Toward interprofessional learning and education
Steven, Kathryn; Howden, Stella; Mires, Gary; Rowe, Iain; Lafferty, Natalie; Arnold, Amy

Published in:
Medical Teacher

DOI:
10.1080/0142159X.2017.1309372

Publication date:
2017

Document Version
Publisher's PDF, also known as Version of record

Link to publication in Discovery Research Portal

Citation for published version (APA):

General rights
Copyright and moral rights for the publications made accessible in Discovery Research Portal are retained by the authors and/or other copyright owners and it is a condition of accessing publications that users recognise and abide by the legal requirements associated with these rights.

- Users may download and print one copy of any publication from Discovery Research Portal for the purpose of private study or research.
- You may not further distribute the material or use it for any profit-making activity or commercial gain.
- You may freely distribute the URL identifying the publication in the public portal.

Take down policy
If you believe that this document breaches copyright please contact us providing details, and we will remove access to the work immediately and investigate your claim.
Toward interprofessional learning and education: Mapping common outcomes for prequalifying healthcare professional programs in the United Kingdom

Kathryn Steven, Stella Howden, Gary Mires, Iain Rowe, Natalie Lafferty, Amy Arnold & Alison Strath

To cite this article: Kathryn Steven, Stella Howden, Gary Mires, Iain Rowe, Natalie Lafferty, Amy Arnold & Alison Strath (2017): Toward interprofessional learning and education: Mapping common outcomes for prequalifying healthcare professional programs in the United Kingdom, Medical Teacher, DOI: 10.1080/0142159X.2017.1309372

To link to this article: http://dx.doi.org/10.1080/0142159X.2017.1309372

© 2017 The Author(s). Published by Informa UK Limited, trading as Taylor & Francis Group.

Published online: 02 May 2017.

Article views: 275

View related articles

View Crossmark data
Toward interprofessional learning and education: Mapping common outcomes for prequalifying healthcare professional programs in the United Kingdom

Kathryn Steven\textsuperscript{a,b}, Stella Howden\textsuperscript{c}, Gary Mires\textsuperscript{a}, Iain Rowe\textsuperscript{b}, Natalie Lafferty\textsuperscript{d}, Amy Arnold\textsuperscript{b} and Alison Strath\textsuperscript{b}

\textsuperscript{a}School of Medicine, University of Dundee, Dundee, Scotland, UK; \textsuperscript{b}School of Pharmacy and Life Sciences, Robert Gordon University, Aberdeen, Scotland, UK; \textsuperscript{c}Centre for Medical Education, University of Dundee, Dundee, Scotland, UK; \textsuperscript{d}Library and Learning Centre, University of Dundee, Dundee, Scotland, UK

\section*{ABSTRACT}

\textbf{Introduction:} Interprofessional education (IPE) continues to be a key component in prequalifying health professional education, with calls for regulators to publish a joint statement regarding IPE outcomes. To date, the regulatory documents for healthcare education in the United Kingdom have not been examined for common learning outcomes; information that could be used to inform such a statement and to identify opportunities for interprofessional learning.

\textbf{Methods:} A mapping of the outcomes/standards required by five, UK, health profession regulatory bodies was undertaken. This involved the identification of common outcomes, a keyword search and classification of common outcomes/standards; presented as themes and subthemes.

\textbf{Results:} Seven themes were identified: knowledge for practice, skills for practice, ethical approach, professionalism, continuing professional development (CPD), patient-centered approach and teamworking skills, representing 22 subthemes. Each subtheme links back to the outcomes/standards in the regulatory documents.

\textbf{Conclusions:} This study identifies the key areas of overlap in outcomes/standards expected of selected healthcare graduates in the United Kingdom. The mapping provides a framework for informing prequalifying IPE curricula, for example, identifying possible foci for interprofessional education outcomes and associated learning opportunities. It allows reference back to the standards set by regulatory bodies, a requirement for all institutions involved in health profession education.

\section*{Introduction}

Healthcare is under increasing pressure, with a recent National Health Service (NHS) publication highlighting the challenge of increasing numbers of people having long-term conditions and an ageing population set against a backdrop of the rising costs of care, financial constraints and greater expectations of the healthcare system (NHS England 2013). Interprofessional education (IPE) has been defined as two or more professions “learning with, from and about each other to improve collaboration and quality of care” (Centre for Advancement of Interprofessional Education (CAIPE) 2002) and continues to be championed by governments, healthcare regulators and academic institutions as a key component in the education of healthcare professionals with the view that enhancing IPE will improve collaborative interprofessional practice in the workplace.

In the USA, IPE has been highlighted as one approach to help achieve the “triple aim” of “improving the experience of care, improving the health of the population and reducing per capita healthcare costs” (Berwick et al. 2008; Brandt et al. 2014; Earnest & Brandt 2014). In Australia, an extensive exercise was undertaken to develop recommendations for IPE and interprofessional practice based on a national approach to IPE curriculum development linked to workforce planning and capacity building using a “four dimensional model of curriculum development” framework (Health Workforce Australia 2013). The WHO states that “interprofessional collaboration in education and practice … will play an important role in mitigating the global health workforce crisis” (World Health Organization 2010, p. 7). The high priority placed by policy makers on IPE was recognized in a systematic review of IPE programs (Hammick et al. 2007) and although a Cochrane review concluded that “it is not possible to
Table 1. Regulatory bodies of health and care professions in the United Kingdom and details regarding documents referring to undergraduate education and training.

<table>
<thead>
<tr>
<th>Regulatory body</th>
<th>Title of document</th>
<th>Example of terminology</th>
<th>Registration</th>
</tr>
</thead>
<tbody>
<tr>
<td>GMC</td>
<td>Tomorrow’s Doctors</td>
<td>“The doctor will be able to“...”</td>
<td>After qualification and 1 year of practice within a recognized program</td>
</tr>
<tr>
<td></td>
<td>“Outcomes for graduates”</td>
<td>“All nurses must...”</td>
<td>On qualification</td>
</tr>
<tr>
<td>NMC</td>
<td>Standards for preregistration education</td>
<td>“The competency framework”</td>
<td>After qualification from approved undergraduate course, 1 year of practice within recognized program and successful completion of GPhC registration examination.</td>
</tr>
<tr>
<td>GPhC</td>
<td>Revised learning outcomes for the initial education and training of pharmacists (2013)</td>
<td>Outcomes described in terms of Miller’s pyramid as “shows how” or “does”</td>
<td>Register on qualification from recognized undergraduate degree program</td>
</tr>
<tr>
<td>GDC</td>
<td>Dental team learning outcomes for registration</td>
<td>Document details a taxonomy, which includes for example “treat”, “evaluate”, stating “the registrant will be able to demonstrate the outcomes”</td>
<td>Register on qualification from recognized undergraduate degree program</td>
</tr>
<tr>
<td>HCPC</td>
<td>Standards of Proficiency</td>
<td>Standards which must be met in order to become registered e.g. “registrant physiotherapists must...”</td>
<td>Register on qualification from recognized undergraduate degree program</td>
</tr>
</tbody>
</table>

draw generalizable inferences about the key elements of IPE and its effectiveness” (Reeves et al. 2013, p. 2), there is growing evidence of positive changes in learners’ attitudes toward others and collaborative skills (Reeves et al. 2016) and smaller studies suggest that IPE may benefit patient care (Laurant et al. 2010).

With patient care progressively being provided by healthcare teams, often working in complex and challenging environments, there is an increasing interest in IPE as a means to ensuring healthcare professionals are not only aware of their own specific role(s), but more importantly they can work to each other’s professional strengths and skills. In addition to this, the roles of some professions, such as nursing and pharmacy, are extending into areas, such as prescribing and case management, in order to address changing demographics and patterns of illness and this requires an increasingly collaborative model of practice that is underpinned by shared values (Laurant et al. 2010; The Scottish Government 2013). Reflecting this, the learning outcomes or competencies associated with IPE are wide ranging, for example, having knowledge of different roles and responsibilities of health professionals, being able to communicate effectively with other professionals and working cooperatively in the best interests of the patient (Thistlethwaite & Moran 2010, p. 511). What is less understood is which outcomes are best achieved through IPE versus those that can be achieved through professional-specific education (Reeves et al. 2013). The formulation of (learning) outcomes as part of developing IPE is identified as a key component of curriculum design (CAIPE 2016). As part of advancing understanding about which outcomes are best achieved through different professionals coming together to learn, it is valuable to understand the nature and extent of the overlap of profession specific, mandated program outcomes.

In 1993, in the United Kingdom, Tomorrow’s Doctors was published by the General Medical Council (GMC 1993), which described the requirements that must be satisfied before a newly qualified doctor could assume preregistration house officer responsibilities (GMC 1993). The subsequent edition of Tomorrow’s Doctors (GMC 2002) was developed with an outcomes based approach to reflect advances in educational theory. Over the last two decades, the General Dental Council (GDC) and General Pharmaceutical Council (GPhC) have produced outcomes based documents, and the Nursing and Midwifery Council (NMC) and Health and Care Professions Council (HCPC) “standards”, for graduates (General Dental Council 2011; Nursing and Midwifery Council 2010; General Pharmaceutical Council 2013; Health and Care Professions Council 2013). It is worth noting that there are some differences between the professions regarding: the point of registration; whether the regulatory documents refer to “standards” or “outcomes”; and the terminology used (Table 1).

These regulatory documents highlight the need to develop interprofessional skills such as communication and teamworking (Barr & Norrie 2010). A review by Barr and Norrie (2010) examined the regulatory documents for medicine, nursing, social care and the health and care professionals and compared the requirements for interprofessional education and collaborative practice. Areas for collaborative practice included joint planning of treatment, communication and respect. However, they found a lack of consistency in terminology, outcomes or approaches to IPE within the documents. In a recent review, the Centre for the Advancement of Interprofessional Education (CAIPE) recommended that regulators “agree and publish a joint statement regarding the outcomes they require from students on completion of pre-qualifying IPE in health and social care” (Barr et al. 2014, p.6). CAIPE have also highlighted the importance of considering prequalifying IPE as the foundation for a lifetime of “continuing interprofessional development” (Barr & Low 2012). Certainly, IPE in the postgraduate setting has been associated with improved teamwork in the emergency department, in operating rooms and in the care of patients who have experienced domestic violence and mental health problems (Reeves et al. 2013). Collaboration has also been recognized as an important component of patient safety, quality improvement and continuing professional development (Kitto et al. 2015) and as such “outcomes” in prequalifying IPE can be viewed as building blocks for a lifetime of IPE and collaborative practice.

All curriculum developers and educators must demonstrate how their programs enable students to achieve the outcomes/standards set by regulators (Professional Standard Authority 2009). While competency frameworks for IPE have been established worldwide, (Table 2) (Canadian Interprofessional Health Collaborative Working Group 2010; Combined Interprofessional Learning Unit 2010; World Health Organization 2010; Interprofessional...
Table 2. Competency frameworks for interprofessional education (Thistlethwaite et al. 2014, 1–4) and common competency statements/publications (5 and 6) and potential interprofessional learning domains (7).

