Paramedic science

Benchmark statement: Health care programmes

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Linney Direct Adamsway Mansfield NG18 4FN

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The Quality Assurance Agency for Higher Education

Southgate House Southgate Street Gloucester GL1 1UB

Tel 01452 557000 Fax 01452 557070 Email comms@qaa.ac.uk

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Subject benchmark statements: Health care programmes

Subject benchmark statements provide a means of describing the nature and characteristics of programmes of study and training in health care. They also represent general expectations about standards for the award of qualifications at a given level and articulate the attributes and capabilities that those possessing such qualifications should be able to demonstrate.

Subject benchmark statements are used for a variety of purposes. Primarily, they are an important external source of reference when new programmes are being designed and developed. They provide general guidance for articulating the learning outcomes associated with the programme but are not a specification of a detailed curriculum. Benchmark statements provide for variety and flexibility in the design of programmes and encourage innovation within an agreed overall conceptual framework.

Subject benchmark statements also provide support in the pursuit of internal quality assurance. They enable the learning outcomes specified for a particular programme to be reviewed and evaluated against agreed general expectations about standards.

Finally, subject benchmark statements are one of a number of external sources of information that are drawn upon for the purposes of external review by various bodies and organisations and for making judgements about threshold standards being met. Reviewers do not use subject benchmark statements as a crude checklist for these purposes however. Rather, they are used in conjunction with the relevant programme specifications, the associated documentation of the relevant professional and statutory regulatory bodies, the institution's own self evaluation documentation, together with primary data in order to enable reviewers to come to a rounded judgement based on a broad range of evidence.

The benchmarking of standards in health care subjects is undertaken by groups of appropriate specialists drawn from higher education institutions, service providers and the professional and statutory regulatory bodies. The statements represent the first attempt to make explicit in published form the general academic characteristics and standards of awards in these subjects in the UK. In due course, the statements will be revised to reflect developments in the subjects and the experiences of institutions, and others that are working with it.

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Foreword

This benchmark statement describes the nature and standards of programmes of study in paramedic science, which leads to awards made by the Institute of Health and Care Development as well as higher education institutions (HEIs) in the United Kingdom (UK), in the subject.

The initial section of this statement sets out a general framework for describing these under three main headings:

- A Expectations of the health professional in providing patient/client services
- B The application of practice in securing, maintaining or improving health and well-being
- C The knowledge, understanding and skills that underpin the education and training of health care professionals

The main section of this statement, in addition to describing the nature and extent of programmes leading to awards in paramedic science, describes the profession-specific expectations and requirements under the same three categories.

The key feature in this statement, is the explicit articulation of the academic and practitioner standards associated with the award in paramedic science. This duality reflects the significance of the academic award as the route to registration for professional practice and formal recognition by the professional and statutory regulatory bodies. The threshold standards set out the expectations of health professionals entering their first post immediately on qualification.

The section on standards accords with the relevant level descriptor for awards in the qualifications frameworks published by the Quality Assurance Agency for Higher Education.

The section on teaching, learning and assessment draws attention to the central role of practice in the design of learning opportunities for students and the importance of ensuring that professional competence developed through practice is adequately assessed and rewarded. It also notes how essential it is that the integration of theory and practice is a planned process within the overall arrangements made for teaching and learning.

The statement acknowledges the need to put the prospective client/patient at the centre of the student's learning experience and to promote within that experience the importance of teamworking and cross-professional collaboration and communication. Implicit in the statement are the opportunities that exist for shared learning across professional boundaries, particularly in the latter stages of training when interprofessional matters can be addressed most productively. It is essential that the opportunities that exist for shared learning in practice are optimised, as well as best use being made of similar opportunities that prevail more obviously in classroom-based activities.

This statement will therefore allow ambulance service education and training centres and HEIs, in partnership with service providers, where appropriate, to make informed curriculum choices about the construction of shared learning experiences. In this context, shared learning is seen as one of a number of means of promoting improved collaborative practice and addressing a range of issues which span professional accountability and professional relationships.

