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Toward interprofessional learning and education

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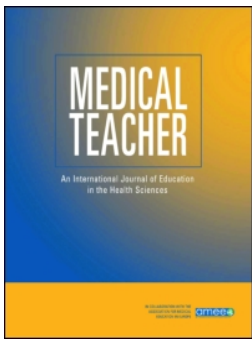
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Toward interprofessional learning and education: Mapping common outcomes for prequalifying healthcare professional programs in the United Kingdom

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ABSTRACT

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.

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.

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.

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.

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

Practice points

- IPE involves students learning with, from and about each other, thus IPE activities must encompass more than “shared learning” toward common (learning) outcomes.
- All educators are required to demonstrate how their curriculum achieves the standards set by regulators and prepares their students for practice. While these standards often include aspects of teamworking or working with other professions, a set of common outcomes or standards for prequalifying IPE do not currently exist.
- This study mapped the outcomes/standards of healthcare professions regulated by the GMC, GDC, GPhC, NMC and HCPC and identified seven themes and 22 subthemes.
- This mapping exercise provides information about (regulated) common health profession outcomes that can inform the design of shared learning and/or IPE.

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

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Table 1. Regulatory bodies of health and care professions in the United Kingdom and details regarding documents referring to undergraduate education and training.

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

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

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 teamworking 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).

Framework	Derivation	Domains
1. Interprofessional Capability Framework (Combined Interprofessional Learning Unit, Sheffield UK, 2010)	Revision of 2004 framework plus updated literature review and stakeholder involvement	<ul style="list-style-type: none"> • 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
2. National Interprofessional Competency Framework (Canadian Interprofessional Health Collaborative Working Group 2010)	CIHC IP competency working group developed framework based on preexisting jurisdictional documents produced in Canada plus review of the literature undertaken by CIHC	<ul style="list-style-type: none"> • 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
3. Core competencies for interprofessional collaborative practice (Interprofessional Education Collaborative Expert Panel, USA, 2011)	Expert Panel Informed by CIHC Framework and WHO document	<ul style="list-style-type: none"> • 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
4. Interprofessional capability framework (Curtin University, Australia, 2013)	Developed from (1) and (2) with consultation from wide range of stakeholders	<ul style="list-style-type: none"> • 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
5. National Common Health Capability Resource: shared activities and behaviors in the Australian health workforce (Health Workforce Australia 2013)	Developed from all existing publicly available competency/capability frameworks and practice standards within Australia	<ul style="list-style-type: none"> • 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
6. Common taxonomy of competencies for healthcare professions (Englander et al. 2013)	Developed through curriculum mapping process of 153 healthcare professions competency lists. Aim was to produce taxonomy for use in cataloging resources.	<ul style="list-style-type: none"> • 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
7. Framework for action on inter-professional education and collaborative practice (Department of Human Resources for Health, World Health Organization, 2010)	Developed by WHO Study group on IPE and collaborative practice. Development included a literature review, results of an international environmental scan of inter-national education practices, country case studies and the expertise of key informants. Proposed interprofessional learning domains.	<ul style="list-style-type: none"> • 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 foci 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 3. Seven themes and 22 subthemes identified through mapping exercise.

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

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 but 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.

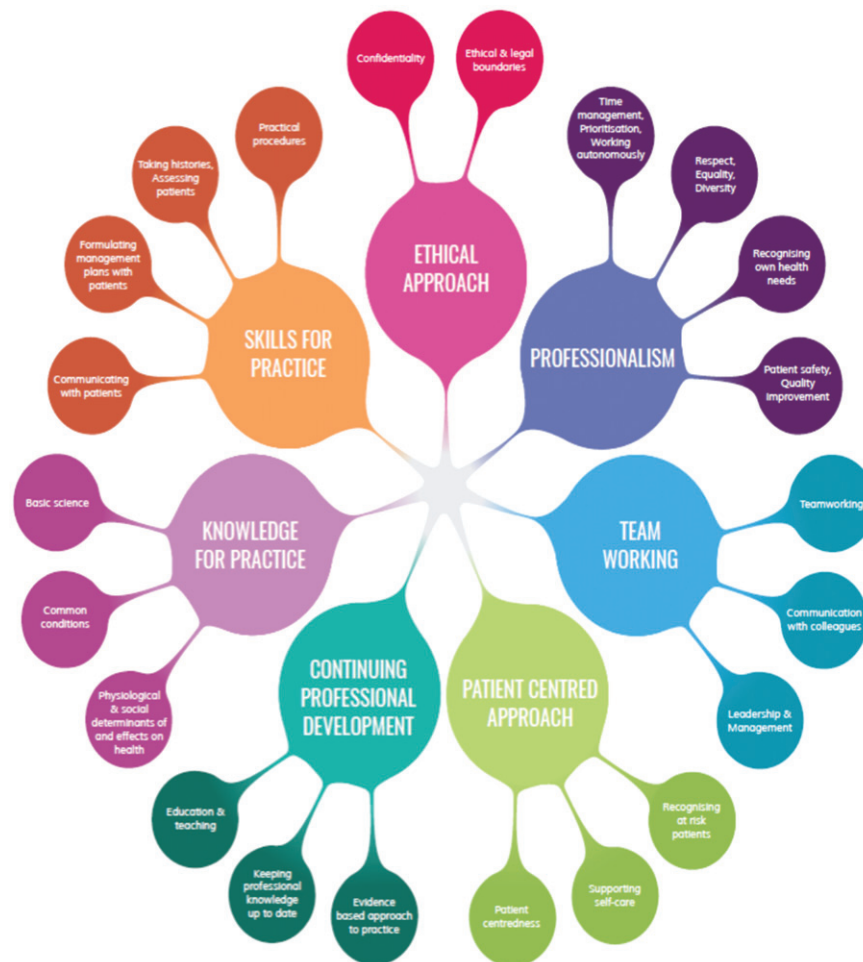


Figure 1. Seven themes and 22 subthemes from the mapping exercise.

