



School of Dentistry

Prospectus 2013

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Dean's introduction

I am delighted to introduce the 2013 prospectus for School of Dentistry in the Faculty of Medical and Human Sciences at The University of Manchester. Our Faculty has now implemented a new strategy and structure which is intended to transform our contribution to research and education in medicine and health. We aim to build on the reputation of Manchester as a world leading centre for biomedical sciences and their clinical application.



The Faculty and this School are committed to achieving excellence through an ethos of collegiate and collaborative working involving all of our Faculty Schools and Institutes and the highest quality interactions with other University of Manchester Faculties, our NHS partners via MAHSC (Manchester Academic Health Science Centre) and our broader higher education and NHS partners in the new GM-AHSN (Greater Manchester Academic Health Science Network).

Importantly the School is part of a matrix structure (Figure 1) which is deliberately designed to break down barriers and encourage cross cutting interactions with staff in other Schools and Institutes. Staff are encouraged to affiliate to other Faculty structures and a high level of interaction is being achieved as illustrated in Figure 2. This type of cross linking is crucial to achieving the full benefits for education and research of our unusual breadth of health disciplines.

This document provides an overview of the School in 2013 and is work in progress. In the near future the School will host a visit by an international external advisory panel to help guide further developments and provide. The School already has a set of truly outstanding achievements and excellent staff but we have a lot more to do to achieve our ambitious objectives. I am grateful to all of the academic and support staff in the School for their contribution to the success to date and further plans.

A handwritten signature in black ink that reads "Ian Jacobs". The signature is written in a cursive, flowing style.

Professor Ian Jacobs
Dean, Faculty of Medical and Human Sciences
Vice President, The University of Manchester
Director of Manchester Academic Health Science Centre
Professor of Cancer and Women's Health

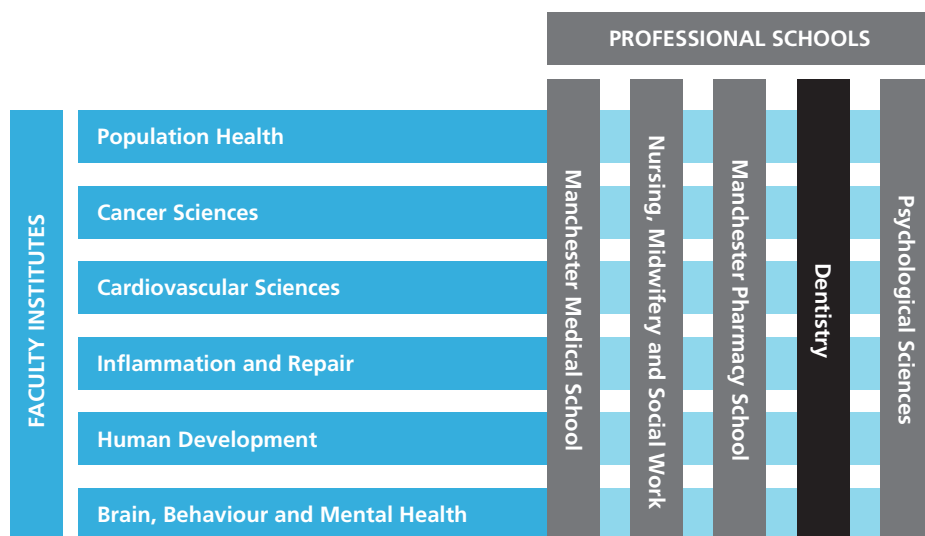


Figure 1
Faculty Structure – matrix of six Faculty Institutes and five Faculty Schools intended to facilitate cross-cutting interactions.

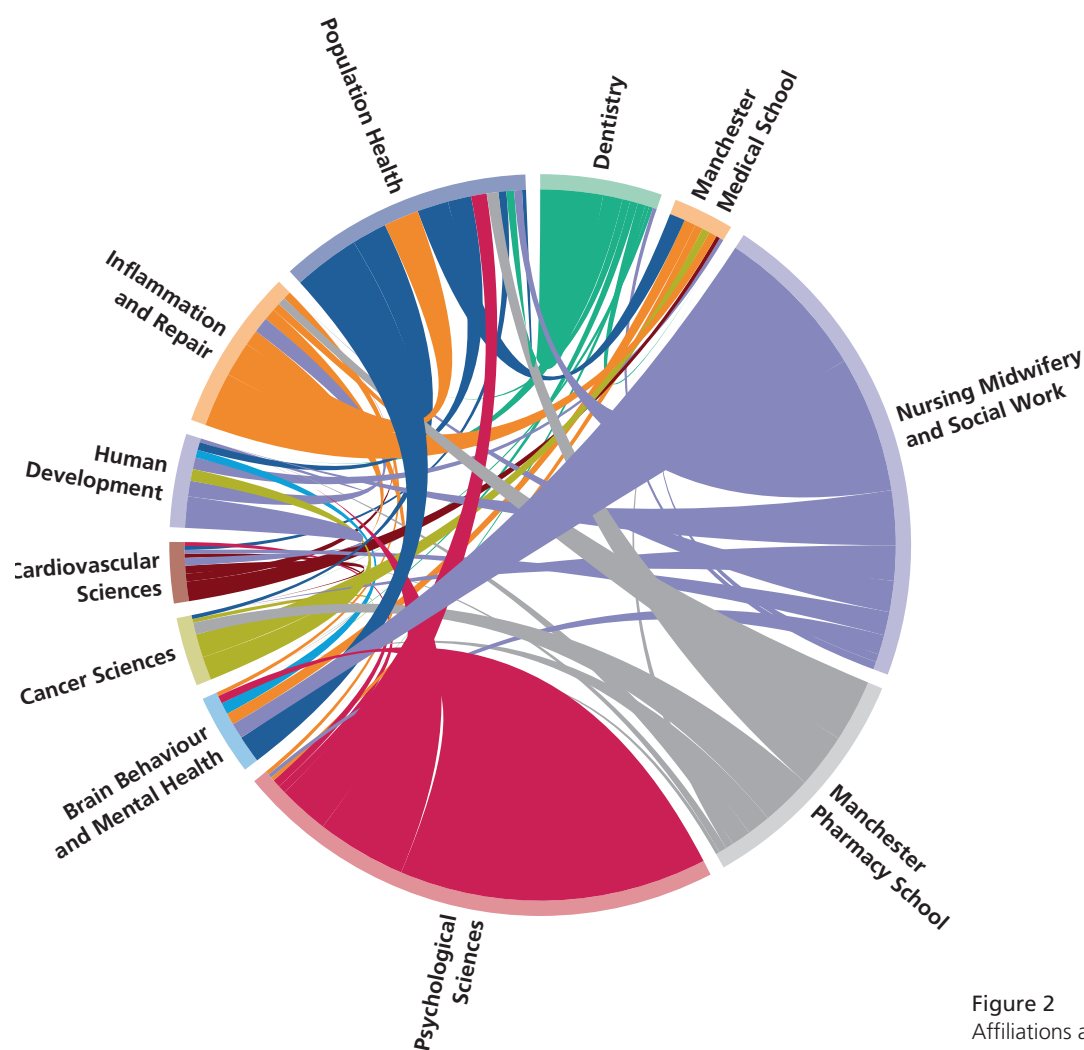


Figure 2
Affiliations across Faculty Schools and Institutes (showing the School/Institute providing the affiliation)



The University and Faculty

Our University has a tradition of world-leading innovation which has led to a stepwise improvement in the health, wealth and wellbeing of populations across the world since the industrial revolution.

