising levels of resistant bacteria is the unnecessary prescription of antibiotics by GPs. In the mid-1990s a research group at Southampton which included Professor Paul Little, Dr Ian Williamson, Dr Michael Moore and Dr Hazel Everitt embarked on a series of trials to assess the effectiveness of different antibiotic prescribing strategies. The first trial involved 700 patients with sore throats – one of the most common respiratory illnesses for which people consult their GP – funded by the Department of Health.

The participants received one of three antibiotic prescribing strategies: immediate prescription, no prescription and, if symptoms did not settle after three days, delayed prescription. The research was designed to assess not only the effectiveness of the different strategies, but also the 'medicalisation' of illness – that is, the effect of prescription on patients' belief in the power of antibiotics and their intention to consult their GP again for similar treatment.

The research found that prescribing antibiotics for sore throats did not reduce the extent and duration of symptoms. However, the strategies of offering no antibiotics or delayed prescribing significantly reduced patients' belief in the power of antibiotics and their intention to ask their GP for antibiotics in future.

Further trials looking at antibiotic prescription for other infections, such as sinusitis, ear infections, conjunctivitis and lower respiratory tract infections, resulted in similar findings and common key recommendations for GPs – to avoid or delay prescribing antibiotics as part of a national strategy to reduce the risk of antibiotic resistance.

The work has influenced a number of important national clinical guidelines and the implementation of new prescribing strategies. As a direct result of the research, delayed prescribing for all acute respiratory infections is a tool in the everyday practice of GPs in the UK. Southampton's work in this field has also informed guidelines around the world, including in the United States, Israel and throughout the European Union.





40 years of Medicine at Southampton

Much has changed in the world since the first students enrolled in Southampton's medical school. It has also been an eventful 40 years for students and staff.

1971 - The medical school is opened by Health Secretary Sir Keith Joseph following the recommendations of the Royal Commission on Medical Education. Forty students enrol

1973 - Opening of Boldrewood to house Medicine and Biological Sciences

1976 - First graduation ceremony on 9 July. Intake of new students reaches 130

1977 - Foundation course begins for students with little or no science education

1978 - Pioneering postgraduate course in rehabilitation launches

Professor Jack Howells succeeds founding Dean Professor Donald Acheson



Graduates and mature students are encouraged to apply for places



1972 - Five Oxford colleges break 750 years of tradition and admit women

1973 - The three day week is introduced to save energy, due to coal shortages caused by industrial action

1976 - Britain experiences one of the hottest summers on record

1977 - Public sector trade unions, including firefighters strike for wage rises above the 10 per cent ceiling introduced by the UK Government

1979 - Margaret Thatcher is elected British Prime Minister, the first woman to hold the office

1983 - Professor Barbara Clayton becomes Dean. She later becomes a Dame



1986 - Professor Charles George becomes Dean

1990 - Professor Colin Normand becomes Dean

Research Strategy Committee is set up, first chaired by Professor David Barker

1991 - £1 million grant for asthma research is awarded by the Medical Research Council

1995 - Medicine becomes part of the Faculty of Medicine, Health and Biological Sciences

Professor Eric Thomas becomes Head of the medical school

1996 - Institute of Human Nutrition receives a 5* rating in the Research Assessment Exercise (RAE)

1997 - Medical school wins a £3 million Wellcome Trust Millennial Clinical Research Facility award. It finances a new building at Southampton General Hospital

1981 - Research is underway in 23 areas including infant deaths, male infertility and the role of diet in thrombosis



Medicine leads the international research community in a range of major interdisciplinary themes



Southampton is achieving an international reputation for enterprise and innovation



Southampton pioneers the integration of patient contact into the early years of the medical curriculum



1983 - First flight of the Space Shuttle Challenger

1985 - Greenpeace's Rainbow Warrior is attacked by the French Government after protests over nuclear testing in the Pacific

British Telecom announces the retirement of Britain's red telephone boxes

1995 - Barings, the UK's oldest investment bank, collapses after securities broker Nick Leeson loses \$1.4 billion speculating on the Tokyo stock exchange



The new building places Southampton at the heart of new developments in tackling disease

1998 - The Southampton Women's Survey begins. It will follow 12,500 young women, monitoring those who fall pregnant to see if factors such as diet and exercise have a direct influence on fetal and infant development