Finally, the statement does not set a national curriculum for programmes leading to awards in paramedic science. It acknowledges that the requirements of the professional and statutory regulatory bodies need to be incorporated into the design of programmes. It seeks to encourage ambulance service education and training centres and HEIs and service providers to work collaboratively in the design and delivery of their curricula. Its essential feature is the specification of threshold standards, incorporating academic and practitioner elements, against which ambulance service education and training centres and HEIs are expected, as a minimum, to set their standards for the award.

The general framework

The subject specific statements for paramedic science have been set within a general framework outlined below.

A Expectations of the health professional in providing patient/client services

This section articulates the general expectations of a registered professional within health and social care services. It describes what is regarded as a minimum range of expectations of a professional that will provide safe and competent practice for patients/clients in a variety of health and social care contexts.

A1 Professional autonomy and accountability

The award holder must be able to:

- maintain the standards and requirements of professional and statutory regulatory bodies;
- adhere to relevant codes of conduct;
- understand the legal and ethical responsibilities of professional practice;
- maintain the principles and practice of patient/client confidentiality;
- practise in accordance with current legislation applicable to health care professionals;
- exercise a professional duty of care to patients/clients/carers;
- recognise the obligation to maintain fitness for practice and the need for continuing professional development;
- contribute to the development and dissemination of evidence-based practice within professional contexts;
- uphold the principles and practice of clinical governance.

A2 Professional relationships

The award holder must be able to:

- participate effectively in interprofessional and multi-agency approaches to health and social care, where appropriate;
- recognise professional scope of practice and make referrals, where appropriate;
- work, where appropriate, with other health and social care professionals and support staff and patients/clients/carers to maximise health outcomes;
- maintain relationships with patients/clients/carers that are culturally sensitive and respect their rights and special needs.

A3 Personal and professional skills

- demonstrate the ability to deliver quality patient/client-centred care;
- practise in a non-discriminatory, non-oppressive manner;
- draw upon appropriate knowledge and skills in order to make professional judgements, recognising the limits of their practice;
- communicate effectively with patients/clients/carers and other relevant parties when providing care;
- assist other health care professionals, support staff and patients/clients/carers in maximising health outcomes;
- prioritise workload and manage time effectively;
- engage in self-directed learning that promotes professional development;
- practise with an appropriate degree of self-protection;
- contribute to the well-being and safety of all people in the workplace.

A4 Profession and employer context

The award holder must be able to:

- show an understanding of their role within health and social care services;
- demonstrate an understanding of government policies for the provision of health and social care;
- take responsibility for their own professional development;
- recognise the value of research and other scholarly activity in relation to the development of the profession and of patient/client care.

B The application of practice in securing, maintaining or improving health and well-being

All health care professionals draw from the knowledge and understanding associated with their particular profession. This knowledge and understanding is acquired from theory and practice. It forms the basis for making professional decisions and judgements about the deployment in practice of a range of appropriate skills and behaviours, with the aim of meeting the health and social care needs both of individual clients/patients and of groups, communities and populations. These decisions and judgements are made in the context of considerable variation in the presentation, the setting and in the characteristics of the client/patient health and social care needs. They often take place against a backdrop of uncertainty and change in the structures and mechanisms of health and social care delivery.

Sound professional practice is essentially a process of problem solving. It is characterised by four major phases:

- the identification and analytical assessment of health and social care needs;
- the formulation of plans and strategies for meeting health and social care needs;
- the performance of appropriate, prioritised diagnostic/therapeutic and treatment activities/health promoting/health educating/caring activities;
- the critical evaluation of the impact of, or response to, these activities.

B1 Identification and assessment of health and social care needs

The award holder must be able to:

- gather relevant information from a wide range of sources including electronic data;
- adopt systematic approaches to analysing and evaluating the information collected;
- communicate effectively with the client/patient and their relatives/carers, group/community/ population, about their health and social care needs;
- use a range of assessment techniques appropriate to the situation and make provisional identification of relevant determinants of health and physical, psychological, social and cultural needs/problems;
- recognise the place and contribution of their assessment within the total health care profile/package, through effective communication with other members of the health and social care team.