Our Academic and Support staff in the Faculty of Medical and Human Sciences (FMHS) number over 2,000 and work to deliver three core priorities:

- Development and delivery of the highest quality education and training for health professionals and scientists.
- Conducting outstanding, world leading research in the biomedical and health sciences
- Social Responsibility to make a contribution to the 'greater good'.

Sitting at the heart of the City of Manchester, which is a global hub, excelling in arts, music, sport and commerce, the University is a beacon for research and education with a deep commitment to the economic transformation of Manchester and the North West of England. Tracing its origins back to John Dalton's Mechanic's Institute and John Owens' philanthropic desire to educate the local population, The University of Manchester was England's first 'civic' and now its largest campus-based university. No fewer than 25 Nobel Laureates have worked at the University and since the merger of the Victoria University of Manchester with UMIST in 2004 we have delivered in excess of 1,600 invention disclosures and formed 17 new companies attracting £117 million in third party benefit, demonstrating a formidable track record of commercialisation.

Each year we train over 400 doctors, 90 dentists, 150 pharmacists and 900 nurses, midwives and allied health professional staff. We are the largest supplier of healthcare graduates to the NHS within the North West of England but many of our graduates go on to deliver healthcare provision and scholarship in developed and developing health systems across the globe. Through the use of cutting edge technology, the highest quality workplace-learning environments and a highly trained educational faculty, we strive to deliver a personalised learning experience to each of our students so that they develop a real sense of identity and belonging to a world-class university. This in turn fully prepares them for life after graduation making the 'Manchester-made' graduate the first choice for healthcare employers. Our extensive postgraduate and continuing professional development programmes are hosted by our new Faculty Graduate School providing support and training to postgraduates undertaking a diverse range of study from short term professionally linked programmes through to research training in multidisciplinary areas. We believe that we are a complete resource for lifelong healthcare learning.



The scale, breadth and structure of our Faculty provide outstanding opportunities for basic biomedical research discoveries to be rapidly translated into effective new therapies with a strong emphasis on knowledge transfer and partnerships with industry. Our new matrix structure is designed to enhance opportunities for novel and multidisciplinary research (see figures 1 and 2, page 2). The matrix involves five schools (Medicine, Dentistry, Pharmacy and Pharmaceutical Sciences, Psychological Sciences and Nursing, Midwifery and Social Work) and six research institutes (Cancer Sciences, Cardiovascular Sciences, Population Health, Brain, Behaviour and Mental Health, Human Development, Inflammation and Repair) with an emphasis on affiliation across these structures. The leadership team for each of the Institutes involves clinicians, basic scientists and healthcare researchers from both our own Faculty and our sister Faculty of Life Sciences. Our academics have the benefit of access to the large, stable population in the North West providing unique opportunities to study and address most causes of disease and deprivation. The opportunities are further enhanced by strong links to our partner Faculties (Humanities, Engineering, Physical Sciences, and Life Sciences) and the NHS through the Manchester Academic Health Science Centre (MAHSC). These partnerships facilitate rapid translation into practice and targeted biomedical, technological and psychosocial research based on clinical need.

In addition to our research and education activity, the Faculty is committed to make a major contribution to the greater good for society by contributing to solutions of the major challenges of the 21st century and the social and economic success of our local, national and global communities. We will ensure that social responsibility is embedded within all of our education and research activities, ensuring the highest ethical standards of professional practice from our staff and students. We are committed to equality and diversity in all our activities and to building on successful programmes such as the Manchester Access Programme which targets talented students from underrepresented backgrounds and a wide ranging global health programme which will help deliver sustainable capacity building within the health systems of developing economies.

Whether you are a visitor or a prospective student, staff member or collaborator, we hope that you will be engaged by the enthusiasm and vibrancy of our students and staff, our commitment to improving health and quality of life and the diversity of opportunity in research, and education that our faculty has to offer.

Head of School's introduction

The School of Dentistry is strong. It has a staff of committed and successful teachers, researchers and professional support staff.



My mission as the new Head of School is to ensure maintenance of the School's premier position in the UK and to develop its teaching and research success still further and also its global position and reputation in line with the strategic vision of the Faculty of Medical and Human Sciences and The University of Manchester.

The School will deliver teaching and learning using contemporary and innovative methodology to produce caring health care professionals who are of the highest calibre. Expansion of our postgraduate taught programmes will continue. The impact of our research will increase and the School will be recognised for its distinct leadership in evidence-based practice in patient care, teaching and learning. Our Basic Science and Health Sciences research will continue to improve in global Oral and Craniofacial Health. The School will further develop strategic alliances building on its research collaborations and industrial partnerships.

A handwritten signature in black ink that reads "P. Coulthard".

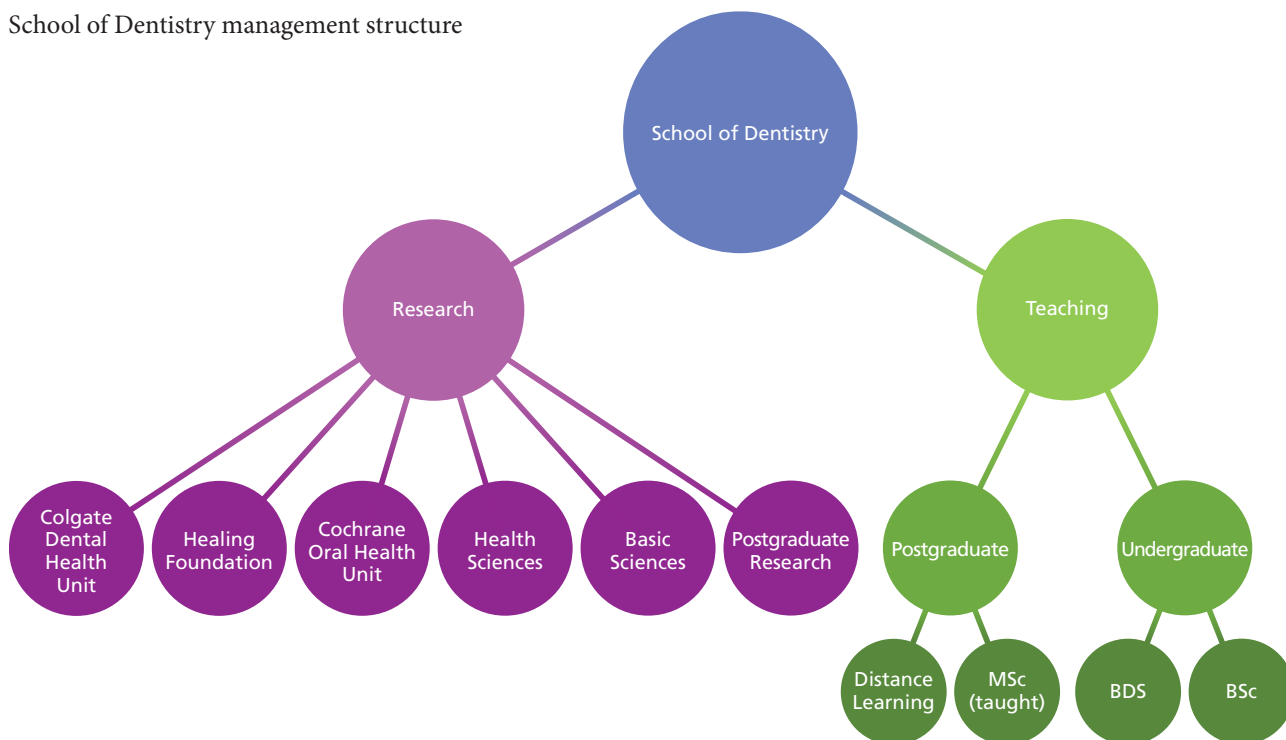
Professor Paul Coulthard
Head of School 2013 - 2016

1

Organisation of the School of Dentistry

The School has no departments, it is one School which allows for a unified and team orientated approach to the organisation and management of the School. It has a modern and functional management structure, which is shown below. The Head of School chairs the Dental Senior Management Team (DSMT) that manages the School.

