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wisdom

CARDIFF SCHOOL OF DENTISTRY

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comes home...



Contents

04 Research

07 NHS

08 Education

10 Cover Story

12 News

16 Student Profiles &
Alumni Profiles

18 Staff Profile

19 Alumni

Editor Riah-Jayne Jones
Assistant Editor Catherine Roberts
Find out more about the School at:
www.cardiff.ac.uk/dentl
or email : wisdom@cardiff.ac.uk



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Wisdom is designed by the Dental
Illustration Unit at Cardiff University



Welcome

Since the last edition of Wisdom, there has been a significant change to the structure of Cardiff University. The 26 individual Schools within the university have been grouped into three Colleges. The School of Dentistry is now a member of the College of Biomedical and Life Sciences, which also encompasses the Schools of Medicine, Pharmacy, Optometry, Healthcare Studies, Psychology and Postgraduate Medical and Dental Education. Such integration will undoubtedly lead to benefits for the delivery of education and research. However, concern has been expressed that the Schools would lose their individual identities. This will not be the case and through all aspects of my role as Dean and Head of School, I will ensure the School of Dentistry in Cardiff remains a high profile and recognisable institution in its own right. One way of ensuring this identity is the production and dissemination of Wisdom, to publicise our wide spectrum of achievements and successes.

I am delighted to announce that the School's submission in 2012 for an Athena SWAN Award was successful and we gained a Bronze Award. Cardiff is one of only two Dental Schools in the United Kingdom to hold an Athena SWAN Award. This award recognises our commitment to enabling women to progress in the science subjects and in our case to progress in all aspect of our activity within the School of Dentistry.

At the time of writing this introduction, the School is finalising the material for our submission for the Research Excellence Framework (REF) 2014. Unlike in the previous Research Assessment Exercise (RAE), in which Dentistry was returned as an individual subject, our activity will on this occasion form part of a Unit of Assessment that also contains Pharmacy, Optometry, Healthcare Studies and Medicine. I believe that our School is in a strong position with regard to research and this is reflected in a number of articles in this issue of Wisdom. In addition to publishing high quality papers and attracting significant Research Council funding, we can also demonstrate that the outcome of our research is having a positive impact on society. Furthermore, our early stage researchers have won International and National Awards, which is promising for the future (see Staff profiles). We have also established a Memorandum of Understanding for collaborative research with Dental Schools in Xi'an in China and Rio de Janeiro in Brazil. Finally, I can announce that I have been elected the President of the British Society for Oral and Dental Research (BSODR) and as such I have agreed to host the Annual Scientific and General Meeting of the BSODR in Cardiff in 2015.

The School has continued to develop the Multiple Mini Interview (MMI) scheme for undergraduate dental student selection and MMIs are now being used to select students onto our Dental Care Professional programmes for Dental Therapy and Dental Hygiene.

Last but not least, I hope that you have marked in your diary the dates for the School of Dentistry Golden Jubilee celebrations which will be held on 16th-18th May 2014. This event will offer a fantastic opportunity to recognise the 50 years that have passed since the School first admitted students to study Dentistry. In addition to the social events of a BBQ on the Friday evening and Gala Dinner on the Saturday, there will be Continuing Professional Development and educational sessions, including The Brian Cooke Memorial lecture during the day on the Saturday. The venue is the Vale Hotel Spa Resort which I believe is the perfect setting to relax, catch up with colleagues and celebrate our School of Dentistry.....See you there!

Professor Michael A. O. Lewis
Dean and Head of School

“ The School of Dentistry is now a member of the College of Biomedical and Life Sciences, which also encompasses the Schools of Medicine, Pharmacy, Optometry, Healthcare Studies, Psychology and Postgraduate Medical and Dental Education. ”



Professor Michael Lewis,
Dean of the School

Croeso

Mae cryn dipyn o newid wedi bod yn strwythur Prifysgol Caerdydd ers y rhifyn diwethaf o Wisdom. Mae'r 26 o Ysgolion unigol yn y brifysgol wedi'u grwpio'n dri Choleg. Mae'r Ysgol Deintyddiaeth erbyn hyn yn aelod o Goleg y Gwyddorau Biofeddygol a Gwyddorau Bywyd, sydd hefyd yn cynnwys yr Ysgolion Meddygaeth, Fferylliaeth, Optometreg, Astudiaethau Gofal Iechyd, Seicoleg ac Addysg Feddygol a Deintyddol Ôl-raddedig. Bydd integreiddio fel hyn yn sicrhau yn arwain at fanteision o ran cyflawni addysg ac ymchwil. Er hynny, mae pryderon wedi'u mynegi y byddai'r Ysgolion yn colli eu hunaniaeth unigol. Fydd hyn ddim yn digwydd a thrwy bob agwedd ar fy rôl i fel Deon a Phennaeth yr Ysgol fe wna i'n siŵr fod Ysgol Deintyddiaeth Caerdydd yn parhau'n amlwg ac yn sefydliad pendant yn ei hawl ei hun. Un ffordd o sicrhau'r hunaniaeth hon yw llunio a lledaenu Wisdom, i dynnu sylw at ein rhychwant eang o gyraeddiadau a champau.

Mae'n hyfryd cael cyhoeddi bod cyflwyniad yr Ysgol yn 2012 ar gyfer un o Ddyfarniadau Athena SWAN wedi llwyddo a'n bod ni wedi ennill Dyfarniad Efydd. Mae Caerdydd yn un o ddwy Ysgol Ddeintyddol yn unig yn y Deyrnas Unedig i ennill Dyfarniad Athena SWAN. Mae'r dyfarniad yn gydnabyddiaeth i'n hymroddiad i alluogi menywod i symud ymlaen yn y pynciau gwyddonol ac

yn ein hachos ni i symud ymlaen ym mhob agwedd ar ein gweithgareddau yn yr Ysgol Deintyddiaeth.

Adeg ysgrifennu'r rhagymadrodd hwn, mae'r Ysgol wrthi'n pennu manylion terfynol ein cyflwyniad ar gyfer Fframwaith Rhagoriaeth Ymchwil (REF) 2014. Yn wahanol i'r hen Ymarfer Asesu Ymchwil (RAE), lle'r oedd Deintyddiaeth yn cael ei thrin fel pwnc unigol, bydd ein gweithgareddau y tro hwn yn rhan o Uned Asesu sydd hefyd yn cynnwys Fferylliaeth, Optometreg, Astudiaethau Gofal Iechyd a Meddygaeth. Rwy'n credu bod yr Ysgol mewn sefyllfa gref o ran ymchwil ac mae hyn yn cael ei adlewyrchu mewn nifer o erthyglau yn y rhifyn hwn o Wisdom. Yn ychwanegol at gyhoeddi papurau o safon a sicrhau cryn dipyn o gyllid gan y Cyngor Ymchwil, gallwn ddangos hefyd fod deilliannau'n gwaith ymchwil yn creu effaith gadarnhaol ar y gymdeithas. Ar ben hynny, mae'n hymchwilyr cyfnod cynnar wedi ennill gwobrau rhyngwladol a chenedlaethol, sy'n argoeli'n dda at y dyfodol (gweler proffiliau'r Staff). Rydyn ni wedi sefydlu Memorandwm Cyd-ddealltwriaeth ynglŷn ag ymchwil gydweithredol gydag Ysgolion Deintyddiaeth yn Xi'an yn Tsieina a Rio de Janeiro ym Mrasil. Yn olaf, gallaf gyhoeddi fy mod innau wedi fy ethol yn Llywydd Cymdeithas Ymchwil Eneuo a Deintyddol Prydain (BSODR) a'm bod i

yn rhinwedd y swydd honno wedi cytuno i gynnal Cyfarfod Gwyddonol a Chyffredinol Blynnyddol BSODR yng Nghaerdydd yn 2015. Mae'r Ysgol wedi parhau i ddatblygu'r cynllun Lluosgyfweiliadau Môn (MMI) at ddewis a dethol myfyrwyr deintyddol israddedig ac erbyn hyn mae MMIs yn cael eu defnyddio i ddewis myfyrwyr i'n rhaglenni i weithwyr proffesiynol gofal deintyddol mewn Therapi Deintyddol a Hylendid Deintyddol.

