

Becoming research confident



Research in pre-registration
curricula for nursing,
midwifery and allied
health programmes
in the UK

May 2019

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The Council of Deans of Health represents the UK's university faculties engaged in education and research for nurses, midwives and allied health professionals. At any one time our members will be educating over 100,000 future registered health professionals. Operating as a multi-professional organisation at the heart of policy and political debate, the Council aims to lead policy at national and UK level, promoting the essential contribution of our members to health and social care.

Foreword



The future of safe, effective and innovative practice depends upon a professional workforce that is research confident. Research capacity building is required at all career levels but begins with pre-registration students being given an understanding of the role of research in assessing, evaluating, and improving practice.

As the representative body of the UK university faculties engaged in education and research for nurses, midwives and allied health professionals, the Council of Deans of Health has a clear role in helping to build this capacity through advocacy and the dissemination of good practice. Over the last few months, the Council has explored with its members, professional bodies and other stakeholders how research is integrated into pre-registration curricula. The case studies included in this report show a variety of approaches taken by universities to make students confident users and producers of research. I have also been struck during this project by the obvious potential to increase research opportunities for students through close collaboration between universities and practice partners.

I am grateful to our members for their contributions to this work and to the many external organisations that offered their expertise and perspectives on this subject. I look forward to continuing to lead conversations on this topic over the coming year.

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Executive summary

The Council surveyed members to scope the current landscape of research in pre-registration curricula. The results paint a picture of the various approaches taken to incorporating research in nursing, midwifery and allied health profession programmes. The survey revealed wide variety in the proportion of students who undertake primary and secondary research projects. The survey results also reveal a difference in research focused learning outcomes between nursing/midwifery and allied health profession courses. Respondents identified competing curricula demands and time constraints as the biggest barrier to integrating research into pre-registration curricula. A shortage of funded or resourced opportunities for students interested in engaging in research can also act as a barrier to research involvement.

Representing the student perspective, a survey undertaken by an undergraduate nursing student on the Council's Student Leadership Programme, found that students enjoyed learning about research, saw its relevance to their pre-registration programmes and understood the link between research and practice. However, it highlighted that students would like increased support and access to research, and that a more 'hands on' learning experience would be beneficial.

Thirteen case studies from Council members included in this report showcase the diverse and innovative approaches higher education institutions are taking to ensure the research knowledge, skills and expertise of pre-registration students are developed. These examples include evidence-based practice modules, research projects and dissertations, integrated research-informed teaching, and research placements in practice. They cover a variety of disciplines at undergraduate and postgraduate levels, and include some approaches for all students on the programme and others which are just for those who are interested in getting involved in research beyond the mandatory curriculum.

Key findings:

- All healthcare professionals should be able to critically assess and use the evidence that underpins practice. Graduates that are research confident are more likely to apply for jobs that include a research, quality improvement or audit component.
- Universities vary in their approach to pre-registration research exposure. Approaches also vary across the healthcare professions.
- Universities have integrated research into pre-registration curricula through modules on research methods and evidence-based practice, research-informed teaching, dissertations and interdisciplinary research projects. In close partnership with healthcare providers, some universities have created research placements and projects in practice to apply their research skills.
- Competing curricula demands, time constraints and a shortage of resourced opportunities for students can act as barriers to integrating research into pre-registration curricula.
- To increase research exposure in pre-registration curricula there needs to be further collaboration between higher education institutions and practice partners, to create more research placements for shared learning between the different professional programmes and institutions as well as engagement of students in 'hands on' and resourced opportunities.

1 Introduction

As the representative body of the UK university faculties engaged in education and research for nurses, midwives and allied health professionals, the Council is committed to increasing research capacity for our disciplines. This includes career pathways and funding opportunities for researchers and academics at different stages of their career, built on professional cultures where the importance of critical thinking, innovation, evaluation and knowledge translation, utilisation and generation are universally recognised. Ensuring that students graduate from pre-registration courses understanding the fundamental role research plays in assessing, evaluating and continuously improving practice, is essential.

In this context, we are looking at research in a broad sense. According to the NHS Health Research Authority, *“research’ means the attempt to derive generalisable new knowledge by addressing clearly defined questions with systematic and rigorous methods”*.¹ Helping students to learn about research therefore needs to address the whole continuum of research, from the identification and formulation of researchable questions, to applying and working with different methodologies, through to translating and utilising evidence in practice.

This publication addresses this need and is derived from an expressed desire among Council members to influence the consistency, transparency and rigour of research in pre-registration curricula, given its importance as a platform for the development of professionals who appreciate the importance of research as well as the career opportunities available.

Methodology

The Council introduced this project with a workshop on student involvement in research at our Full Council event in Glasgow in October 2018. A mental health nursing student at Plymouth University and one of the Council's #150leaders students, started the session by telling the audience about how she got involved with research throughout her undergraduate degree by participating in studies in her local area and beyond. The workshop presenters included two Council members from the University of Exeter and Cardiff Metropolitan University who shared how they supported students in learning about and undertaking research during their programmes.

Two PhD candidates from Queen Margaret University in Edinburgh talked about the importance of lecturers having encouraged them to do a PhD and apply for research assistant positions, as well as the importance of understanding that you can make a difference to patient care through research. The well-attended workshop provided delegates with examples of various ways in which students can be involved in research, how they can be inspired to consider a career in this area and how to provide students generally with a better understanding of research and its impact on practice. Having role models and personal encouragement from academic staff to get involved with research was seen just as important as the provision of structural opportunities such as research placements being recognised as part of clinical hours, paid internships for graduates or the clinical academic apprenticeship that many members would welcome.

Subsequently, we have asked our members to provide information on the extent to which they integrate research into pre-registration curricula through a survey and by providing detailed case studies. The survey questions and the template for the case studies were reviewed by members of the Council's Research Advisory Group, our Education Impact Advisory Group and a Task and Finish Group that was formed following the workshop at Full Council in Glasgow. The online survey was open from the end of January to the beginning of March 2019 and was promoted through the Council's weekly Bulletin. At the same time, we invited members of the Task and Finish Group as well as the wider membership to submit case studies of good practice for the report. We reviewed these at the end of March and decided to include all of the case studies that were submitted in this report. To illustrate a wide range of examples in the report, we contacted a few Higher Education Institutions (HEIs) asking for case studies for specific subjects.

In addition, we reached out to professional bodies to gain a more in-depth knowledge of the role of research in education for specific subjects. We spoke to and received information from the professional bodies representing the nursing, midwifery and allied health professions listed above.

Footnote

1 NHS Health Research Authority, *Glossary*

2 Why should pre-registration healthcare students learn about research?

Research (in all its forms and fields) provides the evidence base required to make meaningful assessments about the quality, effectiveness, efficiency and sustainability of the interventions and support provided in health and social care. In addition, engaging in research to advance the knowledge-base of any of our professions is essential to the professional standing of a discipline.

When speaking to the professional bodies representing our professions, some highlighted the importance of evidencing the effectiveness of profession-specific interventions. The availability of this evidence has important implications for the health system, for instance where the cost savings and quality of life as outcomes of specific prevention or early intervention measures can be evidenced.

Educators of the future generations of healthcare professionals play a vital role in shaping students' image of the profession they are entering and what 'good practice' in this profession means. It is fundamental that students do not just learn 'how to do things' but also 'why'.

Learning about research is therefore not only relevant for those who may be interested in an academic career, but to every single healthcare professional who will ask themselves at some point in their career:

- Why has X become standard practice in my field?
- How can I assess which intervention will be most effective for patient X?
- How do I find out if others in my profession have found new evidence on what works?

Footnotes

2 For more information on this survey, please contact Jon Feeney, Adult Nursing Students, University of Stirling, jonathan.feeney@nhs.net

3 Around 80% of respondents studied at universities in Scotland, 19% in England and the remaining 1% in Wales. 45% were in their first year of study, 26% in their second year and 29% in their third year. Almost 80% of respondents studied adult nursing, 18% on mental health nursing, and around 2% child nursing.

The student perspective

Earlier this year, an undergraduate adult nursing student at the University of Stirling, who has been on the Council's Student Leadership Programme, conducted a survey of fellow undergraduate nursing students to find out more about their attitudes towards research in their programmes.² The student perspective provided by the 109 respondents³ revealed that:

- More than half of respondents said they enjoyed learning about research and around 70% said that learning about research is relevant to their pre-registration training.
- Respondents indicated differing levels of confidence in searching for research publications with most selecting a 3 or 4 (out of 5 where 5 indicated the highest level of confidence), and in reading and understanding research publications with most selecting a 2, 3 or 4.
- Nearly three in four respondents said they understand the link between clinical practice and research.

Students were also asked whether they felt their HEI had been preparing them enough to be 'research-informed' and what barriers they saw to understanding and enjoying research as well as how this could be improved:

- The students had mixed feelings about how well their HEI was preparing them to be research-informed with a third selecting a 3 out of 5 and only 13% selecting the highest mark (5 out of 5).
- When asked about barriers, 47% felt they did not obtain enough understanding of research in their programme; 39% said that they had 'other, more pressing academic demands'; and 29% felt that there was 'not enough support available' to engage in research.
- The majority of respondents were not sure whether their HEI provided enough support for those interested in clinical research. 17% felt that there was not enough support and about a quarter felt there was enough support.
- When asked about whether they would like to see more or less research in their pre-registration nursing programmes, 44% said they wanted more research, around 30% though the current amount was adequate and 26% wanted to see less research.

- In response to a question about how students' attitudes towards research could be improved, respondents said that there should be better support and accessibility (including language) of research and how it is taught within their programmes. A number of students felt that an earlier introduction into research in the form of smaller, group-based work would be beneficial to students' understanding. Respondents also indicated that they would benefit from more 'hands-on' learning surrounding research as opposed to traditional lecture-based learning.

Encouragingly, 17% of respondents said they would consider undertaking further postgraduate study in research and even a career in clinical research. A further 36% said they would maybe consider this.

Looking at the wider education context

Educators in both academia and practice have a responsibility to provide and facilitate a culture of inquiry that enables the continuous development of practice for person-centred and evidence-informed services.