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 conducive to an IPE approach as they closely align with interprofessional practice. There are also a number of subthemes, 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 4. Mapping of themes and subthemes and regulatory outcomes/standards.

Mapping	General Medical Council: Tomorrow's Doctors (TD) 2009	General Pharmaceutical Council: Revised Learning Outcomes for the initial education and training of pharmacists' (2013)	Nursing and Midwifery Council: Standards for competence (2010)	General Dental Council (GDC): Dental Team Learning Outcomes (2011)	Health Care Professions Council (HCPC): Standards of Proficiency (2013)
Knowledge for practice					
Basic science <i>Pharmacology, physiology, therapeutics</i>	8. The graduate will be able to apply to medical practice biological 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 8 (a) Explain normal human structure and functions. 8 (b) Explain the scientific bases for common disease presentations. 8 (f) 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.	D2 (2.1) Applies pharmacological principles to the use of medicines. (<i>Uses cell and molecular biology, knowledge of endocrine and nervous control systems, pharmacokinetics, pharmacodynamics and pharmacogenomics, to explain and predict how drugs work, interact and cause toxicity. Explains how vaccines are created and used to ensure patient safety and promote utilization. Utilizes knowledge of metabolism processes and pathways to select appropriate drugs, dosages and formulations</i>) (does)	(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 7.2) Adult nurses must understand the normal physiological and psychological processes of pregnancy and childbirth	1.1 The registrant will be able to apply to the practice of dentistry principles that derive from the biomedical, behavioral and materials sciences. 1.1.5 Explain the etiology and pathogenesis of oral disease 1.1.6 Identify relevant and appropriate dental, oral, craniofacial and general anatomy and explain their application to patient management 1.1.7 Describe relevant physiology and discuss its application to patient management 1.1.9 Describe the properties of relevant drugs and therapeutic agents and discuss their application to patient management	13) Understand the key concepts of the knowledge base relevant to their profession
Common conditions	8 (e) 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.	D4 (4.12) Undertakes safe and appropriate physical examination and uses clinical skills to inform clinical decision making and therapeutic action. (<i>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. list not exhaustive. Is able to recognize presentations of minor and major ailments and can refer to an appropriate practitioner when required.</i>) (does)	(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	1.1.3 Identify oral diseases and explain their relevance to prevention, diagnosis and treatment 1.1.4 Identify general and systemic disease and explain their relevance to oral health and their impact on clinical treatment	14) Be able to draw on appropriate knowledge and skills to inform practice
Psychological and social determinants of and effect on health <i>Psychological principles</i>	9. Apply psychological principles, method and knowledge to medical practice. 9 (a) Explain normal human behavior at an individual level. 9 (b) Discuss psychological concepts of health, illness and disease. 9 (c) Apply theoretical frameworks of psychology to explain the varied responses of individuals, groups and societies to disease.	D2 (2.8) Applies principles of psychological and social science to enhance patient and population health. (<i>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</i>	(Nursing practice 1) All nurses must possess a broad knowledge of ... other relevant knowledge from 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	1.1.13 Explain, evaluate and apply to clinical practice psychological and sociological concepts and theoretical frameworks of health, illness, behavioral change and disease	14) Be able to draw on appropriate knowledge and skills to inform practice

(continued)

Table 4. Continued

Mapping	General Medical Council: Tomorrow's Doctors (TD) 2009	General Pharmaceutical Council: Revised Learning outcomes for the initial education and training of pharmacists' (2013)	Nursing and Midwifery Council: Standards for competence (2010)	General Dental Council (GDC): Dental Team Learning Outcomes (2011)	Health Care Professions Council (HCPC): Standards of Proficiency (2013)
	<p>9 (d) Explain psychological factors that contribute to illness, the course of the disease and the success of treatment.</p> <p>11 (h) Discuss the role of nutrition in health.</p>	<p><i>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.</i> (shows how)</p>	<p>practice, including comorbidity and physiological 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</p>		
Compliance/adherence	<p>9 (e) Discuss psychological aspects of behavioral change and treatment compliance.</p> <p>10 (e) Discuss sociological aspects of behavioral change and treatment compliance.</p>	<p>D4 (4.6) Identifies patient nonadherence and implements appropriate patient centered interventions. <i>(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.)</i> (does)</p>			
Bereavement/end of life care	<p>9 (f) Discuss adaptation to major life changes, such as bereavement. Compare and contrast the abnormal adjustments that might occur in these situations.</p> <p>14 (j) Contribute to the care of patients and their families at the end of life, including management of symptoms, practical issues of law and certification, and effective communication and team working.)</p>		<p>(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</p>		

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Table 4. Continued

Mapping	General Medical Council: Tomorrow's Doctors (TD) 2009	General Pharmaceutical Council: Revised Learning outcomes for the initial education and training of pharmacists' (2013)	Nursing and Midwifery Council: Standards for competence (2010)	General Dental Council (GDC): Dental Team Learning Outcomes (2011)	Health Care Professions Council (HCPC): Standards of Proficiency (2013)
Dependence	9 (g) Identify appropriate strategies for managing patients with dependence issues and other demonstrations of self-harm.	D4 (4.8) Identifies misuse of medicines and implements effective strategies to address this. <i>(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 regimens 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.)</i>			
Social determinants of health	10. Apply social science principles, method and knowledge to medical practice. 10 (a) Explain normal human behavior at a societal level. 10 (b) Discuss sociological concepts of health, illness and disease. 10 (c) Apply theoretical frameworks of sociology to explain the varied responses of individuals, groups and societies to disease. 10 (d) Explain sociological factors that contribute to illness, the course of the disease and the success of treatment including issues relating to health inequalities, the links between occupation and health and the effects of poverty and affluence.	D2 (2.8) Applies principles of psychological and social science to enhance patient and population health. <i>(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)</i> (shows how)	(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	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 12.6 Describe the implications of the wider health economy and external influences	
Population health, health improvement and health promotion	11. Apply to medical practice the principles, method and knowledge of population health and the improvement of health and health care. 11 (a) Discuss basic principles of health improvement, including the wider determinants of health, health inequalities, health risks and disease surveillance. 11 (b) Assess how health behaviors and outcomes are affected by the	D3 (3.8) Engages effectively with local and national strategies to improve public health. <i>(Is aware of current local and national public health policies and demonstrates an ability to work within them. Demonstrates the ability to provide input in to local and national public health policies with a view to enhancing service delivery.)</i> (does) D4 (4.9) Effectively promotes healthy lifestyles utilizing available resources and evidence based techniques. <i>(Utilizes current evidence, technology and appropriate behaviors to effectively promote health</i>	(Communication 6) All nurses must take every opportunity to encourage health-promoting behavior through education, role modeling and effective communication.	2.3 Describe and evaluate the role of health promotion in terms of the changing environment, community and individual behaviors to deliver health gain	