B2 Formulation of plans and strategies for meeting health and social care needs

- demonstrate their ability to think critically by:
 - adopting reflective and inquisitive attitudes and applying rational processes;
 - recognising the impact of their own value judgements and those of patients;
- demonstrate proficiency in clinical reasoning through their ability to:
 - recognise, define and prioritise problems;
 - analyse, interpret, objectively evaluate and prioritise information, recognising its limitations;
 - recognise the limitations of knowledge in medicine and the importance of professional judgement.
 - exhibiting creativity/resourcefulness in their clinical practice and professional learning;

- demonstrate their ability to recognise and cope with uncertainty by:
 - accepting that uncertainty is unavoidable in aspects of paramedic practice;
 - using appropriate cognitive and intellectual strategies to deal with these uncertainties when it arises.

B3 Practice

The award holder must be able to:

- conduct appropriate assessment procedures and equipment usage skilfully and in accordance with best/evidence-based practice;
- contribute to the promotion of social inclusion;
- monitor and review the ongoing effectiveness of the planned activity;
- involve client/patient/members of group/community/population appropriately in ongoing effectiveness of plan;
- maintain records appropriately;
- educate others to enable them to influence the health behaviour of individuals and groups;
- motivate individuals or groups in order to improve awareness, learning and behaviour that contribute to healthy living;
- recognise opportunities to influence health and social policy and practices.

B4 Evaluation

The award holder must be able to:

- measure and evaluate critically the outcomes of professional activities;
- reflect on, and review, practice;
- participate in audit and other quality assurance procedures;
- contribute to risk management activities.

C Knowledge, understanding and skills that underpin the education and training of health care professionals

The education and training of health care professionals draws from a range of well-established scientific disciplines that provide the underpinning knowledge and understanding for sound practice. Each health care profession will draw from these disciplines differently and to varying extents to meet the requirements of their specialty. It is this contextualisation of knowledge, understanding and skills that is characteristic of the learning in specific health care programmes. The attributes and capabilities expected of the student are expressed as follows:

C1 Knowledge and understanding

The award holder must be able to demonstrate understanding of the key concepts of the disciplines that underpin the education and training of all health care professionals, and detailed knowledge of some of these. The latter would include a broad understanding of:

- the structure and function of the human body, together with a knowledge of dysfunction and pathology;
- health and social care philosophy and policy, and its translation into ethical and evidence-based practice;
- the relevance of the social and psychological sciences to health and health care;
- the role of health care practitioners in the promotion of health and health education;
- the legislation and professional and statutory codes of conduct that affect health and social care practice.

C2 Skills

Information gathering

The award holder must be able to demonstrate:

- an ability to gather and evaluate evidence and information from a wide range of sources;
- an ability to use methods of enquiry to collect and interpret data in order to provide information that would inform or benefit practice.

Problem solving

The award holder must be able to demonstrate:

- logical and systematic thinking;
- an ability to draw reasoned conclusions and sustainable judgements.

Communication

The award holder must be able to demonstrate effective skills in communicating information, advice, instruction and professional opinion to colleagues, patients, clients, their relatives and carers, and, when necessary, to groups of colleagues or clients.

Numeracy

The award holder must be able to demonstrate ability in understanding, manipulating, interpreting and presenting numerical data.

Information technology

The award holder must be able to demonstrate an ability to engage with technology, particularly the effective and efficient use of information and communication technology.

Benchmark statement for paramedic science

Introduction

Paramedic science is an evidence-based health care profession that applies vocational and academic disciplines that are often practised in a variety of complex situations, across the health-illness continuum. The variety and diversity of paramedic science is articulated via a pathway that encompasses emergency medical technicians, paramedics and paramedic practitioners.

Paramedic practitioners work principally with patients, families and communities in primary care, acute and critical care settings, that include out-of-hospital, community, private practice, industry and sports settings. While the NHS employs the majority, significant numbers work in private practice. Paramedics comprise the fifth largest group within the allied health professions. There are currently in excess of 9,000 state registered paramedics within the UK. The knowledge base for paramedic practice is broad-based encompassing natural, human and social sciences. In the assessment, management and evaluation of an individual's needs, paramedics take account of the current physical, psychological, environmental, cultural, social factors and their influence on the individual's functional ability.