In the following chapters, this report will provide an overview of current institutional, regulatory and professional guidance on research in pre-registration curricula and profession-specific opportunities for students to get involved with research.

Looking at the findings of our own members survey, the following chapter will describe how health faculties are already integrating research into their pre-registration curricula for different disciplines at both undergraduate and postgraduate levels. It will also outline the main barriers our members experience in integrating research into curricula.

Building on this, the report will then provide case studies from our members where they have integrated research/evidence-based practice modules into their curricula, where they have evaluated the effectiveness of these kinds of modules, where they have created opportunities for students to conduct research in practice, and where they have developed a combination of different methods and opportunities to engage students with research. The report will synthesise key aims, processes and outcomes of the case studies, which can all be found in more detail in appendix 1.

3 Existing guidance on research in pre-registration curricula and profession-specific opportunities

3.1 Institutional guidance

Universities are guided on research in their curricula by their institutional research strategies. These provide a steer on how staff and students are supported to do research, the opportunities for development, the focus and impact of research and the nature of collaborations or partnerships. However, the strength of research strategies can differ depending on institution, and the extent to which they are implemented can vary depending on department, school and course.

3.2 Regulatory requirements

There are regulatory requirements on the research competencies for nursing, midwifery and allied health professional registrants and programmes. The Nursing and Midwifery Council (NMC) states that nursing and midwifery education should 'support opportunities for research collaboration and evidence-based improvement in education and service provision'.⁴ The Health and Care Professions Council (HCPC) proficiency standards state that allied health professionals should be able to draw on knowledge and research to inform practice and appropriate actions, understand the value of research and research methodologies, and assess and evaluate evidence. The HCPC education and training standards require programmes to support and develop evidence-based practice.

Footnote

⁴ Nursing and Midwifery Council (2018) *Standards framework for nursing and midwifery education*

3.3 Professional bodies' guidance

Many of the health profession bodies have research strategies and guidance on research in pre-registration curricula. They recognise the importance of research in pre-registration courses in order for research capacity to be developed within their professions. Professional bodies emphasise the need for curricula to be designed in a way that 'facilitates the development of a scholarly practitioner' and they highlight key outcomes students should have at the point of registration.⁵ They ask for pre-registration courses to provide students with a level of research knowledge, skills and confidence, that enables them to:

- be research aware in their practice
- have an evidence-informed approach
- have knowledge of design, methods and ethics of research
- assess and evaluate evidence
- understand service evaluation and development

3.4 Profession specific opportunities

The professional bodies offer a range of opportunities and resources for nursing, midwifery and allied health profession students to engage with research. These include journals and newsletters, research networks, online resources and libraries, events and conferences, and student awards and grants.

Some examples of these opportunities and resources are:

The College of Radiographers runs an **Industry Partnership Scheme** which aims to encourage students to pursue a career in research through providing funding to undertake a research project or gain research experience. It is also developing a research 'starter pack'.

The British Dietetics Association has an online resource, **Practice-based Evidence in Nutrition** (PEN) for students, as well as educators and practitioners. PEN summarises and keeps students up to date with the latest evidence base in dietetics, and provides guidance on how to apply it to practice.

The International Journal of Language and Communication Disorders (IJLCD) and the *Royal College of Speech and Language Therapists* jointly run a student project prize award. The award celebrates student academic achievement, encourages future researchers and recognises the importance of students in the research process. It also allows students to work with IJLCD to make a journal submission.

The Royal College of Nursing (RCN) holds an **annual international research conference** where it runs a student in partnership scheme. Pre-registration nursing students can submit abstracts and the chosen students are supported to present at the conference. There are discounted rates for nursing students to attend and it is open to all local healthcare students. The resources and presentations for previous conferences can be accessed on the RCN website.

The Royal College of Midwives (RCM) has an **i-learn portal** which includes online courses on research such as, 'learning to think like a researcher' and 'research evidence and its impact'. The RCM also offers **research awards** including entry level scholarships.

Footnote

⁵ College of Occupational Therapists (2014) *College of Occupational Therapists' learning and development standards for pre-registration education*

4 How are universities integrating research into their pre-registration curricula?

We invited all members of the Council to complete a survey to better understand the extent to which research is integrated into pre-registration curricula for nurses, midwives and AHPs. It should be noted that the survey results are only representative of around 40% of the membership, although responses were received from across the UK, from universities in England, Scotland, Wales and Northern Ireland.

Key headlines

The survey results revealed:

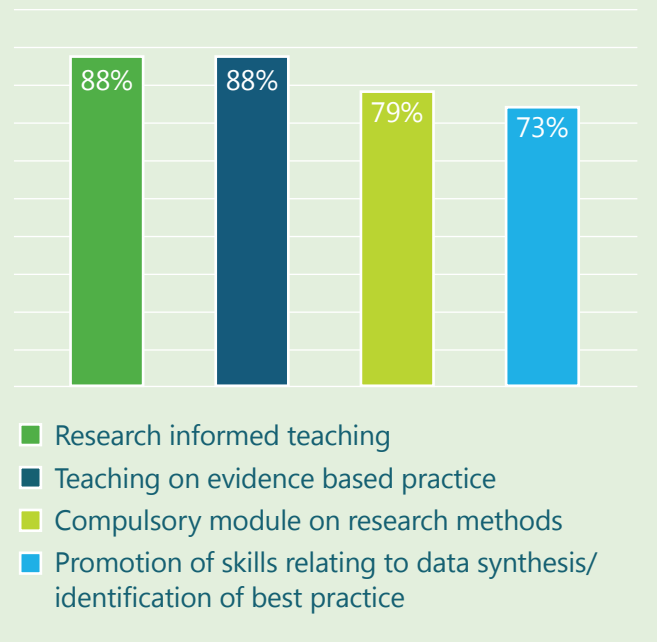
- variation in the approaches to integrating research as well as variation in the extent to which research is integrated into curricula
- a clear difference in research focused learning outcomes between nursing/midwifery and AHP courses
- no apparent difference in the response between Russell Group universities and post-1992 universities in terms of how they integrate research into their curricula and to what extent
- competing curricula demands and time constraints as the biggest barrier to integrating research into pre-registration curricula
- a shortage of funded or resourced opportunities for students interested in advancing their research knowledge, skills and expertise

Integration of research in undergraduate curricula

All survey respondents stated that research is integrated into undergraduate pre-registration curricula to some extent, and they all take more than one approach to integrating research. The most common ways of integrating research (88% of respondents) was research informed teaching and teaching on evidence-based practice. This was followed by a compulsory module on research methods (79% of respondents) and skills being promoted in relation to data synthesis/identification of best practice (73% of respondents).

There was considerable variance in the percentage of students who undertake primary and secondary research projects,⁶ with survey answers ranging from 0% to 100%. In general, a higher percentage was provided for secondary research projects and it was noted several times that nursing students are more likely to undertake secondary research than primary research, most commonly literature reviews.

To what extent is research integrated into your curricula for pre-registration undergraduates/ pre-registration honours undergraduate courses?



Footnote

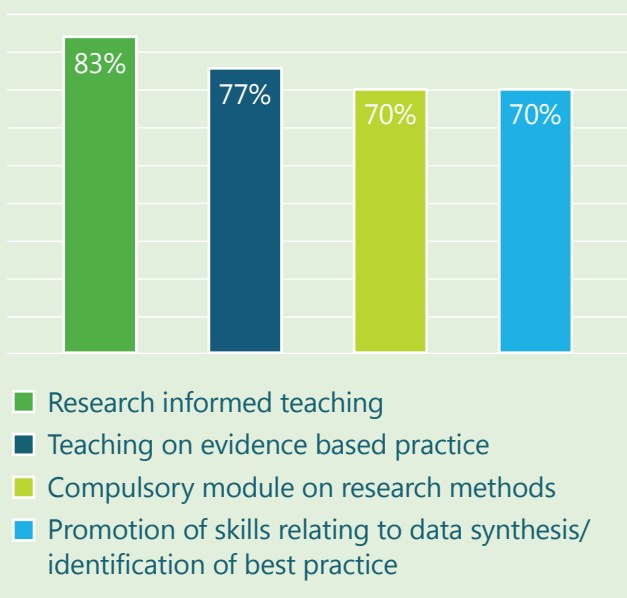
⁶ In the context of this report, secondary research refers to research that utilises existing research data.

Integration of research in postgraduate curricula

10% of survey respondents stated that they do not integrate research into postgraduate curricula. However, those who do integrate research take more than one approach and the most common approaches are the same as for undergraduate courses; research informed teaching (83%), teaching on evidence-based practice (77%), compulsory module on research methods (70%), promotion of skills in relation to data synthesis/identification of best practice (70%).

Mirroring the responses regarding undergraduate provision, the survey responses were also varied in how many postgraduate students undertake primary and secondary research projects. It was noted that for physiotherapy and occupational therapy a higher percentage of students undertake primary research projects than secondary research projects.

To what extent is research integrated into your curricula for pre-registration postgraduate courses, including integrated pre-registration masters degrees?



Differences between professions

81% of survey respondents agreed that there is a difference in research focused outcomes in the curricula of nursing, midwifery and AHP courses. Results suggest that the variation is due to the differing outcomes stipulated by regulatory bodies, although there was not a clear consensus on this. A higher percentage of AHP students undertaking primary research projects and higher credits for research modules on AHP courses were noted by some survey respondents, compared to nursing and midwifery.

These differences between the professions are also reflected by the much higher number of AHPs compared to nurses and midwives (in relation to the overall size of the professions) being successful in securing research funding and fellowships.⁷

Research strategies and research active staff

All but one survey respondent stated that they have a strategy for curriculum delivery that includes staff who are actively engaged in research. Furthermore, all respondents said that they have teaching delivered at their university by research active staff, with 33% said all or most of the teaching is delivered by research active staff.

Training, mentoring, seminars, department strategy and team discussions were listed as ways that staff were supported in integrating research into pre-registration curricula.

Barriers to integrating research

Many of the survey respondents listed more than one barrier to integrating research into pre-registration curricula. The biggest barrier (71% of respondents) was competing curricula demands, this was followed by lack of expertise in the team (31% of respondents) and students lacking the skills required (29% of respondents).