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Table 4. Continued

Mapping	General Medical Council: Tomorrow's Doctors (TD) 2009	General Pharmaceutical Council: Revised Learning outcomes for the initial education and training of pharmacists' (2013)	Nursing and Midwifery Council: Standards for competence (2010)	General Dental Council (GDC): Dental Team Learning Outcomes (2011)	Health Care Professions Council (HCPC): Standards of Proficiency (2013)
	<p>diversity of the patient population.</p> <p>11 (c) Describe measurement methods relevant to the improvement of clinical effectiveness and care.</p> <p>11 (d) Discuss the principles underlying the development of health and health service policy, including issues relating to health economics and equity, and clinical guidelines.</p> <p>11 (j) Discuss from a global perspective the determinants of health and disease and variations in healthcare delivery and medical practice.</p> <p>19 (d) Access information sources and use the information in relation to patient care, health promotion, advice and information to patients, and research and education.</p>	<p><i>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 where practicable. Engages with local and national public health initiatives.</i> (does)</p>			
<i>Communicable disease control</i>	<p>11 (e) Explain and apply the basic principles of communicable disease control in hospital and community settings.</p>	<p>D2 (2.9) 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, pathogen-icity and epidemiology. Describes how disease trans-fers 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)</p>		<p>1.1.8 Explain the potential routes of trans-mission 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</p>	
<i>Epidemiology</i>	<p>11 (f) Evaluate and apply epidemiological data in managing health-care for the individual and the community.</p>	<p>D4 (4.10) Identifies, employs and recommends appropriate health-screening processes. (Identifies and utilizes case screening techniques to identify patients at high risk and proactively promotes service partici-pation. Demonstrates an ability to use screening tools to assess or score risk and responds appropri-ately.) (does)</p>		<p>1.1.12 Explain the principles of epidemi-ology and critically evaluate their applica-tion to patient management</p>	
<i>Disease prevention</i>	<p>11 (g) Recognize the role of environ-mental and occupational hazards in ill-health and discuss ways to mitigate their effects.</p> <p>11 (i) Discuss the principles and application of primary, secondary and tertiary prevention of disease.</p>			<p>1.1.10.3 Explain the principles of preventive care and apply as part of a comprehen-sive treatment plan</p>	

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Table 4. Continued

Mapping	General Medical Council: Tomorrow's Doctors (TD) 2009	General Pharmaceutical Council: Revised Learning outcomes for the initial education and training of pharmacists' (2013)	Nursing and Midwifery Council: Standards for competence (2010)	General Dental Council (GDC): Dental Team Learning Outcomes (2011)	Health Care Professions Council (HCPC): Standards of Proficiency (2013)
Continuing professional development Education and teaching	21. Reflect, learn and teach others. 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. 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.	D1 (1.8) Effectively reflects on personal and professional approaches to practice to identify learning needs and implements appropriate strategies to enhance performance. <i>(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 organizations and professional bodies where appropriate.)</i> (Does) D1.9 Participates in the learning and development of others. <i>(Demonstrates basic mentoring, coaching, teaching, assessment and appraisal of students, pharmacy team and other healthcare professionals. Is honest and objective when appraising or assessing the performance of others. Leads by example, through commitment, encouragement, compassion and a learning approach.)</i> (Does)	(Leadership 5) All nurses must facilitate nursing students and others to develop their competence, using a range of professional and personal development skills.	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	11) Be able to reflect and review on current practice
Keeping professional knowledge up to date	21 (b) Establish the foundations for lifelong learning and continuing professional development, including a professional development portfolio containing reflections, achievements and learning needs. 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.	D3 (3.6) Responds with flexibility and adaptability to new situations and change. <i>(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 countries of Great Britain)</i> (does) D1 (1.8) Effectively reflects on personal and professional approaches to practice to identify learning needs and implements appropriate strategies to enhance performance.	(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. (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 (Nursing practice 10) All nurses must evaluate their care to	9.1 Recognize and demonstrate own professional responsibility in the development of self and the rest of the team 9.2 Utilize the provision and receipt of effective feedback in the professional development of self and others 9.4 Develop and maintain professional knowledge and competence and demonstrate commitment to lifelong learning	11) Be able to reflect and review on current practice