Paramedics assist individuals, families and groups to meet their health care needs most often in an emergency or crisis. Paramedic work involves assisting people whose autonomy and/or capacity is impaired, who may present with a range of disabilities or health-related problems, sometimes acting for, or on behalf of the patient. A defining feature of paramedic care is that it is always available 24 hours a day, 365 days a year with a focus on meeting people's immediate emergency care needs. In addition, paramedics also provide critical care transportation services often as part of a team of health professionals.

Paramedics embrace the concepts of inclusion, equal opportunities, individual rights and empowerment of patients. Professional and patient/client autonomy is a key feature of the paramedics role.

Given the complex nature of out-of-hospital care and the diversity of health care situations encountered, paramedics must be skilled and knowledgeable practitioners in a range of subjects and able to appraise and adopt an enquiry-based approach to the delivery of care.

Degree and non-degree paramedic qualifying programmes are jointly approved by the professional and regulatory bodies and, where appropriate, HEIs. The British Paramedic Association (BPA) was formed in 2001 in response to paramedics being accepted as members of the Council of Professions Supplementary to Medicine. As a professional body, the BPA has the responsibility for defining the professional code of practice, code of conduct, the curriculum framework appropriate up to graduate level to enter the profession and tasks related to self-regulation.

The study of paramedic science encompasses the following principles:

- a commitment to provide high quality patient-centred care;
- a commitment to teamworking through the application of non-technical skills;
- a commitment to the development of new roles in different environments that support the interface between health and social care practice in a range;
- the application of current knowledge and research to paramedic practice across the health and illness continuum, while also working to develop and refine knowledge in this area;
- a commitment to working in partnership with other professionals;
- an evolution towards role transferability in support of patient-centred care;
- the development of educational programmes that enable paramedics to demonstrate fitness for practice and a commitment to continuing professional development;
- integration of theory and practice and development of creative problem-solving processes;
- critical reflection, self evaluation and commitment to the use of evidence/research in the evaluation and improvement of the best practice of paramedics.

Nature and extent of programmes in paramedic science

Paramedics are independent, autonomous practitioners working with patients of all ages, with individuals and within groups, and are essential members of healthcare and emergency services. They periodically work with social and health care professionals who often operate in interdisciplinary and inter-agency teams, although these teams may not be physically located together. An example of the uniqueness of these team arrrangements being the relationship between the Emergency Medical Dispatcher in a control centre and the paramedic working in the community or field setting. Effective practice requires the recognition and understanding of the social and economic context of their patients in assessing, planning, delivering and evaluating care. This can only be achieved through the effective application of interpersonal and personal transferable skills. They are responsible for the quality of care they provide for their patients by employment of the principles and practice of clinical governance.

They are able to act as first contact practitioners, and patients usually seek direct care without referral from another health care professional. The paramedic also provides mentorship and support for students and colleagues and therefore utilises a range of communication and teaching skills.

The breadth and scope of paramedic practice encompasses the following:

- the age span of human development from neonate to old age;
- working with individuals who present with complex and challenging problems resulting from multipathology illness;
- health promotion and injury prevention, and the assessment, management and evaluation of intervention;
- a broad range of settings including the patient's home, the acute, primary and critical care settings;
- an understanding of the health care issues associated with diverse cultures within society.

A unique blend of human biological, medical and social sciences, in particular social policy, physiology, anatomy, pathology, psychology and sociology underpin paramedic science. However, it is not driven by such prepositional knowledge alone, because its mastery requires proficiency in a range of cognitive, affective and psychomotor skills. It is the integration of these underpinning elements through the coherent planning of programmes which establishes the basis for paramedics to provide care which is patient-centred and focused on preserving life, promoting recovery and preventing any deterioration of the patients' condition. In different programmes, these are often integrated to varying degrees. The benchmark statement indicates the variations, but it is for individual institutions to determine their own balance within the parameters set by the requirements for state registration and the guidelines given by the paramedic professional body, and, most importantly, in consultation with their clinical practice partners.