1999 - Medical school receives the maximum rating (24/24) in the QAA and GMC review of teaching

Professor Michael Arthur is appointed Head of the medical school (He becomes Dean of the Faculty in 2003)

2000 - The funding council HEFCE increases annual student numbers to 150

2001 - Professor Chris Thompson becomes Head of the medical school

The Research Assessment Exercise (RAE) awards an outstanding 5, 5, 4 across the medical units submitted. This places the medical school in the top three in the country for its combined performance in research and teaching

2002 - BM6 programme launches



The University of Southampton is one of the UK's prestigious Russell Group universities; it is ranked among the top 100 in the world



Our students come from more than 100 different countries and our network of university partners stretches across the globe



1997 - Labour returns to power in the UK for the first time in 18 years. Tony Blair becomes Prime Minister

Princess Diana dies in a car crash in Paris

1999 - Construction of the Millennium Dome is finished

Harold Shipman, the Hyde GP already accused of murdering eight female patients, is charged with a further seven murders

2001 - Terrorists crash two hijacked airliners into the twin towers of the World Trade Center in New York causing devastation and enormous loss of life

2002 - Twelve members of the European Union adopt the Euro as a common currency

2007 – Awarded two NIHR Biomedical Research Units in respiratory medicine and nutrition and lifestyle, and a Cancer Research Experimental Cancer Medicine Centre to enhance our translational research

2008 – Outstanding performance in the 2008 RAE with over 70 per cent of our research judged as internationally excellent or world leading and is the fourth largest submission to the clinical sciences assessment panel

250 students are now graduating each year

2010 - BMedSc and MMedSc are launched

School of Medicine becomes Faculty of Medicine. Head of School, Professor Iain Cameron is appointed Dean

2011 - The MRC ERC is given a significant uplift to become the MRC Lifecourse Epidemiology Unit

An agreement is signed for a pioneering degree programme to be taught both at Southampton and in Kassel in Germany

2012 - The Southampton Centre for Biomedical Research opens, housing the BRU, BRC and the Wellcome Trust Clinical Research Facility

Professor Lord Robert Winston opens the Institute for Life Sciences (IfLS)

Medicine at Southampton celebrates its 40th anniversary

2003 - The MRC Epidemiology Resource Centre (ERC) is established to support our internationally renowned research into non-communicable diseases in unique birth cohorts



The medical school has one of the best records in commercialising its research in the UK and has four spinout companies

The Life Sciences Building is home to Biological Sciences and Medicine and the recently established Institute for Life Sciences (IfLS)

HRH Duchess of Cornwall arrives to open the Epidemiology Resource Centre in May 2005

2008 - Global financial crisis begins

2008 - Barack Obama is elected the first black President of the United States

2010 - Volcanic ash from the eruption of Eyjafjallajökull in Iceland leads to the closure of airspace over most of Europe

40 years of changing lives

Since our inception in 1971 we have delivered new generations of medical professionals and improving treatments and care.



Celebrating the past and looking to the future

In celebration of our 40th anniversary, former students returned to the University this summer to learn more about our exciting research, which is changing the world. Alumni seized the opportunity to tour the new Life Sciences Building and hear talks from our leading scientists Professors Cyrus Cooper, Martin Glennie, Mark Hanson and Stephen Holgate. In the evening, we held a black-tie dinner at the St Mary's football stadium.

Here are just a few photos from the event.





During our 40th anniversary year, many alumni have supported the Medicine Anniversary Fund; we have also received a generous seed gift from the Medicine Graduate Society. Such gifts help to support current and future students by recruiting and retaining talented individuals and ensuring a superior educational experience for all students. If you would like to make a gift or a regular contribution to the Fund, contact supportus@southampton.ac.uk or call +44 (0)23 8059 9077 for further information.



We encourage all our alumni to keep in touch with us through our website, www.southampton.ac.uk/medicine or by 'liking' our Facebook page. 'Like' us at www.facebook.com/unisouthamptonmedicinealumni.