Yn olaf, gobeithio eich bod wedi nodi dyddiadau dathlu Jiwbił Aur yr Ysgol Deintyddiaeth yn eich dyddiaduron, sef 16-18 Mai 2014. Bydd y digwyddiad yn gyfle gwych i gydnabod yr hanner can mlynedd sydd wedi mynd heibio ers i'r Ysgol dderbyn y myfyrwyr cyntaf i astudio Deintyddiaeth. Yn ychwanegol at y digwyddiadau cymdeithasol, sef y barbiw ar y nos Wener a'r Cinio Gala ar y nos Sadwrn, bydd yna sesiynau Datblygu Proffesiynol Parhaus a sesiynau addysgol, gan gynnwys Darlith Goffa Brian Cooke ar y dydd Sadwrn. Gwesty'r Vale Resort yw'r lleoliad ac rwy'n credu ei fod yn lle delfrydol i ymlacio, cwrdd â hen gyfeillion a dathlu'r Ysgol Deintyddiaeth.....Welwn ni chi yno!

Yr Athro Michael A. O. Lewis
Deon a Phennaeth yr Ysgol

Michael A. O. Lewis

Introduction to Research



Professor Phil Stephens
Vice Dean Research

The major focus of this issue of Wisdom is on research within our School. The REF has focussed our attention on all aspects of output across our two research themes and many examples of our successes can be seen in the pages that follow.

What is clear is how far the School has come since the last assessment. Not only have we strategically focused our research efforts in a few key areas of strength, the quality of our research outputs has grown and we are now delivering tangible impacts to society through translation of our excellent research, patent exploitation and formation of spin out companies. Key to this have been the excellent staff in Cardiff attracted by significant infrastructure investment over the past decade.

As the Dean mentions in his introduction, we are undergoing significant changes with the

roll out of our new College structure. This is an exciting time for our School as we are currently actively involved in helping the University shape its future. Over the years, we have worked closely with colleagues in many Schools across the University and I feel the new structure will make it easier for us to develop further our inter-disciplinary research.

Our focus is now on further growth and research translation, which fundamentally will be driven by our commitment to the training of talented staff. Hence, we have actively supported the career progression of our excellent early career researchers who represent the future of dental research. So, heading towards the imminent REF deadline my thoughts are highly positive. As Henry Ford once said “coming together is a beginning, keeping together is progress, working together is success.”

Improving the efficiency and cost-effectiveness of the orthodontic services - A worldwide perspective

Professor Stephen Richmond

Research from Cardiff University's School of Dentistry has developed international health technology assessment (HTA) for orthodontic treatment: an index of complexity, outcome and need (ICON).

Governmental reports have highlighted inefficiencies in orthodontic provision and Cardiff research illustrated diverse professional clinical opinions within and between

countries in relation to treatment need and outcome.

The ICON has since been established as an international health technology assessment and implementation of these recommendations has been shown to improve cost-efficiency/effectiveness of orthodontic provision. Efficiency savings (up to 10% of orthodontic budget) have been demonstrated and when re-invested will enable

treatment of a further 1000 children per year in Wales.

The HTA is now used in over 40 countries (mandatory in Eire, Germany, Sweden, UK) and has calibrated over 3,000 clinicians as part of routine training courses for governmental and health insurance agencies.

ICON has been regarded as one of the best indices available.

Shaping UK Government Policy in Violence Prevention Initiatives

Professor Jonathan Shepherd

Research from the Violence and Society Research Group (VSRG) at Cardiff University has directly led to the development of pioneering data sharing models for violence prevention. The data sharing model has been demonstrated to result in an annual decrease in violent crimes of up to 4%.

Adopted nationwide by UK government and the Department of Health, the new protocol, referred to as the 'Cardiff Model', is embedded as a Coalition Government national commitment and implemented into UK wide public service.

The Group has investigated the causes of community violence leading to trauma and researched its incidence and evidence-based approaches for its prevention. Their re-

search was directed toward multi-agency violence prevention using a triangulation strategy of data sharing between hospital emergency units, the police and local authority agencies.

The impact of this research has been on policy-making at the UK Government level including a clear commitment for “hospitals to share non-confidential information with the police” in the Coalition Government's programme document (2010) which was further reaffirmed in the Government's mid-term review document (2013).

In addition, Department of Health guidance on information sharing to tackle violence explicitly identifies the “Cardiff Model” and cites Cardiff research, which demonstrates the important role of hospitals to promote community safety.



Applied Clinical Research and Public Health

Head of Theme: Professor Stephen Richmond

ACR&PH embraces a wide-range of research (undertaken in the Dental Public Health, Violence Research and Orthodontic groups) that tackles key and important health care issues.

Current research projects within the Theme include:

- “Seal or Varnish” - designed to investigate the clinical and cost-effectiveness of fissure sealants and fluoride varnish in the prevention of occlusal caries in first permanent molars.
- FICTION - Filling Children’s Teeth: Indicated Or Not? - designed to investigate the merits of restoring deciduous teeth.
- “Designed to Smile” the Welsh Government’s programme to address inequalities in oral health by preventing tooth decay in young children.
- Management of acute peri-apical conditions by general dental practitioners in Wales.
- The national survey of care home residents and the 4-yearly survey of 5 year olds.
- The implementation of brief alcohol interventions in clinics across the NHS for patients attending with assault-related injuries.
- AWLPI - a national trial of a violence reduction intervention in collaboration with Environmental Health Officers and the police.
- Collation of national assault-related injuries from Emergency Departments across England and Wales has become the de facto measure of community violence and related harm.
- Exploring violence in a broader context in terms of cost, profile of offenders, alcohol misuse as well as preventative measures.
- Identifying facial Genotype/Phenotype associations.
- Defining 3D facial growth in 3 cohorts of children 12 to 17 years of age (Wales, Slovenia and Finland).
- Building biomechanical head models to mimic human anatomy and normal facial movement.