Footnote

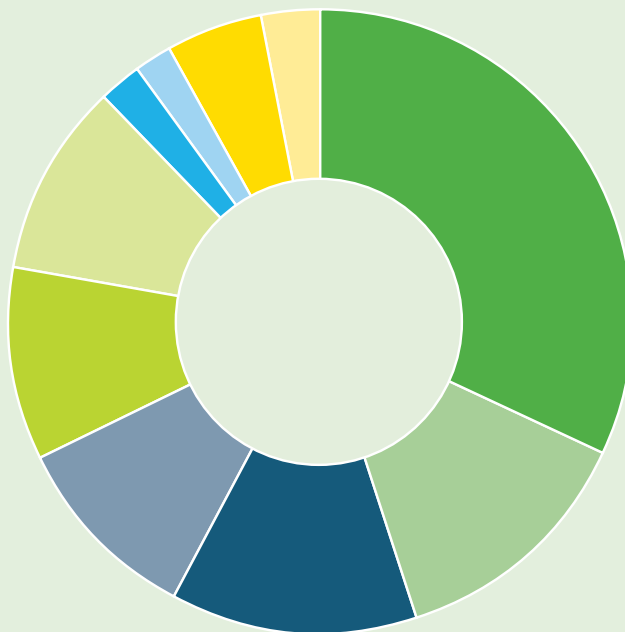
⁷ Council of Deans of Health (2018) Clinical academic research careers for nurses, midwives and allied health professionals in the UK

Opportunities and support for students

Whilst survey respondents agreed that students would be encouraged and supported to advance their research knowledge and skills, 41% of respondents said that there were none, or very few, funded or resourced opportunities in their programmes. Some did state that they offered research placements and internships, provided some small funding grants, and

held research events/conferences/awards for students. However, this finding needs to be understood in the context of the majority of pre-registration programmes where the collection of primary data is not a key priority. Thus it is important for students to have access to expert resources in the form of academic staff with expertise in the full range of research methodologies and data collection methods.

What are the main barriers to integrating research?



- Competing curricula demands
- Lack of expertise in the team
- Students lack the skills required
- Too few students are interested
- Regulatory requirements
- Equipment/infrastructure to support student research
- NHS research governance and approval process
- Not all staff seem recognise the importance
- No barriers, research integrated well

5 Integrating research elements in the curriculum for all students

As evidence-based practice has become central to the health professions, health faculties have increasingly integrated this into their curricula. Most of the Council's members have designed modules for pre-registration healthcare students to learn about research methods and evidence-based practice and to undertake research for dissertation modules (**case studies 3, 4, 5, 6, 7, and 9**). Others have introduced a research 'thread' that runs through the curriculum (**case studies 1 and 13**).

Aims:

- ensuring that all graduates are equipped with the skills to ensure their practice is based on robust evidence
- equipping students with the skills and confidence to effectively evaluate their own practice and contribute to the evidence base
- empowering students to take ownership of a research process

Key processes:

- evidence-based practice modules: students learn about locating and evaluating different sources of evidence to inform practice plans and interventions in their field
- research methods modules: students learn about the features and assets of different research methods and get to undertake small projects to use them
- dissertation modules: students choose a dissertation topic, undertake a literature review and conduct research, and evaluate and communicate their findings

Outcomes:

- all students develop an understanding of the role of evidence-based practice, how this evidence is gathered and analysed and how findings can inform professional practice
- positive student feedback on the skills and knowledge they gained from the research modules
- students co-author publications, present posters at national and international conferences and present their research in other contexts
- some students seek out opportunities to get involved in research projects at their HEI or in practice during or after their studies

All pre-registration midwifery students at the University of Manchester (**case study 2**) follow a three-phase core pathway for developing research skills and understanding. They are introduced to knowledge and research generation in their first year where they learn how to critically evaluate and apply evidence. The second year focuses on evidence-based midwifery and gets students to apply their knowledge to think about how midwifery care and outcomes can be improved systematically. Through writing a dissertation in their final year, the students are required to apply their research skills to a research question of their choice.

A similar approach is taken by the University of Edinburgh (**case study 4**) to their 4-year pre-registration undergraduate nursing course. As part of the course, the students also do a poster presentation where they present an analytical approach of their choice and reflect on their learning experiences. The presentation is videoed for an external examiner who comments year on year on the quality of these presentations and the thoughtful reflection of students.

With the aim of making students confident users and producers of research, the University of Cumbria (**case study 1**) ensures that its pre-registration occupational therapy and physiotherapy students see engagement with research as a 'normal' part of their professional practice from the beginning. Most are required to submit an article rather than a traditional dissertation as their final assessment, and evidence their researcher development through the submission of a portfolio based upon elements of the **Vitae Researcher Development Framework**.

A core research methods module is fundamental to build students' understanding of the role and mechanics of research in the health and social care sectors. However, several of the case studies provided by our members emphasise that this needs to be reinforced by research teaching in all modules.

The University of Hertfordshire's School of Health and Social Work (**case study 8**) has undertaken a comprehensive review of all its modules to ensure that all pre-registration curricula within the School are research-informed. The review enabled the School to identify and disseminate good practice as well as identifying areas of teaching, learning and assessment practice that required further development.

The role of the academic staff who deliver these modules is vital. They can be role models and shape how students view the profession they are entering. Having PhD-qualified lecturers and supervisors is a direct illustration of academic research being part of the profession. Supporting academic staff in developing their skills and delivering a research-informed curriculum is critical.

At Keele University's School of Health and Rehabilitation (**case study 3**), all staff supervise undergraduate research projects with appropriate mentorship from more experienced staff members as required. No one member of staff is solely responsible for the delivery of research module content; it is spread across a team of staff actively engaged in research. Currently approximately 70% of the School's staff have or are working towards a doctoral degree.

6 Creating research placements and opportunities for students

Whilst it is important that all healthcare professionals are able to use and critically evaluate evidence to improve their practice, it is also vital for all disciplines to attract students to become researchers and create the evidence base that will inform and improve future practice and service development. Members have shared with us examples of practical research projects and placements they have created for students with a particular interest in research.

Aims:

- students are given the opportunity to gain experience, knowledge and skills in the design and conduct of audit/service improvement/research projects in a practice setting
- students are able to develop and apply their research skills as well as soft skills like time management, autonomous working, communication and writing, in a research team with support from their faculty
- students get to work with people at different stages of research careers and get an insight into what pathways in this field could look like for them

Key processes:

- opportunities for students to learn about and get involved with research that is undertaken at their own or other HEIs
- elective research projects in practice related to audit, quality improvement or evaluation
- research placements in practice forming part of the clinical education, which are established in close partnership between HEIs and service providers
- research summer school: Pre-registration students work on a research project related to their field with postgraduate students, staff members and researchers

Outcomes:

- graduates who have experience and confidence in conducting research, which can also be applied to clinical audit, service improvement and evaluation projects, and innovation in practice
- graduates who are more likely to choose to undertake further study and potentially develop a research career to contribute to the evidence base in their field of practice

Graduates who have gone into research careers often talk about research-active academics they were inspired by during their training. Telling students about the research that is going on at the university can be a very effective way to encouraging them to consider a research career themselves.

All prosthetics and orthotics (P&O) students at the University of Salford (**case study 6**), for example, are frequently made aware of the different research studies which are ongoing at the university in a wide range of disciplines. The students also have the opportunity to get involved in research at the School as both research participants and active researchers. On numerous occasions, students have been able to aid researchers in their studies through internships.

The University of Birmingham (**case study 10**) has established a research elective for undergraduate nursing students in collaboration with Birmingham Children's Hospital NHS Foundation Trust. The four-week elective provides second year students with the opportunity to undertake clinically-focussed research in a practice setting.

The case study illustrates that attracting students to research roles is not only important for building capacity in academic research but also in clinical roles with research components, for example in relation to quality improvement, service evaluation, audit or innovation. The research elective also helped students to increase their organisational skills and time management, confidence and communication skills with staff, patients and families as well as their research knowledge and insight into clinical care.

Some members have told us about barriers they have faced to making research placements available to students as part of their required practice hours. The example of Brunel University (**case study 12**) illustrates the individual effort that went into creating this kind of opportunity. In 2015, Professor Priscilla Harries secured a research funding award from a national charity for a project on improving understanding of the views of those who manage their own disability and those who support them personally or professionally. All MSc pre-registration occupational therapy students at Brunel were invited to consider joining the international project team as researchers for one of their eight-week standard placements. The placement experience was designed to ensure it met the students' learning outcomes for the placement. Five occupational therapy students requested to take part and successfully completed their placement.

All nursing, midwifery and AHP students at Bournemouth University (**case study 13**) undertake compulsory placements. One of the opportunities is an elective placement with NHS research teams. At present the faculty has three different models of placements across the research teams, one of which includes working with clinicians undertaking a clinical academic doctorate.

Introducing students directly to the international nature of health research, the University of Salford (**case study 11**) has participated in an international summer school for radiography students for the past seven years. Each year, participants from 12 countries in Europe, Canada, South Africa and South America have participated in the three-week residential event. Several research groups consisting of PhD, MSc and BSc students and tutors work on a specific topic and present their findings in poster session and a conference. Publications, posters and presentations from the summer school have brought this research to the evidence base for radiography discipline in a global context.

7 Combining interdisciplinary research teaching and research opportunities in practice

Health research is enriched by its inherent multidimensional and interdisciplinary nature. Yet, the different structures, requirements and time scales of nursing, midwifery and AHP programmes can pose a challenge to HEIs' endeavours to teaching research in a multidisciplinary way. Where successful, interdisciplinary approaches can be a powerful way to improving students' understating of evidence-based health and social care provision in a wider system context.