Investigating cardiovascular disease

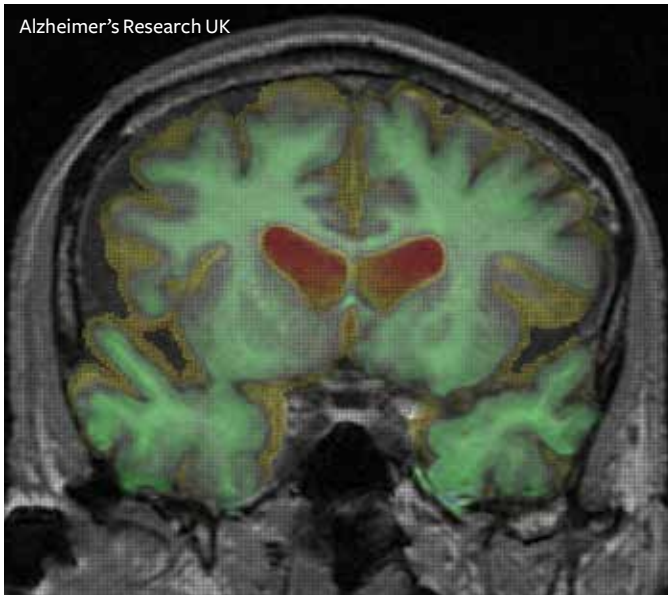
Scientists at Southampton have discovered a new process that controls the ability of arteries to restrict blood flow.

In healthy people, the ability of arteries to relax or constrict is kept in balance. However, the arteries of those with high blood pressure or atherosclerosis are less able to relax. Instead, they constrict even more making it harder for blood to flow and increasing the risk of heart attacks and stroke.

Researchers led by Dr Graham Burdge, Reader in Human Nutrition, have identified a new process that controls the ability of arteries to constrict, which could lead to a better understanding of the causes of cardiovascular disease and the development of new treatments.

By blocking the action of two enzymes that create polyunsaturated fats, the researchers were able to reduce the constriction of arteries allowing blood to flow more freely, therefore lowering the risk of high blood pressure. The study has been funded by the British Heart Foundation.

Alzheimer's Research UK



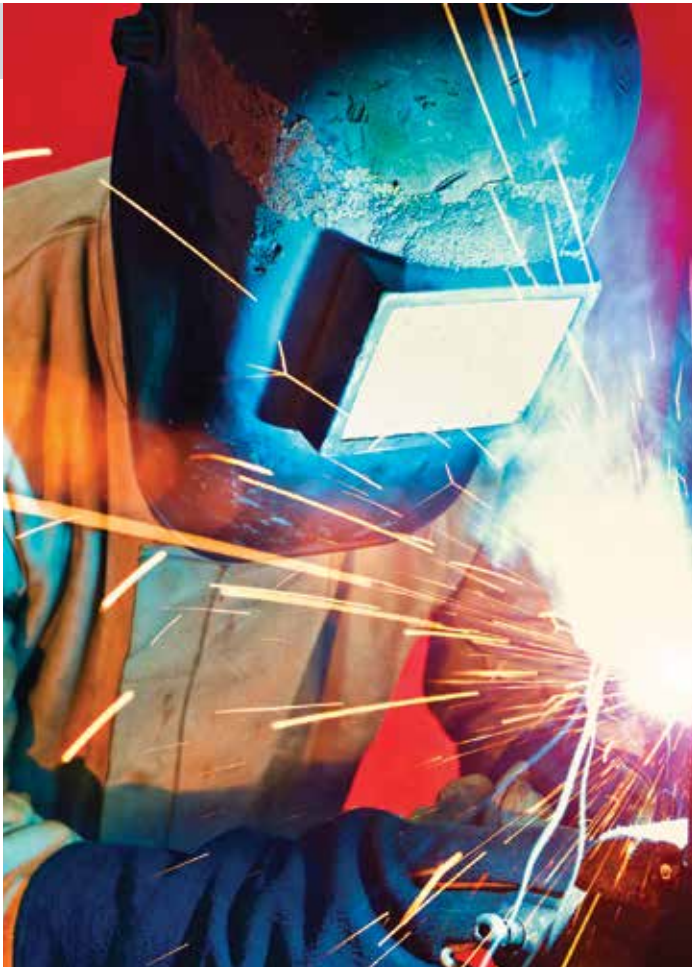
The role of stress in the development of dementia

Chronic stress is being investigated in a new Alzheimer's Society-funded research project as a risk factor for developing dementia.