“ It is important that our research has a positive impact on peoples’ daily living. ”

Professor Stephen Richmond

Professor Alastair Sloan

Tissue Engineering and Reparative Dentistry

Head of Theme: Professor Alastair Sloan

Understanding the cell and molecular processes underpinning tissue responses to trauma and subsequent regeneration and reparative processes is the focus of this Research Theme. The Theme consists of 5 multi-disciplinary research groups leading research in matrix biology, regeneration of both mineralised and soft tissues, the role of stem cells in regenerative medicine and the effects of microbial infection and biofilm formation on tissue function and repair. The strong translational aspect to the research is a key feature to support the continuous flow of knowledge between clinicians and basic scientists which leads to advances in oral healthcare and valuable application to wider areas of biomedicine including oncology, orthopaedics, cardiology, urology, gastroenterology, haematology, neurobiology and dermatology. Interdisciplinary research is a major part of the Theme’s strategy and researchers are actively involved in projects with colleagues in the Schools of Pharmacy, Optometry, Biosciences, Medicine and Engineering. Several principal investiga-

tors within the Theme are also members of the recent Arthritis Research UK (ARUK) Biomechanics and Bioengineering Centre and Cardiff Institute for Tissue Engineering and Repair (CITER) as well collaborating with colleagues in other UK institutions and Universities within Europe, USA, Canada, China and Japan. Research within the Theme is supported by funding from across the entire sphere of research funders including significant grant support from the MRC, EPSRC, European Research Council, NC3Rs, Royal Society, Tenovus, ARUK and industrial and commercial sponsors.

Current research projects within the Theme include:

- Harnessing the regenerative potential of dental pulp stem cells for dental and craniofacial tissue engineering (Sloan, MRC).
- Probing the mechanical control of stem cell fate through the development of novel, non-invasive imaging technologies (Stephens, EPSRC).
- Tissue regeneration of spinal cord injury (Song, ERC).
- Novel Biomarkers for Arthritis (Aeschlimann, ARUK).

“ Our translational focus supports knowledge transfer between scientists and clinicians advancing biomedical therapies. ”





Lights, Camera.... Artificial Limbs?

What do artificial limbs, facial prosthetics and Harry Potter have in common?

The answer is that all have benefited from the research and development undertaken by Professor Mark Waters and his group at the School of Dentistry (Cardiff University) and within his spin out companies MBI (Wales) Ltd and Technovent Ltd.

Prof Waters' has worked at the School since 1991 where his interests have been in the development of novel and innovative families of silicone-based medical materials and devices. The driving force for his research has been the need to develop better maxillofacial prosthetics for use in the replacement of facial parts lost through disease or trauma.

Over the years Prof Waters' Research Group has developed a range of novel silicone formulations with a wide range of physical properties and tailored/controllable processing characteristics. Their system is the first one specifically formulated for maxillofacial purposes and was developed



in close collaboration with NHS Maxillofacial Units around the UK. Prof Waters commented that his company's products "have now been adopted as the system of choice throughout the UK, Europe and Worldwide and have significantly improved the lives of many patients with facial disfigurements."

Leading on from this work has been the development of novel 'skin-like' materials which have been used to produce orthotic leg covers, nipple prostheses and hand/finger prostheses for clinical applications but also a range of silicone formulations for use in the special effects industry. These unique 'on-skin silicone' materials allow the makeup artist to create silicone prosthetic effects directly onto the actors' skin and have been utilised in TV productions such as Casualty, Dr Who and Holby City and



From Left to Right:
Goblin from the Harry Potter films,
Silicone prosthesis,
Completed silicone prosthesis, Prosthetic ear

major Hollywood films such as Prometheus and the Harry Potter series.

As a result of growing sales across 30 countries, the MBI group of companies has expanded, with two sites in South Wales, a subsidiary company based in the USA and commercial partners in Europe, India, the Middle East, Far East and Australasia.

So after over two decades of research and development what does Prof Waters feel his greatest achievement is? He replies that "If you, like me, have the opportunity to start up your own business then I highly recommend it. To have the opportunity to translate basic research through to patients and make a real difference to their quality of life is the one of the best feelings in the World."

'Have a Word Campaign'

Violence and Society Research Group

An innovative campaign developed at Cardiff University to tackle binge drinking was launched by Lesley Griffiths AM, Minister for Health and Social Services in Cardiff on 10th January 2013.

The initiative is a key output of a Knowledge Transfer Partnership between Professor Jonathan Shepherd's Violence Research Group, the Welsh Government and Public Health Wales. It is designed to motivate nurses and other health professionals to help patients reduce their alcohol consumption to safe levels by having a carefully structured conversation (brief intervention) about this problem with them.

The aims are to prompt the patient to recognise the harm which their drinking has caused, especially the condition – for



example an injury sustained whilst intoxicated - being treated; to review their drinking; to set themselves drinking limits and to make and act on decisions to reduce their hazardous drinking.

A series of clinical trials carried out by Professor Shepherd's team has demonstrated that brief interventions are effective in

reducing levels of alcohol misuse and are also cost-effective as they can be delivered by nurses whilst undertaking routine clinical procedures.

At the heart of this campaign is a training team which has so far trained more than 2000 health professionals across Wales.

Prof. Mike Lewis with
Lesley Griffiths AM at
Mountain Ash



Official Opening of Modern Dental Unit aids Community

School of Dentistry's second Primary Care Dental Unit officially opens

The Minister for Health and Social Services officially opened the new Primary Care Dental Unit in the Cynon Valley on 4 October 2012, an outreach unit providing a wide range of free dental care from Final Year School of Dentistry students to local residents.

The Unit at Ysbyty Cwm Cynon is designed to provide dental care to individuals in an area of Wales in high dental need. Since opening, the clinic has provided comprehensive dental care to more than

600 local residents, who previously did not have access to a dentist.

The Health Minister said: "This fantastic state-of-the-art facility is delivering on two levels. Not only is it bringing dental services to patients in an area of high need, it is giving Final Year dental students more practical experience before they finally qualify and go on to positions in practices."

Professor Michael Lewis, Dean of the School of Dentistry commented:

“ This fantastic contemporary faculty provides our students with the best possible equipment to deliver services directly to patients in their own area ”

Forging Links Far and Wide

In September 2012 the School of Dentistry hosted a guest from one of the most remote places on the globe. Ms Lina Knipe is the Dental Technician on the island of Saint Helena. She spent six months on a secondment to the UHB Dental Production Laboratories under the tutelage of Mr Roger Maggs, Senior Chief Dental Laboratory Manager/ Honorary Dental Instructor and his staff.

The links between Cardiff and Vale UHB, Cardiff University and the Department of Health and Social Welfare in St Helena have been facilitated by Prof Ivor Chestnutt and continue the tradition of sharing our expertise with colleagues overseas. St Helena is part of the British Overseas territory of Saint Helena, Ascension and Tristan da Cunha.

Dental Services are provided by a dentist who usually goes to the island on a two year contract. Lina provides the all-important technical support. Travel from St Helena to Cardiff takes five days – a three day boat trip to Ascension Island, an overnight on Ascension and then a flight on a Transport to RAF Brize Norton!

Professor Chestnutt with Mr Maggs and Ms Knipe





Hector Garcia © wikimedia commons

Professor Chestnutt with Dental Public Health staff in Brazil

Links with the State University of Rio de Janeiro

The School continues to build on links with the Universidade do Estado do Rio De Janeiro (UERJ -State University of Rio De Janeiro).