Aims:

- introducing students to the interdisciplinary nature of research and how to work in partnership with other professions to produce evidence
- providing opportunities for students to apply their learning about research to research projects

Key processes:

- students from different disciplines learn about research methods together and work together in groups to apply these methods to a research project
- research teaching modules prepare students for undertaking research projects in practice or at the HEI

Outcomes:

- students gain a broader perspective on the role of their profession in the health and care system
- students understand that health research is usually a collaborative team-based activity
- students gain experience in applying newly acquired research skills in practice

The case study from Bournemouth University (**case study 13**) demonstrates a comprehensive approach to integrating interdisciplinary research in the teaching curriculum and in practice and with providing further research opportunities for interested students across nursing, midwifery and AHPs. All second year students take the module *Exploring Evidence Base to Guide Professional Practice*. The module comprises exploring why healthcare needs evidence and research, types of research (quantitative & qualitative), basic concepts of research, and hierarchy of evidence research process. Examples of research are offered throughout and these are showcased through professorial presentations. These concepts are developed in small group work where students analyse research papers. This approach is continued in year 3 when interdisciplinary groups of students explore, conduct and present a project that enhances practice.

Bournemouth University also encourages students to develop their research skills through research placements in practice. A unique aspect to this is the Student Research Assistant (SRA) Scheme, which provides on-campus employment opportunities for undergraduate students to work in research centres and institutes supporting research that is directly related to their career path and/or academic discipline. This enables the student to assist academic staff with their research whilst also gaining real-life research experience themselves. These 120-hour studentships have been popular with AHP students but due to the higher amount of required placement hours for nursing and midwifery students, they have found it difficult to see how they could undertake this additional work.

8 The impact of teaching research and evidence-based practice

Modules that are introducing students to the importance of evidence-based practice, should of course themselves be based on robust evidence and evaluation. All case studies members have shared with us had an evaluation component, for instance in the form of student evaluation, internal and external review, student, staff and user feedback surveys and follow-up evaluation. Others have measured impact through student publications and conference presentations (**case studies 10, 11 and 13**). Some have gone further and evidenced the impact of teaching evidence-based practice and research.

Aims:

- ensuring research-informed teaching across nursing, midwifery and allied health curricula
- assessing whether modules on evidence-based practice and research actually impact on students' understanding of the mechanics, impact and implementation of research
- evidencing that students obtain research skills that are applicable to their field of practice

Key processes:

- evaluation of teaching modules and research placements in practice through anonymous student and staff surveys, focus groups, and other feedback opportunities
- systematic review of curricula with regards to consistency in research-informed teaching
- requiring or providing opportunities for students to present their own research to wider audiences

Outcomes:

- evidence of the effectiveness of different ways of integrating research into pre-registration curricula
- students present and publish the research they undertake as part of their pre-registration programmes to wider audiences in academic and practice contexts
- nursing, midwifery and AHP pre-registration curricula are evidence-based

Academics from Queen's University Belfast (**case study 9**) have published⁸ an analysis of the impact evidence-based practice modules in the nursing curriculum had on undergraduate nursing students' beliefs and knowledge of evidence-based practice and its implementation. The evaluation showed that the educational initiative positively impacted on both the beliefs and implementation of evidence-based practice.

The University of Hertfordshire (**case study 8**) undertook a wide-ranging review of the modules taught in the School of Health and Social Work to evaluate the extent to which they have embedded research-informed teaching. This review allowed the School to identify areas of good practice as well as teaching, learning and assessment practice that required more development. A tool was developed to aid this improvement process, which involved students, staff and service users. Engagement with research-informed teaching is made explicit in all of the School's programme documentation and specifically in the programme and module learning outcomes and modes of delivery associated with modules. Investment in staff awareness, staff development and support was key to embedding research across the curriculum. Guidance by the School's senior leadership team was needed with regards to how research-informed teaching can be embedded progressively in curricula, teaching and assessment practice and what pedagogical interventions should be employed.

Coventry University (**case study 7**) has mapped research-informed teaching across the current undergraduate occupational therapy curriculum in line with the framework provided by the HCPC and Royal College of Occupational Therapists for curriculum content and development. It is reviewed on an annual basis at a module level and every five years when the course is reviewed both internally within the university and externally via the HCPC and Royal College of Occupational Therapists. Peer review of teaching within the faculty ensures that teaching remains contemporary and evidence informed.

An example of a comprehensive evaluation of a research placement is the case study from the University of Birmingham (**case study 10**). It included:

- an anonymous pre-placement survey to determine students' motivation to undertake the elective, and concerns and views on what work they would be undertaking
- a group discussion on induction day to discuss reasons for selecting the elective, perceptions of day to day work, what students thought might be challenging, how they could overcome these challenges and what they brought to the elective
- an anonymous end-of-elective survey showed that all students felt they had benefitted from the elective and gained knowledge of the research process
- a one-year post-elective survey
- an anonymous supervisor/support team survey
- A survey for patient and public feedback to establish their views on students being involved in research was developed in 2018 and will commence in 2019.

The University of Cumbria (**case study 1**) has used the revalidation process of their occupational therapy and physiotherapy programmes as an opportunity to embed research more deeply into the curricula and enhance new students' engagement with the interpretation and use of research to answer profession related questions. One of the main changes to the revalidated programmes is for small groups of students to work together to carry out research for their final year projects. These projects will be centred around the research areas of staff and the needs of local practitioners. These further enhancements to the approach will ensure that students are part of a project which has greater practice relevance. This approach will increase capacity and potential to work with service users and gather a wider breadth and depth of data, upon which to make a meaningful contribution to the evidence base.

Footnote

⁸ Reid, J. et al (2017) *Enhancing utility and understanding of evidence based practice through undergraduate nurse education*

9 Attracting students to research careers

To sustain and tap into the enthusiasm for research that students may develop during their pre-registration programme, many HEIs support these students to take their first steps onto on a research career pathway after graduation. Several case studies mention that students have successfully applied for PhD positions (**case studies 1, 2, 4, and 12**).

Aims:

- attracting students to undertake further study and/or research
- ensuring there will be a sufficient number of qualified researchers in the future to provide the evidence base for practice and service development

Key processes:

- supporting students/graduates in applying for postgraduate or doctoral studies
- providing opportunities for students to shadow or work with researchers in practice and in academia
- advice interested students on research career pathways and opportunities

Outcomes:

- sustainability of nursing, midwifery and allied health research
- sustainability of the nursing, midwifery and allied health research-active academic workforce
- more qualified producers of the evidence needed to improve clinical practice, develop the professions and tackle new and emerging challenges

Having learned about research throughout their programme, some undergraduate nursing students at the University of Edinburgh (**case study 4**) have asked to shadow or get involved in the work of a researcher/research team. One of these students has just finished his PhD. In other cases, these students have taken up research roles, for example, as research nurses or actively pursued postgraduate education.

Bournemouth University (**case study 13**) offers pre-registration students the opportunity to spend time with clinical academics in practice and this introduces them to clinical academic careers such as the Clinical Academic Doctorates.

Developing a new generation of research leaders is vital for all health professions, including the small and specialist ones. The University of Salford (**case study 5**) is setting up a new global centre for excellence, which is set to train up to 60 individuals to doctoral level over the next eight years to address the skills gap in orthotics and prosthetics at home and abroad. Students will be supported by national and global industry, the UK's four prosthetics and orthotics research centres, and clinical, patient and service partnerships, which will ensure high-quality training, and provide placement and employment opportunities.

The University of Salford's participation in the international research summer school for radiography students (**case study 11**) is a further inspiring example of students being given the opportunity to work on a research project with Master's and PhD students as well as staff from other countries.

10 Next steps

The Council is committed to supporting its members in integrating research and evidence-based practice into their pre-registration curricula, in providing opportunities for interested students to undertake research projects and introducing the clinical academic career/research career as a valid option for students. The case studies in this report demonstrate the innovative programmes our members have already developed to deliver this.

The Council aims to share more examples of members who have integrated research into their pre-registration programmes through talking heads, videos and blogs on our website.

We will also continue to work with key stakeholders such as the professional bodies, regulators, research funding bodies and the UK governments to increase research capacity in our disciplines from undergraduate degree and beyond through enhanced career pathways.

Recommendations arising from the survey and the case studies:

- more consistency, and an increase, in pre-registration students undertaking primary and secondary research projects
- more variety in the secondary research projects students undertake (going beyond literature reviews)
- more opportunities for pre-registration students to work with doctoral students and researchers
- all postgraduate courses to integrate research into their curricula
- research outcomes for students to be consistent for all professions, which could include regulatory bodies looking at their research outcomes
- all HEIs to have a strategy for curriculum delivery that includes staff who are actively engaged in research
- ensure staff are supported through a variety of ways (strategies, training, mentoring, seminars) to integrate research into curricula
- ensure staff members can develop their own research portfolios and are seen by students as role models
- try to interest more students in research by ensuring that the curriculum is engaging and that 'hands-on' opportunities for undertaking real life research are provided
- create more funded/resourced opportunities for students to become involved in research
- service providers and regulators should enable more students from all nursing, midwifery and AHP disciplines to undertake research placements with clinical research teams
- HEIs could develop student engagement in research through internships, small funding grants, research events/conferences/awards
- workshops on data collection and analysis that promote active learning could be made more widely available to students, where possible in an interdisciplinary setting

Our members are educating a new generation of healthcare professionals who will have been taught about the importance of evidence-based practice from the outset. It will be imperative to ensure that they will be enabled to apply this knowledge in their practice to help make health and care services as effective as they can be.

Appendix I: Case studies

1 The University of Cumbria: Making physiotherapy and occupational therapy students confident users and producers of research

Developing skills to appraise evidence and literature, and be users and producers of research related to practice, is embedded as a 'golden thread' throughout the University of Cumbria's pre-registration BSc and MSc physiotherapy and occupational therapy programmes. This is achieved through four aspects:

1. Curriculum design

Introducing academic skills and critiquing evidence at the beginning of each programme, and reinforcing these skills in all modules. The objective is to make students see research as 'normal' rather than 'special'.

2. Stakeholder engagement/real world research

Engaging with practice from the statutory, private, independent and voluntary sectors to develop collaborative projects to enable students to have the opportunity to contribute to and engage in 'real world' evaluation and research, whilst applying their research skills.

3. Enhanced student support at proposal stage

Supporting students with research supervision at the proposal development stage (BSc level 5, MSc end of year 1) to ensure their projects are realistic, manageable and achievable from the outset.