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Table 4. Continued

Mapping	General Medical Council: Tomorrow's Doctors (TD) 2009	General Pharmaceutical Council: Revised Learning Outcomes for the initial education and training of pharmacists' (2013)	Nursing and Midwifery Council: Standards for competence (2010)	General Dental Council (GDC): Dental Team Learning Outcomes (2011)	Health Care Professions Council (HCPC): Standards of Proficiency (2013)
<p>Evidence-based approach to practice <i>Evidence/evaluation</i></p>	<p>12. Apply scientific method and approaches to medical research. 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. 12 (c) Apply findings from the literature to answer questions raised by specific clinical problems. 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. 12 (d) Understand the ethical and governance issues involved in medical research.</p>	<p>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)</p> <p>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)</p> <p>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 explanations and implications for these. Communicates results effectively by written and oral report. Adheres strictly to research governance frameworks and protocols, demonstrates an</p>	<p>improve clinical decision-making, quality and outcomes, using a range of methods, amending the plan of care, where necessary, and communicating changes to others (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</p>	<p>1.1.1.1. Explain, evaluate and apply the principles of an evidence-based approach to learning, clinical and professional practice and decision making 1.1.2 Critically appraise approaches to dental research and integrate with patient care 1.7:11 Critically evaluate all components of patient management guidelines 1.8.5 Comply with current best practice guidelines</p>	<p>1) Be able to practice safely and effectively within their scope of practice 12) Be able to assure the quality of their practice</p>
<p>Research</p>					
<p>Governance</p>					

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Table 4. Continued

Mapping	General Medical Council: Tomorrow's Doctors (TD) 2009	General Pharmaceutical Council: Revised Learning outcomes for the initial education and training of pharmacists' (2013)	Nursing and Midwifery Council: Standards for competence (2010)	General Dental Council (GDC): Dental Team Learning Outcomes (2011)	Health Care Professions Council (HCPC): Standards of Proficiency (2013)
Patient-centred approach					
Patient-centredness	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-centred 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-centred consultations. (<i>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</i>) (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	
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. (<i>Empowers patients by involving them in their care. Identifies appropriate support and enables patients to make informed choice. Supports self-management.</i>) (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.	1.10.2 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
Recognizing at-risk patients	14 (i) Identify the signs that suggest children or other vulnerable people may be suffering from abuse or neglect and know what action to take to	D1 (1.4) Practices effectively in different environments, respecting privacy and managing risk to self and others. (<i>Identifies and is able to adapt to the challenges of working in different environments, such as patient's home, e-pharmacy and</i>	(Nursing practice 9) All nurses must be able to recognize when a person is at risk and in need of extra support and protection and take	1.8.8 Identify the signs of abuse or neglect, explain local and national systems that safeguard welfare and raise concerns where appropriate	

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Table 4. Continued

Mapping	General Medical Council: Tomorrow's Doctors (TD) 2009	General Pharmaceutical Council: Revised Learning Outcomes for the initial education and training of pharmacists' (2013)	Nursing and Midwifery Council: Standards for competence (2010)	General Dental Council (GDC): Dental Team Learning Outcomes (2011)	Health Care Professions Council (HCPC): Standards of Proficiency (2013)
	<p>safeguard their welfare.</p> <p>20 (f) Understand and accept the legal, moral and ethical responsibilities involved in protecting and promoting the health of individual patients, their dependents and the public including vulnerable groups such as children, older people, people with learning disabilities and people with mental illnesses.</p>	<p><i>medical practice and responds appropriately, that is, implements lone worker policy, respects patient privacy, knows when honorary contracts required.</i> (does)</p> <p>D4 (4.9) Effectively promotes healthy lifestyles utilizing available resources and evidence-based techniques.</p>	<p>reasonable steps to protect them from abuse</p>		
Teamworking					
Leadership and management	<p>23 b) Deal effectively with uncertainty and change.</p> <p>23 (c) Understand the framework in which medicine is practiced in the United Kingdom, including: the organization, management and regulation of healthcare provision; the structures, functions and priorities of the NHS; and the roles of and relationships between, the agencies and services involved in protecting and promoting individual and population health.</p> <p>23 (g) Demonstrate awareness of the role of doctors as managers, including seeking ways to continually improve the use and prioritization of resources.</p>	<p>D3 (3.4) Devises and utilizes effective strategies to lead and implement change. <i>(Understands the basic process of change management. Utilizes this knowledge in practice to drive quality improvement. Shows an understanding of how to lead change at local levels.)</i> (shows how)</p> <p>D3 (3.6) Responds with flexibility and adaptability to new situations and change.</p> <p>D3 (3.7) Practices within the context of current health-related policy. <i>(Is aware of government agendas for health and social care and understands how the health and social services are structured to implement policy. Is able to review current service provision in light of current policy and agendas and make recommendations for change. Keeps up to date with developments within the profession and wider healthcare landscape, adapting practice where necessary.)</i> (shows how)</p> <p>D3 (3.14) Supervises others involved in service delivery while maintaining accountability. <i>(Delegates tasks effectively to members of team, whilst maintaining patient safety. Can manage a team, is confident in decision making and understands own accountability.)</i> (does)</p>	<p>(Leadership 1) All nurses must act as change agents and provide leadership (through quality improvement and service development to enhance people's well-being and experiences of health-care)</p> <p>(Leadership 6) All nurses must work independently as well as in teams. They must be able to take the lead in coordinating, delegating and supervising care safely, managing risk and remaining accountable for the care given.</p>	<p>10.2 Effectively manage their own time and resources</p> <p>10.4 Recognize the significance of their own management and leadership role and the range of skills and knowledge required to do this effectively</p> <p>11.4 Where appropriate lead, manage and take professional responsibility for the actions of colleagues and other members of the team involved in patient care</p> <p>11.6 Describe the scope of practice of the dental team and manage and delegate work accordingly, ensuring only those with appropriate training undertake procedures</p> <p>12.4 Describe the legal, financial and ethical issues associated with managing a dental practice</p>	
Communication with colleagues	<p>15. Communicate effectively with patients and colleagues in a medical context.</p> <p>15 (a) Communicate clearly, sensitively and effectively with patients, their relatives or other carers, and colleagues from the medical and other professions, by listening, sharing and responding.</p> <p>15 (h) Communicate effectively in various roles, for example as</p>	<p>D1 (1.8) Effectively reflects on personal and professional approaches to practice to identify learning needs and implements appropriate strategies to enhance performance.</p>	<p>(Communication and interpersonal skills, Overarching) All nurses must use excellent communication and interpersonal skills. Their communications must always be safe, effective, compassionate and respectful. They must communicate effectively using a wide range of strategies and interventions including the effective use of</p>	<p>4.1 Communicate appropriately with colleagues from dental and other health-care professions in relation to:</p> <ul style="list-style-type: none"> • the direct care of individual patients • the day to day working of the clinical department/practice in which the individual works • raising concerns when problems arise <p>4.3 Give and receive feedback effectively to and from other members of the team</p> <p>4.4 Communicate appropriately and</p>	<p>8) Be able to communicate effectively</p>