<table>
<thead>
<tr>
<th>Framework</th>
<th>Derivation</th>
<th>Domains</th>
</tr>
</thead>
</table>
| 1. Interprofessional Capability Framework  
(Combined Interprofessional Learning Unit, Sheffield UK, 2010) | Revision of 2004 framework plus updated literature review and stakeholder involvement | Collaborative working, Reflection, Cultural awareness and ethical practice, Organizational competence, Interprofessional communication, Patient/client/family/community care, Role clarification, Team functioning, Collaborative leadership, Interprofessional conflict resolution, Values/ethics for inter-professional practice, Roles/responsibilities, Interprofessional communication, Teams and teamworking, Communication, Team function, Role clarification, Conflict resolution, Reflection, Provision of care, Collaborative practice, Health values, Professional, ethical and legal approach, Lifelong learning, Patient care, Knowledge for practice, Practice-based learning and improvement, Interpersonal and communication skills, Professionalism, Systems based practice, Interprofessional collaboration, Personal and professional development, Teamwork, Roles and responsibilities, Communication, Learning and critical reflection, Relationship with, and recognizing the needs of the patient, Ethical practice. |

Education Collaborative Expert Panel 2011; Curtin University 2013; Englander et al. 2013; Health Workforce Australia 2013), regulators in the United Kingdom have not yet published joint statements regarding outcomes or standards expected of students as an outcome of IPE. Considering CAIPE’s recommendations and the ongoing development of IPE in the United Kingdom, it is timely to review the regulatory documents to identify common outcomes/standards across professions that can be used to inform discussions regarding prequalifying IPE curricula, for a range of health profession groups, for example, identifying possible focci for interprofessional education outcomes and associated learning opportunities in Higher Education Institutions and/or through work place-based learning.

As a starting point for a project to develop an IPE program between medicine and pharmacy at two Scottish Higher Education Institutions, a review of the regulatory documents and a mapping exercise was undertaken. The initial mapping exercise aimed to compare the regulatory documents for preregistration medicine and pharmacy; however, this was extended to explore the documents for dentistry, nursing and the allied health professions with the intention of reviewing the common outcomes/standards between all the regulatory documents. As the two schools involved in the project also train nursing, dental and allied health professional students this extension to the mapping would “future proof” the work should there be a wish to include other students in the project at a later stage.

**Methods**

In order to identify common outcomes/standards for IPE between medicine and pharmacy, a decision was made to initially compare the two regulatory documents for medicine and pharmacy: *Tomorrow’s Doctors* (GMC 2009) and the draft “Revised Learning Outcomes for the Initial Education and Training of Pharmacists” (GPhC 2013). The GPhC-revised document was in the final stages of consultation and publication; however, in liaison with the GPhC, the decision was made to use these more up to date draft outcomes.

*Tomorrow’s Doctors* was used as a starting point for the mapping exercise. “Outcomes for Graduates”, Part 1, 2 and 3 were downloaded. For each outcome, the GPhC “Revised Outcomes” document was examined for similar statements in two stages. The first stage was based on identifying common themes and subthemes that existed between outcomes in the two documents. A second round was conducted by searching for key words. All outcomes within *Tomorrow’s Doctors* were reviewed in this way. To ensure no comparable outcomes had been missed, the GPhC document was then examined, each outcome was reviewed and compared with *Tomorrow’s Doctors*, and any additional overlapping outcomes were added to the mapping framework. At this point, the document was sent to the rest of the research team for review and discussion.

The decision was then made to include the other health-care professions in the mapping exercise. The process
described earlier, using the outcomes in Tomorrow’s Doctors as a starting point, was used to review and compare each of the three documents NMC Standards for Competence, the GDC Dental Team Learning Outcomes and the HCPC Standards of Proficiency. Again common themes and sub-themes were identified, followed by searching for key words. Outcomes/standards in each of the three documents were then compared with the mapped document to ensure no common themes between the documents were missed. The NMC Standards for Competence consists of a competency framework for adult, child, mental health and learning disability nursing and each of these four branches of nursing were reviewed. The GDC Standards for the Dental Team contain standards expected of all the team and those specific to certain job roles (dentists, dental nurses, dental therapists, dental hygienists, orthodontic therapists, clinical dental technicians, dental technicians). Only the outcomes for dentists were reviewed in this mapping. Finally, as the HCPC regulates 16 different health and care professions, the decision was made to review the generic standards which all of the professions must achieve.

A draft of the mapping exercise was reviewed independently by another member of the research team and the classification of the outcomes/standards under the themes and sub-themes confirmed. The revised document was then sent to the research team for review and the final set of common outcomes/standards were agreed.

**Results**

Seven themes and 22 subthemes were identified which link directly to the key outcomes/standards in which there was overlap between two or more professions. These are listed in Table 3 and illustrated in Figure 1.

**Knowledge for practice**

All healthcare professionals are required to be proficient in the relevant basic science, with particular overlap between medicine, dentistry and pharmacy. There are also common

<table>
<thead>
<tr>
<th>Theme</th>
<th>Outcome areas</th>
</tr>
</thead>
<tbody>
<tr>
<td>Knowledge for practice</td>
<td>Basic science relevant to profession</td>
</tr>
<tr>
<td></td>
<td>Common conditions</td>
</tr>
<tr>
<td></td>
<td>Psychological and social determinants and effects on health</td>
</tr>
<tr>
<td>Skills for practice</td>
<td>Taking &quot;histories&quot;, assessing patients</td>
</tr>
<tr>
<td></td>
<td>Communicating with patients</td>
</tr>
<tr>
<td></td>
<td>Formulating management plans with patients</td>
</tr>
<tr>
<td></td>
<td>Practical procedures</td>
</tr>
<tr>
<td>Patient-centered approach</td>
<td>Patient-centeredness</td>
</tr>
<tr>
<td></td>
<td>Supporting self-care</td>
</tr>
<tr>
<td></td>
<td>Recognizing at risk patients</td>
</tr>
<tr>
<td>Ethical approach to practice</td>
<td>Ethical and legal boundaries</td>
</tr>
<tr>
<td>Continuing professional development</td>
<td>Confidentiality</td>
</tr>
<tr>
<td></td>
<td>Evidence-based approach to practice</td>
</tr>
<tr>
<td></td>
<td>Keeping professional knowledge up to date</td>
</tr>
<tr>
<td></td>
<td>Education and teaching</td>
</tr>
<tr>
<td>Team-working</td>
<td>Leadership and management</td>
</tr>
<tr>
<td></td>
<td>Teaming</td>
</tr>
<tr>
<td></td>
<td>Communication with colleagues</td>
</tr>
<tr>
<td>Professionalism</td>
<td>Time management, prioritization, working autonomously</td>
</tr>
<tr>
<td></td>
<td>Respect, equality and diversity</td>
</tr>
<tr>
<td></td>
<td>Recognizing own health needs</td>
</tr>
<tr>
<td></td>
<td>Patient safety and quality improvement</td>
</tr>
</tbody>
</table>

outcomes related to principles of psychology, sociology, public health, including social determinants of health and how this applies to health through epidemiology and disease prevention. Within medicine, pharmacy and nursing reference is made to students’ applying knowledge around common conditions and their management.

**Skills for practice**

Several skills were common to all health professionals, such as communication with patients, good record keeping and practical procedures such as selecting appropriate investigations. Some skills are common to more than one profession, for example both medical and dental students are required to be able to prescribe medication. Other outcomes were related to skills, which were associated with a similar goal, for example, assessing patients, diagnosis and differential diagnosis, taking a patient history and the prescription and safe administration of medication that involves different overlapping skills from medicine, pharmacy, nursing and dentistry. Students must be proficient in formulating management plans with patients, which to an extent overlaps with the next theme of “patient-centered approach”.

**Patient-centered approach**

All health professionals are expected to be patient-centered in their approach, to respect patients’ opinions, involve them in decision making processes and support self-care. Students must also recognize “at-risk” patients. This includes patients at risk of clinical deterioration, but additionally awareness of groups at risk of abuse or neglect, including children and vulnerable adults.

**Ethical approach**

This includes specific issues such as consent, capacity, confidentiality and record keeping. Additionally, all professions highlight the need for graduates to act within the ethical and legal boundaries of their profession, directing students to the relevant regulator’s ethical guidance and standards.

**Continuing professional development (CPD)**

This theme included keeping oneself up to date, applying an evidence-based approach to practice and reflecting on one’s own practice. For several professions, outcomes relate to participation in the development and teaching of others health professionals, including being able both to give feedback and to reflect on feedback from others.

**Teamworking**

Leadership, teamworking and working with colleagues were outcomes required of all health professionals. This includes being able to appreciate the roles of other health professionals and their unique contribution to patient care. The GPhC standards and GDC standards also included the ability to delegate within their standards. Communication was also highlighted in this theme.
Professionalism

Professionalism incorporates many of the outcomes already discussed, for example maintaining clinical skills and fitness to practice through CPD may be considered an aspect of professional practice. This area specifically includes demonstrating respect and the importance of equality and diversity both in how the students work with colleagues and in their care for patients. Students must recognize their own health needs and when they or colleagues may be placing patients at risk as well as maintain fitness to practice. Other aspects of professionalism included prioritization, time management, patient safety and quality improvement.

Profession-specific outcomes

The mapping exercise also identified profession-specific outcomes/standards. These varied significantly in number, from 16 identified for pharmacy to 51 identified for dentistry. However, further analysis of these outcomes/standards was beyond the scope of this exercise, which aimed to explore the common outcomes/standards for pre-qualifying healthcare professionals.

Discussion

This curriculum mapping has for the first time identified common outcomes/standards for healthcare professional graduates in the United Kingdom. The key common outcomes/standards have been grouped according to seven themes and 22 subthemes. A number of the themes, for example teamworking, skills for practice and professionalism, are areas that have already been identified as condu- cive to an IPE approach as they closely align with interprofessional practice. There are also a number of sub- themes, such as recognizing at-risk patients, ethics and quality improvement, that represent competency overlap and which may provide opportunities for meaningful learning that can serve several purposes. For example, a quality improvement activity may have elements that have uniprofessional learning points, but adding other professional groups to the activity allows additional skills, knowledge and interprofessional capabilities to be supported.