4. Authentic assessment

The final research modules for most programmes are assessed through the submission of an article rather than a traditional dissertation. MSc occupational therapy students submit an article to meet the author guidelines from a specified journal. In addition, the students evidence their researcher development through the submission of a portfolio based upon elements of the Vitae Researcher Development Framework. This helps students to link their learning of research skills with their overall development as a professional.

Objectives

- Ensuring that graduates are equipped with the skills to enable them to critically review literature and research to ensure their practice is evidence-based
- Ensuring that graduates have the skills and confidence to effectively evaluate their own practice and contribute to the evidence base
- Demystifying research and promote research as a potential career pathway

Resources

One academic module each academic year has a focus on research skills in the BSc (Hons) programmes. This equates to 16.6% of the teaching, but is reinforced throughout each module. For the MSc pre-registration programmes three academic modules over the two calendar years have a specific research focus.

Staff with PhD level qualifications take the lead in overseeing research skills learning and teaching, and in supporting staff development. All staff are involved in dissertation supervision and are supported in being active researchers both formally and informally so they are good role models for the students.

Hours per student for support are allocated as follows: 4 hours of supervision for proposals, 6 hours for undergraduate projects and 10 hours for MSc dissertation projects.

Examples of successes

1. Research confidence and further study

Student A published an article in the Physiotherapy magazine Frontline regarding his observational study of responses of rugby players who were at risk of minor head injuries. Student A has since gone on to apply for PhDs in this same topic area.

Recently one BSc and three MSc graduates have gone onto PhD studies. Two of these researchers are currently working abroad for their studies.

2. Application to practice

Student B developed an inner-sole pressure sensor and is now working with prestigious gait laboratories in Salford and Geneva Hospitals to develop a product for clinical use.

3. Using and building evidence base

Within occupational therapy, an increasing number of students have worked with their supervisor to present their work at the Royal College of Occupational Therapists' Annual Conference and publish in a broad range of profession specific and multidisciplinary journals. These include work on using technology in practice, the benefits of therapeutic media, enhancing student experiences and working with service users and carers.

Evaluation:

The embedding of research skills and confidence across the curricula and a review of the format of the final dissertation modules has resulted in an increased number of graduates publishing their work and developing their research careers.

There is regular evaluation of the progress of modules through end-of-module reviews and of course content through the programme validation cycle. The occupational therapy and physiotherapy programmes have recently undergone a revalidation, which has provided an exciting opportunity to embed research even more deeply into the curricula and enhance the scaffolding of new students' engagement with the interpretation and use of research to answer profession related questions.

One of the main changes to the revalidated programmes is for small groups of students to work together to carry out research for their final year projects. These projects will be centred around the research areas of staff and the needs of local practitioners. These further enhancements to the approach will ensure that students are part of a project which has greater practice relevance. This approach will increase capacity and potential to work with service users and gather a wider breadth and depth of data, upon which to make a meaningful contribution to the evidence base.

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2 University of Manchester: Mandatory research modules throughout the midwifery curriculum

All undergraduate midwifery students at the University of Manchester follow a three-phase core pathway for developing research skills and understanding. Mandatory modules on research are part of the curriculum in every year.

Year 1: Midwifery Knowledge & Research (level 4)

- Introduces students to the nature of midwifery knowledge and the generation of knowledge through research

- Students are introduced to the philosophical underpinnings of knowledge and how the main research paradigms have developed from these, and the nature of the data generated by quantitative and qualitative research
- **Objective:** To equip students with a strong grounding in research theory and critical thinking skills so that all students are able to search for and critically evaluate research evidence, identify best practice according to available evidence, consider the appropriate application of that evidence in different setting and with different clients and recognise the limitations of our professional knowledge.

Year 2: Evidence-based Midwifery Practice (level 5)

- Students examine the nature and philosophies of evidence-based practice (EBP) and explore key factors influencing the adoption of EBP in healthcare and midwifery
- Key barriers, facilitators and implications of applying research evidence to midwifery practice, including the development of clinical guidelines
- Through an exploration of evidence hierarchies, students extend their knowledge of the different types of evidence underpinning midwifery practice and begin to distinguish between good and bad evidence and their relative values to maternity care and outcomes
- Emphasis on the clinical question as a key driver of the type of evidence required and enhance students' awareness and appreciation of research data within the context of qualitative and quantitative research paradigms and different study designs
- Students are equipped with the necessary knowledge and skills to begin to adopt systematic approaches to critical appraisal in order to answer tutor-led and self-generated questions pertinent to core and discipline specific aspects of practice
- **Objective:** Students prepare a research proposal as part of their dissertation in year 3

Year 3: Dissertation

- Builds upon the skills and knowledge of research and critical appraisal from levels 4 and 5
- Provides the student with the opportunity to demonstrate their knowledge and awareness of the concepts of research design and research methodology
- Writing the dissertation on a topic of the student's choice consists of using a systematic approach to searching, collating, synthesising and evaluating the literature and designing a research proposal.
- **Objective:** Students are able to apply research evidence to clinical practice through critical evaluation of research methods. This is assessed formatively and summatively throughout the programme using different assessment strategies.

Resources

In the midwifery team, there is one WTE Professor of Midwifery and four WTE senior lecturers / lecturers who carry out research based on 40% of their workload.

Clinical practitioners who are research active also contribute to teaching.

Achievements

Students may opt to spend time with the research team as part of their elective placement on the undergraduate programme. This has been a popular placement for students from the University of Manchester and other HEIs.

Several past students have gone to study on the Master's in Clinical Research degree, and one has completed a PhD and is now working as a teaching and research based lecturer in the team.

Challenges

The greatest challenge is supporting the application of research theory to clinical practice when students do not see this embedded in practice on placements.

Evaluation

All course units are evaluated and on the whole, the evaluation of the research modules is very positive. The lecturers have worked hard to ensure that research education is meaningful and that students understand how this relates to clinical practice.

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3 Keele University: Research, evidence and evaluation modules for physiotherapy students

Research modules have been embedded in Keele University's physiotherapy programmes for a long time. Two years ago, they integrated four compulsory core modules related to research, evidence and evaluation for their undergraduate pre-registration physiotherapy degree programme.

There are two distinct approaches to research that are split between the two halves of the programme. In the first half the emphasis is on principles of measurement in practice. Here students investigate a variety of tools used as objective and patient reported outcome measures in clinical practice and recognise their value in terms of clinical use, validity, reliability and sensitivity. The objective is for students to learn how to become effective users of evidence and research. This incorporates how to read a research article, how to assess if the appropriate study design has been implemented and how to assess the quality and value of the research to clinical practice.

In the second half of the programme, the students transition from 'using research' to 'doing research'. The first module in this half delivers sessions on knowledge and skills required to support the development of a research proposal (which includes research ethics and governance requirements, as well as plans for dissemination), and the final year of study sees the implementation of this proposal. The projects fall into one of the following categories: observational analytic or experimental research, surveys and/or interviews, service evaluations or systematic reviews.

In addition, this year Keele University has had its first student embarking on a clinical research placement. Following evaluation, they hope to develop more of these opportunities in the future. Next year, Keele University will transition to a four-year pre-registration integrated masters programme that integrates further development of the evaluation, evidence and research theme of modules.

Resources

All staff supervise undergraduate research projects with appropriate mentorship from more experienced staff members as required. No one member of staff is solely responsible for the delivery of research module

content; it is spread across a team of staff actively engaged in research. Currently approximately 70% of the School's staff have or are working towards a doctoral degree. On average staff would be expected to dedicate 40% of their time to teaching. Each staff member will supervise approximately six undergraduate student projects over a one-year period.

Examples of success

The physiotherapy programme has had a number of success stories including publications, conference presentations and awards over the last 10 years. Most recent and significant examples have been:

- Last year, Keele University supported eight undergraduate students to present their research project at the Physiotherapy UK conference in Birmingham. One of these projects won the first prize of the student competition for best student poster award.
- In the previous year, one undergraduate student was supported to submit an abstract to a speciality specific international conference and was short-listed for a Young Investigator award. She presented a poster of her work and delivered an oral presentation.

Challenges

An ongoing challenge the School is facing is to ensure consistency in the complexity of the students' projects. It is also important to ensure that diversity in supervisors' research experience does not impact on the quality of work produced.

Evaluation

All modules undergo an annual student evaluation. Aspects of this evaluation reflect on the value students place on research and their programme of study. In summary, students:

- feel the content is relevant and links to other modules
- report that the module(s) have helped to improve study skills
- see the relevancy for their future professional life career.

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4 The University of Edinburgh: Research in undergraduate and postgraduate nursing programmes

Research has been taught across all four years of the undergraduate nursing programme for the last five years.

- **Year 1 (level 8, SCQF):** An introduction to basic research approaches and methods allows student to critically evaluate avenues of inquiry and the evidence base. This includes learning how to develop a search strategy and search the literature systematically, ethical considerations, user involvement in collecting evidence and ways of evaluating rigour.
- **Year 2 (level 8, SCQF):** Builds on year 1 and introduces students to key characteristics of common forms of research design (quantitative, qualitative and mixed methods) and also links these to underpinning theories. Students learn about data sampling and collection methods. Understanding of research governance, ethics and user involvement is developed further. In addition to lectures, students have hands-on workshops and collect quantitative and qualitative data.
- **Year 3 (level 10, SCQF):** Students learn about methodologies and how to design a sound study considering ethics and reflexivity. All lectures draw on published research by members of staff. This link between textbook examples of a methodology and how this works in real life allows students to develop a deeper and better understanding of applied research. Workshops in this year consist of group work where students collect, transcribe and analyse data.
- **Year 4 (level 10, SCQF):** Undergraduate dissertation. This is a research proposal thus bringing together the teaching and learning across all four years. Students are supervised by a member of staff for this work.

Postgraduate Taught Master's

Two new research modules have been integrated into the pre-registration postgraduate nursing degree curriculum:

1. **Designing research in nursing, health and social care (level 11)** is a compulsory research course for all master's students. Acknowledging

that not all students have had research teaching in their undergraduate curriculum, students are introduced to key principles in designing research. Students are taken through the whole design process starting with searching the literature, formulating a research question, ethical considerations, choices of methodology and methods. Students are also introduced to epistemology and theoretical perspectives and how these influence design choices as well as the impact on knowledge.