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Table 4. Continued

Mapping	General Medical Council: Tomorrow's Doctors (TD) 2009 patient advocate, teacher, manager or improvement leader.	General Pharmaceutical Council: Revised Learning Outcomes for the initial education and training of pharmacists' (2013)	Nursing and Midwifery Council: Standards for competence (2010) communication technologies.	General Dental Council (GDC): Dental Team Learning Outcomes (2011) effectively in professional discussions and transactions within the health and other sectors	Health Care Professions Council (HCPC): Standards of Proficiency (2013)
Teamworking	<p>22. Learn and work effectively within a multiprofessional team.</p> <p>22 (a) Understand and respect the roles and expertise of health and social care professionals in the context of working and learning as a multiprofessional team.</p> <p>22 (b) Understand the contribution that effective interdisciplinary teamwork makes to the delivery of safe and high-quality care.</p> <p>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.</p> <p>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.</p>	<p>D3 (3.3) Demonstrates effective team working and management skills to ensure the quality of service and patient care. (Operates effectively within multidisciplinary teams recognizing the unique skills and knowledge each brings to patient care. Leads, chairs and works within teams effectively. Assumes responsibility and is accountable for contribution to team. Understands the importance of delegation and is able to demonstrate the ability to delegate tasks appropriately and effectively.) (does)</p> <p>D3 (3.5) Communicates and works effectively with other health and social care professionals. (Works collaboratively, professionally and constructively with other health and social care professionals. Recognizes individual roles within the health and social care team and utilizes these to maximize patient care. Learns from other professionals and applies this to practice. Communicates with other health and social care professionals in a manner which instills confidence and respect. Effectively challenges decisions, preempts potential conflict and manages it when it occurs.) (does)</p>	<p>(Leadership 7) All nurses must work effectively across professional and agency boundaries, actively involving and respecting others' contributions to integrated person-centred care. They must know when and how to communicate with and refer to other professionals and agencies in order to respect the choices of service users and others, promoting shared decision making, to deliver positive outcomes and to coordinate smooth, effective transition within and between services and agencies</p> <p>(Professionalism 6) All nurses must understand the roles and responsibilities of other health and social care professionals, and seek to work with them collaboratively for the benefit of all who need care.</p>	<p>5.1 Communicate appropriately, effectively and sensitively by spoken, written and electronic methods and maintain and develop these skills</p> <p>1.8.4 Explain the responsibilities and limitations of delegating to other members of the team</p> <p>8.1 Describe and respect the roles of dental and other healthcare professionals in the context of learning and working in a dental and wider healthcare team</p> <p>8.2 Cooperate effectively with other members of the dental and wider healthcare team in the interests of patients</p> <p>8.3 Explain the contribution that team members and effective team working makes to the delivery of safe and effective high quality care</p> <p>11.2 Recognize and respect own and others' contribution to the dental and wider healthcare team and demonstrate effective team working, including leading and being led.</p> <p>11.5 Recognize and comply with the team working requirements in the Scope of Practice and Standards documents</p>	<p>9) Be able to work appropriately with others</p>
Professionalism Patient safety and quality improvement	<p>23. Protect patients and improve care.</p> <p>23 (a) Place patients' needs and safety at the center of the care process.</p> <p>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</p>	<p>D1 (1.10) Responds effectively to complaints, incidents and errors and in a manner which demonstrates patient centered care. (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.)</p>	<p>(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</p>	<p>1.8.1 Identify and explain the risks around the clinical environment and manage these in a safe and efficient manner</p> <p>4.1 Communicate appropriately with colleagues from dental and other healthcare professions in relation to:</p> <ul style="list-style-type: none"> raising concerns when problems arise Put patients' interests first and act to protect them <p>12.1 Recognize and comply with systems and processes to support safe patient care</p>	<p>12) Be able to assure the quality of their practice</p> <p>15) Understand the need to establish and maintain a safe practice environment</p>