Following a visit by the Dean, Professor Michael Lewis and Postgraduate Dean Professor Jon Cowpe in 2012, Professor Ivor Chestnutt visited the Dental Public Health Department at UERJ in May 2013. There he delivered symposia to the Postgraduate students and participated in a symposium on International Collaboration, hosted by the Brazilian Federal Funding Agency. Professor Chestnutt was accompanied by Mrs Siobhan Robertson, Cardiff University's Deputy Director of International Development.

Other work undertaken during the visit included discussion on the development of a Masters in Dental Public Health Programme by UERJ and options for pursuing collaborative research between Wales and Rio de Janeiro.

A delegation from UERJ are scheduled to visit Cardiff University Dental School in September 2013 to continue the link, which is an important element of the University's work in collaborating with Universities in the BRIC countries.

Learning and Scholarship

Head of Theme – Dr. Chris Lynch

The Theme has approximately 10 full time and over 40 part time members of staff working within the School, in addition to outreach centres such as St David's and Mountain Ash Hospitals.

Learning & Scholarship is home to many staff whose main activity relates to undergraduate teaching and, in particular, clinical experience. The Theme's staff have significant expertise in clinical teaching and assessment, and as such, the Theme provides significant support to the School in its mission to deliver world-leading undergraduate teaching.

Many changes in undergraduate education in the Dental School took place as a result of the Modernising Dental Education project (MDE) (2008-2012). This project had a number of key objectives of which early clinical contact, increased integration, and increased clinical contact in later years were

fundamental and many of the Theme's staff are involved in the delivery of these objectives. Notwithstanding successful implementation of these changes, further work is required to continue Cardiff's high standards of educational provision.

There are many challenges ahead but the MDE project have put us in a good position to tackle these challenges and further improve our educational provision through innovation and endeavour.

The Theme also has a research portfolio which is based around educational and clinical research. Work ranges from an international study of student learning, investigation of the use of technology in providing feedback to students on written work, and an investigation of Foundation Trainers' views of a new graduate. In addition, clinical research in endodontics continues to be strong.



Babinet Damien© wikimedia commons

ADEE 'Coeur de Lyon' for Cardiff

The 38th Association for Dental Education in Europe (ADEE) meeting was held at the end of August in Lyon, the gastronomic centre of France.

Once again Cardiff University contributed to the success of the event. The event was preceded by the European Dental Students Association (EDSA) meeting, attended by dental students from Cardiff many of whom stayed on for part of the ADEE meeting. The theme of the ADEE meeting was 'Evidence-based dentistry: from bench to clinic'.

Professor Richard Oliver was an invited speaker and gave a combined presentation with Professor Jean-Louis Sixou from Rennes University on the similarities and differences between the two countries to the teaching of evidence-based dentistry.

Professor Alan Gilmour volunteered to give an oral presentation of his research into DF1 trainers' expectations of the new graduate, and Professor Jon Cowpe gave a verbal summary of the work he has led on CPD for dentists in Europe which has been part-funded by an Erasmus grant. Mrs Sheila Oliver led the Assessment and Feedback Special Interest Group meeting, and Dr Shelagh Thompson was involved with the Special Care Dentistry Special Interest Group.

The university's undergraduate and post-graduate dental students presented 14 posters (17% of all posters), four of which were undergraduate Final Year Projects. Dr Shelagh Thompson was presented with a Mature Educator Award at the General Assembly, she is the third individual from Cardiff to receive this award.

Next year the meeting is to be held in Birmingham – access will be easier than Lyon, but they may struggle to match the 'degustation'.



Building an ePortfolio

Dental Students have been given the chance to produce an electronic record of their academic achievements and produce a ready-made CV to boost their chances of career success as part of an innovative new online tool.

ePortfolio is an electronic tool available to dental students to record their academic achievements and create a portfolio of their work.

Dental student, Gemma Wheeler said: "The ePortfolio is a great tool for students at the Dental School. It's fantastic to have developed the old paper versions into something which is now online, and so is now more portable – you can just add bits whenever you have a bit of spare time by a computer.

"The ePortfolio is a great way to help keep your CV up to date and to have an opportunity to reflect on work you have completed, an important skill for the world of work. And obviously, it's a lot easier being able to do it as you go along, as we will no doubt forget things as the course lasts for five years".

As well as building a record of their academic work, it also provides new ways to interact, discuss and share work with their tutors.



Talking Points
in Dentistry

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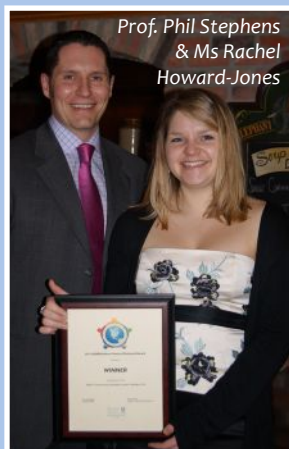
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Cardiff's Success at British Society for Oral and Dental Research



Prof. Phil Stephens
& Ms Rachel
Howard-Jones

Rachel Howard-Jones

Senior Colgate prize

Adult progenitor cells (PCs) have potential wide-ranging therapeutic applications in tissue repair/regeneration for example during spinal cord regeneration.

Rachel's work has been investigating the isolation of progenitor cells from the oral mucosa lamina propria (OMLP) and the reprogramming of these cells to induce pluripotent stem cells (iPSCs) to make functional neurons.

The findings to date have demonstrated that OMLP-PCs can form functional neurons in the lab as characterised by specific staining profiles (positive for mitogen activated protein-2, glial fibrillary acidic protein, neurofilament medium and β III tubulin) and their response to external stimuli (as evidence through calcium imaging technologies).

Furthermore, she has now managed to reprogramme these oral progenitor cells to iPSCs and work is ongoing to determine whether these reprogrammed cells have a greater potential to form functional neurons compared to OMLP-PCs.

on "Dental Pulp Progenitor Cell Ageing Influences Regenerative Potential".

This work showed, for the first time, that different dental pulp stem cell clones isolated from the same patient had distinctly different telomere lengths and that as they were expanded in culture these telomeres shortened and their ability to differentiate into a mineralising phenotype.

This work has significant impact for expansion of cell numbers for cell therapies.

Dr Leili Sadhaghiani, Ms Magdalena Adamczyk,
Prof. Mike Lewis, Mr Andreas Heil
& Miss Anwen Cope



Andreas Heil

Unilever Poster Prize

A novel 3D in vitro model of human articular cartilage

Andreas, 3rd year PhD student funded by Arthritis Research UK and the Cardiff University President's Research Scholarship scheme in Professor Daniel Aeschlimann's lab, presented his work on the development of a novel 3D tissue engineered model system of human cartilage tissue.

The next step of Andreas' research is to use this model system for the identification of biomarkers for osteoarthritis which will facilitate an earlier and more precise diagnosis.

Magdalena Adamczyk

Commendation, Unilever Poster Prize category

Matrix stabilization following tissue injury: Is P2X7 receptor activation the link?

Magdalena was a PhD student sponsored by Arthritis Research UK.

She is currently working in the group of Professor Daniel Aeschlimann on the identification of biomarkers with potential for diagnosing early osteoarthritis (pre-radiographic stage of disease).

Her work provides for the first time a molecular explanation of how transglutaminase 2 release is linked to tissue 'injury' in disease processes.