School of Dentistry management structure





The Dental Senior Management Team (DSMT)

Professor Paul Coulthard, Head of School, Chair of DSMT, Professor of Oral and Maxillofacial Surgery.

Professor Iain Mackie, Previous Head of School, Professor of Dental Education.

Professor Martin Tickle, Director of Research, Professor of Dental Public Health and Primary Care. Professor Tickle is the lead for research and deals with all issues relating to the research strategy and performance for the School.

Professor Anthony Roberts, Director of Undergraduate Education, Professor of Dental Education. Professor Roberts is the lead for Undergraduate Dental Education for the two undergraduate programmes.

Professor Julian Satterthwaite, Director of Graduate Education, Professor of Restorative Dentistry. Professor Satterthwaite is responsible for the postgraduate taught and research programmes.

Director of Evidence for Practice, to be appointed.

Director of Business Engagement, to be appointed.

Dr Michael Pemberton, Clinical Head of the Dental Division for CMFT. Dr Pemberton is the Head of the UDHM, where our undergraduate and postgraduate students gain much of their clinical experiences. Many staff are half-time honorary NHS consultants.

Mrs Gabrielle Brennan, Head of School Administration, (HoSA, a role which she also covers for part of the School of Medicine), Mrs Brennan is an integral member of DSMT.

DSMT meets monthly.

The DSMT usually manages by consensus, if not, the Head of School takes the final decision

2

School of Dentistry strategy aims and objectives

2.1 Teaching and Learning

Professors Roberts and Satterthwaite ensure that the School delivers the highest standards of undergraduate and postgraduate teaching and learning integrated with outstanding clinical training. The School's strategy is always to strive to improve and there are five priorities for the future:

Teaching and Learning priorities

1. Enhancing the quality of all our taught programmes.
2. Attracting the best students to the School.
3. Optimising the student experience.
4. Enhancing the efficiency and flexibility of our programmes.
5. Increasing postgraduate capacity.

2.2 Research

Professor Tickle is ensuring the School undertakes world leading research which aspires to have a significant impact on improving population oral health, reducing inequalities and improving on the delivery and quality of dental services and clinical care. The School has four priorities for the future:

Research priorities

1. Improving our understanding of the development and progression of oral and cranio-facial conditions.
2. Creating innovative and effective treatments, service designs, and public health interventions.
3. Testing the costs and effects of interventions to prevent or manage oro-facial conditions.
4. Identifying the means of implementing cost-effective interventions into dental services.

2.3 Social Responsibility

The School is engaged in improving the oral and craniofacial health and well being of people locally, nationally and worldwide. There are two main goals:

Social Responsibility priorities

1. Increasing our commitment to local communities through health and education.
2. Improving the dissemination and impact of our world-leading research nationally and globally.



3

School of Dentistry

The School of Dentistry is situated at the heart of the University Campus, adjacent to the University Dental Hospital of Manchester (UDHM).

The School has collegiality at the heart of its ethos and academic staff work collaboratively to support each other, whether focusing on research or teaching.

3.1 Undergraduate

The School of Dentistry has two undergraduate programmes graduating 70-80 BDS (Dentistry) students and 10-12 BSc Oral Health Science (Dental Hygiene-Therapists) per academic year. The School aims to provide a contemporary clinical education and training, using a wide variety of high quality placement providers to ensure that graduates meet and exceed the registration requirements of the General Dental Council. Further, in addition to surpassing the minimum requirements of our regulators, our programmes aim to produce a graduate that:

- Has the knowledge to have a critical understanding of the complex issues involved in the scientific basis of dentistry.
- Understand and are committed to evidence-based practice.
- Is reflective and committed to lifelong learning.
- Take a patient-centred approach to clinical care within the dental team.
- Apply clinical skills, knowledge, and behaviours in independent dental practice.

Undergraduate excellence

The National Student Survey overall satisfaction results consistently demonstrates that over 90% of students are satisfied with their experience (2011 97%; 2012 93%). Anonymous free text comments in 2012 were:

- "The course as a whole has been brilliant, well planned, ran smoothly and taught me everything I need to go out into work."
- "I have very much enjoyed my time at Manchester Dental School. All the staff are nice, helpful and brilliant at what they do."

3.2 Postgraduate

The School of Dentistry is one of the largest and most successful providers of postgraduate dental education in the UK, offering research programmes over one (MPhil), three (PhD) or four (PhD Clin) years and taught Masters programmes over one, two and three years (the latter in order to comply with UK, European and International requirements for clinical training to specialist level), as well as a range of shorter diploma and certificate courses, combined with the opportunity to study many of our courses part-time.

The nature of the taught courses with high clinical experience dictates that for each programme cohorts are relatively small and staff:student interaction is high. The School has been offering postgraduate taught programmes for more than twenty years, with long-standing programmes in Endodontics, Fixed and Removable Prosthodontics, Oral Surgery, and Orthodontics, with more recent programmes in Implantology, Periodontology, Dental Public Health (distance learning) and Aesthetic and Restorative Dentistry (distance learning, collaborative programme).

The School's four year 'clinical' doctorate, introduced in 2008, is an innovative programme building capacity for PhD students and offering those with a recognised dental clinical qualification the opportunity to extend their research studies by undertaking a clinical component in addition to their research programme. Combining clinical experience and training with graduate research thus allowing clinical skills to be maintained and improved rather than fading; we have a high transfer rate from postgraduate taught to this postgraduate research programme, and we aim to further increase the number of postgraduate students extending their studies in this way.



The School strives to monitor continuously and develop the postgraduate programmes, particularly with the recent development of three-year programmes. This quality agenda was recognised following the School's five-yearly periodic review in 2010 (led by an external reviewer); feedback included "programme design is excellent", "standout in ability to combine training in various sectors" and "exceptional timing of feedback". We aim to build further on the quality and experience offered by the taught programmes as assessed by positive external examiner reports and periodic review and full student feedback. A review of postgraduate taught programme structures to identify opportunities for pooled resources and shared learning will occur with programme amendments in place for 2014/15.

The school has very good relationships with the international sponsors of our current students and an excellent international reputation. Year-on-year we receive more applications for postgraduate study than we can accommodate. In order to continue to attract the best students and offer places to the highest quality applicants (as measured by student performance/success), we will engage with our sponsors in liaison with the University International Office.

An increasing number of our postgraduate taught graduates continue with further academic and clinical study here at Manchester (with several gaining specialist clinical qualifications as well). The majority of our graduate students return to their own practice or academic institute following qualification to further pursue their clinical and research careers, securing leadership positions in clinical and academic institutions worldwide with many now senior research-active academics, and several now being Head of their Departments and leading research teams themselves.

Postgraduate excellence

- Combining clinical experience with graduate research through the introduction of a new 4-year 'clinical' doctorate, PhD (Clin).

3.3 Research

The University of Manchester's School of Dentistry has been ranked the premier Dental School in the country for high-quality research. Results from RAE 2008 placed the School first in the UK in terms of the quality of its academic research. Thirty per cent of the School's researchers were deemed to carry out research that was internationally leading, attracting the top 4* grade, while a further 45% of those assessed by the RAE carried out research that was world class (3*). The remaining 25% published research of international significance (2*).