It is part of a £1.5 million package of six grants given by the charity, which is fighting to find a cause, cure and way to prevent the disease.

Clive Holmes, Professor of Biological Psychiatry at the University of Southampton, is lead investigator for the stress study. He says: "All of us go through stressful events. We are looking to understand how these may become a risk factor for the development of Alzheimer's.

"This is the first stage in developing ways in which to intervene with psychological or drug based treatments to fight the disease."



New test to crack down on drug cheats in sport

Scientists from the University of Southampton and two other UK universities have developed a new test to catch drug cheats in sport. It is based on the measurement of two proteins in the blood, which increase in response to growth hormone administration and act as markers of growth hormone use and abuse.

Building on the seminal work of the earlier GH-2000 project, the GH-2004 team, based at Southampton and involving colleagues from King's College London and the University of Kent, has developed the test with funding from the World Anti-Doping Agency and US Anti-Doping Agency and support from UK Anti-Doping.

Richard Holt, Professor in Diabetes and Endocrinology at Southampton, says: "We are pleased to have another effective and reliable means to catch cheats and help deter harmful drug misuse." The test was used for the first time at the London 2012 Olympic and Paralympic Games and was successful in catching two athletes who were consequently disqualified.

Aiming for the sky

Second year medical student Becky Bellworthy has made it to the top of the world. She successfully climbed Mount Everest in May 2012. "I saw the mountain while trekking in Nepal three years ago for my Duke of Edinburgh award and was determined to climb it. After three years of training, I made it," she says.

However, she has now put adventures on hold until she has finished her degree. "My family were very proud but I have had to promise them that I won't take on any more major challenges until I graduate," explains Becky.

The 20 year old held the record for the youngest woman to scale the peak for 24 hours – until her 19 year old friend Leanne Shuttleworth managed the feat a day later.



Keep up-to-date with our latest news on our website www.southampton.ac.uk/medicine and on Facebook. We have two official Facebook pages, one of which is specifically for alumni. 'Like' us at www.facebook.com/unisouthamptonmedicinealumni or www.facebook.com/unisouthamptonmedicine

A £30 vaccination could save a welder's life

Welders and other workers exposed to metal fumes should receive a simple vaccination that can prevent serious lung disease and even save their lives.

A new review of the evidence by scientists at the University of Southampton, published in the scientific journal *Occupational Medicine*, found that welders die more often from certain types of pneumonia and that they should be offered the PPV23 vaccination.

"Many employers are unaware that exposure to welding fumes can cause pneumonia. Although fatal cases are rare, they can occur," says Keith Palmer, Professor of Occupational Medicine at the University's Medical Research Council (MRC) Lifecourse Epidemiology Unit, and the lead author of the review.

Dr Richard Heron, President of the Society of Occupational Medicine adds: "This is an important message - a £30 jab may save a life. There are probably between 50,000 and 70,000 welders in the UK who stand to gain from this."

The MRC Lifecourse Epidemiology Unit explores the environmental causes throughout the lifecourse of a range of chronic diseases. One of the five programmes maintained at the Unit addresses the relationship between occupation and chronic respiratory and musculoskeletal disease.



Southampton researchers awarded £17 million

Clinicians and scientists working in the Southampton Centre for Biomedical Research have been awarded £17 million to develop their nutrition and respiratory research facilities. The Centre was established through the partnership between the University of Southampton and University Hospital Southampton NHS Foundation Trust (UHSFT).

The National Institute for Health Research (NIHR) Southampton Respiratory Biomedical Research Unit (BRU) and the NIHR Southampton Biomedical Research Centre in nutrition (BRC) are both key elements of the Southampton Centre for Biomedical Research and focus on taking research out of the laboratory and into the clinic.

Having already shown how poor nutrition in childhood can set the stage for chronic ill health during adulthood, scientists have gone on to discover that a child's chances of developing allergies or wheezing is related to how they grow at vital stages in the womb.

"It is testament to the quality and expertise of clinicians and scientists within the Trust and the University of Southampton that the Government and our fellow professionals nationally and internationally are so strong in their support both clinically and financially," says Christine McGrath, Director of Research and Development at UHSFT. "This huge investment is a striking endorsement of our achievements to-date but also of our ambition to move forward and continue to be at the forefront of medical developments."