Anwen Cope

Commendation, Clinical Poster Prize

Use of Antibiotics in the management of acute periapical conditions.

Anwen holds a Cardiff University President's scholarship and is part funded by the Wales School for Primary Care Research.

Working with Professor Chestnutt, Dr Francis and Dr Wood in Primary Care, Anwen's PhD is examining the use of antibiotics by dentists, who prescribe 9% of all antibiotics used in Wales.

In addition to a Cochrane review on the topic, Anwen is examining the use of antibiotics in the management of acute dental conditions and is also looking at how general medical practitioners deal with acute dental pain.

Leili Sadhaghiani

GSK-MINTIG Prize

Leili is currently undertaking her PhD in the Mineralised Tissue Group under the supervision of Professor Alastair Sloan, Dr Chris Lynch and Professor Rachel Waddington.

Leili's research suggests current clinical etching agents, citric acid and phosphoric acid (along with EDTA) are able to release growth factors from dentine which stimulate the differentiation of dental pulp progenitor cell populations and thus mediate tissue repair processes.

Her work has demonstrated that these etching agents release the correct growth factors required for tissue repair. This funding will impact on clinical practice as moderate increases in etching time may promote tissue repair beneath the base of a cavity, increasing the residual dentine thickness and thus increasing the life of a dental restoration.



Mr Amr Al-Reis
receiving his prize
certificate

Amr Al-Raies

Unilever poster prize

Amr was in the final months of his PhD working with Professor Alastair Sloan, Dr Ryan Moseley and Professor Rachel Waddington when he presented his work

“BSODR Badge of Office Comes Home”

Professor Mike Lewis was installed as the President of the British Society of Oral and Dental Research (BSODR) on the 11th September 2013 at the 60th Anniversary Meeting of the society in Bath. Originally known as the British Division of the International Association for Dental Research the name changed to the British Society of Dental Research (BSDR) in 1983 and subsequently to the BSODR. The BSDR Badge of Office was presented to Professor Lewis at the Annual Dinner of the society.

The badge of office has a Cardiff origin and was first presented to Professor Colin Robinson whilst he was President of the BSDR in 1998. The idea of having a badge of office was first proposed by the late Professor Graham Embery in 1997, during the time that he served as President of BSDR whilst also Professor of Dental Basic Science at

the Dental School of the then University of Wales College of Medicine. The job of arranging for the design and finalising the badge was delegated to Professor Mike Lewis (at the time Mike

2013 is the first time that the medal has returned to Cardiff.

Cardiff has always had a strong presence within the BSDR/BSODR and apart from Professor Lewis and Professor Embery, Dr David Adams also served as the President in 1993. A number of members of staff from the School of Dentistry have served in roles on the management committee of the BSDR. At the present time Professor David Williams serves as Secretary, Professor Alastair Sloan as Assistant Treasurer and Professor Phil Stephens as council member on the management committee. The purpose of the BSODR is to advance research and increase in knowledge for the improvement of Oral Health in the United Kingdom and to that extent Cardiff is fortunate to have been chosen to host the annual scientific meeting of the society in September 2015.

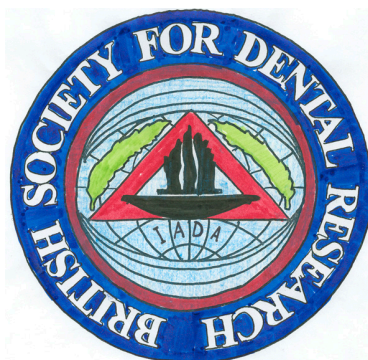
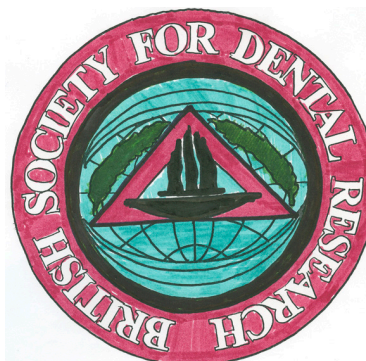
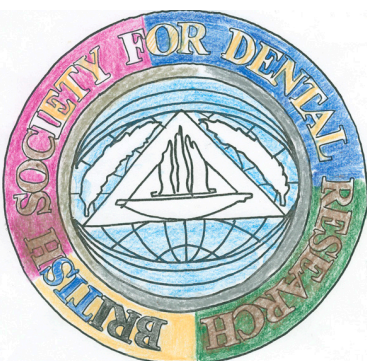
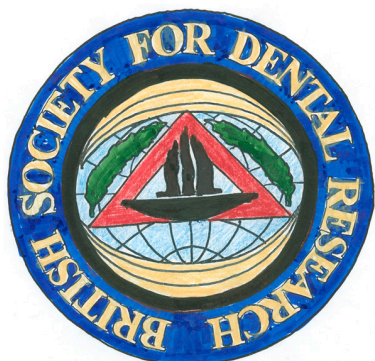
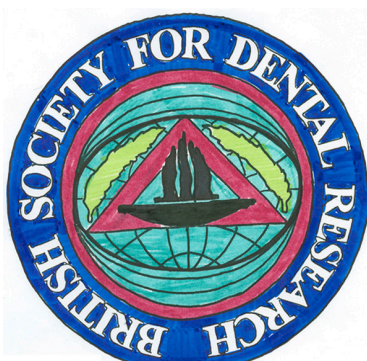


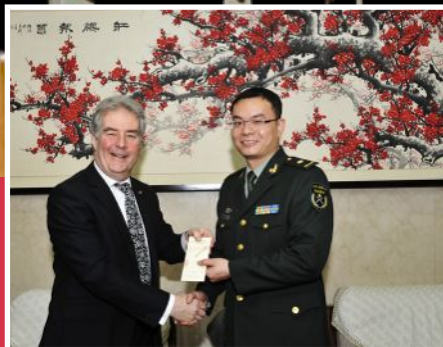
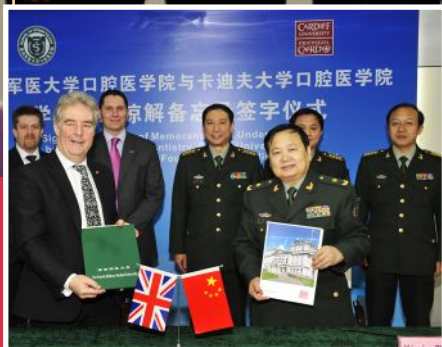
Professor
Graham
Embery



BSODR Presidents Medal

was Senior Lecturer in Oral Medicine in Cardiff). Displayed on this page are examples of the early art work that Mike used to provide the BSDR Management with the proposed Badge of Office. It is interesting to note that





Wales visit to China - Cardiff University cultivates research links

As part of the School's drive to develop and enhance its international research links/reputation a delegation from the School (the Dean, the Vice Dean of Research, the Head of Tissue Engineering and Reporative Dentistry and Professor Song) recently visited the 4th Military Medical University in Xi'an, China to sign a Memorandum of Understanding (MoU) between our two Universities.

Building from initial links created by Prof Alastair Sloan and Prof Bing Song, this MoU will see the exchange of knowledge and personnel between Cardiff and Xi'an in a number of areas across the two research themes here in Cardiff.

