

Institution: University of Northampton

Unit of Assessment: 3 – Allied Health Professions, Dentistry, Nursing and Pharmacy

a. Overview

The School of Health is one of six Schools at the University of Northampton. The School has adopted a strategic approach to its research development to encompass a number of initiatives designed to be responsive to both the external and internal environment. With external partners we set up in 2008 the Centre for Health and Wellbeing Research (CHWR) and developed research themes which reflected the national and local health and social care agenda and priorities. Internally we have developed a structure which supports the research development of both our staff and research students but also that of NHS staff locally. Presently, the research within the School is organised into groups or 'themes' within the Institute of Health and Wellbeing (IoHW). All research is applied in nature with strong partnerships with the local health and social care community and national and international collaborators. The concept of IoHW was developed during 2012-13 and evolved out of the CHWR which had grown substantially since its inception, having developed considerable expertise in two particular areas: Mental Health and Wellbeing and in Participative research, the latter of which forms part of this submission. The Institute was officially launched in September 2013. The other research group that is part of this submission is the Biosciences Research group consisting of microbiologists, physiologists, clinicians and molecular biologists. Researchers have strong international partnerships including those in South Africa, USA, Canada, Italy, Spain, Greece, and Australia, many of which are evidenced by joint outputs and grants awarded.

b. Research strategy

Our overall aim in terms of research strategy is to produce a lively and sustainable research culture in which all researchers, whether experienced or early career, are able to engage in high quality, world class research which is purposeful and applied in nature.

In 2007-8 the main objectives for 2007-2013 were:

1. To increase the number of research active staff by
 - a. Recruitment of new staff who are active researchers
 - b. Retention of staff via a career structure that rewards research achievement
 - c. Development of existing staff to become active researchers;
2. To strengthen research groups by
 - a. Increasing post graduate student numbers
 - b. Ensuring new facilities support research activity

Progress made against the above objectives up to 2013 has included the following:

- 1a. Nine (Allen, Dickens, Haw, Higgins, Huber, Kinnafick, Machado, Marsden and Sixsmith) research active staff have been recruited. One (Ribbons) who was a Visiting Professor has been made a substantive appointment.
- 1b. Retention and reward of staff has been supported by the introduction (2011-12) across the University of an Associate Professor Development Scheme aimed at developing the brightest talent with the potential to have a significant international track record in research. Curran, Kay and Neill have all been appointed as associate professors. Raleigh was appointed a Reader in Molecular Genetics in 2010.
- 1c. Research activity by existing staff has increased using mechanisms that have produced a highly visible research culture, resulting in the inclusion of Beeson, Curran, Kay and Neill who were not eligible for submission in 2008.
- 2a. Post graduate student numbers have increased. There are 58 doctoral students enrolled compared with 12 in 2007-2008. Thirty one study via the Doctorate in Professional Practice (D.Prof.Prac) route, the first cohort of which enrolled in 2010-11. There has been an increase in either fully or partially externally funded studentships. From a zero base in 2008 three full time and two part time PGR students have been fully funded by NHS Northamptonshire; one by the SITA Environmental Trust and one by the EMDA Food and Drink iNet. In addition two full time students are 50% funded by St Andrews Healthcare and one by the Rosetrees Trust. There has also been maintenance of internally funded PGR studentships at four.

Environment template (REF5)

- 2b. For Biosciences research there has been an investment in both equipment and new laboratories. Our category 2 laboratory moved in 2011 to a larger space due to an expansion in PGR students and staff research. In 2012-13 a new Molecular Biology laboratory came on-stream which together with extra equipment provides good facilities for molecular techniques. There has also been investment in physiology laboratory equipment. In total since 2010 approximately £250k has been invested in research facilities in the Biosciences.

In terms of strategy, as well as continuing to build on the previous objectives of increasing numbers of research active staff and strengthening research groups, those for 2013-18 include:

1. Strengthening research relationships whilst building new regional, national and international partnerships thus developing further research excellence through collaborations with external partners.
2. Supporting high quality applied health and social care research leading to high quality outputs with a measurable impact on the local, national and international communities.
3. Further developing a strong research culture in a supportive environment for doctoral researchers and all staff including novice, early career and experienced researchers
4. Embedding research as a core activity of all staff to ensure sustainability both in terms of capacity and financial viability.