Research in the school is managed within two broad themes, Basic Sciences and Health Science. Basic Sciences undertakes world-leading research in the field of craniofacial genetics and the development of the face (M. Dixon, J. Dixon, and N. Bobola). C. Ward and L. Mohamet undertake cutting edge research in stem cells to understand mechanisms for metastatic spread of cancer, and more recently have developed cost effective techniques to grow neurons, which opens up significant possibilities for testing new therapies. The third group in this theme is led by D. Watts and N. Silikas whose work in the field of biomaterials is internationally recognized.

Professor David Watts has received one of the premier international research awards: the Alexander von Humboldt Research Award. This is given by the Alexander von Humboldt Foundation, Bonn, Germany, named after Germany's greatest Explorer-Scientist.



In the field of craniofacial genetics and development, key collaborations already exist with the Faculty of Life Sciences. Affiliations have already been developed with the Faculty Institute of Human Development, for example Professor Dixon is working closely with Professor Clayton-Smith, to head a programme of research. New collaborations and affiliations to support the stem cell work of Dr Ward and Dr Mohamet are being developed with the Faculty Institute of Cancer Sciences and the Faculty Institute of Brain Behaviour and Mental Health. Our biomaterials scientists are working with colleagues in the Faculty of Engineering and Physical Sciences. In addition, members of the new Basic Sciences have numerous international collaborations.

The School aligns itself to the Faculty Institute of Population Health and hosts the Cochrane Oral Health Group and therefore takes an international lead on evidence synthesis in Dentistry (H. Worthington, J. Clarkson, A-M. Glenny, T. Walsh, P. Brocklehurst, P. Coulthard, M. Tickle).

Professor Helen Worthington received the International Association of Dental Research Award, the Trendley Dean Award, in recognition of the distinguished accomplishments in research.

There is an internationally leading Dental Public Health Team (M. Tickle, I. Pretty, R. Ellwood, K. Milsom, P. Brocklehurst) undertaking studies using multiple methodological approaches at population level, service development and organisation and practice-based clinical trials.

The School has a unique, forty year collaboration with Colgate Palmolive; the Dental Health Unit is funded by Colgate Palmolive and integrated into the health sciences theme. The Unit's Directors I. Pretty and R. Ellwood have a specific interest in diagnostics in dentistry. Other broader research themes funded by significant external grant income include quality in dentistry (M. Tickle, I. Pretty, A-M. Glenny, P. Brocklehurst and T. Walsh), workforce planning (P. Brocklehurst and M. Tickle), practice-based randomised controlled trials (M. Tickle, H. Worthington, T. Walsh, V. Aggarwal, I. Pretty and P. Brocklehurst), evaluating the costs and effects of water fluoridation and other public health interventions (I. Pretty, T. Walsh, A-M. Glenny, M. Tickle and P. Brocklehurst) and the epidemiology and management of oro-facial pain (V. Aggarwal).

Oral and maxillofacial surgery research is lead by P. Coulthard and J. Yates and includes work on the effectiveness of dental implants and the management of post-operative pain.

Clinical research in malocclusion and facial clefting is lead by K. O'Brien and W. Shaw who, with M. Dixon, lead the Healing Foundation Cleft and Craniofacial Clinical Research Centre. This multi million pound investment provides the clinical research infrastructure at The University of Manchester to support a range of clinical trials and other well designed projects in cleft across the UK.

Professor Hugh Devlin won the International Association of Dental Research Distinguished Scientist Award in 2011 in recognition of his research.

The imaging science research group is led by K. Horner and H. Devlin who have developed innovative software to screen routine dental radiographs for osteoporosis.

The Health Sciences team within the School aligns itself with the Faculty Institute of Population Health and health services researchers from the 'Health Schools' of the Faculty; the School of Nursing, Midwifery and Social Work, Manchester Pharmacy School and the School of Psychological Sciences. These links have led to multiple, successful collaborative grant applications to the NIHR and co-supervision of PhD students. We also have collaborations with the newly formed MAHSC (Manchester Academic Health Science Centre) Clinical Trials Unit (CTU), and other CTUs in Liverpool and Belfast. The School has strong research collaborations with NHS commissioners and providers in hospital, community and primary care and colleagues working for Public Health England.

Research excellence

- Cranio-facial genetics.
- Bio-materials.
- Evidence synthesis in Dentistry.
- Practice-based randomised controlled trials.
- Dental Public Health.
- Clinical management of malocclusion and cleft lip and palate.
- Workforce planning and skill mix.
- Diagnostics, imaging and diagnostic accuracy studies.

3.4 Social Responsibility

The School of Dentistry seeks to have a positive impact on others. We are conducting research and education that is having an impact on clinical practice and treatment outcomes. We have successfully informed dental policy, and the improvement of clinical practice by research on public health prevention interventions and their effects on population health and health inequalities, chronic orofacial pain, workforce planning and use of skill mix, access and utilisation of dental healthcare and true integration with the work of the rest of the Faculty.

This research and education informs and changes healthcare locally and has the potential to improve oral and craniofacial health globally. The oral craniofacial genetics research group, for example, uses techniques to understand the fundamental mechanisms involved in normal and abnormal facial development and has already identified some strategies for prevention and amelioration of some disorders.

Our work is intended to improve the health and wellbeing of the population through improving the evidence base for community and public health interventions, the quality of patient care, cost effective use of resources and supporting innovation.

The School of Dentistry facilitates admissions to health care programmes for students regardless of gender, ethnic origin, religion or belief, sexual orientation, marital status, age or nationality.

Undergraduate students engage with the University's Manchester Leadership Programme where they have the opportunity to take part in voluntary activities as part of their programme. Students say they benefit from this experience as it gives them an opportunity to volunteer for activities to enhance their social responsibility and develop leadership skills. The School places the greatest emphasis on an awareness of social, economic and environmental sustainability which is provided by this course.

Our patients receive the best clinical care which is enhanced by our close liaison with the NHS and their clinicians. North Manchester General Hospital (Pennine Acute Trust) contribute to our teaching of human disease in Dentistry. We also rely on the broad range of excellence in the health-related professions within FMHS. Our students are taught in outreach clinics, situated in areas of high dental need.

Our School also has a global health perspective with staff involved in providing continuing professional education to dental professionals in Sri Lanka.

Social responsibility excellence

- Our outreach dental clinic programme delivering dental care to children and adults in parts of the city where they could not access NHS dental care.
- Research which has a direct impact on Population Health and the quality of dental care.



4

School resources

4.1 Space

The majority of the School staff are located over two floors in Coupland 3 Building adjacent to the University Dental Hospital of Manchester. The building is listed and in terms of sustainability is highly inefficient; it is due for full refurbishment by 2015. The accommodation is pleasant and academics, Professional Support Services and the majority of research staff are all co-located, which is hugely beneficial. In the future, extra space will be required to support an expansion of basic sciences research, in addition to the biomaterials space, which will need to be relocated to support greater integration with colleagues in the Faculty of Engineering and Physical Sciences. Basic Sciences staff are located within the Faculty Institute of Human Development and Faculty of Life Sciences researchers in state of the art laboratories in AV Hill, CTF and the Michael Smith Building and some of the Healing Foundation funded Cleft and Craniofacial Clinical Research Centre are based on the 5th floor of St Mary's Hospital in the Cleft Lip and Palate Unit.

The undergraduate programme staff and administration are located in the School of Dentistry, Coupland 3 Building and dental students have full access to The University of Manchester facilities, Alan Gilbert Learning Commons, John Rylands Library, social spaces, lecture theatres and small teaching rooms.