The Cardiff delegation was warmly received in China and the visit deemed a success not only in the development of some new joint research avenues but also in the cementing of relationships between our two Higher Education Institutes.

The School intends to host delegates from Xi'an this summer during which there will be ample opportunity for wider research discussions across the whole School.

Visualise Cellular Behaviours in Spinal Injury Research

Professor Bing Song

Cardiff University's Institute of Tissue Engineering and Repair is investigating how controlling the migration of neural stem cells influences the repair of spinal cord injuries, which is part of the €1.76m European Research Council project. The team headed by Professor Bing Song, is focusing on how physiological electric fields can be used to guide these stem cells to specific sites of injury as part of an overall repair therapy.

"We are trying to optimise the conditions needed in order to establish the best scenario for guiding the stem cells to their required locations. Green fluorescent proteins are introduced into the stem cells beforehand. Once they arrive at the scene of the injury and the stem cells begin to divide and differentiate, these proteins can be switched on and off and therefore detected as bright green fluorescence, depending on which gene they express. This way the scientists can see exactly where the stem cells are relative to the damaged nerves.

Impressed with the results generated by DeltaVision Core, Professor Song hopes to invest in more sophisticated imaging technology in order to see individual cell-to-cell interactions, and single-cell manipulations in a 3D environment.

British Dental Journal feature Welsh 'Designed to Smile' Competition

A competition organised by Professor Chestnutt and the School's Dental Public Health Unit in collaboration with the Community Dental Services' Designed to Smile Programme and the Welsh Government asked school children across Wales to design the front cover of the British Dental Journal. The 12 winning entries feature on each of the 12 issues of Volume 215 of the British Dental Journal between July and December 2013. The winners will each receive books to the value of £100 and their schools a cheque for £200 courtesy of the Nature publishing group. Professor Chestnutt said, "We have had a fantastic response to this competition with over 2,000 entries.

This competition was an interesting add-on to the fantastic work that is being undertaken in the Designed to Smile programme. As with colleagues in the Community Dental Services, Public Health Wales and the Chief Dental Officer we strive to improve the oral health of those children in the most disadvantaged areas in Wales.

We are very grateful for the support of colleagues in organising the competition and of course, all of the teachers, children and their parents who showered us with their various artistic impressions of the world of dentistry and teeth. Look out for these covers – they are absolutely fantastic!"



Violence Research Group nominated for National Research Prize



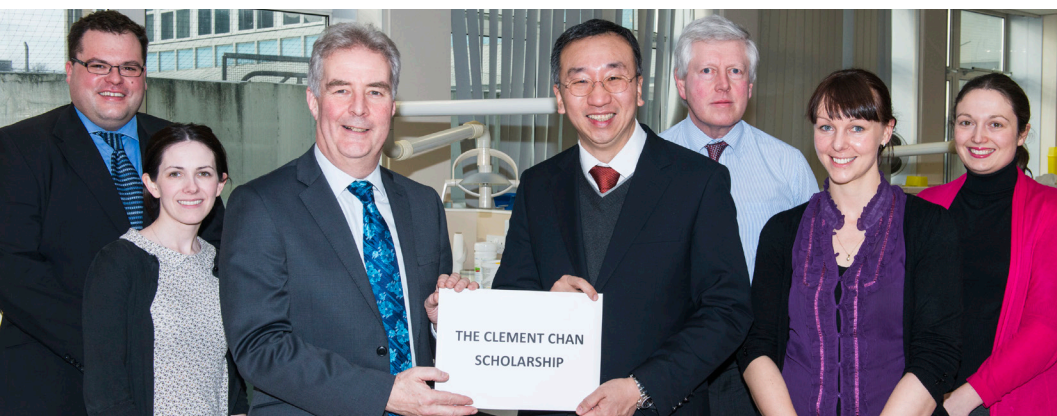
Professor Jonathan Shepherd

The Violence Research Group directed by Professor Jonathan Shepherd was the Cardiff University nomination for the Times Higher Education Research Project of the Year 2012.

Professor Jonathan Shepherd, Dr Simon Moore, Dr Vas Sivarajasingam, Dr Paul Jordan, Ms Britt Halingberg, Dr Zairah Roked, Mr Stephen Rouse and Professor Phil Stephens attended the award ceremony at the Grosvenor House Hotel on Park Lane London on 29th November where they were one of only five nominated teams for this prestigious award, and the only Wales nomination shortlisted.

The overall winner was Queen Mary University, London, but all the shortlisted project teams were winners in their own right. The banquet was held for a 1000 people and

attended by the great and good from the university world.



Professor Mike Lewis with Dr Clement Chan, Professor Stephen Richmond, Dr Sarah Merrett and MScD in Orthodontic Students

The Clement Chan Scholarship

The School was delighted to welcome Dr Clement Chan, an alumnus of the School of Dentistry, to the Dental Hospital in March 2013 to meet the 2012/13 recipients of the Clement Chan Scholarship. The award is the result of the generosity of Dr Clement Chan a past MSc student who appreciated the help of the orthodontic department in the School when undertaking the MSc course as a

student. As a way of appreciating the help he received, Dr Chan has offered to pay the 2nd year fees for the best first year student. The Scholarship has been in place for three-years and has benefitted four postgraduate students, all of whom are extremely grateful for Dr Chan's financial assistance and ongoing support to the orthodontic training provision at the School.

Cardiff University Celebrating Excellence Awards

The School of Dentistry Support Staff were nominated under the 'Outstanding Support to the University' category, in recognition of all of their efforts in consolidating and improving the administrative support to the School since the School Review in 2007/08.

On 23rd October 2012 an award ceremony was held for the Celebrating Excellence Awards and the School's Support Team was one of the lucky winners of the award for 'Outstanding Support to the University'.

Congratulations and well done everyone!



The School of Dentistry has been awarded the Athena Swan Bronze Award. The award is made to institutions who demonstrate a commitment to enabling women to progress in STEM subjects.

This award is of particular importance as research funders have indicated that they are moving to a position whereby they will only fund institutions that hold an Athena Swan Award. The School's award is valid until April 2016.

The School will act on the feedback received from the Athena Swan panel with a view to aim for the Silver Award.

Professor Richard Oliver



Retirement – Professor Richard G Oliver

Professor Richard Oliver retired in October 2012 after 35 years at the School of Dentistry working as a Reader and Consultant in Orthodontics. A retirement lunch was held for Richard where staff and student colleagues were able to wish him farewell and best wishes for his retirement.

Professor Oliver reflected on his time in Cardiff "During my thirty five years in the Dental School and Hospital there have been a number of structural and managerial changes on both the academic and NHS sides. It has been my privilege to learn from some gifted colleagues, my pleasure to see gifted undergraduates progress in their career, and my joy to work alongside a number of hard-working and dedicated nurses, secretaries, laboratory technicians and other ancillary staff. They have made the last thirty five years a happy and memorable experience".



Figure 1

Cardiff Dental School entered its third year of the multiple mini interview (MMI) methodology having pioneered its introduction into UK dentistry admissions in 2010. This year, like the last, saw 240 potential undergraduate dentistry applicants participate in the process during the week of Monday 18th to Friday 22nd February 2013. Three weeks later 64 potential undergraduate therapist and hygienist applicants also undertook a similar style of interview.