Current socio-economic and political trends as well as demographic changes, require future practitioners to respond positively to challenges and to see opportunities in change. The ability to be proactive grows from questioning, critical thinking and imagination. The fostering of divergent thinking and creativity is equally as important as disciplined enquiry and scholarship. Self-evaluation and the ability to use evidence are critical to effective practice. While on the one hand these are generic skills, their effectiveness comes from their specific application to understanding individual differences and potential interventions associated with occupational performance. The development of the reflective practitioner with a commitment to continuing professional development is fostered by developing a research ethic to contribute to the research portfolio in order to enhance the scientific base of the profession, improve patient care and optimise professional autonomy.

Given the complex range of problems which individual patients may present, from medical to social and environmental, there are not always easy solutions. Paramedics need to be problem solvers, working with patients in order to find practical solutions. They need to be able to analyse and evaluate the effects of different actions, or of non-intervention, and thereby be able to make informed professional judgements. All courses must be fully integrated in respect of academic and clinical work and to have embedded the principle of planned progression, through both clinical and academic units/modules, to the point of award. They also must be developing, or have already established, recruitment and student support strategies, to ensure that the needs and diversity of different communities can be reflected in the profession.

The undergraduate programmes of study offered by the higher education sector must actively address the changes in health care provision and, as a consequence, the change in the role of the paramedic on a national and international level. The philosophy of partnership in learning must be inherent in any programme. Learning must be facilitated by the setting of challenging but realistic objectives/learning outcomes, in both the theoretical and clinical aspects of the programme.

Paramedic scientists are developing a profession that operates within a changing and evolving environment. The paramedic profession has undertaken pioneering work in constructing written practice standards and clinical guidelines. These standards, which make direct reference to evidence at different levels, are embedded in practice and the curricula of paramedic education.

A The paramedic as a registered health care practitioner: Expectations held by the profession, employers and the public

A1 Professional identity autonomy and accountability of the paramedic

The award holder must be able to:

- accept responsibility and accountability, and act autonomously while acknowledging the boundaries of professional competence, in a changing health care environment;
- adhere to the rules of professional code of conduct for paramedics and demonstrate its relevance to them;
- apply ethical and legal knowledge to practice ensuring the primacy of patients/clients/carers interests;
- appreciate the significance of professional self-regulation, act within a framework of professional
 accountability, and respect the need to maintain the integrity of the profession and not bring it into
 disrepute;
- recognise the need for continuing professional development and lifelong learning, accept responsibility
 for personal/professional development of self and take account of the expectation to maintain registered
 professional status through appropriate means, in order to enhance competence to practise and maintain
 registered professional status;
- engage in clinical supervision and other approaches to the review and development of professional and reflective practice;
- have a detailed knowledge and understanding of the legal implications of the supply and administration
 of prescription only medicines available to paramedics.

A2 Professional relationships relating to paramedic practice

The award holder must be able to:

- acknowledge interprofessional boundaries and employ appropriate referral procedures to other disciplines;
- demonstrate the ability to recognise the limits of one's own practice, referring or discharging the patient
 in accordance with local policies and procedures;
- demonstrate the capability to act cooperatively with others, liaising and negotiating across
 organisational and professional boundaries and differences of identity or language;
- identify risk factors and be able to justify practice in the light of risk management frameworks and clinical governance;
- participate effectively in multiprofessional approaches to health care, act independently and
 collaboratively within a multidisciplinary and multi-agency context, generate and maintain effective
 interactions with relevant external agencies including other healthcare professionals, and utilise
 appropriate referral procedures.

A3 Personal and professional skills

- make professional judgements confidently;
- reflect on professional practice and engage in appropriate self-directed learning, maintaining their continuing professional development portfolio as laid down by the professional and regulatory bodies;
- demonstrate a high level of interpersonal, therapeutic and communication skills;
- challenge unacceptable practices in a responsible manner based on the critical review and dissemination of research and audit findings;
- understand and manage changing situations and respond in a flexible manner; use interpersonal skills to demonstrate respect for others;
- respond effectively to the rapidly changing nature of the profession and the context in which it is practised;

- take responsibility for their professional and clinical actions recognising their own learning needs, and independently advance learning and understanding and draw up personal action plans to meet these;
- identify and acknowledge limitations of their knowledge and experience evaluating self-performance as an individual and as part of a team; and know how to obtain advice and guidance.