An integral part of the operational plan for delivering on these objectives is the development of IoHW which will, because of its core staff of researchers and through the development of multi-disciplinary research themes, provide the vehicle by which researchers can engage in purposeful and impactful research.

Research themes**1. Mental Health and Wellbeing**

In terms of national priorities the ageing population and the increase in age-related disease such as dementia is becoming a serious concern for the NHS. According to the Mental Health Foundation 1 in 4 people will experience a mental health problem in the course of a year and this puts an increasing burden on health and social care services. Mental Health and Wellbeing as a research theme evolved out of a joint interest in these issues by academic staff and clinical colleagues. It was also identified as a strategic priority by the local health and social care community including NHS Northamptonshire. The group consists of academics (including Sixsmith and Huber) and clinical colleagues, some of whom have joint appointments between the university and external partners such as St Andrews Healthcare, an independent voluntary sector provider of mental healthcare closely integrated with the NHS and the largest charity provider of NHS care in the UK (Professors Dickens, Long and Haw). There are also strong links with community mental health services through a visiting fellow (Dr Sheila Hardy, 2011-13) a mental health nurse consultant.

The research carried out in this group is wide ranging – from forensic mental health through to wellbeing and from children to older people.

The clinically-led research within St Andrews into specialist assessment and interventions and into outcomes for service users with complex needs is key to the development of highly innovative care pathways. The research relationship between staff in St Andrews and those in the UoA is in early stages since the joint appointments were only made in 2012 but reflect the commitment of both organisations to collaborative research (as stated in objective 1 of the research strategy for 2013-18) and builds on the appointment of Philip Sugarman, the CEO of St Andrews, as a Visiting Professor in 2009.

For Neill, the focus of her research is centred on the wellbeing of the child and family, and their experiences of acute childhood illness. The work is embodied in the ASK SNIFF (Acutely Sick Kid Safety Netting Interventions for Families) project – a collaborative venture between the Universities of Northampton, Oxford and University College London and Northamptonshire NHS, for which she is project coordinator. This work is integral to the development of the *Family Health and Wellbeing* being developed as a research theme of the IoHW.

The research carried out by Kinnafick has focused on psychological aspects of physical activity linking mental health and wellbeing with physical activity and the effects of the physical environment on motivation and behaviour change. This links with a developing theme of Huber's research since his arrival at the university (2011) which is around behaviour change and the concept of resilience. In his previous institution his research focussed on two areas: diabetes and behavioural aspects of energy intake and expenditure (funded by Kellogg's), as evidenced by the outputs in this submission.

Since coming to the University, also in 2011, Sixsmith has developed programme of research in the areas of health and wellbeing with an EU funded project on young peoples' agency in the context of domestic violence and local projects on student wellbeing in the transition into university (with Huber) and the strengthening of health and wellbeing within the secondary school sector across Northamptonshire (funded by Public Health Northamptonshire). She continues to develop her work on older people and quality of life with a current project on end of life care undertaken in collaboration with the Wai Yin Chinese Society and the role of memory on the wellbeing of older people. A recently appointed associate professor Dr Jackie Parkes (not part of this submission) also works alongside Sixsmith in the area of late onset and early onset dementia and, together with Huber, they will further develop the *Health and Wellbeing in the Ageing Population* research theme within the IoHW.

2. Biosciences

The Biosciences Research Group is multidisciplinary in nature which allows research which cross-discipline boundaries to be explored. It is led by Prof. Phillips and consists of microbiologists (Phillips, Allen and Marsden), a molecular geneticists (Raleigh and Machado), podiatrists (Beeson, Curran), and three physiologists (Campbell, Kay, Higgins), a clinician (Ribbans) together with a post-doctoral researcher and PGR students. An example of cross disciplinary working is the collaborative research undertaken by Raleigh and Ribbans concerning genetic factors in determining tendon pathologies.