The mapping assists in identifying potential IPE activities and appropriate professional groupings for activities to exploit the potential synergies between professions. It is also important to highlight that not all 22 subthemes may be suitable for IPE, remembering that IPE involves students learning “with from and about each other”. However, this mapping allows: (1) curriculum developers to consider designing IPE opportunities for two or more disciplines which can be mapped back to the specific outcomes/standards set by regulators; (2) new options for interprofessional learning and (3) regulators to begin to explore a common IPE curriculum for health professions in the United Kingdom. Table 4 illustrates in more detail each profession- specific outcome/standard grouped according to themes and subthemes (no colour coding in table). This includes some additional peripheral subthemes.
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Pharmacology, physiology, therapeutics</td>
<td>8. The graduate will be able to apply to medical practice biomedical scientific principles, method and knowledge relating to: anatomy, biochemistry, cell biology, genetics, immunology, microbiology, molecular biology, nutrition, pathology, pharmacology and physiology. The graduate will be able to:</td>
<td>D2 (2.1) Applies pharmacological principles to the use of medicines. (Uses cell and molecular biology, knowledge of endocrine and nervous control systems, pharmacokinetics, pharmacodynamics and pharmagenomics, to explain and predict how drugs work, interact and cause toxicity. Explains how vaccines are created and used to ensure patient safety and promote utilisation. Utilises knowledge of metabolism processes and pathways to select appropriate drugs, dosages and formulations.) (does)</td>
<td>(Nursing Practice 1) All nurses must possess a broad knowledge of the structure and functions of the human body, and other relevant knowledge from the life, behavioral and social sciences as applied to health, ill health, disability, aging and death. (Nursing Practice 2.2) Adult nurses must understand the normal physiological and psychological processes of pregnancy and childbirth.</td>
<td>1.1 The registrant will be able to apply to the practice of pharmacy and business principles that derive from the biomedical, behavioral and materials sciences.</td>
<td>13. Understand the key concepts of the knowledge base relevant to their profession.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>8. (a) Explain normal human structure and functions.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>8. (b) Explain the scientific bases for common disease presentations.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>8. (c) Demonstrate knowledge of drug actions: therapeutics and pharmacokinetics; drug side effects and interactions, including for multiple treatments, long-term conditions and non-prescribed medication; and also including effects on the population, such as the spread of antibiotic resistance.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Common conditions</td>
<td>8. (a) Select appropriate forms of management for common diseases, and ways of preventing common diseases and explain their modes of action and their risks from first principles.</td>
<td>D4 (4.12) Undertakes safe and appropriate physical examination and uses clinical skills to inform clinical decision making and therapeutic action. (Is able to perform examinations as required, relevant to own practice and within own competence, for example blood pressure, pulse and respiratory rate monitoring etc. Is able to recognize presentations of minor and major ailments and can refer to an appropriate practitioner when required.) (does)</td>
<td>(Nursing practice 1) They must have an in-depth knowledge of common physical and mental health problems and treatments in their own field of practice, including comorbidity and physiological and psychological vulnerability. (Nursing practice 7.2) They must have an in-depth knowledge of common physical and mental health problems and treatments in their own field of practice.</td>
<td>1.3 Identify oral diseases and explain their relevance to prevention, diagnosis and treatment.</td>
<td>14. Be able to draw on appropriate knowledge and skills to inform practice.</td>
<td></td>
</tr>
<tr>
<td>Psychological and social determinants of and effect on health</td>
<td>9. Apply psychological principles, method and knowledge to medical practice.</td>
<td>D2 (2.8) Applies principles of psychological and social science to enhance patient and population health. (Describes how health and determinants of health are measured and monitored. Predicts changes in population demographics based on societal structure and development and relates this to the appropriate provision of pharmaceutical services. Explains how health behaviors and outcomes are affected by the diversity of the patient population. Describes how sociological and psychological concepts of health, illness and disease and related</td>
<td>(Nursing practice 1) All nurses must possess a broad knowledge of the life, behavioral and social sciences as applied to health, ill health, disability, aging and death. They must have an in-depth knowledge of common physical and mental health problems and treatments in their own field of</td>
<td>1.1.13 Explain, evaluate and apply to clinical practice psychological and sociological concepts and theoretical frameworks of health, illness, behavioral change and disease.</td>
<td>14. Be able to draw on appropriate knowledge and skills to inform practice.</td>
<td></td>
</tr>
<tr>
<td>Psychological principles</td>
<td>9. (a) Explain normal human behavior at an individual level.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>9. (b) Discuss psychological concepts of health, illness and disease.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>9. (c) Apply theoretical frameworks of psychology to explain the varied responses of individuals, groups and societies to disease.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(continued)
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>9 (d) Explain psychological factors that contribute to illness, the course of the disease and the success of treatment.</td>
<td>frameworks can be used to both explain and improve patient health-related behaviors. Describes sociological and psychological determinants of health (e.g. health inequalities) and how pharmaceutical services can be tailored to address these. (shows how)</td>
<td>practice, including comorbidity and psychological vulnerability (Nursing practice and decision making) All nurses must also understand how behavior, culture, socioeconomic and other factors, in the care environment and its location, can affect health, illness, health outcomes and public health priorities and take this into account in planning and delivering care</td>
<td>D4 (4.6) Identifies patient nonadherence and implements appropriate patient centered interventions. (Effectively identifies non-adherence to medication regimens and its underlying causes. Utilizes both simple and evidence-based strategies to encourage and improve medicines taking. Utilizes a holistic approach to assessment and applies health psychology models and techniques to the delivery of adherence-based services.) (does)</td>
<td></td>
</tr>
<tr>
<td>Compliance/adherence</td>
<td>9 (e) Discuss psychological aspects of behavioral change and treatment compliance.</td>
<td>D4 (4.6) Identifies patient nonadherence and implements appropriate patient centered interventions. (Effectively identifies non-adherence to medication regimens and its underlying causes. Utilizes both simple and evidence-based strategies to encourage and improve medicines taking. Utilizes a holistic approach to assessment and applies health psychology models and techniques to the delivery of adherence-based services.) (does)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>10 (e) Discuss sociological aspects of behavioral change and treatment compliance.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bereavement/end of life care</td>
<td>9 (f) Discuss adaptation to major life changes, such as bereavement. Compare and contrast the abnormal adjustments that might occur in these situations.</td>
<td></td>
<td>(Nursing practice 4) must then plan, deliver and evaluate safe, competent, person-centered care in partnership with them, paying special attention to changing health needs during different life stages, including progressive illness and death, loss and bereavement. (Nursing practice 4.2) Adult nurses must recognize and respond to the changing needs of adults, families and carers during terminal illness. They must be aware of how treatment goals and service users' choices may change at different stages of progressive illness, loss and bereavement.</td>
<td>(Nursing practice 4) must then plan, deliver and evaluate safe, competent, person-centered care in partnership with them, paying special attention to changing health needs during different life stages, including progressive illness and death, loss and bereavement. (Nursing practice 4.2) Adult nurses must recognize and respond to the changing needs of adults, families and carers during terminal illness. They must be aware of how treatment goals and service users' choices may change at different stages of progressive illness, loss and bereavement.</td>
<td>(continued)</td>
</tr>
<tr>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>9 (g) Identify appropriate strategies for managing patients with dependence issues and other demonstrations of self-harm.</td>
<td>D4 (4.8) Identifies misuse of medicines and implements effective strategies to address this. (Identifies patients who are potentially using prescribed and over the counter medicines inappropriately and implements strategies to address their actions. Supports and provides holistic care to patients being treated for substance misuse. Safely supervises administration of replacement therapy. Monitors health and compliance of patients on treatment regimen for substance misuse and communicates effectively with patient and care team. Provides services to improve health and minimize harm to substance misusers, for example, needle exchange, paraphernalia and contraception provision. Provides appropriate advice for the utilization of drugs in sport.) (does)</td>
<td>(Nursing practice 5) All nurses must understand public health principles, priorities and practice in order to recognize and respond to the major causes and social determinants of health, illness and health inequalities. They must use a range of information and data to assess the needs of people, groups, communities and populations, and work to improve health, well-being and experiences of health-care; secure equal access to health screening, health promotion and healthcare; and promote social inclusion.</td>
<td>2.1 Discuss the basic principles of a population health approach including demographic and social trends, UK and international oral health trends, determinants of health and inequalities in health, and the ways in which these are measured and current patterns.</td>
<td>2.6 Describe the implications of the wider health economy and external influences</td>
<td></td>
</tr>
<tr>
<td>Social determinants of health</td>
<td>10. Apply social science principles, method and knowledge to medical practice.</td>
<td>D2 (2.8) Applies principles of psychological and social science to enhance patient and population health. (Describes how health and determinants of health are measured and monitored. Predicts changes in population demographics based on societal structure and development and relates this to the appropriate provision of pharmaceutical services. Explains how health behaviors and outcomes are affected by the diversity of the patient population. Describes how sociological and psychological concepts of health, illness and disease and related theoretical frameworks can be used to both explain and improve patient health-related behaviors. Describes sociological and psychological determinants of health (e.g. health inequalities) and how pharmaceutical services can be tailored to address these) (shows how)</td>
<td>(Communication 6) All nurses must take every opportunity to encourage health-promoting behavior through education, role modeling and effective communication.</td>
<td>2.3 Describe and evaluate the role of health promotion in terms of the changing environment, community and individual behaviors to deliver health gain</td>
<td></td>
</tr>
<tr>
<td>Population health, health improvement and health promotion</td>
<td>11. Apply to medical practice the principles, method and knowledge of population health and the improvement of health and health care.</td>
<td>D3 (3.8) Engages effectively with local and national strategies to improve public health. (Is aware of current local and national public health policies and demonstrates an ability to work within them. Demonstrates the ability to provide input into local and national public health policies with a view to enhancing service delivery.) (does)</td>
<td>(Communication 6) All nurses must take every opportunity to encourage health-promoting behavior through education, role modeling and effective communication.</td>
<td>2.3 Describe and evaluate the role of health promotion in terms of the changing environment, community and individual behaviors to deliver health gain</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(continued)</td>
</tr>
<tr>
<td>Table 4. Continued</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>-------------------</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Communicable disease control</strong></td>
<td>Diversity of the patient population. Either directly through one to one consultations, outreach activities or indirectly through promotion methods. Demonstrates ability to provide commonly delivered services designed to improve public health, for example, smoking cessation, travel health, family planning and sexual health services. Employs best practice with respect to safeguarding of children and vulnerable adults when delivering services. Administers vaccinations safely. Identifies risky health behaviors and takes steps to address these were practicable. Engages with local and national public health initiatives.</td>
<td>Describes measurement methods relevant to the improvement of clinical effectiveness and care. Discusses the principles underlying the development of health and health service policy, including issues relating to health economics and equity, and clinical guidelines. Discusses how interventions impact on communication, and ethical and professional standards.</td>
<td><strong>Epidemiology</strong></td>
<td><strong>Disease prevention</strong></td>
<td><strong>1.1.8</strong> Explain the potential routes of transmission of infectious agents in dental practice, mechanisms for the prevention of infection, the scientific principles of decontamination and disinfection and their relevance to health and safety</td>
</tr>
<tr>
<td><strong>D2 (2.9)</strong> Effectively manages infectious diseases through application of microbiological science. (Classifies and identifies bacteria, fungi, viruses, protozoa and helminthes to enable appropriate selection of antimicrobial treatment and prevention strategies. Explains treatment effectiveness and rationale for disease prevention strategies through the knowledge of antimicrobial lifecycles, pathogenicity and epidemiology. Describes how disease transfers from animals to humans to enable preventative strategies to be applied. Utilizes knowledge of immunology to describe current processes, for example, vaccinations for disease prevention and eradication and use of biologics as novel therapeutic targets. Demonstrates effective antimicrobial stewardship through knowledge of antibiotic design and biological usage.) (shows how)</td>
<td><strong>1.1.12</strong> Explain the principles of epidemiology and critically evaluate their application to patient management.</td>
<td><strong>1.10.3</strong> Explain the principles of preventive care and apply as part of a comprehensive treatment plan</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>D4 (4.10)</strong> Identifies, employs and recommends appropriate health-screening processes. (Identifies and utilizes case screening techniques to identify patients at high risk and proactively promotes service participation. Demonstrates an ability to use screening tools to assess or score risk and responds appropriately.) (does)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table 4. Continued