2. **Conducting research in nursing, health and social care (level 11)** is an optional course that takes students through key data collection and analysis methods. This course is 50% theory and 50% hands-on practice. Quantitative publicly available data is provided whilst students need to collect interview and observational data for data analysis.

Achievements

Sometimes undergraduate students ask to shadow or get involved in the work of a researcher/ research team. One of these students has just finished his PhD. In other cases, these students have taken up research roles, for example, as research nurses or actively pursued postgraduate education.

Challenges

There exists a fear in some students when the word 'research' is mentioned and not all see the relevance of research in their programme. The end goal though is that students have and need a working knowledge of research, not that all do research.

Evaluation

All courses are evaluated on a continuous basis by students and adjustments are being made where they are needed. Every year, students comment particularly on how valuable the 'hands-on' research experience is and how it has helped them understand the complexity of data analysis.

As part of the course, the students do a poster presentation where they present an analytical approach of their choice and reflect on their learning experiences. The presentation is videoed for an external examiner who comments year on year on the quality of these presentations and the thoughtful reflection of students.

Former students value and understand the importance of their research knowledge and skill once they are in practice. Some students either go directly into postgraduate education or come back to higher education after a short break to do a master's or a PhD.

For more information on this case study please contact:

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5 University of Salford: Research modules for undergraduate prosthetics & orthotics students

In year two of the undergraduate prosthetics & orthotics (P&O) course, a module entitled *Motion Analysis and Research Methods* is undertaken whereby the students are introduced to a wide range of research study skills. These include literature searching, critical analysis, referencing, research design and statistics. Students are required to critically appraise a body of work in the P&O literature to identify the strengths and weaknesses of the research. In addition, in the same module, each student is also required to complete a mini-project which encompasses biomechanical methods in a choice of subject area. The output for this assessment is a research report which requires the student to be able to conform to research guidelines and interpret and present data as would be done in an academic journal.

All P&O students on the course are frequently made aware of the different research studies which are ongoing at the university in a wide range of disciplines. The students also have the opportunity to get involved in research at the School as both research participants and active researchers. On numerous occasions, students have been able to aid researchers in their studies through internships.

In year three of the academic programme where the *Methods of Enquiry* module is undertaken, all students are required to complete a dissertation. This can range from a systematic literature review, a research proposal or a piece of research as a submission. Using the background knowledge from year two, this enables the student to carry out a piece of independent research alongside their supervisors which may or may not involve data collection.

A new centre for doctoral study:

The UK is set to train many more highly skilled engineers in P&O following the announcement of a new global centre of excellence based at the University of Salford.

The centre is set to train up to 60 individuals to doctoral level over the next eight years to address the skills gap at home and abroad. Salford's key collaborators are the UK's principal prosthetics and orthotics research centres: Imperial College London, the University of Strathclyde and the University of Southampton.

This unique doctoral four-year research training programme will be complemented by a new master's programme operating across all four partner universities. Students will be supported by national and global industry, and clinical, patient and service partnerships, which will ensure high-quality training, and provide placement and employment opportunities. Many are expected to be graduates in engineering with the remainder coming from industry and some from clinical backgrounds.

For more information on this case study please contact:

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6 University of Hertfordshire: Nutrition research project

Since 2008/09, the University of Hertfordshire's BSc (Hons) dietetics programme has included two compulsory research modules. Students take a 15-credit level 5 module, *Research Methods in Nutrition*, in their second year, which includes a project planning session where the final research project is introduced and project ideas offered. Students have six months to choose an idea for their research project in their third year, which is a 30-credit level 6 module, *Nutrition Research*. Students are allocated a supervisor, which is usually the person who proposed the project idea. Projects run over the length of the academic year and each student has a unique research question which is either an individual research project or part of cluster of similar projects. In addition to the supervisor, some have an internal or external collaborator.

Resources:

On Nutrition Research, academic staff are allocated 15 hours per student for supervision. Eight of these hours are student-facing, ie planning, meetings, phone calls, reading drafts etc over an approximately 12-month period. The remaining seven hours are allocated to marking other project manuscripts and vivas (for each student supervised, the academic marks two other projects and participates in two 20-minute vivas). The module lead is allocated 28 hours. The module has approximately 20 hours of class time mainly for workshops (planning, ethics, qualitative or quantitative analysis, progress review, peer support, writing up, viva prep, dissemination etc.)

Achievements

1. Work undertaken during the module leads to external research outputs and these are usually co-authored by the student and academic supervisor and sometimes other internal and external collaborators. A number of papers have been published from work undertaken during final year research projects with students as co-authors.

2. Students are encouraged to submit abstracts for external presentation eg at the annual British Dietetic Research Symposium. Most years, the dietetics programme has between three and eight accepted abstracts leading to oral presentations. The Symposium includes a New To Research stream which is particularly welcoming to graduates as well as MSc and Doctoral students.

Challenges

- The School tries to focus on the transferrable employability skills such as project management, autonomy, organisation, time management and communication, to engage students who are not that interested in research initially. Some of them find it hard to be working on their own project rather than on an assignment that everyone is doing but most find this empowering.
- Time management is hard for students because they have a 9-week NHS placement usually in a different location in the middle of the academic year and the School encourages them to focus on that and not their project for this time.
- The School does not have a budget for projects.

Evaluation

Modules are routinely evaluated every year and the feedback is mostly very positive.

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7 Coventry University: Research in the undergraduate occupational therapy programme

The occupational therapy BSc (hons) programme embraces research inspired teaching through use of contemporary evidence within all modules. They are reviewed every year to ensure that the structure and content of the undergraduate programme remains current, research informed and evidence-based. The teaching team adopts effective learning mechanisms such as journal clubs, which are embedded in a number of modules, including the first year research and study skills module (*Exploring Evidence to Enhance Learning*). Within this first research module the students are introduced to a critical appraisal toolset which is transferable to all other level 1 modules.

Within year 2, students are introduced to an increasing number of critical appraisal tools and are encouraged to develop their critical writing and discussion skills in the module *Evidence Informed Practice and Decision Making*. A substantial number of occupational therapy tutors are research active either at PhD or master's level. Their skills and experience provide valuable support to students undertaking their final year empirical and literature-based research projects in *Enhancing Practice Through Evaluation and Research*.

Objectives

The occupational therapy teaching team uses its research knowledge and experience to teach students how to become evidence informed practitioners. The skills, knowledge and experience provided by the three undergraduate research modules transfer into all other modules undertaken, including the three practice placement modules.

Achievements

The annual Occupational Therapy Student Conference is in the 17th year and provides a platform for the sharing of research informed learning. Final year occupational therapy students present their research findings to an audience which includes external delegates. An additional dimension to the learning milieu is provided by the occupational therapy teaching team who also present their research, alongside alumni students and external speakers.

Research supervisors of final year students encourage consideration of further dissemination of the work completed in the research module. This includes publication and further conference presentations for which there has been some success, although time limitations for both teaching staff and graduates limit this opportunity.

Evaluation

Research informed teaching is mapped across the current curricula in line with the framework provided by the HCPC and Royal College of Occupational Therapists for curriculum content and development. It is reviewed on an annual basis at a module level and every five years when the course is reviewed both internally within the university and externally via the HCPC and Royal College of Occupational Therapists. Peer review of teaching within the faculty ensures that teaching remains contemporary and evidence informed.

All other undergraduate health professional courses in the School follow a similar model to research teaching.

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8 University of Hertfordshire: Evaluating research-informed teaching across disciplines

The School of Health and Social Work has been examining the extent to which research-informed teaching is embedded in pre-registration curricula within the school. A review tool was developed and piloted using the University of Hertfordshire Good Practice Principles in Research-Informed Teaching, published literature and the typology developed by Healey and Jenkins who differentiated between research-tutored, research-based, research-led and research-oriented approaches to research-informed teaching.

Documentation/information was examined for the extent to which emphasis was placed on research-informed teaching and more specifically Healey and Jenkins's research-teaching nexus. Programme specifications, student handbooks, definitive module documents, module guides or equivalent from each academic level of the study, published teaching resources and programme and module virtual learning sites were examined to assess the extent to which research-informed teaching was visible and embedded progressively in the curriculum. Findings revealed that there is much variation in how research-informed teaching is perceived and implemented in everyday academic practice. There was enthusiasm for research-informed teaching from both students and staff. It was linked positively to enhancement in student learning, research and enquiry skill development and career opportunities.

Using the findings, the School further enhanced all academic practices associated with research-informed teaching, which is now embedded progressively in all pre-registration curricula. Variation in how it is implemented in practice exists within each of the fields of nursing and other disciplines, however all modules do engage with at least two forms of research-informed teaching.

Engagement with research-informed teaching is made explicit in all of the School's programme documentation and specifically in the programme and module learning outcomes and modes of delivery associated with modules.

From the point of admission to graduation much emphasis is placed on progressively developing students' research and inquiry skills and techniques. All students are exposed to actual research experiences in the form of reviewing literature, undertaking data collection or analytic activities or completing a research project or review of the literature. Students are frequently engaged in research discussions and activities with emphasis being placed on the development of analytical skills at all academic levels. The School has integrated current discipline research into all their assessment tasks with students being required to demonstrate evidence of this.

Objectives

- To examine the extent to which research-informed teaching is embedded in undergraduate and postgraduate curricula in the School
- To capture and showcase areas of good practice connected with research-informed teaching and disseminate these within the School, university and at appropriate external sites
- To capture areas of teaching, learning and assessment practice that require further development offering support as necessary to academic staff involved in the programme design and delivery

Achievements

The published research report includes nine case studies of good practice associated with research-informed pre-registration nursing curriculum. A blog about this on the Council's website generated interest from other HEIs in the project.

Following the dissemination of the School's work, a number of periodic reviews of programmes in the School were conducted, all of which have had recommendations relating to research-informed teaching. All reviews had student and external panel membership.