The microbiology research is focussed around antimicrobial compounds and interventions. Compounds under study are mainly those of 'natural' origin such as essential oils and chitosan but also include disinfectants, while the interventions being investigated include anaerobiosis and low temperature. The molecular mechanisms whereby bacteria develop resistance to certain antimicrobial compounds/interventions is of particular interest and is the developing programme of study for this group of researchers, which was strengthened by the appointment of Marsden in 2010 who had particular molecular microbiology expertise. The pathogenic bacteria of interest include *Listeria monocytogenes*, *Campylobacter jejuni*, *Staphylococcus aureus* (including MRSA) and *Clostridium difficile*, all of which are important causes of human morbidity and mortality. The group has been successful in gaining five 'Students into work' grants from the Society of Applied Microbiology since 2009 and three of these students have continued to PhD studies either at Northampton or elsewhere.

The physiological research is based around musculoskeletal physiology with Kay and Higgins focussing on the effect of training has on different physiological factors while Raleigh and Ribbans' research focuses on the genetic risk factors for a range of complex musculoskeletal phenotypes including Achilles tendon pathology and rupture to the anterior cruciate ligament. The cross-disciplinary approach between sports scientists, molecular geneticists and orthopaedic clinicians has led to innovative research leading to patents and the development of genetic testing for the risk of tendon injury. There are three PGR students studying in this topic area and Kay has been successful in securing funding from the Society of Biology for an undergraduate research bursary in 2013. Related to this area of study is the research undertaken by Curran and Beeson who are podiatrists (linked to work carried out by Ribbans as an orthopaedic consultant) and Campbell who is a neurophysiologist. The focus here is on clinical aspects of lower limb physiology but there are close collaborations between all physiology staff in PGR student supervision and funded projects.

Mechanisms and practices for promoting research

All staff are encouraged to engage in a research group appropriate to their interest and expertise. There are developing research groups (e.g. in midwifery and nursing) that are not part of this submission but contribute to the overall research environment in terms of presenting at research

seminars, supervising PGR students and involvement in cross-disciplinary research projects. For example, a midwife (Dr Sarah Church) co-manages with Neill, a children's nurse, a research project 'Early help in early years' funded by Northamptonshire County Council. This cross-disciplinary approach is supported by the development of the IoHW research themes such as *Family Health and Wellbeing* which will, in the future, facilitate multi-disciplinary research projects and a different way of healthcare professionals working and researching together. Monthly seminars at IoHW are widely advertised (www.northampton.ac.uk/institute-of-health-and-wellbeing) to the local health and social care community and further afield. Since 2008, over 1000 individuals have attended these seminars (many on more than one occasion). Attendees include NHS staff, staff from charities and local government, service users and carers and members of the public. These provide a forum for promoting both the research undertaken at the university and within the local NHS as well as national projects. We have also held national /international conferences here at the university such as one on dementia entitled *Living with dementia* in September 2012 and *Keeping well in the face of adversity: long term conditions and mental health conference* in November 2012 which attracted an international audience at each. One of the keynote speakers at the latter (Dr Charles Scerri from Malta) has continued the collaboration with Sixsmith and others in the group (e.g. Dr Jackie Parkes – not part of this submission) in terms of joint funding bids.

c. People, including:

i. Staffing strategy and staff development

As a staffing strategy, whenever relevant, recruitment material includes an element of research activity. However, because of the relatively low research base of many health professionals entering into the university as academics but with a wealth of professional experience our staff development policy and operational plans are designed to support staff in developing themselves as researchers. In doing so we have invested resources into supporting staff to study for PhD or a Professional Doctorate (D.Prof.Prac.) including payment of fees, study leave and a flexible approach to timetabling to allow proper engagement with their research studies. In 2013-14 there will be five staff studying as part time PhD students and eleven on the professional doctorate programme. Also since 2007 eight have completed their PhDs at Northampton or at other universities including Kay, Neill, Beeson and Curran demonstrating the commitment to staff development in relation to research.