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Education and teaching</strong></td>
<td>D1 (1.8) Effectively reflects on personal and professional approaches to practice to identify learning needs and implements appropriate strategies to enhance performance. (Demonstrates an awareness of what they have learnt and how they could, will or have put this into practice (the CPD cycle). Demonstrates an ability to develop personal development plans, identify suitable learning opportunities, apply them and reflect on the experience. Takes ownership of learning and demonstrates ability to independently learn. Actively seeks out and listens to staff and colleagues to obtain feedback on performance. Accepts feedback, reflects and acts on it. Effective critical appraisal of self-performance expected. Does not seek to blame self or others. Can share skills and knowledge with other relevant organisations and professional bodies where appropriate.) (Does)</td>
<td>(Leadership 5) All nurses must facilitate nursing students and others to develop their competence, using a range of professional and personal development skills.</td>
<td>9.3 Explain the range of methods of learning and teaching available and the importance of assessment, feedback, critical reflection, identification of learning needs and appraisal in personal development planning</td>
<td>11) Be able to reflect and review on current practice</td>
<td></td>
</tr>
<tr>
<td><strong>Keeping professional knowledge up to date</strong></td>
<td>D3 (3.6) Responds with flexibility and adaptability to new situations and change. (Keeps up to date with developments within the profession and wider healthcare landscape, adapting practice where necessary. Can identify and use appropriate processes to manage change. Is able to move between different working environments without quality of service provision falling. Remains calm and composed when faced with new situations or environments, and responds with flexibility and adaptability. Is able to adapt to differences in practice between the different counties of Great Britain) (Does)</td>
<td>(Professionalism 7) All nurses must be responsible and accountable for keeping their knowledge and skills up to date through continuing professional development. They must aim to improve their performance and enhance the safety and quality of care through evaluation, supervision and appraisal.</td>
<td>9.1 Recognize and demonstrate own professional responsibility in the development of self and the rest of the team</td>
<td>11) Be able to reflect and review on current practice</td>
<td></td>
</tr>
<tr>
<td><strong>21. Reflect, learn and teach others.</strong></td>
<td>21 (a) Acquire, assess, apply and integrate new knowledge, learn to adapt to changing circumstances and ensure that patients receive the highest level of professional care.</td>
<td>21 (f) Function effectively as a mentor and teacher including contributing to the appraisal, assessment and review of colleagues, giving effective feedback, and taking advantage of opportunities to develop these skills.</td>
<td>9.2 Utilize the provision and receipt of effective feedback in the professional development of self and others</td>
<td><strong>(continued)</strong></td>
<td></td>
</tr>
<tr>
<td><strong>21. Function effectively as a mentor and teacher including contributing to the appraisal, assessment and review of colleagues, giving effective feedback, and taking advantage of opportunities to develop these skills.</strong></td>
<td><strong>(Leadership 5) All nurses must facilitate nursing students and others to develop their competence, using a range of professional and personal development skills.</strong></td>
<td><strong>(Professionalism 7) All nurses must be responsible and accountable for keeping their knowledge and skills up to date through continuing professional development. They must aim to improve their performance and enhance the safety and quality of care through evaluation, supervision and appraisal.</strong></td>
<td>9.4 Develop and maintain professional knowledge and competence and demonstrate commitment to lifelong learning</td>
<td><strong>(continued)</strong></td>
<td></td>
</tr>
<tr>
<td>21 (b) Establish the foundations for lifelong learning and continuing professional development, including a professional development portfolio containing reflections, achievements and learning needs.</td>
<td>21 (c) Continually and systematically reflect on practice and, whenever necessary, translate that reflection into action, using improvement techniques and audit appropriately for example, by critically appraising the performance of others.</td>
<td>D1 (1.8) Effectively reflects on personal and professional approaches to practice to identify learning needs and implements appropriate strategies to enhance performance.</td>
<td>(Professionalism 8) All nurses must practice independently, recognizing the limits of their competence and knowledge. They must reflect on these limits and seek advice from, or refer to, other professionals where necessary</td>
<td><strong>(continued)</strong></td>
<td></td>
</tr>
<tr>
<td><strong>D1 (1.8) Effectively reflects on personal and professional approaches to practice to identify learning needs and implements appropriate strategies to enhance performance.</strong></td>
<td><strong>(Leadership 5) All nurses must facilitate nursing students and others to develop their competence, using a range of professional and personal development skills.</strong></td>
<td><strong>(Professionalism 7) All nurses must be responsible and accountable for keeping their knowledge and skills up to date through continuing professional development. They must aim to improve their performance and enhance the safety and quality of care through evaluation, supervision and appraisal.</strong></td>
<td>9.4 Develop and maintain professional knowledge and competence and demonstrate commitment to lifelong learning</td>
<td><strong>(continued)</strong></td>
<td></td>
</tr>
<tr>
<td>---------</td>
<td>--------------------------------------------------</td>
<td>-------------------------------------------------</td>
<td>------------------------------------------------</td>
<td>-------------------------------------------------</td>
<td>--------------------------------------------------</td>
</tr>
<tr>
<td>Evidence-based approach to practice</td>
<td><strong>Evidence/evaluation</strong></td>
<td><strong>Research</strong></td>
<td><strong>Governance</strong></td>
<td><strong>Professionalism</strong></td>
<td><strong>Nursing Practice</strong></td>
</tr>
<tr>
<td>12. Apply scientific method and approaches to medical research.</td>
<td>(Leadership 4) All nurses must be self-aware and recognize how their own values, principles and assumptions may affect their practice. They must maintain their own personal and professional development, learning from experience, through supervision, feedback, reflection and evaluation.</td>
<td>(1.1.1) Explain, evaluate and apply the principles of evidence-based approach to learning, clinical and professional practice and decision making.</td>
<td>(1.1.2) Critically appraise approaches to research and decision making.</td>
<td>(1.7.11) Critically evaluate all components of patient management guidelines.</td>
<td>(1.8.5) Comply with current best practice guidelines.</td>
</tr>
<tr>
<td>12 (a) Critically appraise the results of relevant diagnostic, prognostic and treatment trials and other qualitative and quantitative studies as reported in the medical and scientific literature.</td>
<td>(Leadership 4) All nurses must be self-aware and recognize how their own values, principles and assumptions may affect their practice. They must maintain their own personal and professional development, learning from experience, through supervision, feedback, reflection and evaluation.</td>
<td>(Professionalism 9) All nurses must appreciate the value of evidence in practice, be able to understand and appraise research, apply relevant theory and research findings to their work, and identify areas for further investigation.</td>
<td>(Nursing Practice 1) All nurses must use up-to-date knowledge and evidence to assess, plan, deliver and evaluate care, communicate findings, influence change and promote health and best practice.</td>
<td>(Nursing practice and decision making). All practice should be informed by the best available evidence and comply with local and national guidelines.</td>
<td></td>
</tr>
<tr>
<td>12 (c) Apply findings from the literature to answer questions raised by specific clinical problems.</td>
<td>D2 (2.5) Critically evaluates the evidence base to review and enhance delivery of patient services. (Appropriately searches for research evidence surrounding delivery of services. Effectively critiques scientific literature. Utilizes evidence for effectiveness and cost-effectiveness to enhance or introduce services. Forms rational evaluations of research and can pull together different sources of information to enhance care. Is aware of the evidence base behind guidelines when making clinical decisions) (does)</td>
<td>D3 3.1 Actively involves patients, carers, the public and other healthcare professionals when evaluating, enhancing and delivering services. (Understands the importance of enabling the voice of patients to be heard and is able to demonstrate ways in which to do this. Demonstrates an ability to effectively engage patients, carers, the public and other health care professionals when evaluating or changing current services or working to introduce a new service.) (does)</td>
<td>D2 2.7 Contributes effectively to research activities. (Designs and conducts research applying appropriate methodology and procedures. Is able to prepare research reports which effectively communicate the rationale for the research methodology and results and considers the possible implications and implications for these. Communicates results effectively by written and oral report. Adheres strictly to research governance frameworks and protocols, demonstrates an improvement in the quality and effectiveness of research. (does)</td>
<td>1) Be able to practice safely and effectively within their scope of practice.</td>
<td>12) Be able to assure the quality of their practice.</td>
</tr>
<tr>
<td>12 (b) Formulate simple relevant research questions in biomedical science, psychosocial science or population science, and design appropriate studies or experiments to address the questions.</td>
<td>(Leadership 4) All nurses must be self-aware and recognize how their own values, principles and assumptions may affect their practice. They must maintain their own personal and professional development, learning from experience, through supervision, feedback, reflection and evaluation.</td>
<td>(Professionalism 9) All nurses must appreciate the value of evidence in practice, be able to understand and appraise research, apply relevant theory and research findings to their work, and identify areas for further investigation.</td>
<td>(Nursing Practice 1) All nurses must use up-to-date knowledge and evidence to assess, plan, deliver and evaluate care, communicate findings, influence change and promote health and best practice.</td>
<td>(Nursing practice and decision making). All practice should be informed by the best available evidence and comply with local and national guidelines.</td>
<td></td>
</tr>
<tr>
<td>12 (d) Understand the ethical and governance issues involved in medical research.</td>
<td>(Leadership 4) All nurses must be self-aware and recognize how their own values, principles and assumptions may affect their practice. They must maintain their own personal and professional development, learning from experience, through supervision, feedback, reflection and evaluation.</td>
<td>(Professionalism 9) All nurses must appreciate the value of evidence in practice, be able to understand and appraise research, apply relevant theory and research findings to their work, and identify areas for further investigation.</td>
<td>(Nursing Practice 1) All nurses must use up-to-date knowledge and evidence to assess, plan, deliver and evaluate care, communicate findings, influence change and promote health and best practice.</td>
<td>(Nursing practice and decision making). All practice should be informed by the best available evidence and comply with local and national guidelines.</td>
<td>(1.8.5) Comply with current best practice guidelines.</td>
</tr>
</tbody>
</table>

(continued)
Table 4. Continued

|---------|------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------|-----------------------------------------------------------------|---------------------------------------------------------------------|

**Patient-centred approach**

**Patient-centeredness**

13 (b) Elicit patients’ questions, their understanding of their condition and treatment options and their views, concerns, values and preferences.

20 (b) Demonstrate awareness of the clinical responsibilities and role of the doctor, making the care of the patient the first concern. Recognize the principles of patient-centered care, including self-care, and deal with patients’ healthcare needs in consultation with them and, where appropriate, their relatives or carers.