Undergraduate students receive teaching in the Stopford Building, especially making use of the dissecting room and anatomy resources. We are one of four UK dental schools where students continue to dissect cadavers. Other schools often use only plastic models. The Dental School has a state of the art Phantom Head Room in the Dental Hospital with forty phantom patient heads where students learn restorative dentistry clinical skills on plastic teeth.

Our students treat patients in the Dental Hospital and Manchester Royal Infirmary (MRI). In addition they attend ten outreach dental clinics across Greater Manchester. Each of these clinics has at least four dental chairs. Dental students also attend North Manchester General Hospital. Some students also get the opportunity to attend general dental practices.

Exert from a patient's letter

“

I am really pleased with all the work (that has been) done during my treatment in the Dental Hospital over the last 12 months; (the student) will make a very good dentist and I would recommend him to my friends and family. He has talked through every part of the process – he acted like a professional dentist I can't thank him enough for everything.

Well done! A very satisfied patient.

”

Clinical space/facilities are required for the clinical training element integral to the majority of postgraduate taught programmes. Students are placed primarily at the University Dental Hospital of Manchester (UDHM), with some placements at MRI and District General Hospitals as far afield as Chester and Chesterfield – wherever we can find the best facilities. Our clinical learning resources and needs can present issues and problems because of the School's reliance on NHS facilities. In order to avoid issues relating to availability of clinical space, dental nursing support, shortages of suitable patients (related to NHS funding restrictions), equipment breakdowns and shortages, we work closely with our NHS partners to overcome many of these problems. There is a clear administrative structure which facilitates active two-way communication and maintenance of quality standards between the School and clinical teachers at UDHM. In addition, Dr M. Pemberton, the Clinical Head of Division of UDHM, is a collaborative member of the School of Dentistry Senior Management Team.



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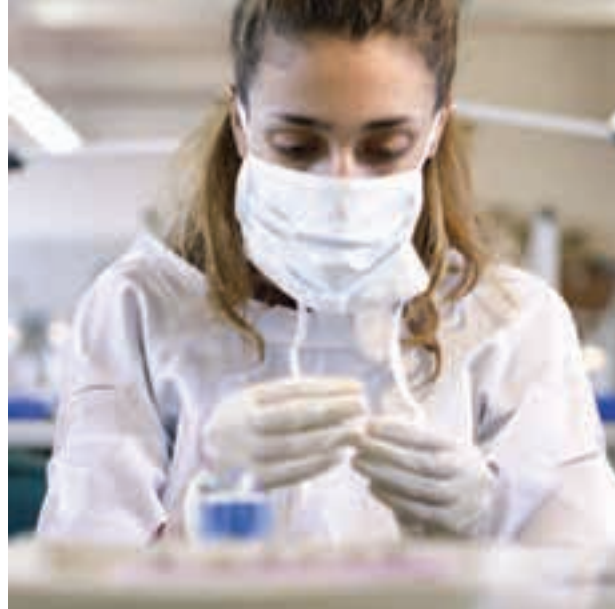
I was very impressed with the facilities of the embedded postgraduate teaching and the services that are available to your patients. I would like to thank you for the great honour you bestowed on me to open your new premises.

”

Rt Hon the Earl Howe,
P.C. Parliamentary Under Secretary of State for Quality (Lords),
Department of Health.



The development of the purposely designed Postgraduate Dental Education Centre (PgDEC) in Hulme (located within Archway Dental Practice), which opened in December 2010 close to the University campus, has increased capacity for postgraduate taught programme expansion and has addressed some of the above issues. The PgDEC is a unique facility, which allows dentists to enhance their skills through postgraduate study whilst engaging with the local community – a novel development (and the first of its kind in the UK) – in conjunction with NHS Manchester and a primary care provider. The PGDec represents a significant innovation for the School – moving away from centralised postgraduate training to a setting centred in an area of high unmet need. The project has allowed the School to expand postgraduate provision and enhance the educational benefit and experience of students, with postgraduates engaging with, and providing treatment for, a disadvantaged local population who in turn gain access to clinical excellence through the University framework. Additionally, it has provided an important clinical service for patients in an under resourced area of NHS primary care dentistry, through the unique primary and secondary care interface. Primary care staff at the clinic have benefitted from the University's engagement through provision of continued education and learning from the postgraduate students and supervising staff.



4.2 Finance

Our undergraduate BDS Programme is funded through HEFCE and Dental SIFT (Service Increment for Teaching). These monies, together with the student fees, means that the BDS programme is well financed. The Undergraduate BSc in Oral Health Sciences programme is solely funded by some HEFCE and student fee income.

Our postgraduate taught programmes, which have high clinical contact, have relatively high fees. Similarly, the four-year PhD Clin attracts a high fee. These programmes attract a high proportion of overseas students and provide a significant contribution to the School but rely on maintaining good relationships with external sponsors.

There have been some notable recent successes in attracting significant research funding from NIHR, UKRCs, European Union and Centers of Disease Control and Prevention in the United States. Funding has also been generated by starting spin off companies supported by UMi3. We strive continually to improve the quality and quantity of our grant applications, through collaborative working/multi disciplinary applications with colleagues from Faculty Institutes and Schools, NHS colleagues, support from the Faculty Research Deanery and through rigorous peer review of all grant applications. Improving the quantity of our grant applications is supported through the P&DR (Performance and Development Review) process, by recruiting more junior staff and by incentivisation. Researchers who obtain a grant will have their allotted time spent on the grant freed up by commensurate reductions in clinical/teaching commitments. We also need to increase our income from donations and from consultancies.

4.3 Staff

The Dental School currently has 17 Professors, 9 Senior Lecturers, 1 Senior Research Fellow, 9 Lecturers, 1 Research Fellow, 58 Teaching Fellows/Tutors, 16 Research Project Staff, 21 Professional Support Staff and 102 Honorary Staff. All of the staff have some involvement with our students.

The Dental School has three Professors of Dental Education, two of whom are National Teaching Fellows, Professor I. Mackie (NTF 2004), Professor N. Grey (NTF 2010) and Professor A. Roberts, this teaching excellence is unique in the UK to our Dental School.

We have a broad base of teachers with appropriate post-qualification experience/training to deliver the clinical training required for our postgraduate taught programmes. Staff who teach on the programmes come from a wide range of backgrounds (academic, NHS and specialist practice) and are thus able to bring a unique combination of different perspectives to the courses. In addition the majority of the academic staff have active research portfolios and are actively involved in wider University and/or professional body committees, or as external examiners for other programmes. However, clinicians with advanced skills willing to teach and clinical academics are in short supply in the UK and in common with other Universities this presents a challenge when we are seeking to recruit to these roles. We will continue to ensure that our reputation for excellence allows our students to benefit from the best clinical teachers.

We have some outstanding researchers in the School who are undeniably world leading in their field. Since RAE 2008, we have lost five senior researchers, these have been replaced by development of young early career researchers and also through a significant investment programme – the school is currently in the process of strengthening its research through recruitment of international research leaders.

The School has a peerless reputational track record of obtaining and supporting NIHR fellowships and personal awards and is committed to supporting Integrated Academic Training. Professor Martin Tickle is a past NIHR career scientist, Professor Iain Pretty is also a past NIHR Clinician Scientist and Drs Vishal Aggarwal and Paul Brocklehurst currently hold NIHR Clinician Scientist Awards. The School has a very close working relationship with the North West Deanery and currently hosts five NIHR academic Clinical Fellows and has two Academic Clinical Lecturers. The School has an excellent record of supporting GDPs who wish to undertake training in research through the NIHR In-Practice Training Fellowship Programme, and has two fellows currently in post (Ravi Singh and Hanieh Javidi) and hosted four previous fellowships.