A4 Profession and employer context for the practice of paramedics

The award holder must be able to:

- deliver paramedic practice in the context of patient-centred care;
- demonstrate an understanding of the origins of pre-hospital care in the UK and international 'best practice', evidence-based designs for emergency medical services including developments in the health and social care sectors;
- demonstrate an understanding of the legislation that governs paramedic practice;
- contribute to, and maintain, a safe health care environment, be aware of any trust and employer-specific
 infection control procedures, manual handling and safe working practices in both the clinical and health
 premises environments;
- contribute to quality assurance through agreed audit procedures and clinical governance;
- demonstrate at all times, personal behaviour congruent with professional status;
- develop a credible and professional contribution to the organisation, through maintaining professional status, by engaging in continuing professional development;
- recognise the wide-reaching value of research and scholarly activity within the health care and
 professional context and the impact this will have on the development of the paramedic profession.

B Paramedic skills and their application to practice

Paramedic practice and the application of professional skills is underpinned by knowledge and understanding. The paramedic possesses a broad range of core skills encompassing profession-specific and generic enabling skills.

B1 Patient assessment

The award holder will be able to demonstrate skill in:

- communicating effectively with the patient, or the patient's relative/guardian/carer or other health care practitioner, obtaining a general physical, medical, social and behavioural history together with a detailed history of the presenting complaint and identifying risk factors which may lead to the potential for physical or psychological abuse;
- collecting, collating and analysing data to inform paramedic investigation, using suitable methods for age and intellectual ability of patient, eg clinical examination by subjective and objective means;
- recognising situations where the best interests of the patient can be more appropriately served by a different health professional or a multidisciplinary approach to care;
- recording concisely, and in line with established standards and the professional code of conduct, all the necessary information to support the professional paramedic judgement;
- using information technology to identify and access information, to record and manage patient data and to process and analyse research findings, including a knowledge of the use of priority dispatch systems;
- handling information with due regard for legal and ethical requirements;
- formulating research questions, pursuing the development of a research design and the implementation of the research process;
- adopting systematic approaches to analysing and evaluating information, and being able to analyse the
 information in the environmental and social context of the patient to meet health and health-related
 needs of individuals, families, groups and communities;
- taking account of the diversity of life experiences and key events in the human life cycle that influence
 health through interview and individual discussion, understanding the values, beliefs and interests of
 clients and their families and carers;
- utilising literature to inform current and evolving research and evidence-based practice.

B2 Application of paramedic practice

Formulation of plans and strategies for meeting health and social care needs

The award holder must be able to:

- as a minimum, adhere to the Standards of conduct, performance and ethics of the Health Professions Council:
- advise on the range of local, regional and national services available to assist with health maintenance
 and health care and the means to access these, using advocacy skills, where appropriate, and act with
 others to develop strategies to promote social inclusion;
- bring work to a satisfactory conclusion, including accurate completion of necessary documentation, and record and communicate accurately the outcomes of patient assessment, diagnosis and management plans;
- from the results of the preliminary assessments and in consultation with the client, identify the need for further assessment, appropriate intervention or referral to other services or agencies;
- formulate a provisional diagnosis from the analysis and integration of case history and assessment findings;
- provide a differential description of patients/clients assessed, showing an ability to relate theory to practice;
- select individual paramedic interventions which could be utilised, taking into account the unique specific therapeutic needs of clients and carers;
- select the appropriate role(s), such as assessor, educator, counsellor, advocate, researcher, trainer facilitator and be aware of their boundaries;
- understand the need to seek a second opinion and/or consult with colleagues and/or other members of the health care team to inform the treatment plan;
- use a problem-solving approach to identify and integrate the findings gathered from taking a patient history and physical examination, to formulate and test a diagnosis and arrive at, and implement, a negotiated paramedic treatment plan;
- contribute to the development and implementation of policies at a local level.