It is notable that since Cardiff introduced the world of dentistry to MMIs, 9 of the 15

Michael Jackson pips Ghandi in the battle of the Multiple Mini Interviews.

dental schools in the UK have now adopted the process and Cardiff has hosted over 30 visitations from Admissions tutors from all over the UK keen to observe “first-hand” the process in action.

2013 saw a number of new scenarios introduced to cover domains in receiving and conveying instructions, personal insight, creativity, imagination and reasoning alongside the staple domains of logic, explanation, manual dexterity and data interpretation that continue to play their part in the interview process.

Interestingly to the question of “which famous historical person you like would to have dinner with” a hard fought race between Michael Jackson and Ghandi was fought with Michael Jackson edging it in the end. The most desired superpower for potential students was revealed to be “teleportism” with the most desired animal characteristic being that of a dog, something to do with loyalty and being man’s best friend! However the most inspiring answers received were determined as “ant: hard working, strong beyond their size and confirmed team workers” and “bear: being 30 stone and hairy doesn’t really matter”. In addition the candidates’ ability to deal with the dilemma

of plane crashes, losing friends in a foreign country and a shipwreck could not go unmentioned. The effects of giving and receiving instructions are conveyed to the readers in Figure 1.

Once again the enthusiasm and commitment of both academic and support staff to the MMI process emanates resoundingly throughout the process which is clearly perceived by the applicants who continue to evaluate the whole process as “truly amazing”, “most worthwhile” and “totally enlightening”. Dr Robert McAndrew (Admissions Tutor) is particularly keen to make it known that “The support of all the staff involved in this process is not unnoticed by the School and School Board as a whole. It is clear that without this continual commitment of the staff that the School’s most valuable resource (recruitment of high calibre undergraduates) would not be fulfilled.”

While research and evaluations of the MMI process continues in the School it is believed that the MMI selection process helps deliver a calibre of students that Cardiff can continue to be proud of; the results are eagerly awaited.

Cardiff to the rescue - the Undergraduate story

By Aoife Swain BDS Student

Following last year’s successful trip to Ghana, a cohort of 25 students and staff visited Ekumfi Otum, in the central region of Ghana. Organised by the Global Brigade, the schools students would not only provide dental treatment to local residents, but also educate the community about oral hygiene and how this can be achieved using the limited resources available in the region.

President of the Dental Brigade and Graduate, Aoife Swain talks about her experience.

“After a morning of sorting equipment and labelling medication, we were driven to the community we would be working with. We set up our temporary dental clinic in the local Kindergarten, using four rooms and two tents. Although there was a small amount of equipment left behind from previous brigade visits, we had to bring along almost everything we required – local anaesthetic, forceps, disinfectant etc.

When you think of a dental clinic in the UK most would envisage a clean, clinical, comfortable environment. Imagine providing

treatment to patients sitting in plastic garden chairs, in a basic room with concrete floors, corrugated iron roof with stray goats roaming around - well this is what dental practice in Ghana looks like!

Over the four days we spent in Ekumfi Otum, we treated over 200 patients, triaged almost 500 children, and distributed over 1000 tubes of toothpaste and over 700 toothbrushes – most of the toothbrushes were donated by the Dental Wellness Trust.

Although it was important to treat the immediate problem of pain, the most rewarding part of the trip was teaching and helping the children learn good oral hygiene. We look forward to returning in 2014!”

Further information on the work of Brigade can be found at: www.globalbrigades.org





Recognition of service - celebrating 25 years

Celebrating 25 years of service in the School of Dentistry Colin Campbell, Chris Fenton and Professor Alan Gilmour all attended the Cardiff University Recognition of Service Ceremony in November 2012 where they were amongst 35 members of staff who had attained 25 or 40 years of continuous service at Cardiff University. They were all congratulated and thanked for their dedication.

All three members of staff concurred that they have witnessed many changes within the building and made some lifelong friends during their 25 years working within the School.

Above: Professor Alan Gilmour, Christopher Fenton and Colin Campbell with the Vice Chancellor Professor Colin Riordan

School of Dentistry
Ysgol Ddentyddol

CARDIFF
UNIVERSITY
PROFESSOR
CARDIFF

40 years

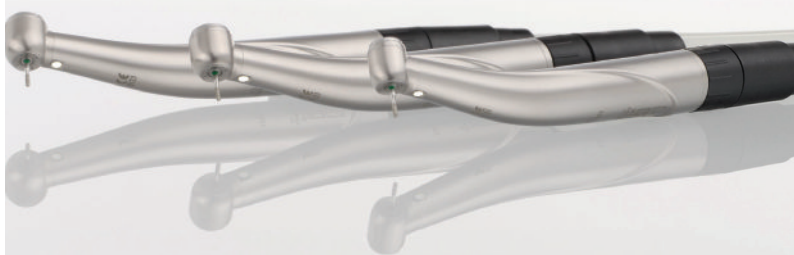
MScD Orthodontics

Celebrating 40 years of Orthodontic training in Cardiff!

A celebratory event has been arranged for Friday 14th November 2014 at St David's Hotel, Cardiff Bay. Alumni and Colleagues (past and present) are welcome. Further details to follow in early 2014.



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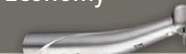


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Student Profile: Rachel Howard-Jones

Originally from North Wales. Rachel spent most of her childhood in Bangor until moving to Cardiff to attend Cardiff University as an undergraduate. After successfully completing her Masters in Tissue Engineering, Rachel went on to undertake a PhD and has recently submitted her dissertation.

Why did you choose to study in Cardiff?

I decided Cardiff was the place for me as I loved the city, there was lots going on and, above all, the University had an excellent reputation with good facilities and support for students.

What do you like about living in the city?

The city is a lovely size, everything is within walking distance which is ideal for student life and the atmosphere on rugby international days is just amazing!

Why a PhD in the School of Dentistry?

I completed an MSc in Tissue Engineering and Repair at the School of Dentistry in 2009 and carried out a 6 month research project that I thoroughly enjoyed. When the opportunity to apply for a PhD at the School became available, I jumped at the chance.

Why did you choose your particular area of research?

I have had an interest in stem cells since my studies as an undergraduate, especially embryonic stem cells given their potential for use in therapeutic applications. Unfortunately there are many ethical issues that surround the use of embryonic stem cells. Therefore a project involving adult stem cells was of great interest to me. My project was to utilise adult stem cells isolated from the oral mucosa and reprogram these back towards an embryonic stem cell-like state. These cells represent an interesting population given that the procedure to obtain the cells is minimally invasive and the site of the biopsy heals with minimal scarring. In addition to this, the reprogrammed cells potentially have wide applications, similar to embryonic stem cells.

How would you rate the School's facilities?

The Dental School has great facilities and equipment for research. The opening of the new Heath Park graduate centre facility has added a designated postgraduate only site for both socialising and studying.

What has been your favourite aspect of your PhD?

During my PhD I enjoyed contributing to original stem cell research as well as having the opportunity to present my work at international conferences.

What are your ambitions after finishing your PhD?

I have been fortunate to gain a post-doctoral research position at Cardiff University continuing some of the work I started during my PhD. In the long term I would like to pursue a career in research.