D4 (4.2) Undertakes effective patient-centered consultations. (Builds rapport, identifies patient’s beliefs and concerns and listens effectively. Explains possible unexpected outcomes and what to do if plan is not working. Explains when and how to seek help. Summarizes and concludes consultations effectively. Instils confidence, utilizing appropriate body language. Shows sensitivity for patients’ emotions and concerns. Selects and ensures appropriate environments for consultations. Involves patients in decision-making process, respects and supports patient decisions. Communicates a variety of messages in an empathetic manner showing an understanding of how the message may affect the patient) (does)

(Nursing practice 1) They must make person-centered, evidence-based judgments and decisions, in partnership with others involved in the care process, to ensure high quality care. They must be able to recognize when the complexity of clinical decisions requires specialist knowledge and expertise, and consult or refer accordingly.

(Nursing practice 4) They must then plan, deliver and evaluate safe, competent, person-centered care in partnership with them.

11.1 Take a patient-centered approach to working with the dental and wider healthcare team

1.10.2 Provide patients with comprehensive and accurate preventive education and instruction in a manner which encourages self-care and motivation

14) Be able to draw on appropriate knowledge and skills to inform practice

**Supporting self-care**

14 (h) support patients in caring for themselves.

D4 (4.1) Actively supports patients and their carers in the safe and effective use of medicines and devices. (Empowers patients by involving them in their care. Identifies appropriate support and enables patients to make informed choice. Supports self-management.) (does)

(Professional values 4) They must manage risk, and promote health and well-being while aiming to empower choices that promote self-care and safety

Nursing practice 7 All nurses must provide educational support, facilitation skills and therapeutic nursing interventions to optimize health and well-being. They must promote self-care and management whenever possible, helping people to make choices about their healthcare needs, involving families and carers where appropriate, to maximize their ability to care for themselves.

1.8.8 Identify the signs of abuse or neglect, explain local and national systems that safeguard welfare and raise concerns where appropriate

(continued)
<table>
<thead>
<tr>
<th>Table 4. Continued</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Teamworking</strong></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td><strong>Communication with colleagues</strong></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>---------------------------------------------------------------------------</td>
</tr>
<tr>
<td>22. Learn and work effectively within a multidisciplinary team.</td>
</tr>
<tr>
<td>22 (a) Understand and respect the roles and expertise of health and social care professionals in the context of working and learning as a multidisciplinary team.</td>
</tr>
<tr>
<td>22 (b) Understand the contribution that effective interdisciplinary teamworking makes to the delivery of safe and high-quality care.</td>
</tr>
<tr>
<td>22 (c) Work with colleagues in ways that best serve the interests of patients, passing on information and handing over care, demonstrating flexibility, adaptability and a problem-solving approach.</td>
</tr>
<tr>
<td>22 (d) Demonstrate ability to build team capacity and positive working relationships and undertake various team roles including leadership and the ability to accept leadership by others.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Patent safety and quality improvement</td>
<td>D1 (1.10) Responds effectively to complaints, incidents and errors. (Demonstrates an understanding of best practice and standard operating procedures when dealing with complaints, incidents and errors. Demonstrates learning to achieve continual reduction in patient harm. Promote no blame culture of transparency and honesty. Responds appropriately and within relevant professional guidelines. Seeks to address the immediate needs of the patient and relevant others. Makes appropriate records to demonstrate openness, accountability and responsibility.)</td>
<td>Nursing practice 6) All nurses must practice safely by being aware of the correct use, limitations and hazards of common interventions, including nursing activities, treatments, and the use of medical devices and equipment. The nurse must be able to evaluate their use, report any concerns promptly through appropriate channels and modify care where necessary</td>
<td>1.8.1 Identify and explain the risks around the clinical environment and manage these in a safe and efficient manner</td>
<td>4.1 Communicate appropriately with colleagues from dental and other healthcare professions in relation to:</td>
</tr>
<tr>
<td>23. Protect patients and improve care.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>23 (a) Place patients’ needs and safety at the center of the care process.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>23 (d) Promote, monitor and maintain health and safety in the clinical setting, understanding how errors can happen in practice, applying the principles of quality assurance, clinical governance and risk management to medical practice and care.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>23 (e) Demonstrate ability to build team capacity and positive working relationships and undertake various team roles including leadership and the ability to accept leadership by others.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(continued)
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Table 4. Continued</td>
<td>understanding responsibilities within the current systems for raising concerns about safety and quality. 23 (e) Understand and have experience of the principles and methods of improvement, including audit, adverse incident reporting and quality improvement, and how to use the results of audit to improve practice. 23 (h) Understand the importance of, and the need to keep to, measures to prevent the spread of infection, and apply the principles of infection prevention and control.</td>
<td>(does) D2 (2.6) Designs and implements effective quality improvement strategies and utilizes quality improvement science. (Demonstrates an ability to apply quality improvement strategies including selecting and utilizing appropriate clinical audit processes such as standards based audit, service evaluation and critical incident analysis to enhance current service provision.) (does) to maintain safety. (Leadership 2) All nurses must systematically evaluate care and ensure that they and others use the findings to help improve people's experience and care outcomes and to shape future services (Professionalism 6) All nurses must practice safely. (Leadership, management team-working) All nurses must be professionally accountable and use clinical governance processes to maintain and improve nursing practice and standards of healthcare. (Professionalism 7) All nurses must be responsible and accountable for keeping their knowledge and skills up to date through continuing professional development. They must aim to improve their performance and enhance the safety and quality of care through evaluation, supervision and appraisal. 4.2 Explain the role of appraisal, training and review of colleagues, giving and receiving effective feedback 7.4 Take responsibility for and act to raise concerns about your own or others' health, behavior or professional performance as described in The Principles of Raising Concerns 11.3 Recognize the importance of and demonstrate personal accountability to patients, the regulator, the team and wider community 11.7 Recognize, take responsibility for and act to raise concerns about their own or others' health, behavior or professional performance as described in The Principles of Raising Concerns 11.8 Recognize the need to ensure that those who raise concerns are protected from discrimination or other detrimental effects 12.3 Recognize and demonstrate the procedures for handling of complaints as described in the Principles of Complaints Handling</td>
<td>3) Be able to maintain fitness to practice</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
5) Be aware of the impact of culture, equality, and diversity on practice

1.7.1 Treat all patients with equality, respect and dignity
6.2 Act with integrity and be trustworthy
6.3 Respect patients’ dignity and choices
6.5 Recognize and respect the patient’s perspective and expectations of dental care and the role of the dental team, taking into account issues relating to equality and diversity

7.3 Act without discrimination and show respect for patients, colleagues and peers and the general public

- All nurses must practice in a holistic, non-judgmental, caring and sensitive manner that avoids assumptions, supports social inclusion; recognizes and respects individual choice; and acknowledges diversity. Where necessary, they must challenge inequality, discrimination and exclusion from access to care.

- (Professional values 2) All nurses must practice in a holistic, non-judgmental, caring and sensitive manner that avoids assumptions, supports social inclusion; recognizes and respects individual choice; and acknowledges diversity. Where necessary, they must challenge inequality, discrimination and exclusion from access to care.

20 (d) Respect all patients, colleagues and others regardless of their age, color, culture, disability, mental or national origin, gender, lifestyle, marital or parental status, race, religion or beliefs, sex, sexual orientation, or social or economic status. Respect patients’ right to hold religious or other beliefs and take these into account when relevant to treatment options.

20 (e) Recognize the rights and the equal value of all people and how opportunities for some people may be restricted by others’ perceptions.

- (Professional values 3) All nurses must support and promote the health, well-being, rights and dignity of people, groups, communities and populations. These include people whose lives are affected by ill health, disability, ageing, death and dying. Nurses must understand how these activities influence public health.

- (Professional values 4) All nurses must practice as an autonomous professional, exercising their own professional judgment.

Time management, prioritization and working autonomously

21 (d) Manage time and prioritize tasks and work autonomously when necessary and appropriate.

21 (e) Recognize own personal and professional limits and seek help from colleagues and supervisors when necessary.

- (Leadership 3) All nurses must be able to identify priorities and manage time and resources effectively to ensure the quality of care is maintained or enhanced.

- (Professional values 8) All nurses must practice independently, recognizing the limits of their competence and knowledge. They must reflect on these limits and seek advice from or refer to, other professionals where necessary.

- (Professional values 9) All nurses must be able to identify priorities and manage time and resources effectively to ensure the quality of care is maintained or enhanced.

- (Professional values 10) They must practice autonomously and be responsible and accountable.

- (Leadership 4) All nurses must be able to identify priorities and manage time and resources effectively to ensure the quality of care is maintained or enhanced.

- (Professional values 11) They must practice autonomously and be responsible and accountable.

- (Professional values 12) All nurses must practice independently, recognizing the limits of their competence and knowledge. They must reflect on these limits and seek advice from or refer to, other professionals where necessary.

- (Professional values 13) All nurses must practice independently, recognizing the limits of their competence and knowledge. They must reflect on these limits and seek advice from or refer to, other professionals where necessary.

- (Professional values 14) All nurses must practice independently, recognizing the limits of their competence and knowledge. They must reflect on these limits and seek advice from or refer to, other professionals where necessary.

- (Professional values 15) All nurses must practice independently, recognizing the limits of their competence and knowledge. They must reflect on these limits and seek advice from or refer to, other professionals where necessary.

- (Professional values 16) All nurses must practice independently, recognizing the limits of their competence and knowledge. They must reflect on these limits and seek advice from or refer to, other professionals where necessary.

- (Professional values 17) All nurses must practice independently, recognizing the limits of their competence and knowledge. They must reflect on these limits and seek advice from or refer to, other professionals where necessary.

- (Professional values 18) All nurses must practice independently, recognizing the limits of their competence and knowledge. They must reflect on these limits and seek advice from or refer to, other professionals where necessary.

- (Professional values 19) All nurses must practice independently, recognizing the limits of their competence and knowledge. They must reflect on these limits and seek advice from or refer to, other professionals where necessary.

- (Professional values 20) All nurses must practice independently, recognizing the limits of their competence and knowledge. They must reflect on these limits and seek advice from or refer to, other professionals where necessary.

- (Professional values 21) All nurses must practice independently, recognizing the limits of their competence and knowledge. They must reflect on these limits and seek advice from or refer to, other professionals where necessary.

- (Professional values 22) All nurses must practice independently, recognizing the limits of their competence and knowledge. They must reflect on these limits and seek advice from or refer to, other professionals where necessary.

- (Professional values 23) All nurses must practice independently, recognizing the limits of their competence and knowledge. They must reflect on these limits and seek advice from or refer to, other professionals where necessary.

- (Professional values 24) All nurses must practice independently, recognizing the limits of their competence and knowledge. They must reflect on these limits and seek advice from or refer to, other professionals where necessary.

- (Professional values 25) All nurses must practice independently, recognizing the limits of their competence and knowledge. They must reflect on these limits and seek advice from or refer to, other professionals where necessary.

- (Professional values 26) All nurses must practice independently, recognizing the limits of their competence and knowledge. They must reflect on these limits and seek advice from or refer to, other professionals where necessary.

- (Professional values 27) All nurses must practice independently, recognizing the limits of their competence and knowledge. They must reflect on these limits and seek advice from or refer to, other professionals where necessary.