B3 Evaluation of paramedic practice

Focused activity

- act independently and collaboratively within a multidisciplinary and multi-agency context, providing professional leadership on public health issues;
- conform to current data protection legislation;
- contribute to the development of protocols to guide quality provision of care;
- demonstrate a competence in the recognition and adaptation of approaches to safe practice to meet the needs of specific client groups, eg children and the older person, and take into consideration the relevant physical, psychological, social, environmental, cultural, occupational and economic factors;
- demonstrate supportive and therapeutic interaction skills, including the adoption of strategies for optimum communication with patients/clients/others in all situations;
- demonstrate the ability to act swiftly and appropriately in the best interest of the patient and in accordance with contemporary practice for the maintenance of life in a clinical emergency;
- demonstrate the safe application of a range of essential psychomotor skills to meet individuals' needs and undertake appropriate interventions and emergency procedures when necessary;
- ensure that accurate and up to date records are maintained and reviewed;
- ensure that the primacy of the patient is upheld at all times;
- follow an agreed protocol, if appropriate;
- initiate action to identify and minimise risk in relation to promoting child protection and safety, working
 in partnership with families, other professionals and agencies;
- maintain records in accordance with agreed procedures and professional standards;

- modify linguistic and interpersonal behaviour to ensure that patients/clients understand and express themselves as fully as possible;
- recognise the limitations of their scope of competence and seek advice and guidance accordingly;
- practise risk assessment and demonstrate the impact of clinical governance;
- demonstrate critical evaluation of evidence from a wide range of sources, including systematic reviews and evidence-based practice relating to specific outcomes;
- demonstrate the ability to recognise the limits of their own practice, when referring or discharging the
 patient as necessary;
- engage in the implementation and monitoring of quality assured standards of service provision;
- monitor and evaluate the effects of paramedic treatment and interventions;
- recognise situations in which quality of care might be compromised and resolve appropriately;
- recognise that clinical problem solving can be an inexact art, and in solving one problem another may
 arise for which further action may need to be taken;
- through the frameworks of quality assurance and risk management, evaluate the safety of the care environment and recognise situations in which quality of care might be compromised.

C Paramedic science: subject knowledge, understanding and associated skills

A paramedic science programme draws upon a wide range of academic disciplines and these are detailed in the sections below.

C1 Scientific basis of paramedic practice

Biological sciences

The award holder will be able to demonstrate knowledge and understanding of:

- human anatomy and physiology, emphasising the dynamic relationships of human structure and function and focusing on the muscular-skeletal, cardio-respiratory, nervous and other systems;
- human growth and development across the lifespan;
- the factors influencing individual variations in human ability.

Behavioural sciences

The award holder will be able to demonstrate knowledge and understanding of:

- psychological and social factors that influence an individual in health and illness;
- how psychology and sociology can inform an understanding of health, illness and health care in the context of paramedic practice and the incorporation of this knowledge into paramedic practices;
- patients' mental health issues while in the care of paramedics;
- theories of communication in paramedic practice communication and interpersonal skills are vital to competent and effective practice, informing effective interaction with patients, peers, managers, carers and other health care professionals;
- learning theories the process of learning is important for both the patient and the practitioner. These
 theories underpin continuing professional development, enabling paramedics to be effective lifelong
 learners. This knowledge also equips the paramedic to become an effective teacher in a wide range of
 contexts;
- teamworking and leadership.

Clinical sciences

The award holder will be able to demonstrate knowledge and understanding of:

pathological changes and related clinical features of conditions encountered by paramedics;

- physiological, structural, behavioural and functional changes in patient presentation and those that result from paramedic intervention;
- the theoretical basis of assessment and treatment and the scientific evaluation of effectiveness;
- the principles of evaluation and research methodologies which enable the integration of theoretical and practical applications;
- the perspectives and research evidence into the design and implementation of effective paramedic practice;
- the theories supporting problem solving and clinical reasoning;
- pharmacology and the administration of medications.

C2 Context of service delivery and professional practice

Service/organisational issues

The award holder will be able to demonstrate knowledge and understanding of:

- the changing and diverse context within which paramedic practice is delivered;
- · the implications of different organisational settings and patterns of working;
- quality assurance frameworks encompassing, for example clinical governance, clinical guidelines, priority dispatch, resource deployment and professional standards;
- issues relating to resource management, cost effectiveness, marketing, and promotion of the profession;
- performance indicators and outcome measures derived from a range of scientific and measurement approaches;
- the factors influencing the management of themselves and others;
- safety at work practices including risk assessment;
- the planning of service delivery and its associated workforce.