The School has presented four papers at various conferences including the Networking for Education in Health Care 2018 Conference. A research paper is currently being prepared for submission to a referred journal.

Challenges

Investment in staff awareness, staff development and support was key. Guidance was needed with regards to how research-informed teaching can be embedded progressively in curricula, teaching and assessment practice and what pedagogical interventions should be employed. Work is ongoing to create a 'reflective space' to empower staff and allow for engagement in research and critical discussion with peers about discipline and pedagogic research, academic practice, research-informed teaching, the challenges faced and areas of good practice.

Evaluation

The most significant outcome has been the feedback received at the aforementioned periodic reviews where there has been external expert and student engagement. Positive feedback from research interviews with staff, students and service users and carers involved in the project has also been received.

For more information on this case study or if you would like a copy of the review tool and associated case studies, please contact:

Dr Jo Cahill, Associate Director of Academic Quality Assurance, University of Hertfordshire, J.Cahill@herts.ac.uk

9 Queen's University Belfast: Evaluating evidence-based practice modules

In 2014, the School of Nursing and Midwifery introduced three undergraduate evidence-based practice modules for all four fields of nursing. The modules were evaluated through data collection before and after the first evidence-based practice module. The data was analysed using the Evidence Based Practice Beliefs Scale© (EBPB) and the Evidence Based Implementation Scale© (EBPI).⁹

More than half of the participating students were on the adult nursing programme, followed by children's, mental health and learning disability nursing.

Objectives

- To ascertain the attitudes and beliefs, knowledge level and utilisation of evidence-based practice of undergraduate students at the start of their degree programme and after completion of their first evidence-based practice module in year 1

Results

The evaluation showed that the educational initiative positively impacted on both the beliefs and implementation of evidence-based practice. Analysis highlighted statistically significant changes in both the Evidence Based Practice Beliefs Scale (7/16 categories) and the Evidence Based Practice Implementation Scale (13/18 categories).

For more information on this case study please contact:

Professor Joanne Reid, Professor in Chronic Illness and Palliative Care, Queen's University Belfast, j.reid@qub.ac.uk

Footnote

⁹ Reid, J. et al (2017) *Enhancing utility and understanding of evidence based practice through undergraduate nurse education*

10 University of Birmingham: Research elective for children's nursing students

The undergraduate nursing research elective was established in 2017 as a collaboration between University of Birmingham and Birmingham Children's Hospital NHS Foundation Trust (BCH). Second-year nursing students from all fields of practice were offered a four-week research elective. Projects were identified by the Paediatric Intensive Care nursing research lead and BCH Lead Nurse for Safety and related to patient safety, patient experience, staff experience, care provision or nursing practices.

Students were allocated a named hospital-based, supervisor who oversaw their elective and support was offered through the project and research teams. All projects could be classed as audit, service evaluation, quality improvement or research and where appropriate were registered on the local register for audit and service improvement. Students were formally inducted and received individualised timetables with scheduled supervision sessions. A mid-point meeting was arranged with the placement facilitators as an opportunity to review progress and discuss challenges. Students formally presented their work at the end of the elective to an invited audience of university lecturers, supervisors, clinical staff from relevant areas, ward managers and lead nurses.

In 2017, six students undertook the elective (child and adult field of practice; 4 projects).

In 2018, eight students undertook the elective (adult and mental health field of practice) (6 projects; 5 new projects and 1 re-evaluation).

Activities the students undertook included retrospective chart reviews, contemporaneous review of practice, direct observation of clinical practice, focus groups with clinical staff, development of a staff questionnaire as well as literature searching. Projects were at varying points in progress; with some at very early stages of identifying there was a need to scope the current situation, other projects had been developed to address specific concerns. Some students utilised an existing data collection tool, others developed their own. For some projects there was a complete body of data at the end of the elective for analysis, for others there were only

small amounts of data. Students were encouraged to analyse the data they had, determine implications for practice and identify a plan for improvement.

Objectives

The aim was to create an elective offering undergraduate nursing students the opportunity to gain experience, knowledge and skills in the design and conduct of audit/service improvement/research projects within a tertiary UK children's hospital. The research elective objectives were for students to:

- Have active participation in a clinically focused project
- Gain in-depth knowledge around a specific area of clinical care or practice
- Practice the skills required in data collection
- Hone literature searching skills on a clinically relevant and topical issue
- Practice the communication skills required when actively engaging children and young people and members of the multi-disciplinary team in audit/service improvement
- Develop presentation skills in disseminating their work to a multi-disciplinary audience
- Create a research or project report that can be submitted as a final year dissertation

Resources

In the first year of this programme the clinical supervisors spent a lot of time with individual students (approximately one hour per day of their project) and occasionally some students continued to need that extent of support. However, as general staff familiarity with the project improved the clinical supervisors have been able to front-load time with the students (one day at the start of the project) and then keep light-touch contact with them, scheduling regular formal meetings to ensure the students feel supported, the project is progressing, deal with any challenges that arise and check the data.

Achievements

Following the elective in 2017 a number of submissions were made to national and international conferences. One project won the NIHR Clinical Research Network, West Midlands, Improvement Project of the Year, 2018.

Challenges

While the BCH elective continues, the School is now in discussions with a number of other clinical partners to roll the model out across mental health and adult nursing. The challenge in this is identification of clinical staff that have projects to complete and also time and motivation to supervise the students.

Evaluation

The project has conducted a number of evaluations since commencing in 2017:

1. An anonymous **pre-placement survey** to determine students' concerns and views on what work they would be undertaking, which showed that students were mainly undertaking the research elective to gain knowledge and confidence in conducting research. A few also hoped the experience would benefit their dissertation and one felt it was a way to gain paediatric experience.
2. A **group discussion** on induction day to discuss reasons for selecting the elective, perceptions of day to day work, what students thought might be challenging, how they could overcome these challenges and what they brought to the elective. The discussion revealed that the students generally did not have a good grasp of what their day-to-day work would be composed of. They described themselves as 'apprehensive' and 'scared' but also as 'enthusiastic', 'optimistic' and 'curious'.
3. An anonymous **end-of-elective survey** showed that all students felt they had benefitted from the elective and gained knowledge of the research process. 75% said they were interested in staying involved with the project after their elective had finished and would definitely recommend the elective to a fellow student. Most also said they had improved their organisational skills, confidence and ability to work autonomously.
4. In a **1-year post-elective survey** all respondents reported that the elective had improved their organisational, communication and time management skills as well as their confidence, research knowledge and ability to work autonomously. All said they would consider further

postgraduate study and undertaking audit/service evaluation as part of their first job as a registered nurse.

5. In an anonymous **supervisor/support team survey** all respondents said they had enjoyed supervising the students and would do so again. Most also had a positive view on the students' improvements in skills and research knowledge.
6. A survey for **patient and public feedback** to establish their views on students being involved in research was developed in 2018 and will commence in 2019.

Implications for practice

- Undergraduate nursing students can be active partners in projects which contribute to patient safety and improvements in care.
- The research elective can aid students to increase their organisational skills and time management, confidence and communication skills with staff, patients and families as well as their research knowledge and insight into clinical care.
- The elective enables independent review of key areas for patient safety, quality, and patient or staff experience.
- Student nurses who undertake the elective are more likely to seek employment in roles where research is a stated component.
- Students explore the benefits and burdens of research participation for patients and staff as well as develop an insight into public and patient involvement and engagement in research. This has implications for the quality and impact of projects and research that these students will undertake in the future.

For more information on this case study please contact:

Tracey Valler, Senior Lecturer, University of Birmingham,
t.b.valler-jones@bham.ac.uk

11 University of Salford: International summer school for radiography students

For the past seven years, the School of Health Sciences has participated in a residential summer school for radiography students and will be hosting the event in 2019 for the second time. Each year, participants from 12 countries have participated in the three-week event called Optimax.

During the event, several research groups consisting of PhD, MSc and BSc students and tutors from the OPTIMAX partner universities in Europe, Canada, South Africa and South America work on a specific topic. The findings are presented in poster session and a conference. In 2018, all five abstracts were submitted to the European congress of Radiology (ECR) and, when accepted, will be presented by the students as posters, or oral presentations.

Achievements

In addition to international conference posters and presentations as well as journal articles, participants have published a book after each of the events summarising some of the key themes of that year:

Optimax 2015: Multicultural team-based research in radiography, a holistic educational approach

Optimax 2016: Optimising image quality for medical imaging

Optimax 2017: Radiation dose, image quality optimisation, the use of new technology in medical imaging

Optimax 2018: A focus on education in radiology

For more information on the summer school, please contact:

Professor Peter Hogg, Director of the Centre for Health Sciences Research; Research Dean, University of Salford,
P.Hogg@salford.ac.uk

12 Brunel University: Research placement for occupational therapy students

In 2015, Professor Priscilla Harries secured a research funding award from Motability's Tenth Anniversary Trust, to scope their future research priorities. The Motability Tenth Anniversary Trust is a registered charity, whose principle objective is to 'promote and support the objectives of Motability by making grants and investing in research and special projects to facilitate mobility'. The key challenge was to understand the lived experience of individuals with mobility needs and to identify priority areas for future research investment. The challenge was addressed by scoping the views of those who manage their own disability and those who support them personally or professionally. Professor Harries brought together an international team of occupational therapists, inclusive designers and automotive engineers.

All MSc pre-registration occupational therapy students at Brunel were invited to consider joining the project team as researchers for one of their eight-week standard placements. The placement experience was designed to ensure it met the students' learning outcomes for the placement. Five occupational therapy students requested to take part and all successfully completed their placement.

Achievements

All five students are joint authors on the published report and one student has successfully secured a funded PhD Fellowship.

For more information on this case study please contact:

Professor Priscilla Harries, Associate Dean Research/Director of the Centre for Health and Social Care Research, St George's, University of London,
priscilla.harries@brunel.ac.uk

13 Bournemouth University: Research in the curriculum and in practice for all healthcare students

Evidenced-based practice is an ethos of all of the Faculty of Health and Social Sciences (FHSS) pre-registration programmes and this starts at Bournemouth University (BU) open days where examples of research are given.

There are three strands to the research position for FHSS students.