- (Professional values 28) All nurses must practice independently, recognizing the limits of their competence and knowledge. They must reflect on these limits and seek advice from or refer to, other professionals where necessary.

- (Professional values 29) All nurses must practice independently, recognizing the limits of their competence and knowledge. They must reflect on these limits and seek advice from or refer to, other professionals where necessary.

- (Professional values 30) All nurses must practice independently, recognizing the limits of their competence and knowledge. They must reflect on these limits and seek advice from or refer to, other professionals where necessary.

- (Professional values 31) All nurses must practice independently, recognizing the limits of their competence and knowledge. They must reflect on these limits and seek advice from or refer to, other professionals where necessary.

- (Professional values 32) All nurses must practice independently, recognizing the limits of their competence and knowledge. They must reflect on these limits and seek advice from or refer to, other professionals where necessary.

- (Professional values 33) All nurses must practice independently, recognizing the limits of their competence and knowledge. They must reflect on these limits and seek advice from or refer to, other professionals where necessary.

- (Professional values 34) All nurses must practice independently, recognizing the limits of their competence and knowledge. They must reflect on these limits and seek advice from or refer to, other professionals where necessary.

- (Professional values 35) All nurses must practice independently, recognizing the limits of their competence and knowledge. They must reflect on these limits and seek advice from or refer to, other professionals where necessary.

- (Professional values 36) All nurses must practice independently, recognizing the limits of their competence and knowledge. They must reflect on these limits and seek advice from or refer to, other professionals where necessary.

- (Professional values 37) All nurses must practice independently, recognizing the limits of their competence and knowledge. They must reflect on these limits and seek advice from or refer to, other professionals where necessary.

- (Professional values 38) All nurses must practice independently, recognizing the limits of their competence and knowledge. They must reflect on these limits and seek advice from or refer to, other professionals where necessary.

- (Professional values 39) All nurses must practice independently, recognizing the limits of their competence and knowledge. They must reflect on these limits and seek advice from or refer to, other professionals where necessary.

- (Professional values 40) All nurses must practice independently, recognizing the limits of their competence and knowledge. They must reflect on these limits and seek advice from or refer to, other professionals where necessary.

- (Professional values 41) All nurses must practice independently, recognizing the limits of their competence and knowledge. They must reflect on these limits and seek advice from or refer to, other professionals where necessary.

- (Professional values 42) All nurses must practice independently, recognizing the limits of their competence and knowledge. They must reflect on these limits and seek advice from or refer to, other professionals where necessary.

- (Professional values 43) All nurses must practice independently, recognizing the limits of their competence and knowledge. They must reflect on these limits and seek advice from or refer to, other professionals where necessary.

- (Professional values 44) All nurses must practice independently, recognizing the limits of their competence and knowledge. They must reflect on these limits and seek advice from or refer to, other professionals where necessary.

- (Professional values 45) All nurses must practice independently, recognizing the limits of their competence and knowledge. They must reflect on these limits and seek advice from or refer to, other professionals where necessary.

- (Professional values 46) All nurses must practice independently, recognizing the limits of their competence and knowledge. They must reflect on these limits and seek advice from or refer to, other professionals where necessary.

- (Professional values 47) All nurses must practice independently, recognizing the limits of their competence and knowledge. They must reflect on these limits and seek advice from or refer to, other professionals where necessary.

- (Professional values 48) All nurses must practice independently, recognizing the limits of their competence and knowledge. They must reflect on these limits and seek advice from or refer to, other professionals where necessary.

- (Professional values 49) All nurses must practice independently, recognizing the limits of their competence and knowledge. They must reflect on these limits and seek advice from or refer to, other professionals where necessary.

- (Professional values 50) All nurses must practice independently, recognizing the limits of their competence and knowledge. They must reflect on these limits and seek advice from or refer to, other professionals where necessary.

- (Professional values 51) All nurses must practice independently, recognizing the limits of their competence and knowledge. They must reflect on these limits and seek advice from or refer to, other professionals where necessary.

- (Professional values 52) All nurses must practice independently, recognizing the limits of their competence and knowledge. They must reflect on these limits and seek advice from or refer to, other professionals where necessary.

- (Professional values 53) All nurses must practice independently, recognizing the limits of their competence and knowledge. They must reflect on these limits and seek advice from or refer to, other professionals where necessary.

- (Professional values 54) All nurses must practice independently, recognizing the limits of their competence and knowledge. They must reflect on these limits and seek advice from or refer to, other professionals where necessary.

- (Professional values 55) All nurses must practice independently, recognizing the limits of their competence and knowledge. They must reflect on these limits and seek advice from or refer to, other professionals where necessary.
Professional values
All nurses must practice with recognized ethical and legal frameworks. They must be able to recognize and address ethical challenges relating to people’s choices and decision making about their care, and act within the law to help them and their families and carers find acceptable solutions.

Table 4. Continued

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethical approach</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ethical and legal boundaries</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13(e) Assess a patient’s capacity to make a particular decision in accordance with legal requirements and the GMC’s guidance (in Consent: Patients and doctors making decisions together).</td>
<td>D1 (1.1) Demonstrates the values of the profession (Operates within regulatory and professional standards including the GPhC Standards of conduct, ethics and Performance and NHS values. Demonstrates appropriate professional attitudes, care and compassion when delivering patient-centered care. Seeks to enhance the profession by engaging with the wider profession including professional bodies) (Does)</td>
<td>Professional values) All nurses must practice with confidence according to The code: Standards of conduct, performance and ethics for nurses and midwives (NMC 2008), and within other recognized ethical and legal frameworks. They must be able to recognize and address ethical challenges relating to people’s choices and decision making about their care, and act within the law to help them and their families and carers find acceptable solutions.</td>
<td>7.1 Recognize and act within the GDC’s standards and within other professionally relevant laws, ethical guidance and systems</td>
<td></td>
<td></td>
</tr>
<tr>
<td>20. The graduate will be able to behave according to ethical and legal principles. The graduate will be able to:</td>
<td>D1 (1.2) Applies professional judgment in the best interest of the patient and public (Makes professional judgments in a systematic and reasoned way, respecting the rights of all involved. Recognizes ethical dilemmas and responds appropriately. Understands and applies GPhC standards and principles for professional conduct. Demonstrates care and compassion to deliver patient centered care. Demonstrates accountability in decision making and is able to justify decisions made in the context of patient or public safety) (Does)</td>
<td>(Professional values) All nurses must practice with confidence according to The code: Standards of conduct, performance and ethics for nurses and midwives (NMC 2008), and within other recognized ethical and legal frameworks. They must be able to recognize and address ethical challenges relating to people’s choices and decision making about their care, and act within the law to help them and their families and carers find acceptable solutions.</td>
<td>7.2 Recognize and act upon the legal and ethical responsibilities involved in protecting and promoting the health of individual patients</td>
<td>1.5.3 Explain the principles of obtaining valid patient consent</td>
<td></td>
</tr>
<tr>
<td>20(a) Know about and keep to the GMC’s ethical guidance and standards including Good Medical Practice, the “Duties of a doctor registered with the GMC” and supplementary ethical guidance which describe what is expected of all doctors registered with the GMC.</td>
<td></td>
<td></td>
<td>1.5.4 Obtain valid consent from the patient</td>
<td>3.4 Obtain informed consent</td>
<td></td>
</tr>
<tr>
<td>20(g) Demonstrate knowledge of laws, and systems of professional regulation through the GMC and others, relevant to medical practice, including the ability to complete relevant certificates and legal documents and liaise with the coroner or procurator fiscal where appropriate.</td>
<td></td>
<td></td>
<td>12.4 Describes the legal, financial and ethical issues associated with managing a dental practice</td>
<td>12.5 Recognize and comply with national and local clinical governance and health and safety requirements</td>
<td></td>
</tr>
</tbody>
</table>

Confidentiality

Record keeping

19. Use information effectively in a medical context.
19(a) Keep accurate, legible and complete clinical records.
19(b) Make effective use of computers and other information systems, including storing and retrieving information.

D1 (1.7) Takes responsibility for the legal safe and efficient supply of medicines. (Demonstrates the ability to supply medicines with or without a prescription for both humans and animals, whilst operating within current legislation, ensuring safety and accuracy with respect to drug supply and labeling. Makes appropriate records for all actions. Understands and demonstrates accountability for their decisions and actions.) (Does)

| Communication 7 | All nurses must maintain accurate, clear and comprehensive records, including the use of electronic formats, using appropriate and plain language |
| 19.8.7 Explain the importance of and maintain accurate, contemporaneous and comprehensive patient records in accordance with legal and statutory requirements and best practice |
| 5.2 Use appropriate methods to provide accurate, clear and comprehensive information when referring patients to other dental and healthcare professionals |
| 5.3 Explain the importance of and | |