Before engaging in PGR student supervisory teams, academic staff complete the university-wide supervisor training scheme (Post Grad Cert in Research Student Supervision) which provides them with the principles of developing as supervisors and the research supervisory process at the university. The excellence of this programme has been externally recognised by commendation the QAA in the 2009 Institutional Audit. This system of PGR supervisory teams, also recognised by QAA as good practice, has allowed early career researchers (ECRs) and staff inexperienced in supervision to work alongside established supervisors to the benefit of the student and their own personal development.

Post-doctoral researchers and staff who are ECRs are particularly encouraged to attend university-wide workshops and mentorship to facilitate their development into independent researchers and principal investigators. A Research Staff Network was established in 2009 to provide a forum for networking and development for this group of staff. It arose through a convention that brought together ECRs, research managers, staff developers and human resource managers to consider ways to best support the precepts and premises of the Concordat. From this emerged an inclusive structure owned, driven and led by ECRs. As an indication of the innovative nature of this initiative it was shortlisted for a 2010 THE Award for Support for Early Career Researchers.

As part of the support for academic staff we have appointed individuals on substantive research-only contracts (four over five years), four others who are employed on short term contracts plus two administrators all of whom support the individuals in this submission as researchers, bidding for external funds, delivering projects and writing for publication (e.g. Dr Matt Callender supports Sixsmith – evidenced by joint publication). Two of the post-doctoral researchers employed have subsequently moved to lectureships at other universities (Dr Laird to DMU and Dr Gkatzionis to Birmingham University) but continue to collaborate with Northampton.

As part of the strategy of raising the research profile of the School, two (one externally funded) professors (Huber and Sixsmith) were appointed in 2011-12. As part of their role they act

Environment template (REF5)

as mentors to existing staff since mentorship was identified by staff as a barrier to engaging in research by early career or novice researchers through a staff survey. The mentorship scheme takes the form of one-to-one sessions and shadowing activities.

For staff on the Associate Professor Development Scheme we support their development towards full professorship with external mentors (for example, Curran is mentored by Prof W. Vernon OBE, Sheffield PCT). For those who aspire to join the scheme mentors from inside the school are appointed (for example, Phillips is mentoring Beeson).

ii. Research students

Research students are a key part of the research environment and numbers of students, especially full time students, has increased by x3 since RAE 2008 partially reflecting the increase in the number of staff able to supervise. The system of supervisory teams for each student recommended by QAA is well established within the university. The Framework for Postgraduate Student Training complies with the QAA's Code of Practice for Postgraduate Research Programmes, implements the 2008 Concordat to support the career development of researchers and is mapped to the Vitae Researcher Development Framework and the Researcher Development Statement.

One example of the growth of PGR students is the increase of allied health professionals studying. As well as two PhD completions, there are currently five PhD students and two Professional Doctorate students whose professional background is occupational therapy compared with two PGR students in 2008.

Research students are encouraged and supported to apply for external funding to facilitate their attendance at international conferences. For example students in the Biosciences research group, have received funding from the Society for Applied Microbiology to attend the American Society of Microbiology meetings in 2009 (San Diego) and 2011 (New Orleans). One PGR student has received a Learning and Teaching National Award (£2k) from the Higher Education Academy and an UKOTRF Irwin Mitchell Research Award (£10k) contributing to PhD costs. Several of our students have received university funding via various awards. For example, one received support to attend and present at the joint US and Canadian Occupational Science conference in 2010 and another attended a conference *Targeting Mitochondria* in Berlin in 2012. In preparation for their conference students are expected to deliver their presentation to a group of their peers and staff in a supportive environment for feedback and to build confidence. This also provides an opportunity for discussion, adding to the supportive research environment in which our students and research staff work.

In order to develop themselves as researchers and to facilitate networking with experts in their topic area, PGR students are encouraged to join relevant professional bodies and learned societies (e.g. Biochemical Society, Society of Applied Microbiology, British Association of Sport and Exercise Science, Society for Research in Rehabilitation, British Psychological Society). Three of our PGR students have been members of the Society of Applied Microbiology's Postgraduate and Early Career Researchers committee (PECs) hence contributing to the national development of that group. One PGR student is a postgraduate representative on the Board of the Division of Health Psychology, British Psychological Society.