Many of our Dental School staff have roles in our Faculty, the University, locally and nationally.

General Dental Council

Professor Kevin O'Brien, Chair of GDC 2010 – 2013.

Professor Kevin Seymour, Member and Chair of the GDC Investigating Committee 2009 – present.

Professor Iain Mackie and Mrs Christine Cotton, GDC Inspectors 2011 – present.

Dr Anthony Mellor, Member GDC Fitness to Practice Committee 2007 – present.

Dr Alison Qualtrough, Member GDC Assessment Panel 2010 – present.

4.4 Equipment

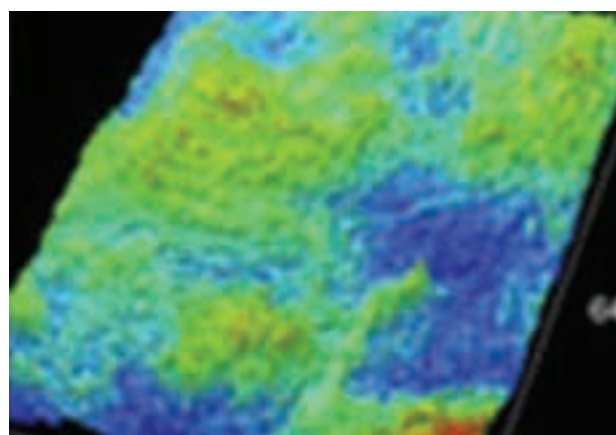
Most of the equipment, learning resources and research equipment is multidisciplinary and shared across the University, with Trusts or with partners. The Dental Hospital has a capital rolling refurbishment programme which has seen clinical areas refurbished on a rotation basis.

4.5 Staff training and development

The School is aware of its responsibilities for employment and promotion issues in relation to equality and diversity. All staff on appointments and promotions committees for the School are required to attend training on these issues. The Head of School and DSMT monitors how general employment issues may impact on some groups of staff, and endeavours to ensure that staff are treated equally and fairly. We will continue to recruit outstanding teachers in areas where our teaching needs to be developed e.g. in the care of patients with special needs, to address the needs to strengthen and develop the academic research centre.

Athena SWAN (Scientific Women's Academic Network Initiative)

The School actively supports this initiative and has established an Athena SWAN working group which is led by Dr Alison Qualtrough and Dr Jill Dixon. An application for a bronze award has been submitted (April 2013).



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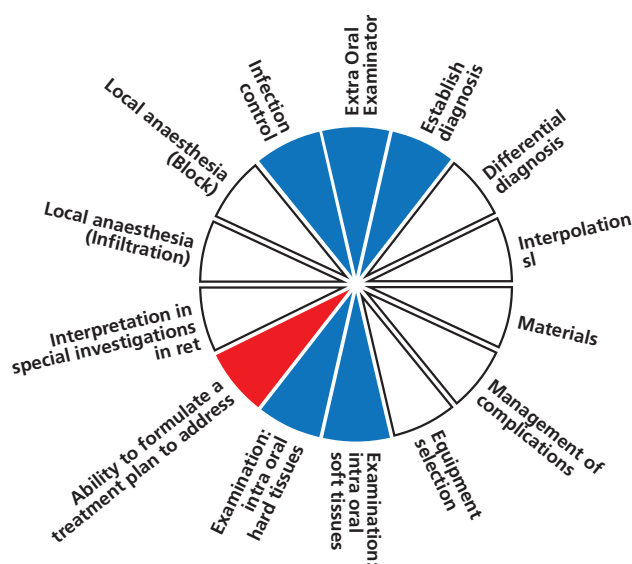
Performance and measurements of quality

5.1 Undergraduate

Specifically in relation to the Five Year Strategic Plan for FMHS, (Faculty of Medical and Human Sciences) there are a variety of Key Performance Indicators (KPI) that we are addressing in relation to 'Excellence in education and training for health professionals':

The Student Experience KPI

The National Student Satisfaction (NSS) Survey results for Dentistry consistently rate overall satisfaction highly. Specifically, overall satisfaction in recent years has remained $\geq 90\%$ (2009 88%, 2010 84%, 2011 97% and 2012 92%), which makes year-on-year improvements difficult but of course our aspiration (Priority 1a KPI 2).



Key

- All skills have been assessed and no development needed
- Some skills not assessed in this area
- Development exceeds expectation
- Development as expected
- Development needed

A focus of activity in the NSS domain of 'assessment and feedback' is currently being undertaken with the introduction of a novel iPad-based application (LIFTUPP) to assess students and provide immediate quality feedback.

More over, students will shortly be able to review their clinical performance through an 'on-line' student interface to allow them to engage and monitor their own development to a level of detail that has previously not been possible.



The School has recently developed 'CEDAR'. This is a Centralised Electronic Dental Academic Record which works alongside LIFTUPP to enhance the assessment and monitoring of students in non-clinical environments.

The School of Dentistry already utilizes blogs to provide updates for students, student engagement, celebrating School successes in teaching and learning and these are maintained and updated regularly: <http://dentistrymanchester.edublogs.org>. (**Priority 1a KPI 3**).

The Head of School produces the 'School News' distributed to all staff to facilitate communication throughout the School and generate a collegial approach (**Priority 1a KPI 3**).

The School meets with students on a monthly basis through 'Undergraduate Programme Committee' and also through 'Staff-Student Liaison Committee' to ensure that students are fully represented and engaged with programme improvements (Chaired by Professor A. Roberts, Director of Undergraduate Education). The School has also recently appointed an Associate Director of External Affairs and Student Experience, Professor H. Devlin who will be engaging with students regularly outside this committee to ensure that the student view is clearly heard. Plans are also in place for a 'You said....We did...' communication that will feed from the Student Experience Action Plan, and these student views. (**Priority 1a KPI 3**).

The landscape of dentistry for the recent graduate has changed significantly over recent years. For the first time there has been recent graduate unemployment and the School has significantly enhanced its efforts in preparing our students for the recently introduced national selection process (**Priority 1a KPI 4**).

Methods of Teaching KPI

The School has recently introduces a Peer Review of teaching scheme for clinical and non-clinical teaching to positively develop contemporary high quality teaching approaches (**Priority 1b KPI 1**). These developments/systems will enhance teaching performance with an anticipated improvement in peer review outputs and by the results of NSS Q1-4 being $\geq 90\%$.

National Student Survey 2012

- "The teaching at Manchester School of Dentistry is excellent."
- "Outreach placements have been great and I have learnt a lot from these."

Staff Development and Mentoring

In the same manner as the LIFTUPP initiative will develop and provide feedback to students, the clinical teaching staff will also begin to receive feedback on their own teaching performance through regular grading profiling. This will improve grading consistency between clinical teachers to enhance their own awareness and development (**Priority 1b KPI 1**).

National Student Survey 2012

- "I am very happy with the iPad scheme and think it has enhanced my learning immensely. I can now highlight books and papers and watch videos and write notes with much more ease."
- "The School is keen to ensure that its resources are at the forefront of innovation and it always seems to be involved in pilot schemes such as the new Blackboard 9 and the iPad scheme, which have both significantly enhanced my learning."



Measurement of quality of Teaching with recognition/reward of Teaching Excellence

The annual Performance and Development Reviews provide a framework/system in place to monitor and improve teaching performance alongside the 'team teaching' approach that is embedded with the taught programmes (**Priority 1e KPI 1**).