10. Be able to maintain records appropriately |
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Confidentiality</strong></td>
<td>19 (c) Keep to the requirements of confidentiality and data protection legislation and codes of practice in all dealings with information.</td>
<td>D1 (1.10) Responds effectively to complaints, incidents and errors and in a manner which demonstrates patient-centered care.</td>
<td>(Communication 8) All nurses must respect individual rights to confidentiality and keep information secure and confidential in accordance with the law and relevant ethical and regulatory frameworks, taking account of local protocols. They must also actively share personal information with others when the interests of safety and protection override the need for confidentiality.</td>
<td>5.5 Recognize and act within the principles of information Governance</td>
<td>7) Understand the importance of and be able to maintain confidentiality</td>
</tr>
<tr>
<td><strong>Skills for practice</strong></td>
<td><strong>Practical procedures</strong></td>
<td>8. (c) Justify the selection of appropriate investigations for common clinical cases.</td>
<td>D4 (4.11) Identifies and employs appropriate diagnostic or physiological testing techniques to inform clinical decision making and optimize prescribing. Identifies parameters required for monitoring before and during treatment. Ensures monitoring is performed and responds appropriately to results to reduce risk and enhance patient outcomes. Recommends appropriate tests to confirm interactions or adverse drug events. Is able to perform venipuncture to obtain samples for testing. Constructs clinical management plans that include appropriate monitoring for effectiveness and safety.</td>
<td>1.2.2 Undertake an appropriate systematic intra- and extraoral clinical examination</td>
<td>14) Be able to draw on appropriate knowledge and skills to inform practice</td>
</tr>
<tr>
<td><strong>Appropriate investigations</strong></td>
<td>8 (d) Explain the fundamental principles underlying such investigative techniques.</td>
<td>D4 (4.12) Undertakes safe and appropriate physical examination and uses clinical skills to inform clinical decision making and therapeutic action. Is able to perform examinations as required, relevant to own practice and within own competence, for example, blood pressure, pulse, respiratory rate monitoring, etc. list not exhaustive. Is able to recognize presentations of minor and major ailments and can refer to an appropriate practitioner when required. (does)</td>
<td>D4 (4.15) Accurately performs pharmaceutical calculations to ensure patient safety. (Performs pharmaceutical calculations necessary for role. Performs dose and administration calculations to ensure safety. Safely completes formulae and dilution calculations to determine amount of ingredients required in a pharmaceutical)</td>
<td>1.2.3 Manage appropriate clinical and laboratory investigations</td>
<td></td>
</tr>
<tr>
<td></td>
<td>8 (g) Make accurate observations of clinical phenomena and appropriate critical analysis of clinical data.</td>
<td>13 (c) Perform a full physical examination.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>13 (d) Perform a mental-state examination.</td>
<td>13 (d) Perform a mental-state examination.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>14 (c) Formulate a plan of investigation in partnership with the patient, obtaining informed consent as an essential part of this process.</td>
<td>14 (c) Formulate a plan of investigation in partnership with the patient, obtaining informed consent as an essential part of this process.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>18 Carry out practical procedures safely and effectively.</td>
<td>18. Carry out practical procedures safely and effectively.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>18 (a) Be able to perform a range of diagnostic procedures, as listed in Appendix 1 and measure and record the findings.</td>
<td>18 (a) Be able to perform a range of diagnostic procedures, as listed in Appendix 1 and measure and record the findings.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>18 (b) Be able to perform a range of therapeutic procedures, as listed in Appendix 1.</td>
<td>18 (b) Be able to perform a range of therapeutic procedures, as listed in Appendix 1.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>18 (c) Be able to demonstrate correct practice in general aspects.</td>
<td>18 (c) Be able to demonstrate correct practice in general aspects.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(continued)
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Taking histories and assessing patients</td>
<td>Taking a patient history</td>
<td>Of practical procedures, as listed in Appendix 1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Diagnosis and differential diagnosis</td>
<td>13. The graduate will be able to carry out a consultation with a patient:</td>
<td>D4 (4.7) Obtains effectively and appropriately utilizes relevant patient information. (Effectively obtains patient medication and related medical history when transferring between care settings, during all consultations and when responding to medicine information queries. Assesses medical records, obtains holistic view of patient needs and makes changes to treatment plans in response to patient preference.) (Does)</td>
<td>(Professionalism 2) All nurses must carry out comprehensive, systematic nursing assessments that take account of relevant physical, social, cultural, psychological, spiritual, genetic and environmental factors, in partnership with service users and others through interaction, observation and measurement.</td>
<td>1.2.1 Obtain, record, and interpret a comprehensive and contemporaneous patient history</td>
<td>14) Be able to draw on appropriate knowledge and skills to inform practice</td>
</tr>
<tr>
<td></td>
<td>13 (a) Take and record a patient’s medical history, including family and social history, talking to relatives or other carers where appropriate.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>D4 (4.11) Identifies and employs appropriate diagnostic or physiological testing techniques to inform clinical decision making and optimize prescribing.</td>
<td>(Professionalism 3.1) Adult nurses must safely use a range of diagnostic skills, employing appropriate technology, to assess the needs of service users. (Nursing Practice 7.1) They must make accurate assessments and start appropriate and timely management of those who are acutely ill, at risk of clinical deterioration or require emergency care. (Nursing practice and decision making) Where necessary they must be able to provide safe and effective immediate care to all people prior to accessing or referring to specialist services irrespective of their field of practice.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>D4 (4.14) Undertakes effective differential diagnosis, recommends and implements appropriate actions. (Is able to effectively differentiate between symptoms to enable safe treatment within the pharmacy or referral to the most appropriate healthcare professional. Is able to differentiate between adverse drug events and changes in clinical status to enable safe prescribing decisions to be made within a clinical management plan.) (Does)</td>
<td></td>
<td>1.4.1 Synthesize the full results of the patient’s assessment and make clinical judgments as appropriate</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>14. Diagnose and manage clinical presentations.</td>
<td></td>
<td>1.4.2 Formulate a differential diagnosis or diagnoses and from there a definitive diagnosis</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>14 (a) Interpret findings from the history, physical examination and mental-state examination, appreciating the importance of clinical, psychological, spiritual, religious, social and cultural factors.</td>
<td></td>
<td>1.7.5 Prevent, diagnose and manage pain appropriately, effectively and safely</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>14 (b) Make an initial assessment of a patient’s problems and a differential diagnosis. Understand the processes by which doctors make and test a differential diagnosis</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>14 (c) Interpret the results of investigations, including growth charts, X-rays and the results of the diagnostic procedures in Appendix 1.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>14 (e) Synthesize a full assessment of the patient’s problems and define the likely diagnosis or diagnoses.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>14 (f) Make clinical judgments and decisions, based on the available evidence, in conjunction with colleagues and as appropriate for the graduate’s level of training and experience. This may include situations of uncertainty.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(continued)
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Medical emergencies</td>
<td>16. Provide immediate care in medical emergencies. 16 (a) Assess and recognize the severity of a clinical presentation and a need for immediate emergency care. 16 (b) Diagnose and manage acute medical emergencies. 16 (c) Provide basic first aid. 16 (d) Provide immediate life support. 16 (e) Provide cardio-pulmonary resuscitation or direct other team members to carry out resuscitation.</td>
<td>D4 (4.16) Responds appropriately to medical emergencies, including provision of first aid. Recognizes appropriate routes of referral in medical emergencies. Recognizes the need for professional judgment about administration of medicines in emergency situations. As a minimum students must undertake a six hour first aid training course that complies with the requirements of the Emergency First Aid at Work course in terms of delivery, assessment and trainer to learner ratios. It must also include the treatment of Anaphylaxis and the use of adrenaline auto injectors and automated external defibrillators. (shows how)</td>
<td>1.8.6 Identify, assess and manage medical emergencies</td>
<td>1.8.6 Identify, assess and manage medical emergencies</td>
<td></td>
</tr>
<tr>
<td>Prescribing</td>
<td>17. Prescribe drugs safely, effectively and economically. 17 (a) Establish an accurate drug history, covering both prescribed and other medication. 17 (b) Plan appropriate drug therapy for common indications, including pain and distress. 17 (c) Provide a safe and legal prescription. 17 (d) Calculate appropriate drug doses and record the outcome accurately. 17 (e) Provide patients with appropriate information about their medicines. 17 (f) Access reliable information about medicines.</td>
<td>D4 (4.3) Clinically evaluates the appropriateness of prescribed medicines and undertakes evidence-based actions. Reviews prescriptions for patient, dose and formulation appropriateness. Utilizes knowledge of the pathophysiology of conditions and outcomes of the treatment options to select or recommend most appropriate therapy. Identifies and prevents potentially clinically important interactions. Identifies and implements opportunities for safe generic substitution. Appropriately utilizes clinical management plans to improve prescribing](does)</td>
<td>1.7.8 Safely and appropriately prescribe and administer drugs and therapeutic agents</td>
<td>1.7.8 Safely and appropriately prescribe and administer drugs and therapeutic agents.</td>
<td>1.5.2 Describe the range of orthodox complementary and alternative therapies that may impact on patient management</td>
</tr>
<tr>
<td>Adverse drug reactions</td>
<td>17 (g) Detect and report adverse drug reactions. 17 (h) Demonstrate awareness that many patients use complementary and alternative therapies, and awareness of the existence and range of these therapies, why patients use them and how this might affect other types of treatment that patients are receiving.</td>
<td>D4 (4.13) Recognizes adverse drug reactions and interactions and responds appropriately. (Is able to recognize symptoms which suggest that a patient is suffering iatrogenic disease and recommends appropriate actions. Identifies drug, drug-food and drug disease interactions and recommends appropriate actions. Proactively makes therapeutic recommendations or choices that avoid possible interactions. Is able to predict the presence of an interaction and undertake appropriate strategies to minimize the effect) (does)</td>
<td>1.4 (1.5) Formulate an appropriate treatment plan, synthesizing patient assessment and diagnosis data</td>
<td>1.4 (1.5) Formulate an appropriate treatment plan, synthesizing patient assessment and diagnosis data.</td>
<td>1.5 Recognize and respect the patient’s perspective and expectations of dental care and the role of the dental team, taking into account issues relating to</td>
</tr>
<tr>
<td>Formulating management plans with patients</td>
<td>13) (f) Determine the extent to which patients want to be involved in decision making about their care and treatment. 14 (g) Formulate a plan for treatment, management and discharge, according to established</td>
<td>D4 (4.1) Actively supports patients and their carers in the safe and effective use of their medicines and devices. D4 (4.2) Undertakes effective patient centered consultations. D1 (1.5) Respects others and applies the principles of equality and diversity in all actions. (Nursing practice and decision making) Decision making must be shared with service users, carers and families and informed by critical analysis of a full range of possible interventions.</td>
<td>1.5.1 Formulate an appropriate treatment plan, synthesizing patient assessment and diagnosis data</td>
<td>1.5.1 Formulate an appropriate treatment plan, synthesizing patient assessment and diagnosis data.</td>
<td>1.5 Recognize and respect the patient’s perspective and expectations of dental care and the role of the dental team, taking into account issues relating to</td>
</tr>
</tbody>
</table>

(continued)
<table>
<thead>
<tr>
<th>Communicating with patients</th>
<th>D1 (1.13) Adapts information and communication to meet the needs of particular audience. (Identifies patient information needs and presents in a manner which is appropriate to individual needs. Provides open, honest, accurate and succinct information to patients, carers and health-care professionals. Communicates in a way that is appropriate to the audience. Includes effective communication of risk versus benefit. Recognizes opportunities and constraints associated with providing information from on-line pharmacies and adapts appropriately.) (Does)</th>
<th>D4 (4.2) Undertakes effective patient centered consultations.</th>
<th>1.7.4 Prevent, diagnose and manage patient anxiety appropriately, effectively and safely</th>
</tr>
</thead>
<tbody>
<tr>
<td>13 (g) Provide explanation, advice, reassurance and support.</td>
<td>(Communication 2) They must ensure people receive all the information they need in a language and manner that allows them to make informed choices and share decision making. They must recognize when language interpretation or other communication support is needed and know how to obtain it.</td>
<td>(Communication 3) They must take account of the many different ways in which people communicate and how these may be influenced by ill health, disability and other factors and be able to recognize and respond effectively when a person finds it hard to communicate.</td>
<td>3.1 Communicate appropriately, effectively and sensitively at all times with and about patients, their representatives and the public and in relation to:</td>
</tr>
<tr>
<td>15 (b) Communicate clearly, sensitively and effectively with individuals and groups regardless of their age, social, cultural or ethnic backgrounds or their disabilities, including when English is not the patient’s first language.</td>
<td>(Communication 4) All nurses must recognize when people are anxious or in distress and respond effectively, using therapeutic principles, to promote their well-being, manage personal safety and resolve conflict.</td>
<td>(Communication 5) All nurses must recognize when people are anxious or in distress and respond effectively, using therapeutic principles, to promote their well-being, manage personal safety and resolve conflict.</td>
<td>3.2 Recognize the importance of nonverbal communication, including listening skills and barriers to effective communication.</td>
</tr>
<tr>
<td>15 (c) Communicate by spoken, written and electronic methods (including medical records) and be aware of other methods of communication used by patients. Appreciate the significance of nonverbal communication in the medical consultation.</td>
<td>15 (d) Communicate appropriately in difficult circumstances, such as breaking bad news and when discussing sensitive issues, such as alcohol consumption, smoking or obesity.</td>
<td>15 (e) Communicate appropriately with difficult or violent patients.</td>
<td>3.3 Explain and check patients’ understanding of treatments, options, costs and informed consent and enable patients to make their choice.</td>
</tr>
<tr>
<td>15 (f) Communicate appropriately with people with mental illness.</td>
<td>15 (g) Communicate appropriately with vulnerable patients.</td>
<td>15 (h) Support patients in caring for themselves.</td>
<td>3.4 Recognize the use of a range of communication methods and technologies and their appropriate application in support of clinical practice.</td>
</tr>
<tr>
<td>14 (h) Support patients in caring for themselves.</td>
<td>13 (g) Provide explanation, advice, reassurance and support.</td>
<td>15 (b) Communicate clearly, sensitively and effectively with individuals and groups regardless of their age, social, cultural or ethnic backgrounds or their disabilities, including when English is not the patient’s first language.</td>
<td>8) Be able to communicate effectively</td>
</tr>
</tbody>
</table>