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Table 4. Continued

Mapping	General Medical Council: Tomorrow's Doctors (TD) 2009	General Pharmaceutical Council: Revised Learning Outcomes for the initial education and training of pharmacists' (2013)	Nursing and Midwifery Council: Standards for competence (2010)	General Dental Council (GDC): Dental Team Learning Outcomes (2011)	Health Care Professions Council (HCPC): Standards of Proficiency (2013)
Recognizing own health needs	<p>understanding responsibilities within the current systems for raising concerns about safety and quality.</p> <p>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.</p> <p>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.</p> <p>23 (f) Respond constructively to the outcomes of appraisals, performance reviews and assessments.</p> <p>23 (i) Recognize own personal health needs, consult and follow the advice of a suitably qualified professional, and protect patients from any risk posed by own health.</p> <p>23 (j) Recognize the duty to take action if a colleague's health, performance or conduct is putting patients at risk.</p>	<p>(does)</p> <p>D2 (2.6) Designs and implements effective quality improvement strategies and utilizes quality improvement science. <i>(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.)</i> (does)</p> <p>D1 (1.3) Takes personal responsibility for health and safety of self, staff, patients and the public and follows up any concerns about the workplace which might put them at risk. <i>(Puts safety of patient and public above all other interests. Recognizes potential health and safety issues, raises concerns safely and confidently, and takes action quickly and comprehensively including whistleblowing. Demonstrates an understanding of health and safety legislation, workplace standards, COSHH standards and risk assessments. Takes responsibility for safety within working environment, ensuring risks are managed to minimize risk. Demonstrates knowledge of the methods to report concerns, whom to report to and the appropriateness of doing so.</i> (does)</p> <p>D1 (1.8) Effectively reflects on personal and professional approaches to practice to identify learning needs and implements appropriate strategies to enhance performance.</p> <p>D1 (1.14) Recognizes when the performance of self or others is putting patients or public at risk and responds appropriately. <i>(Approaches staff performance issues professionally and takes appropriate and proportionate actions. Understands the need to act appropriately when has poor health. Understands the notion of accountability for the services which you provide. Understands whistleblowing and the need to report poor practice by both individuals and</i></p>	<p>to maintain safety.</p> <p>(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</p> <p>(Professionalism 6) All nurses must practice safely.</p> <p>(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</p> <p>(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.</p>	<p>4.2 Explain the role of appraisal, training and review of colleagues, giving and receiving effective feedback</p> <p>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</p> <p>11.3 Recognize the importance of and demonstrate personal accountability to patients, the regulator, the team and wider community</p> <p>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</p> <p>11.8 Recognize the need to ensure that those who raise concerns are protected from discrimination or other detrimental effects</p> <p>12.3 Recognize and demonstrate the procedures for handling of complaints as described in the Principles of Complaints Handling</p>	<p>3) Be able to maintain fitness to practice</p>

(continued)

Table 4. Continued

Mapping	General Medical Council: Tomorrow's Doctors (TD) 2009	General Pharmaceutical Council: Revised Learning Outcomes for the initial education and training of pharmacists' (2013)	Nursing and Midwifery Council: Standards for competence (2010)	General Dental Council (GDC): Dental Team Learning Outcomes (2011)	Health Care Professions Council (HCPC): Standards of Proficiency (2013)
Respect, equality and diversity	<p>20 (d) Respect all patients, colleagues and others regardless of their age, color, culture, disability, ethnic 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.</p> <p>20 (e) Recognize the rights and the equal value of all people and how opportunities for some people may be restricted by others' perceptions.</p>	<p><i>institutions. Transparency should be complete, timely and unequivocal. There is an expectation that a practicing pharmacist must demonstrate this at 'Does' level.</i> (shows how)</p> <p>D1 (1.5) Respects others and applies the principles of equality and diversity in all actions. (Respects the views of others when supporting decision making. Respects patient choice and preference and considers this when making decisions relating to their care. Understands the value of and works effectively in a diverse workplace. Recognizes different cultures and beliefs and provides services which are sensitive to these. Recognizes the need to avoid allowing personal moral and religious beliefs to compromise patient care. Is aware of and up to date on relevant equality and diversity legislation (e.g. Equality Act 2010) and understands how it should be applied and promoted in practice.) (does)</p>	<p>(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.</p> <p>(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</p>	<p>1.7.1 Treat all patients with equality, respect and dignity</p> <p>6.2 Act with integrity and be trustworthy</p> <p>6.3 Respect patients' dignity and choices</p> <p>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</p> <p>7.3 Act without discrimination and show respect for patients, colleagues and peers and the general public</p>	<p>5) Be aware of the impact of culture, equality, and diversity on practice</p>
Time management, prioritization and working autonomously	<p>21 (d) Manage time and prioritize tasks and work autonomously when necessary and appropriately.</p> <p>21 (e) Recognize own personal and professional limits and seek help from colleagues and supervisors when necessary.</p>	<p>D3 (3.2) Demonstrates good organizational skills to deliver tasks to a professional standard. (Routinely plans, prioritizes and delivers tasks within agreed timeframes. Utilizes strategies to balance conflicting priorities and manage time effectively. Delivers work to a high-quality standard.) (does)</p> <p>D3 (3.10) Plans, implements and maintains clinical and medicines governance strategies to assure care and safety. (Demonstrates an ability to develop and apply clinical and medicines governance strategies to the delivery of services. Implements and maintains quality management systems to assure care and safety. Understands the process of quality management, identifies when actions are undertaken for such purposes and works effectively within local systems.) (shows how)</p> <p>D3 (3.12) Manages and utilizes resources in order to ensure efficient work flow and minimize risk in the workplace. (Is able to identify the most</p>	<p>(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 7) They must practice autonomously and be responsible and accountable (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</p>	<p>9.6 Accurately assess their own capabilities and limitations in the interest of high-quality patient care and seek advice from supervisors or colleagues where appropriate</p> <p>10.2 Effectively manage their own time and resources</p>	<p>4) Be able to practice as an autonomous professional, exercising their own professional judgment</p> <p>6) Be able to practice in a nondiscriminatory manner</p>