National Student Survey 2012

- "Brilliant teaching staff. Tutors and clinical staff are really good."
- "The undergraduate team always listens to your needs and, where necessary, changes have been made to the course to improve it following requests from students." I feel like I am an individual and am treated personally, not as a number."

The School regularly encourages teachers to apply for the range of teaching excellence awards available and has already seen the commitment to promote on the basis of teaching, including the recent promotion of a further Professor of Dental Education (**Priority 1e KPI 2**).

5.2 Postgraduate

Key Performance Indicators

Increased student communication and engagement

The School has recently developed a postgraduate blog. This will be developed further to become a regular source of exchange and dissemination (**Priority 1a KPI 3**).

<http://dentistrymanchester.edoblogs.org/>

The School has recently established informal presentation days for postgraduate research students – this will increase interaction between cohorts of students in disparate areas of study and also increase interaction with staff.

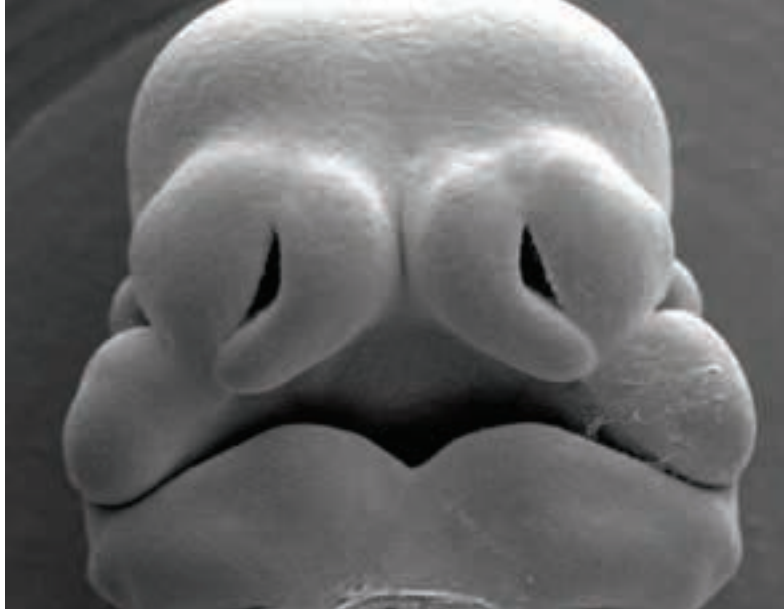
The School Graduate Education Committee structure has recently been revised in order to mirror that of the Faculty Graduate School and monthly student representation and feedback is ensured in this new structure.

Systems in place to monitor and improve teaching performance

Peer review of teaching staff is in place. Pooling of resources across the postgraduate taught programme suite will allow for sharing of best practice (**Priority 1b KPI 1**).

Increase the postgraduate student population by 20% by 2017

The School has commenced a review of postgraduate research application processes which will be combined with a review of the strategic fit between postgraduate research activity and research groups. We shall maximise existing capacity for postgraduate research supervision and build upon this through the recruitment of new research active staff. Additionally, we shall encourage transfer of postgraduate taught to postgraduate research through promotion of 4-yr PhD(Clin) (**Priority 2c KPI 3**).



5.3 Research

Key Performance Indicators

- Appoint one new high level academic by the end of 2013 **(Priority 2a KPI 1).**
- Three new externally funded fellowships by 2017 **(Priority 2a KPI 2).**
- Research and contract income to be increased by 9% a year **(Priority 2a KPI 3).**
- 60% of researchers to be A or B by 2017 **(Priority 2c KPI 2).**
- 20% increase in postgraduate research students by 2017 **(Priority 2c KPI 3).**
- 5 strong impact cases for next REF **(Priority 1a KPI 1).**

The main challenges to overcome to enable the School to meet its aims, based on order of priority to be addressed, are:-

1. Critical mass – the research workforce of the School is small, recruitment is a concern as the pool of world leading researchers in dentistry is small. This is the main challenge for the school to overcome to maintain and enhance its place as a world-leading research centre in the future.
2. Grant income – we will seek to diversify the sources of funding and maximise income from MRC and other UK research funding councils.
3. Quality not quantity – there is a need to manage outputs to ensure that we focus on quality and not quantity.
4. Focus on impact.
5. Align our postgraduate research offer and activities with our research direction.

Critical Mass. To increase our critical mass we will grow our own support for the development of the next generation of clinical and non clinical researchers by:

- Supporting basic sciences in the School. Recruiting junior staff to the Basic Sciences and Health Services themes.
- Making it a requirement that all junior staff apply for external fellowships from MRC, Wellcome, NIHR etc. Supported by the Faculty Academy. Funding initiatives for PhD studentships and Post Doctoral awards.
- Continuing to work with the Deanery on recruitment of clinical academics via the Integrated Academic Training Programme.
- Maximising the opportunities provided by the Faculty restructuring to increasing the number of affiliated researchers in other disciplines to become actively engaged in dental research.
- Investing in one or more world leading scientists to enhance our strength in cranio-facial basic science.

Grant Income. To increase our Grant Income we will:

- Improve the quality and quantity of our grant applications through a structured strategic approach to grant writing and rigorous peer review. All research groups will be required to set out the areas they wish to apply for funding, who they will collaborate with, where they will apply for funding and who will peer review the applications.
- Recruit a research assistant to support the compilation of information to write grants
- To incentivise submission grants there will be a commitment by the School from January 2013 that time funded by grants will be honoured and staff released from teaching/clinical duties which will be backfilled.
- Increase income from donations and consultancy – we will work with the donations team and the Faculty Research Deanery to market our expertise more aggressively to attract consultancy work. Donations plan to be in place by July 2013.



Quality not Quantity. To increase our quality we will:

Manage our outputs to concentrate on quality – guidance for staff on how to manage their citations to be produced by December 2013. A publication strategy for each member of staff to be agreed at P&DR from January 2013.

To increase the quality of our outputs we will:

Concentrate on obtaining high value grants from prestigious sources that will produce output of high academic and socio-economic impact. This aim will be translated into personal objective setting for each research at the annual P&DR process from January 2013.

Align our Postgraduate Offers. This will be achieved by:

Alignment of our research with postgraduate research by restructuring our postgraduate research intake processes. This will be done biannually with researchers identifying preselected topics to be offered to prospective students. This process will include a screening assessment to select high quality applicants. All research staff will be required to have at least two postgraduate research students provided through the new system.

There are fantastic opportunities for the School to maximise the benefits of integrated working across the new Faculty structure, and with MAHSC partners and the wider GMAHRN (Greater Manchester Academic Health Research Network), plus Public Health England and NICE to increase critical mass, increase grant income and increase the impact of our research. One of our key developments will be to develop strategic research partnerships with other dental schools with international reputations for research excellence. This will expand our global profile and help us market our skills and expertise to support income generation and increase the reach of our research impact. Other opportunities which exist for us involve maximising the potential of the Cochrane Oral Health Group and the Colgate Palmolive partnership, as well as developing new relationships with other partners.

5.4 Social Responsibility

Deliver new innovative public engagement activities

We recognise our responsibility to the public to disseminate the science, the outcomes and objectives of our research.

In June 2013, the Dental School and Hospital were involved in making a Taster Tape for KEO Films. This is a preliminary step in making a full documentary programme.

We will increase our media exposure and help to raise public awareness of our work and its relevance to society. In addition, we will disseminate news of our research to a wider range of stakeholders including grant giving bodies, Government and Industry and interact with special interest patients' organisations.