What advice would you give to potential research students coming to the School?

The School of Dentistry is the perfect environment for anyone wishing to undertake a PhD. There is always help and support available to guide you in your research and your career development.

Alumni Profile: Adam Jones

Why dentistry in Cardiff?

I was unsure whether to pursue a medical or dental career and a friend arranged a visit to Cardiff Dental School. The interaction between staff and students, friendly atmosphere as well as direct contact with patients convinced me that dentistry was the right course for me.

What is your favourite memory from Cardiff?

Medclub and Social Club would rate highly. Academically spending part of my undergraduate training in Houston, USA and an ERASMUS exchange to Malmo, Sweden changed my perspective on dentistry.

What is the most important thing that you learnt during your time in the School?

Communication is the key to success. Once you build up rapport with your patient you will understand the multitude of factors that lead to the decisions they make.

What challenges will dentistry face in the next 10 years?

There are significant challenges facing dentistry in the next few years especially in the current economic crisis. Dentists will need to adapt to provide a cost effective service whilst striving to improve patient care, satisfaction and outcomes. As in all aspects of health care, treatment will rely on evidence based practice with more emphasis on prevention. Further changes include the role of revalidation of dental professionals, which has already started for medicine.

How has dentistry changed during your time in practice?

There is far greater emphasis on preventative dentistry as well as the importance of aesthetic and minimal invasive techniques. The development of dental foundation training with national recruitment and reflective learning, the expanding roles of direct care professionals and recent changes to core subjects for continued professional development have all changed since I first qualified.

What are you doing now?

During my undergraduate training and SHO positions I developed an interest in Oral Pathology / Medicine and pursued specialist training in Oral and Maxillofacial Pathology in Sheffield. Following completion of training, I returned to Cardiff in 2012 to take up a position at the Dental Hospital as a Consultant Pathologist.

What advice would you give a student thinking of studying in Cardiff?

Cardiff is a modern city and a great place to live with numerous bars, restaurants and a good nightlife. Staff in the Dental School are nationally and internationally recognised for the quality and commitments in teaching, clinical excellence and research.

What advice would you offer to new graduates?

It is important to recognise your limitations before embarking on a treatment plan. There are many ways to attain the same goal but recognising which approach is most suited to your patient will give the best possible outcome.





Staff Profile: Dr Elaine Ferguson

A pharmacist by training, I joined the School of Dentistry in 2008 after completing a PhD in polymer therapeutics and a post-doc funded by an EPSRC Nanomedicines Platform grant.

My expertise in polymer therapeutics, together with my clinical experiences, complements the specialities within the Tissue Engineering and Reparative Dentistry Research Theme.

During my 4-year post-doc in the School of Dentistry, I applied my knowledge of developing new strategies to specifically target drugs to sites of disease using polymers derived from plants and animals, to chronic wound healing, infection and nerve regeneration. Successful translation of this research has wide applications, not only in dentistry (e.g. maxillofacial

trauma, periodontitis), but shows potential for use in an extensive range of diseases (e.g. diabetic foot ulcers, cystic fibrosis, spinal cord injury).

Our work to date has seen the development, from concept to synthesis, of our dextrin-colistin 'nanoantibiotic' conjugates, including a patent filing, PhD studentship and new collaborations.

This project, initiated in the School of Dentistry, has attracted numerous awards and prizes and is attracting interest as a new concept in antibiotic delivery.

I was appointed as Lecturer of Polymer Therapeutics in January 2013 and I am looking forward to expanding the Advanced Therapies Group in the School of Dentistry in the future.

Staff Profile: Dr Lindsay Davies >

I joined the School of Dentistry for my first postdoc position in 2006 after completing my PhD at the School of Biosciences, Cardiff University. As a member of the Wound Biology Group, led by Professor Phil Stephens, I began to identify a novel progenitor cell population within the lamina propria of the oral mucosa (OMLP-PCs). This work stemmed from my interest in the preferential healing seen within the oral mucosa compared to the skin.

Supported by a Wellcome Trust Value in People Award, the School of Dentistry, a NISCHR fellowship and more recently an MRC Stem Cell Translational Award I have spent the last seven years characterizing these novel progenitor cells (Davies et al., 2010).

With the support of the University's Research and Commercial Division (RACDV) at Cardiff University these cells are now subject to patent filing worldwide. The success of this research was recognised by my receipt of the Senior Colgate Prize for Basic Research at BSODR in 2008. Prize funds and support from the School of Dentistry led to a collaborative visit to the Karolinska Institutet in Sweden

in 2008. This initial visit focused on determining the immunomodulatory properties of these PCs with a world-renowned stem cell immunology group headed up by Prof Katarina Le Blanc (Davies et al., 2013). Five years later this successful collaboration has led to numerous new ventures between the two groups. My research now is focused on stem cell mediated immunomodulation as well as the antimicrobial effects of stem cells and how we can utilize these innate properties for the development of stem cell based therapies for disorders such as Graft Versus Host Disease.

References:

1. A multipotent neural crest-derived progenitor cell population is resident within the oral mucosa lamina propria. Davies LC, Locke M, Webb RD, Roberts JT, Langley M, Thomas DW, Archer CW, Stephens P. Stem Cells Dev. 2010 Jun;19(6):819-30.

2. Oral mucosal progenitor cells are potentially immunosuppressive in a dose-independent manner. Davies LC, Lönnies H, Locke M, Sundberg B, Rosendahl K, Götherström C, Le Blanc K, Stephens P. Stem Cells Dev. 2012 Jun 10;21(9):1478-87.





A Time for Celebration - 50 Years of Dentistry in Cardiff

Cardiff School of Dentistry is inviting its Alumni, Staff and Students to a series of events on 16th -18th May 2014 to celebrate the School's fiftieth anniversary as the UK's leading School of Dentistry.

To be held at the Vale Resort, a luxury 4* Golf, Spa & Leisure hotel near Cardiff, the anniversary weekend will commence with a welcome BBQ on the Friday, allowing students and staff, past and present to acquaint and reflect on their time at the School. Saturday's events will focus on the bi-annual Brian Cooke Memorial Lecture Day, which will offer CPD accreditation opportunities for the School's graduates. The weekend's events will culminate in a black tie Gala Dinner on Saturday evening, where the School will celebrate 50 years of dentistry in Cardiff and will pay tribute to the founding Dean, Professor Brian Cooke.

All proceeds from the anniversary event will be donated to the

Brian Cooke Memorial Fund, a Trust established in 2011 in memory and honour of the founding Dean.

This fund will be used to offer undergraduate Brian Cooke scholarship



opportunities at the School. The success of the fund is reliant on generous donations from Alumni, friends of the School and supporters.

If you would like to donate to this Fund, or would like further information please contact Mrs Ali Carter in the University's Development and Alumni Relations Office (Email: CarterAC@cardiff.ac.uk, Tel, 44(0)29 2087 4777.

Further details of the event will be published online at www.cardiff.ac.uk/alumni and www.cardiff.ac.uk/dentl/ from the 1st November 2013.

Above: Professor Brian Cooke, founder Dean of the Dental Hospital, First BDS Graduates 1968, Students at the 2013 Graduation



For more information visit cardiff.ac.uk/dentl