The BRU, which specialises in looking at new therapies for diseases such as asthma, chronic obstructive pulmonary disease and cystic fibrosis, and neonatal, paediatric and adult intensive care, has been allocated £7.3m. Meanwhile the NIHR review panel's decision to increase funds for the Southampton BRC, based

on the quality of its application, means it will receive a total of £9.6m.

Professor Ratko Djukanovic, Director of the Southampton Centre for Biomedical Research and Respiratory BRU and a Professor of Medicine at the University of Southampton, says: "We are extremely pleased that the results we have achieved over the past three years and the direct effect we are having on clinical research worldwide has been recognised with such significant funding."

Professor Iain Cameron, Dean of Medicine at the University, adds: "This backing enables Southampton to continue as a major player in national and international health policies and initiatives to develop new therapies. It allows further development of our expertise and innovation."

The funding, which is part of the Government's record £800m investment in NHS and university partnerships, has secured the future of the Southampton Centre for Biomedical Research for the next five years by supporting its core infrastructure.

Medicine, in partnership with UHSFT, is also building a new molecular sciences hub to support the BRU, BRC and the Experimental Cancer Medicine Centre. Associate Dean for Research Professor Tim Elliott says: "It will provide complex immunological, microbiological and genomic analysis to industry standards and will help us to conduct more informative clinical trials, faster across a wide range of diseases.

A shot in the arm for cancer research



A gift of £10 million from an anonymous donor this summer will be a major contribution to the University's world class research in cancer immunology and immunotherapy.

This is the largest single donation the University has ever received and will keep Southampton at the very forefront of this important and expanding area of medical research. The same donor has also contributed a further £10 million to Cancer Research UK.

Researchers at Southampton will use the gift to build on their global reputation by creating a centre for cancer immunology. It will work with organisations like the Francis Crick Institute, a major new biomedical research centre in London, set to open in 2015, to speed up the translation of research discoveries into benefits for patients. To maximise the centre's potential, the University is to launch a campaign to raise a further £10 million to advance research into cancer immunology.

For more than a decade, Southampton has made a number of advances in tumour immunology and immunotherapy with a

reputation for its 'bench to bedside' results. More and more evidence is showing that the immune system has enormous potential to fight cancer and to extend people's lives. Recent results from large clinical projects are giving real hope that researchers are entering a new era of cancer treatment.

The new treatments come in the form of vaccines and antibodies designed to direct specific immune cells against cancers. These cells are normally responsible for protecting the body from invasion by viruses such as measles and influenza. However, given the right education, these 'killer' immune cells can control and shrink cancer and give long-lasting protection.

"We have been particularly successful at taking discoveries from the laboratory and offering them to patients in clinical trials," says Professor Martin Glennie, Head of Cancer Sciences and Professor of Immunochemistry. "It has been a long

wait, but this work is now paying dividends and shows the true potency of the immune system to destroy cancer cells. Our antibody discovery programme is already delivering new drugs to the clinic and with the new centre, we can accelerate this process."

The most recent drug in this class is called Ipilimumab which stimulates the immune system to kill cancer cells and is the first ever treatment to extend the life of patients with the aggressive skin cancer called melanoma.

Peter Johnson, Professor of Medical Oncology at the University and also Chief Clinician for Cancer Research UK, said: "Harnessing the power of the immune system is one of the most promising areas of new cancer treatment, and this far-sighted initiative will really make a difference to both our scientific understanding and its practical application in the clinic."

Launch of new European medical degree

An exciting new degree programme gives medical students the opportunity to study both at the University of Southampton and in Germany.



The Kunsthalle Fridericianum, Kassel, Germany, the oldest museum building in Europe.

Trainee doctors in their final three years of study will be able to gain practical experience in a German hospital, giving them a broad, international perspective on medical care. The new partnership with health provider, Gesundheit Nordhessen Holding, based in Kassel, will also allow German students to be taught in Southampton before returning home for the rest of their education.

Professor Iain Cameron, Dean of Medicine, says: “Southampton’s medical school has an impressive record of achievement in education, research and enterprise. I am delighted that we are launching this innovative international programme in medical education as we celebrate 40 years of Medicine.”