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Table 4. Continued

Mapping	General Medical Council: Tomorrow's Doctors (TD) 2009	General Pharmaceutical Council: Revised Learning Outcomes for the initial education and training of pharmacists' (2013)	Nursing and Midwifery Council: Standards for competence (2010)	General Dental Council (GDC): Dental Team Learning Outcomes (2011)	Health Care Professions Council (HCPC): Standards of Proficiency (2013)
Ethical approach Ethical and legal boundaries	<p>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).</p> <p>20. The graduate will be able to behave according to ethical and legal principles. The graduate will be able to:</p> <p>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.</p> <p>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.</p>	<p><i>appropriate use of skill mix to ensure that workflow is efficient and risk is minimized. Demonstrates an ability to respond to changes in work pressures in a safe manner.</i> (does)</p> <p>D1 (1.6) Recognizes own limitations, works safely and seeks support where appropriate. (Recognizes when a task or activity is outside of their competence and seeks help from the most appropriate source) (Does)</p> <p>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)</p> <p>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)</p>	<p>(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.</p> <p>(Professional Values). They must show professionalism and integrity and work within recognized professional, ethical and legal frameworks. (Professionalism 5) All nurses must fully understand the nurse's various roles, responsibilities and functions, and adapt their practice to meet the changing needs of people, groups, communities and populations.</p>	<p>7.1 Recognize and act within the GDC's standards and within other professionally relevant laws, ethical guidance and systems</p> <p>7.2 Recognize and act upon the legal and ethical responsibilities involved in protecting and promoting the health of individual patients</p> <p>1.5.3 Explain the principles of obtaining valid patient consent</p> <p>1.5.4 Obtain valid consent from the patient</p> <p>3.4 Obtain informed consent</p> <p>12.4 Describes the legal, financial and ethical issues associated with managing a dental practice</p> <p>12.5 Recognize and comply with national and local clinical governance and health and safety requirements</p>	<p>2) Be able to practice within the legal and ethical boundaries of their profession</p>
Confidentiality Record keeping	<p>19. Use information effectively in a medical context.</p> <p>19 (a) Keep accurate, legible and complete clinical records.</p> <p>19 (b) Make effective use of computers and other information systems, including storing and retrieving information.</p>	<p>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)</p>	<p>(Communication 7) All nurses must maintain accurate, clear and complete records, including the use of electronic formats, using appropriate and plain language</p>	<p>1.8.7 Explain the importance of and maintain accurate, contemporaneous and comprehensive patient records in accordance with legal and statutory requirements and best practice</p> <p>5.2 Use appropriate methods to provide accurate, clear and comprehensive information when referring patients to other dental and healthcare professionals</p> <p>5.3 Explain the importance of and</p>	<p>10) Be able to maintain records appropriately</p>

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Table 4. Continued

Mapping	General Medical Council: Tomorrow's Doctors (TD) 2009	General Pharmaceutical Council: Revised Learning outcomes for the initial education and training of pharmacists' (2013)	Nursing and Midwifery Council: Standards for competence (2010)	General Dental Council (GDC): Dental Team Learning Outcomes (2011)	Health Care Professions Council (HCPC): Standards of Proficiency (2013)
Confidentiality	<p>19 (c) Keep to the requirements of confidentiality and data protection legislation and codes of practice in all dealings with information.</p> <p>(e) Apply the principles, method and knowledge of health informatics to medical practice.</p> <p>20 (c) Be polite, considerate, trustworthy and honest, act with integrity, maintain confidentiality, respect patients' dignity and privacy, and understand the importance of appropriate consent</p>	<p>D1 (1.10) Responds effectively to complaints, incidents and errors and in a manner which demonstrates patient-centered care.</p> <p>D1 (1.11) Applies principles of information governance and ensures patient confidentiality. <i>(Adheres to all the relevant standards and legal rules that apply to information handling and record keeping including the GPhC's Standards of Conduct, Ethics and Performance and guidance on patient confidentiality. Demonstrates the ability to apply and respond to relevant legislation, for example, Data Protection Act, Access to Health Records Act and Freedom of Information Act) (does)</i></p>	<p>(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.</p>	<p>maintain accurate, contemporaneous and comprehensive patient records in accordance with legal and statutory requirements and best practice</p> <p>5.5 Recognize and act within the principles of information Governance</p> <p>6.4 Protect the confidentiality of all personal information</p>	<p>7) Understand the importance of and be able to maintain confidentiality</p>
Skills for practice					
Practical procedures					
Appropriate investigations	<p>8. (c) Justify the selection of appropriate investigations for common clinical cases.</p> <p>8 (d) Explain the fundamental principles underlying such investigative techniques.</p> <p>8 (g) Make accurate observations of clinical phenomena and appropriate critical analysis of clinical data</p> <p>13 (c) Perform a full physical examination.</p> <p>13 (d) Perform a mental-state examination.</p> <p>14 (g) Formulate a plan of investigation in partnership with the patient, obtaining informed consent as an essential part of this process</p> <p>18. Carry out practical procedures safely and effectively.</p> <p>18 (a) Be able to perform a range of diagnostic procedures, as listed in Appendix 1 and measure and record the findings.</p> <p>18 (b) Be able to perform a range of therapeutic procedures, as listed in Appendix 1.</p> <p>18 (c) Be able to demonstrate correct practice in general aspects</p>	<p>D4 (4.11) Identifies and employs appropriate diagnostic or physiological testing techniques to inform clinical decision making and optimize prescribing. <i>(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.) (does)</i></p> <p>D4 (4.12) Undertakes safe and appropriate physical examination and uses clinical skills to inform clinical decision making and therapeutic action. <i>(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)</i></p> <p>D4 (4.15) Accurately performs pharmaceutical calculations to ensure patient safety. <i>(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)</i></p>	<p>1.2.2 Undertake an appropriate systematic intra- and extraoral clinical examination</p> <p>1.2.3 Manage appropriate clinical and laboratory investigations</p> <p>1.2.4 Undertake relevant special investigations and diagnostic procedures, including radiography</p>	<p>1.2.2 Undertake an appropriate systematic intra- and extraoral clinical examination</p> <p>1.2.3 Manage appropriate clinical and laboratory investigations</p> <p>1.2.4 Undertake relevant special investigations and diagnostic procedures, including radiography</p>	<p>14) Be able to draw on appropriate knowledge and skills to inform practice</p>

(continued)