Research students are also supported to submit manuscripts to peer-reviewed journals and there are a number of publications in this submission that evidence this support (e.g. Phillips with Ali and Adukwu; Allen with Lama). There has been one example of a research student producing a technology which has led to a patent application (Fisher and Phillips – United Kingdom Patent Application No. 0809935.0: Antimicrobial citrus essential oil blend vapour) and the university has fully supported the further development of the evidence for the patent and the legal fees incurred. Regarding infrastructure each research student is assigned a dedicated desk space and PC. There is a research student area which allows informal interaction and discussion. In laboratory areas each PGR student has a dedicated working space and there is a separate office attached which students may use as a 'hot desk' area.

d. Income, infrastructure and facilities

The research income within this submission has increased by three times (from £120k in 2007-8 to £363k in 2012-13). This is a reflection of the success of the strategy and operational plans developed in 2007-8 to increase staff research activity and which subsequently through joint research projects and dissemination activities, led to the development of strategic partnerships locally and regionally.

Environment template (REF5)

Such a strategic partnership with NHS Northamptonshire resulted in a major investment (approximately £800k over four years) both for infrastructure and for a professorial post (Sixsmith). This investment has strengthened links with the health and social care community and provided the opportunity for novice and early career researchers to engage in small, purposeful and applied research projects commissioned by the local health and social care community.

The University and the School have invested QR funds won from the RAE2008 submission into activities to build a strong research environment. The central funds were used to fund internal PhD studentships and to set up a REF Investment Fund (2011-12 and 2012-13).

Examples of activities supported by the School allocation include:

- Funding presentations at international conferences (over 50 conference presentations for the individuals in this submission alone)
- Seed-corn funding pilot projects
- Employment of research assistants and post-doctoral researchers
- Funding short term internships for final year undergraduates to undertake research to support staff research projects
- Supporting sabbaticals for staff to complete PhDs
- Specialist IT equipment or software

The Biosciences research group has a range of laboratory facilities available such as a Sports Science laboratory, a category 2 Microbiology, molecular biology and biochemistry laboratories.

e. Collaboration and contribution to the discipline or research base

i. Professional bodies

A number of staff in this submission are involved in activities external to the university which add to the research base of their disciplines and professional bodies. Examples include:

- Phillips sits on two committees for the Society for Biology (Research Dissemination and Professional Practice). She was the first female President of the Institute of Food Science and Technology (2009-11) and was a member of the executive committee of the Society of Applied Microbiology (2006-2009).
- Campbell was a member of the Core Executive of the National Physiotherapy Research Network (to 2011), Chair, (to 2009) and member (to 2011) of the Research Forum for Allied Health Professions, a member, College of Podiatrists Research and Development Committee (to 2011), a member of the Steering Group of the UK Occupational Therapy Research Foundation (to 2010) and Chair of the Nordoff-Robbins Research Ethics Committee (to 2010) and Chair, Nordoff-Robbins, Research Degrees Committee (to 2010)
- Huber is a member of the Psychosocial Aspects of Diabetes Study Group (a study group of the European Association of the Study of Obesity) and a Fellow of the Royal Society of Public Health and Royal Society of Medicine.

ii. Links to NHS and other healthcare providers

Links to clinical colleagues are strong. Locally, since 2009, we have five visiting professors who are at senior levels within the local and regional health and social care community, including the Chief Executive of St Andrews Healthcare (Philip Sugarman, 2009-12), a consultant in Public Health (Stephen Rogers, 2012-14), the Managing Director of the Greater East Midlands CSU (John Parkes, 2011-13), a consultant in Emergency Care (John Hare, 2010-12) and the Research and Development lead for Leicestershire Partnership NHS Trust (Susan Corr, 2013-16). All these have input into the delivery of the Doctorate in Professional Practice and the latter also acts as a supervisor to a PGR student funded by the UK OT Research Foundation.