University Vice-Chancellor, Professor Don Nutbeam, adds: “This is a ground-breaking agreement allowing students from Germany and the UK to gain experience in two countries with first-class reputations for

medical training. Our goal is to give students the opportunity to gain experience of working internationally. We hope this will broaden their experience of healthcare in different medical systems and will assist them in their future careers as doctors.”

The first students to benefit from the new exchange programme will begin their five year degrees in October 2013. Twenty-four places for German students will be available. They will spend the first two years of study in Southampton, where they will learn medical theory and techniques and gain practical experience in the NHS. In years three, four and five, they will move back to Germany to continue the practical element of their degree in Kassel Hospital in central Germany, where they will undertake further training after they graduate to gain full registration with the General Medical Council.

UK medical students studying at the University will also be given the opportunity

of applying to continue part of their year three and four training in Germany. The students who take part in the exchange must be fluent in German and English.

The University of Southampton was one of the first in the UK to provide a course to support talented students from disadvantaged backgrounds who have not met the normal A level entry requirements to achieve their dream of becoming a doctor. Since its launch in 2002, 160 students have gone on to qualify.

Dr Gerhard Sontheimer, Chairman of the Board of Management of Gesundheit Nordhessen Holding says: “This joint education programme is a fascinating opportunity for medical students to gain experience in both the British and German health care systems. We are very excited to be bringing together the best in transnational educational and clinical resources to build a new generation of highly qualified doctors.”



LifeLab – learning about health at an early age

Aspects of adult lifestyle are thought to be established early in life. Research at the University has shown that young people’s diets and health behaviours are established before they have children, and so can influence the next generation.

Furthermore, research shows that pregnant women generally change their diet little during pregnancy and the diets established before pregnancy influence the quality of diets of their children. Fathers also play an important part in determining the family diet. This has led to an initiative to find ways of influencing the health behaviours of adolescents before their lifestyles are firmly established – the LifeLab project.

Through the University’s LifeLab project, young people in and around Southampton have been finding out for themselves about how lifestyles affect their health. This innovative, cross-community initiative aims to change children’s behaviour and attitudes towards health through a science-oriented education programme. It offers unique hands-on experience of some of the laboratory medical research underway in their city, demonstrating not only the importance of diet and lifestyle to their health today but how it can impact on their future children’s health as well.

A purpose-built LifeLab is under construction in the Southampton General Hospital as part of the new National Institute for Health Research (NIHR) Southampton Biomedical

Research Centre. This will enable thousands of children to visit LifeLab each year. A trial is also being conducted in city schools to provide a rigorous evaluation of LifeLab.

Since 2008, more than 1,000 school children aged around 14 years from across the region have taken part in pilot projects. Feedback shows they became more aware of the need for healthy eating, and have an increased interest in science. Teachers, local education authorities and parents have responded positively, and its impact has been recognised in an Ofsted school inspection report.

“All the workshops are designed to show the relationship between our lifestyles and our health,” comments Kath Woods-Townsend, who runs the LifeLab activities. “We believe that this initiative will make a real difference to problems such as poor diet and obesity. In our research we have followed up children who took part in the initiative, to ascertain whether there is a lasting impact six months later. Generally, they are more engaged in science, considering it as a career or at least taking it on beyond GCSE and they understand better the longer term implications for their health, compared to their peers who did not go to LifeLab.”

The renowned fertility scientist, author and television presenter Professor Lord Robert Winston visited LifeLab in 2011. He was impressed by the experiments he saw, involving young volunteers using the latest ultrasound, body fat and muscle strength testing equipment as well as learning about how their diet can affect their DNA.

LifeLab is led by Professors Mark Hanson, Keith Godfrey and Hazel Inskip from Medicine and the Medical Research Council (MRC) Lifecourse Epidemiology Unit, with Drs Marcus Grace and Janice Griffiths in the Southampton Education School and the Science Learning Centre South East. It is a collaborative project with the University Hospital Southampton NHS Foundation Trust, the NIHR Southampton Biomedical Research Centre, Southampton City and Hampshire Councils and local schools.

The University of Southampton is grateful to the Garfield Weston Foundation for a £250,000 gift, which has helped with the development of LifeLab’s new premises at Southampton General Hospital. Further gifts from alumni and friends are also expected to contribute to its activities.

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