---

**Table 4.** Continued

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>principles and best evidence, in partnership with the patient, their carers and other health professionals as appropriate. Respond to patients’ concerns and preferences, obtain informed consent and respect the rights of patients to reach decisions with their doctor about their treatment and care and to refuse or limit treatment</td>
<td>(Professional values 4) All nurses must work in partnership with service users, carers, families, groups, communities and organizations.</td>
<td>(Professional values) They must work in partnership with other health and social care professionals and agencies, service users, their carers and families in all settings, including the community, ensuring that decisions about care are shared.</td>
<td>equality and diversity</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nursing practice 7 All nurses must provide educational support, facilitation skills and therapeutic nursing interventions to optimize health and well-being.</td>
<td>(Professional values) They must work in partnership with other health and social care professionals and agencies, service users, their carers and families in all settings, including the community, ensuring that decisions about care are shared.</td>
<td>Nursing practice 7 All nurses must provide educational support, facilitation skills and therapeutic nursing interventions to optimize health and well-being.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>---------</td>
<td>-----------------------------------------------------</td>
<td>-------------------------------------------------------------</td>
<td>---------------------------------------------------------------</td>
<td>---------------------------------------------------------------</td>
<td>---------------------------------------------------------------</td>
</tr>
<tr>
<td>(Communication 2) All nurses must use a range of communication skills and technologies to support person-centered care and enhance quality and safety.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Communication 1) All nurses must build partnerships and therapeutic relationships through safe, effective and nondiscriminatory communication. They must take account of individual differences, capabilities and needs.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Communication, Overarching) Where people have a disability, nurses must be able to work with service users and others to obtain the information needed to make reasonable adjustments that promote optimum health and enable equal access to services.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Communication 3) All nurses must use the full range of communication methods, including verbal, nonverbal and written, to acquire, interpret and record their knowledge and understanding of people's needs. They must be aware of their own values and beliefs and the impact this may have on their communication with others.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| (Communication 4) All nurses must recognize when people are anxious or in distress and respond effectively, using therapeutic principles, to promote their well-being, manage personal safety and resolve conflict. They must use effective communication strategies and negotiation techniques to achieve best outcomes, respecting the dignity and human rights of all concerned.
The mapping can be used to validate existing IPE programs against the regulatory outcomes/standards or, alternatively, be used either as a starting point to design new IPE initiatives or to identify an existing activity that could be used or adapted to support IPE. By way of an illustration, using the skills for practice theme, a prescribing activity could be designed based on the sub-themes such as taking a history, assessing a patient, formulating a management plan, safe prescribing and administration of medicines, record keeping, time management, working autonomously and communicating with patients, which aligns to interprofessional practice and requires teamwork and communication.

Importantly, the mapping exercise identified some themes and subthemes that are less well represented in some of the regulatory documents, for example knowledge for practice which incorporates basic sciences and psychological and social determinants of health. This may be a contentious area in some fields, with the Medical Schools Council in their position statement on IPE stating that “it is inappropriate to teach the basic sciences in an IPE format” (Medical Schools Council 2003); however, recent literature suggests that educators may wish to consider introducing IPE to areas, such as basic science, which traditionally are taught unprofessionally (Thistlethwaite 2015). Team-based learning is an example of an approach used in teaching science topics and lending itself to integrating science and clinical practice. It also provides a vehicle for IPE activities that may provide a solution to effective scale-up, which is one of the challenges associated with IPE.

Given the ever-increasing demands on undergraduate curriculum developers and the complexity of coordinating and embedding IPE activities, it is important that when it is done, IPE is focused on those elements that most benefit from it. This mapping exercise provides a framework that supports a systematic approach to both themes and activities that may lend themselves to IPE and supports the alignment of interprofessional teaching and learning.

**Strengths and limitations**

A strength of this work is that the key themes and subthemes identified have similarities with other IPE frameworks, some of which link to competency and workforce capacity plans developed worldwide (Table 2) and also the findings of a literature review examining outcomes of IPE (Thistlethwaite et al. 2014). One such example is the Australian National Common Health Capability Resource which identified five domains of activity common to the Australian workforce: provision of care, collaborative practice, health value, professional ethical and legal approach and lifelong learning (Health Workforce Australia 2013). These domains consist of a series of related activities that are subsequently subdivided into levels of behavior, which represent cumulative levels of skill. Its main purpose is to underpin workforce reform with clear opportunities around developing “common behavioral attributes” in the workplace.

The clear similarities in terms of the common themes support the findings from this mapping exercise as a valid representation of key themes that may inform development of IPE and which may also lead into collaborative practice in the United Kingdom. However, the latter point would require further exploration because the aim of this study was to derive a set of common outcomes/standards associated with prequalifying health profession education, which can be mapped back to the UK regulatory documents for each profession and the team did not set out to identify common post-qualification professional competencies. An additional strength of the mapping was that it was reviewed by all members of the research team, which included those with medical, pharmacy and educational backgrounds.

A limitation of this study was that the initial mapping was done by only one researcher from the team. However, the classification of the outcomes/standards under the themes and subthemes was reviewed independently by another member of the research team and confirmed. The document was also reviewed by the rest of the research team at two points in time during the study and analysis of the mapping incorporated feedback by members of the research team. However, a more robust approach would have been to have involved one or more members of the research team in independently identifying the themes in order to compare findings and made use of an external panel/group to validate those findings, as done in similar projects (Health Workforce Australia 2013).

Another limitation of the mapping is the transitory nature of the regulatory outcomes/standards meaning that at best it represents a snapshot against the existing regulatory documents. It is important to bear in mind the pace at which healthcare continues to progress. The GMC’s “Tomorrow’s Doctors” and the NMC “Standards for competence” are now over 5 years old, and the focus and drivers of education may have transformed such that newer up to date documents may include outcomes or standards, which are deficient or missing in previous documents, and thus in this mapping. For example, the patient safety agenda is a huge driver for improved collaborative practice and a key area for IPE, with the WHO publishing their “Multi-professional patient safety curriculum guide” in 2011 (World Health Organization 2011). Arguably, all the seven themes identified in this mapping exercise are essential for improving patient safety, and IPE opportunities particularly focusing on the themes “skills for practice”, “a patient-centered approach” and “team-working” should contribute to this. Patient safety is also recognized within the “continuing professional development” theme. It remains the role of educators not to be bound solely by documentation but to progress undergraduate education in line with developments in healthcare.

A further limitation is that during the mapping process the decision was made only to map the generic statements from the HCPC, rather than to examine the standards for each of the 16 professions. Further work may wish to examine this in more detail, to include for example physiotherapy and occupational therapy to investigate further the overlap between these and the other health care professions.

Ultimately, this mapping exercise highlights the opportunity for regulators to consider developing common outcomes across the professions for prequalifying IPE in the United Kingdom. One of the key aspects of delivering IPE is ensuring that it has relevance and meaning for all students.
and nationally derived outcomes based on all regulatory documents would help achieve this. In addition to clarifying the focus of IPE for both educators and students, further development may assist the research agenda by establishing common outcomes within and across institutions, making it easier to compare and contrast interprofessional versus uniprofessional educational interventions and assessing different methods of delivering IPE.

The purpose of this exercise was to undertake a mapping exercise in order to support the development of a program of IPE between medical and pharmacy students in two Scottish universities which would link to the regulatory standards for each profession. The themes and subthemes that have been identified as a result of this mapping will be explored in the second stage of the wider research project with a view to identifying which of the common outcomes for medical and pharmacy students may be best delivered through IPE.

Conclusions

This study identified significant overlap in the outcomes and standards expected of undergraduate healthcare students in the United Kingdom. It identified 22 common subthemes under seven key themes: knowledge for practice, skills for practice, patient-centered approach, ethical approach, professionalism, CPD and teamwork skills. The mapping provides a framework with which curriculum developers can inform discussion about IPE opportunities for two or more disciplines and deliver options for IPE which are meaningful and relevant. The amount of overlap and similarity of the outcomes in other regulatory frameworks published internationally provides strong evidence for the potential to further develop this work to produce a set of core outcomes for undergraduate IPE which are under-pinned by regulatory requirements for UK health profession graduates.

Acknowledgments

I would like to thank Miss Annie Campbell, Medical Artist, University of Dundee who designed Figure 1.

Disclosure statement

The authors report no conflicts of interest. The authors alone are responsible for the content and writing of this article.

Notes on contributors

Kathryn Steven, MBChB (Hons), MRCGP, MMed, FHEA, is a GP and academic fellow in a joint post between the School of Medicine, University of Dundee and the School of Pharmacy and Life Sciences, Robert Gordon University.

Stella Howden, BSc (Hons), MScEd, PhD, SFHEA, is Associate Dean for Quality and Academic Standards, School of Medicine, University of Dundee and Senior Lecturer in Medical Education, Centre for Medical Education.

Gary Mires, MBChB, MD, FRCOG, FHEA, is Dean of the School of Medicine and Professor of Obstetrics, University of Dundee and Honorary Consultant Obstetrician at Ninewells Hospital and Medical School.

Iain Rowe, BSc (Hons), PhD, FHEA, is a researcher and lecturer at the School of Pharmacy and Life Sciences, Robert Gordon University

Natalie Lafferty, BSc (Hons), is Head of the Centre for Technology and Innovation in Learning and Assistant Director at the Library and Learning Centre, University of Dundee.

Amy Arnold is a pharmacist with a PhD in cardiovascular pharmacology and research experience in pharmacy education including interprofessional education and experiential learning placements.

Alison Strath, BSc (Hons), FRPharmS, is a Professor of Community Pharmacy Practice at the School of Pharmacy and Life Sciences, Robert Gordon University and is Principal Pharmaceutical Officer with Scottish Government.

Funding

This work was supported by NHS Education for Scotland.

References

Barr H, Helme M, D’Avray L. 2014. Review of Inter-professional education in the United Kingdom 1997–2013: Centre for the Advancement of Inter-professional Education.


General Medical Council. 2002 Tomorrow’s doctors. London: GMC.