Individuals are linked into various NHS networks relating to developing the research base in the NHS. For example, Campbell is a member of Regional Operating Group, NIHR RDS East Midlands, a member of the NIHR Clinical Academic Training Pathway (CATP) Implementation Group, and expert panel member for all CATP awards. She is a member, NIHR HTA programme College of Experts and a member, Regional Board, Primary Care Research Network East Midlands & South Yorkshire.

Developing the research skills of non-medical NHS staff is an important initiative in linking into all layers of the NHS. This has been achieved through three East Midlands HIEC funded projects

Environment template (REF5)

(two led by Phillips) that are part of the Non-medical Clinical Academic Careers Infrastructure programme in the East Midlands. These initiatives have been in collaboration with R & D leads from local trusts (Northamptonshire Healthcare Foundation Trust, NHS Northamptonshire, East Midlands Ambulance Trust) and academics from other EM universities (Prof. Siriwardena, University of Lincoln). These projects have allowed university staff to interact with novice researchers from the local NHS trusts, developing relationships from a very early stage in their research careers.

Phillips sits on the LNR CLRN Board and Beeson on the EM HEIC Clinical Academic Careers Steering Group. Beeson and Neill are mentors for the Midlands and East Clinical Academic Careers Internship scheme and Campbell for the NIHR scheme for Health Research Training Fellows. There are staff representatives the Governing bodies of both local acute trusts (one of which is a Foundation Trust) and the local mental health community foundation trust.

iii. Collaborations

As well as our close collaborations with the national and local health and social care community, there are extensive international partnerships with collaborators in Italy (Campbell with Leandri et al), Australia (e.g. Kay with Prof Blazeovich) and South Africa (Raleigh/Ribbons and Prof Collins) evidenced by joint publications submitted as outputs. A visiting researcher (Dr M. Posthumus from the SA research group) funded by the Leverhulme Trust for nine months in 2009 is continuing the collaboration in that he co-supervises PGR students with Raleigh and Ribbons and they continue to research and publish together. National collaborations include Nottingham, DMU and Birmingham (Phillips), Kings College, Roehampton, Bath and Surrey (Huber), Leicester (Machado), Manchester Metropolitan University (Sixsmith), York (Curran) - also evidenced by joint publications in this submission.

iv. Editorships / members of editorial boards

- Phillips is an Associate Editor for the *International Journal of Food Science and Technology* (2011 and continuing), was a member of the editorial board of *Journal of Applied Microbiology* and *Letters in Applied Microbiology* (2008-11).
- Campbell is a member of the international advisory board *The Foot (International Journal of Foot Science)*
- Raleigh serves on the editorial boards of *Case Reports in Genetics*, the *Journal of Orthopaedic Surgery and Research* and *Plos One*.
- Sixsmith is the editor of *Community, Work and Family* (2010 – present) and was an editorial board member of *Journal of Applied Gerontology* and *European Journal of Aging* (to 2011).
- Neill is a member of the editorial team for *Issues in Comprehensive Paediatric Nursing*
- Huber is a Deputy Editor *Health Psychology Update* (British Psychological Society)

v. Other activities

- Grant reviewing - Sixsmith is an expert project reviewer for the European Commission and Phillips an expert evaluator for the EC Marie Curie fellowship programme FP7-PEOPLE-2013-IXF, LIFE panel; Huber is a grant reviewer for the NIHR HTA and Programme Grant schemes and for the Dunhill Medical Trust. Raleigh is a grant reviewer for the National Research Federation of South Africa and the Rosetrees Trust.
- Invited conference presentations- Raleigh was an invited speaker at the 4th Clinical Sports Medicine Conference in Cape Town SA in 2010 and co-chaired the symposium '*Molecular Biology- Applications in injury prevention*'; Huber was a invited keynote speaker at the International Conference on Applied Psychology, Lahore (Pakistan) Dec 2012: *Does resilience protect against depression and improve self-care in people with diabetes?* Phillips was an invited speaker at the International Union of Food Science and Technology conference in Cape Town, SA in 2010: *Challenges for Food Scientists in the 21st century*.

National policy advice - Neill contributed to the Acutely Ill Children subgroup of the Department of Health's 2012 Children and Young People's Health Outcomes Forum.