1. Research is part of the curricula
2. Research in practice
3. Research opportunities for students & student research assistant scheme

1. Research is part of the curricula

In year 1 (level 4) of undergraduate programmes the need for evidencing practice is integral to the programmes and during arrivals week, students discuss evidence underpinning a key elements of their profession with their academic adviser (personal tutor).

Two examples of where evidencing practice and research which underpins the evidence is included in year 1 modules are:

- 1) **Origins & Expressions of Mental Health & Well Being** (level 4 BSc (Hons) Mental Health Nursing): intended learning outcomes include *'The development of a coherent rationale for mental health nursing practice using evidence from a diversity of sources'*.
- 2) **Underpinning Children's and Young People's Nursing through Social Sciences** (BSc (Hons) Children and Young Peoples Nursing): intended learning outcomes include *'Develop a coherent argument/rationale by synthesising information from a diversity of sources'*.

From exploring a variety of data sources throughout year 1 more specific research teaching occurs in year 2 (level 5) and is part of the School's interprofessional education (IPE) agenda. IPE is mandatory and in year 2 a module called *Exploring Evidence Base to Guide Professional Practice* is in the curricula for all fields of nursing, paramedic science,

midwifery, physiotherapy and operating departments practice. The module comprises of exploring why healthcare needs evidence and research, the types of research (quantitative & qualitative), basic concepts of research, and hierarchy of evidence research process. Examples of research are offered throughout and these are showcased through professorial presentations. These concepts are developed in small group work where students analyse research papers.

IPE also continues in year 3 (level 6) as IPE groups of undergraduate students undertake a module called *Service Improvement Project*. Here IPE student groups explore, conduct and present a project that enhances practice. They have to offer the research and evidence base for the product and include qualitative and quantitative research methodologies.

Another level 6 module for BSc (hons) adult nursing, BSc (hons) mental health nursing and BSc (hons) children and young people's Students is 'Reviewing the Literature to Inform Professional Practice'. Typically students are assessed through a critical appraisal of the literature and preparation of a written literature review on a subject of their choice. A similar module at pre-registration level 7 for PG Dip mental health nursing is called 'Qualitative and Quantitative Research Methodologies'.

2. Research in practice

All nursing, midwifery and AHP students at Bournemouth University undertake compulsory placement opportunities. One of the opportunities is an elective placement with NHS research teams. At present the FHSS has three different models of placements across the research teams.

3. Research opportunities for students and the student research assistant scheme

Faculty Heads of Research and Professional Practice (HRPP) and Principal Investigators are required to review the type of student opportunity (type of work, student expertise required (ie profession specific) duration, location, paid/unpaid, non-financial benefits to student, consider if Human Resources need to be involved (ie for visas), how the opportunity is to be advertised and exploration of student safety). The Head of Department keeps a log of all activities and reports these to Faculty Executive.

The Student Research Assistant (SRA) Scheme is a strand of this and provides on-campus employment opportunities for undergraduate students to work in research centres and institutes supporting research that is directly related to their career path and/or academic discipline. This enables the student to assist academic staff with their research whilst also gaining research experience themselves.

All studentships are 120 hours and are taken on a part-time basis over eight weeks in Semester 2 or full-time over four weeks in the summer.

This is a popular scheme but due to the demand of nursing and midwifery programmes and the compulsory placement required it is very difficult to get it to undertake the work in the required time; however AHPs have benefited.

Achievements

- The number of student/staff co-authored publications has increased substantially.
- In 2018, 19 pre-registration nursing, midwifery and AHP students submitted and presented their research at the university's annual Showcasing Undergraduate Research Excellence conference.
- In 2018, two FHSS students presented their research at the British Conference of Undergraduate Research and Posters in Parliament.
- Co-created publications, masters and doctoral level applications, and research studies.
- Very positive student feedback on the research modules.

For more information on this case study please contact:

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swhite@bournemouth.ac.uk

14 Bangor University: Nursing students getting involved in research

Four undergraduate nursing students joined a research team collaborating on an intervention study in infection prevention (Williams et al, 2018). The team included academic and clinical staff, and the project was a joint venture between Bangor University and the local Health Board. The students attended research team meetings, and were encouraged to feedback on the project protocol, other project documents and the intervention components. The students were able to learn about the necessary research approvals processes during the project duration. They also led on a poster to enhance awareness of the study at an annual Health Board Infection Prevention Conference.

Objectives

- To provide students with real-life experience of the research journey
- To engage with students to encourage their curiosity and develop research knowledge and skills
- To sustain students' interest in undertaking research as a registrant

Achievements

1. Students presented about their experiences of taking part in the project at the Annual Nursing Society Conference
2. Student-led poster presentation (Infection Prevention Conference)
3. Publication in the Journal of Infection Prevention with the students as co-authors

For further information on this case study, please contact:

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Bangor University,
Lynne.williams@bangor.ac.uk

Appendix II: Acknowledgments

We have greatly valued the input from the following professional bodies who spoke to us about research in pre-registration curricula in their professions and sent us guidance and background material on this:

British and Irish Orthoptic Society
British Association of Art Therapists
The British Association of Prosthetists and Orthotists
British Dietetic Association
Chartered Society of Physiotherapy
College of Paramedics
College of Podiatry
Council for Allied Health Professionals Research
Royal College of Midwives
Royal College of Nursing
Royal College of Occupational Therapists
Royal College of Speech and Language Therapists
The Society and College of Radiographers

We would like to thank the members of the Council who helped shape this report through participation in our Task and Finish Group for this project:

Jon Feeney, Student Nurse, University of Stirling
Lux Anderson, Student Nurse, Edinburgh Napier University
Vanora Hundley, Deputy Dean – Research and Professional Practice, Bournemouth University
Lynne Williams, Deputy Head of School, Bangor University
Andrea Mason, Course Lead, University of Wolverhampton
Sue Dyson, Professor of Nursing, University of Derby
Elaine Haycock-Stuart, Senior Lecturer & Director Postgraduate Research, University of Edinburgh
Sue Latter, Professor of Nursing, School of Health Sciences, University of Southampton
Sonja McIlfatrick, Head of School of Nursing, Ulster University
Jill Ramsay, Programme Director BSc Physiotherapy, University of Birmingham

Lorraine Dixon, Head of School, University of Gloucestershire

Helen Aveyard, Principal Lecturer for Student Experience, Oxford Brookes University

Karen Beeton, Head of Department, University of Hertfordshire

Julie Sanders, Clinical Professor Cardiovascular Nursing, Queen Mary University London

Gabrielle Thorpe, Lecturer, University of East Anglia

We would also like to thank our members who provided the case studies in this report:

Bangor University
Bournemouth University
Brunel University London
Coventry University
Keele University
Queen's University Belfast
The University of Edinburgh
University of Birmingham
University of Cumbria
University of Hertfordshire
University of Manchester
University of Salford

Appendix III: Recommended reading and resources

Research strategies and curriculum guidance

British and Irish Orthoptic Society (2016) Orthoptics Curriculum Framework

British Dietetics Association (2013) A Curriculum Framework for the pre-registration education and training of dietitians

British Dietetics Association (2013) Dietitians and Research: A Knowledge and Skills Framework

College of Paramedics (2017) Paramedic Curriculum Guidance

Council for Allied Health Professionals Research (2016) Council for Allied Health Professions Research position statement: Developing research skills within AHP pre-registration education

Higgins, R. Hogg, P. and Robinson, L. (2017) Research informed teaching experience in diagnostic radiography: The perspective of academic tutors and clinical placement educators. *Journal of Medical Imaging and Radiation Sciences* 48; 226-232.

National Institute for Health (2018) Research NIHR CRN Allied Health Professionals Strategy 2018-2020

Royal College of Speech and Language Therapists (2018) RCSLT Curriculum Guidance for the pre-registration education of speech and language therapists

Royal College of Speech and Language Therapists (2018) 2018-21 RCSLT Strategic Plan

Royal College of Midwives (2014) High Quality Midwifery Care

Royal College of Nursing, Knowledge and innovation action plan 2014-2018

The British Association of Prosthetics and Orthotics (2018) BAPO Research Strategy

The Chartered Society of Physiotherapy (2015) The Chartered Society of Physiotherapy Charitable Trust Research Strategy 2015-2019

The College of Podiatry (2016) A strategy to develop research capacity, capability and impact of foot and ankle research (2016-2022)

The College of Occupational Therapists (2017) College of Occupational Therapists' learning and development standards for pre-registration education

The Society and College of Radiographers (2017) The College of Radiographers Research Priorities For The Radiographic Profession

Whitehouse and Smith (2018) The Whitehouse Report 2018: Review of research nursing and midwifery structures, strategies and sharing of learning across the UK and Ireland in 2017

Policy and funding

Chartered Society of Physiotherapy Research funding

National Institute for Health Research Funding opportunities

NHS Health Research Authority UK policy framework for health and social care research

Royal College of Midwifery Bursaries, scholarships and grants

Journals

British and Irish Orthoptic Journal

British Journal of Occupational Therapy

British Paramedic Journal

Evidence-Based Midwifery

Imaging and Therapy Practice – Student issue 2018

International Journal of Language and Communication Disorders

Journal of Foot and Ankle Research

Journal of Human Nutrition and Dietetics

Journal of Research in Nursing

Midwifery

Physiotherapy

Prosthetics and Orthotics International

Radiography

The British Journal of Music Therapy

The International Journal of Art Therapy

Research skills and resources

Chartered Society of Physiotherapy Doing research

Council for Allied Health Professionals Research (2015)

Top tips: Getting your paper published

Council for Allied Health Professionals Research (2015)

Top tips: Running a Journal club

Council for Allied Health Professionals Research (2015)

Top tips: Preparing a scientific poster

Royal College of Speech and Language Therapists

(2017) Research and Evidence-Based Practice

Resources

Royal College of Nursing, A novice's guide to using
and doing research

Royal College of Nursing, Case studies demonstrating
the value of nursing

The Association of UK Dieticians Practice-based
Evidence in Nutrition (PEN)

The British Association of Prosthetics and Orthotics
Research resources

The Society and College of Radiographers Research
Resource Pack



For further information contact:

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