At present our undergraduate students visit local primary schools and talk to children about preventive dentistry and their role as a dentist or therapist.

We plan to extend this opportunity to our graduate students. We wish to increase by 10% those of our staff involved in public engagement events and activities by 2014 (**Priority 3b KPI 1**).

We will pursue research and educational activities related to public health dentistry

By 2017, we will treble the number of industry-funded clinical trials in fields such as caries diagnosis and prevention. This disease continues to be a challenge in our community and globally. Many of our research-active staff are affiliated to the Institute of Population Health and this "critical mass" will help to accelerate the development of new health technologies. This will enable patients to be treated effectively and with the most up-to-date evidence based treatments (Priority 3b KPI 2).



Increase our participation in NOWGEN organised events and public health campaigns

By 2014, our School will increase by 10% its participation in NOWGEN organised events with industry and other public bodies. We also have an important role to play in other public events such as "National Smile Month (20 May to 20 June). In the campaign for "Oral, Head and Neck Cancer Awareness" numerous organisations, dental practitioners and Universities get together during April to increase public awareness of oral cancer and we will publicise this to our patients. Our School will play an active part in the Manchester Health Festival, planning and organising a broad range of activities **(Priority 3b KPI 3).**

Work with MAHSC to increase engagement with the community

We will work with MAHSC/FMHS (Faculty of Medical and Human Sciences) in its development of a conference series. Our School has much to offer with our expertise in basic science, education, clinical dental care and management. We see these conferences as a major way to increase partnerships with industry and develop the economy in the region **(Priority 3b KPI 2).**

Support of the University's environmental and sustainability agenda

The School strongly supports the University's environmental and sustainability campaign. We will encourage greater take-up by staff of public transport. Whenever possible we will encourage staff to use video or teleconferencing to replace "face-to-face" meetings. The School will invest in high quality video conferencing equipment to allow staff to do this. We will encourage staff to recycle waste paper, plastic bottles and batteries by placing appropriate containers in kitchens and corridors.



6

Challenges

The reason why the Dental School is so successful is that it is always looking forward and onward. We are never complacent and we try to identify challenges before they become problems.

6.1 Undergraduate

- Working with the NHS and through the changes which are happening to ensure our students continue to receive the same high quality clinical training.

6.2 Postgraduate

- Utilise experience of staff in partner (NHS) organisations to provide training and leadership for postgraduate taught programmes.
- Relationships with sponsors and overseas recruitment.
- Continue to actively engage with sponsors (in liaison with the International Office) and ensure global presence of the University at key meetings.

6.3 Research

- Increase research capacity and capability.
- Increase grant income.
- Maximise research impact.

6.4 Social Responsibility

- Motivating staff and students to look beyond dentistry in Manchester. Undergraduate students need to be dentists and postgraduate students want the postgraduate experience.

7

Impact of our research on clinical practice

It is increasingly important for Universities to demonstrate that their research results in advances in clinical care of individual patients, improvements in the design and management of services and brings about social and economic benefits to society as a whole.

The School of Dentistry has an excellent track record in delivering research that produces tangible positive impacts on health policy and clinical care of patients. For example the Cochrane Oral Health Group produced a systematic review that could identify no benefit for routine prescription of prophylactic antibiotics for patients with valvular heart disease undergoing invasive dental procedures.

NICE subsequently produced new guidance for the NHS based on our research and as a consequence this practice stopped, saving the NHS money and reducing the use of antibiotics in the population. Our work on outcomes of cleft lip and palate surgery changed national policy to concentrate surgical management of cleft patients at a small number of regional centres. A trial of 17,000 children could identify no benefit from the national school dental screening programme, as a direct consequence of our research new guidance was issued by the Department of Health to the NHS advising 'PCTs to consider whether or not to continue local screening programmes and, if not, how best to address inequalities in oral health in other ways'. As a result of this guidance school dental screening has ceased across the UK.

The School of Dentistry has a strong focus on the second translation gap; identifying the means of implementing our research findings to increase the impact of our research on clinical care, service delivery and health policy in the UK and internationally. This focus on research for patient benefit and to

inform policy and commissioning decisions is reflected in our recent grant successes, for example undertaking a major trial to assess the cost effectiveness of prevention provided in general dental practice, a series of major population health systematic reviews commissioned by the US Centers for Disease Control and Prevention, a programme of research to define, measure and improve quality in dentistry, a programme to develop systems to actively manage demand for specialist services and a large research programme to evaluate the use of skill mix in dentistry.

Although we have an excellent track record in delivering research which has substantial impact, there are ways that we can improve the dissemination of our research findings and maximise the impact of our research for the benefit of patients:

- We will ask our researchers to assess the potential impact of each programme or project and the active management of impact as part of the dissemination plans in their personal research strategies to be reviewed in the P&DR process from 2013.
- The School will host periodic seminars with policy makers, commissioners, senior clinicians at UK and international levels (via webinars) to discuss outcomes of research and projects underway from January 2013.
- The School will develop a research impact page on the School website.
- To increase the international reach of our research, we will form strategic partnerships with dental schools whose research strength and reputation are in alignment with Manchester's.



Affiliation and integration

Key to developing our research capacity, improving the quality of our outputs and increasing the competitiveness of our grant applications is collaboration and integration with the Institutes and established Schools in the Faculty. Close working relationships and collaborations already exist with the Faculty Institute of Population Health; specifically the Centres for Primary Care, Health Economics, Biostatistics and Imaging Sciences. We also have close working relationships with the Institute of Human Development, Centre for Genomic Medicine and the Centre for Paediatrics and Child Health. We need to build on these strong relationships and our close ties with the NHS and public health in Greater Manchester and the wider North West to enable us to meet our objectives. We also need to form close working relationships with the Faculty of Engineering and Physical Sciences to support our research in biomaterials and with population health and health services researchers working in the School of Social Sciences and Manchester Business School in the Faculty of Humanities. We will integrate our research by

- Submission of multi-disciplinary grant applications.
- Participation in multi-disciplinary PhD supervision.
- Jointly funded posts.
- Inter-disciplinary P&DR.

8

Future developments

8.1 Undergraduate

- Continue to develop the iPad initiative and enhance the simulated learning environment.
- Respond to NHS changes.
- Ensure our undergraduate curriculum remains fit for purpose and evidence based.
- Collaborate with other undergraduate dentistry providers.

8.2 Postgraduate

Introduction of a new postgraduate taught programme to target home dentists wishing to study flexibly; pooling of resources across programmes and increased modularisation of existing programmes, coupled with collaboration with selected partners will allow for the introduction of a less-specialised programme. This will allow for engagement of a previously excluded target student group with little further increase in resource.

Health Care Learning – Smile-On Ltd

New initiatives are continuing further, as the School has just embarked on an on-line MSc in Restorative and Aesthetic Dentistry in association with an industrial partner, Healthcare Learning (Smile-On) Ltd. and has developed a Postgraduate Dental Education Centre working with NHS Manchester and a GDP partner provider.

The MSc programme with Smile-On has just had its first batch of graduates, who qualified in Summer 2012. Student feedback from them has been very positive. The School of Dentistry recently appointed four part-time and one full-time Dissertation tutors to assist with student academic guidance on this programme. The students are allocated to a tutor, who follows them through the writing of their MSc thesis and the tutors are lined managed by a senior academic.

Finally

The University of Manchester is moving up in the World Rankings. The Faculty of Medical and Human Sciences is becoming one of the leading Health Sciences Schools. The School of Dentistry is the best in the UK and is therefore ideally placed to play its role in the Faculty and University strategies to be world leading.



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Royal Charter Number RC000797
M802 11.13