Table 4. Continued

Mapping	General Medical Council: Tomorrow's Doctors (TD) 2009	General Pharmaceutical Council: Revised Learning outcomes for the initial education and training of pharmacists' (2013)	Nursing and Midwifery Council: Standards for competence (2010)	General Dental Council (GDC): Dental Team Learning Outcomes (2011)	Health Care Professions Council (HCPC): Standards of Proficiency (2013)
Taking histories and assessing patients <i>Taking a patient history</i>	<p>of practical procedures, as listed in Appendix 1</p> <p>13. The graduate will be able to carry out a consultation with a patient:</p> <p>13 (a) Take and record a patient's medical history, including family and social history, talking to relatives or other carers where appropriate.</p>	<p><i>preparation. Estimates effective loading and maintenance doses. Safely performs dose conversions when changing drugs and formulations. Makes rationalized adjustments to doses based on professional judgment and using appropriate reference sources. Able to perform calculations underpinning pharmaceutical sciences.</i></p> <p>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)</p>	<p>(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.</p>	<p>1.2.1 Obtain, record, and interpret a comprehensive and contemporaneous patient history</p> <p>1.4.1 Synthesize the full results of the patient's assessment and make clinical judgments as appropriate</p>	<p>14) Be able to draw on appropriate knowledge and skills to inform practice</p>
<i>Differential diagnosis</i>	<p>14. Diagnose and manage clinical presentations.</p> <p>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.</p> <p>14 (b) Make an initial assessment of a patient's problems and a differential diagnosis.</p> <p>Understand the processes by which doctors make and test a differential diagnosis</p> <p>14 (d) Interpret the results of investigations, including growth charts, X-rays and the results of the diagnostic procedures in Appendix 1.</p> <p>14 (e) Synthesize a full assessment of the patient's problems and define the likely diagnosis or diagnoses.</p> <p>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.</p>	<p>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)</p> <p>D4 (4.11) Identifies and employs appropriate diagnostic or physiological testing techniques to inform clinical decision making and optimize prescribing.</p> <p>D1 (1.2) Applies professional judgment in the best interests of the patient and the public.</p>	<p>(Professionalism 3.1) Adult nurses must safely use a range of diagnostic skills, employing appropriate technology, to assess the needs of service users.</p> <p>(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.</p>	<p>1.4.2 Formulate a differential diagnosis or diagnoses and from there a definitive diagnosis</p> <p>1.7.5 Prevent, diagnose and manage pain appropriately, effectively and safely</p>	

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Table 4. Continued

Mapping	General Medical Council: Tomorrow's Doctors (TD) 2009	General Pharmaceutical Council: Revised Learning outcomes for the initial education and training of pharmacists' (2013)	Nursing and Midwifery Council: Standards for competence (2010)	General Dental Council (GDC): Dental Team Learning Outcomes (2011)	Health Care Professions Council (HCPC): Standards of Proficiency (2013)
<i>Medical emergencies</i>	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.	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)		1.8.6 Identify, assess and manage medical emergencies	
<i>Prescribing</i>	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.	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)		1.7.8 Safely and appropriately prescribe and administer drugs and therapeutic agents 1.5.2 Describe the range of orthodox complementary and alternative therapies that may impact on patient management 1.5.5 Refer patients for treatment or advice when and where appropriate	
<i>Adverse drug reactions</i>	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.	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)			
<i>Formulating management plans with patients</i>	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	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	1.5.1 Formulate an appropriate treatment plan, synthesizing patient assessment and diagnosis data 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	14) Be able to draw on appropriate knowledge and skills to inform practice

(continued)

Table 4. Continued

Mapping	General Medical Council: Tomorrow's Doctors (TD) 2009	General Pharmaceutical Council: Revised learning outcomes for the initial education and training of pharmacists' (2013)	Nursing and Midwifery Council: Standards for competence (2010)	General Dental Council (GDC): Dental Team Learning Outcomes (2011)	Health Care Professions Council (HCPC): Standards of Proficiency (2013)
<p>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</p> <p>14 (h) Support patients in caring for themselves.</p>			<p>(Professional values 4) All nurses must work in partnership with service users, carers, families, groups, communities and organizations. (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.</p> <p>Nursing practice 7 All nurses must provide educational support, facilitation skills and therapeutic nursing interventions to optimize health and well-being.</p>	<p>equality and diversity</p>	
<p>Communicating with patients</p>	<p>13 (g) Provide explanation, advice, reassurance and support.</p> <p>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.</p> <p>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.</p> <p>15 (d) Communicate appropriately in difficult circumstances, such as breaking bad news and when discussing sensitive issues, such as alcohol consumption, smoking or obesity.</p> <p>15 (e) Communicate appropriately with difficult or violent patients.</p> <p>15 (f) Communicate appropriately with people with mental illness.</p> <p>15 (g) Communicate appropriately with vulnerable patients.</p>	<p>D1 (1.13) Adapts information and communication to meet the needs of particular audience. (<i>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.</i>) (Does)</p> <p>D4 (4.2) Undertakes effective patient centered consultations.</p>	<p>(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.</p> <p>(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</p> <p>(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.</p>	<p>1.7.4 Prevent, diagnose and manage patient anxiety appropriately, effectively and safely</p> <p>3.1 Communicate appropriately, effectively and sensitively at all times with and about patients, their representatives and the public and in relation to:</p> <ul style="list-style-type: none"> patients with anxious or challenging behavior referring patients to colleagues, particularly where patients are from diverse backgrounds or there are barriers to patient communication difficult circumstances, such as breaking bad news or discussing issues such as alcohol consumption, smoking or diet <p>3.2 Recognize the importance of nonverbal communication, including listening skills and barriers to effective communication</p> <p>3.3 Explain and check patients' understanding of treatments, options, costs and informed consent and enable patients to make their choice</p> <p>5.4 Recognize the use of a range of communication methods and technologies and their appropriate application in support of clinical practice</p>	<p>8) Be able to communicate effectively</p>

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Table 4. Continued

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			<p>(Communication 2) All nurses must use a range of communication skills and technologies to support person-centered care and enhance quality and safety.</p> <p>(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 (Communication, Overarching)</p> <p>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.</p> <p>(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.</p> <p>(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.</p>		

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 teamworking 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 physiological 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 teamworking 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.

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

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