Social and political

The award holder will be able to demonstrate knowledge and understanding of:

- the impact of health and social care policies on professional practice;
- the factors contributing to social differences; the problems of inequalities and the needs of different social groups;
- the importance of appropriate care and support for children and vulnerable adults under direct paramedics care and within the wider context of society.

Ethical and moral dimensions

The award holder will be able to demonstrate knowledge and understanding of:

- the ethical, legal and professional issues that inform and shape paramedic practice;
- professional, statutory and regulatory codes of practice;
- professional code of conduct, values and beliefs.

Specific knowledge, understanding and associated skills that underpin the education and training of paramedic scientists

Listed below is the knowledge, understanding and associated skills that are specific to paramedics and are additional to those identified in the health professions framework.

Paramedic education and training is a rapidly developing field of health care and HEIs responsible for the delivery of accredited programmes will need to ensure that an appropriate balance of knowledge, skills and the different academic components is struck throughout the various schemes. Programmes offered at diploma, foundation degree or honours degree level must ensure that those students completing the programmes have both the academic and practical competencies to practise safely and effectively. While vocational type courses of instruction on the pattern of the Institute of Health and Care Development's ambulance technician and paramedic awards can fulfil elements of these requirements, they would be insufficient to meet the learning outcomes contained within this benchmark statement.

Paramedic practice

The award holder must be able to demonstrate understanding of:

- the nature of paramedic practice;
- patient and provider safety including key research, policy and behaviours associated with safety;
- changing philosophical and historical perspectives in paramedic practice including the requirements of the statutory regulatory body associated with registration as a paramedic;
- health care language including specific terminology applied to paramedic practice radiotelephony and 'remote', telephone-based assessment, such as those utilised in priority dispatch systems;
- emergency driving;
- response to special circumstances, including public order, hazardous materials, light rescue and the first line response to major incidents;
- evidence-based health care including a knowledge of the key research that has shaped paramedic and ambulance service practice;
- professional paramedic issues such as teamworking, advocacy, accountability, informed consent, autonomy and partnerships.

Natural and life sciences

The award holder must be able to demonstrate understanding of:

- anatomy;
- epidemiology;
- genetics;
- immunology;
- microbiology;
- nutrition;
- pathophysiology;
- pharmacology;
- physiology;
- application of these to paramedic practice within specific situations and client groups.

Social, health and behavioural sciences

The award holder must be able to demonstrate understanding of:

- anti-discriminatory practice including fairness, social inclusion, gender, sexuality, race and culture, and health promotion;
- children and vulnerable adults;

- health economics;
- loss, change and bereavement;
- models of health and illness;
- policy and politics;
- psychology and health;
- psychosocial determinants of health;
- sociology and health;
- application of these to paramedic practice.

Ethics, law and the humanities

The award holder must be able to demonstrate understanding of:

- ethical and legal frameworks within paramedic practice and relevant legislation, including within the context of driving and operating emergency vehicles;
- issues related to spirituality;
- caring and the primacy of patient/client interest;
- awareness of practical issues relating to actions at crime scenes and evidence preservation;
- application of these to paramedic practice.

Management of self and others' reflective practice

The award holder must be able to demonstrate understanding of:

- human factors, patient safety and teamworking as applied to health care generally and paramedic practice specifically;
- evidence-based health care and its application to paramedic care, including an in-depth knowledge of the national pre-hospital care guidelines;
- leadership, 'followship' and the relationship with human factors and patient outcome;
- concepts of 'quality' and the application to paramedic services including a basic appreciate of, and delineation between, 'system thinking' and 'command and control' approaches;
- resource management, including modern approaches to resource deployment and control centre operations;
- the development and use of medical technology, including all common biomedical devices utilised in pre and 'out of hospital' paramedic care;
- reflective practice;
- teaching and learning;
- patient triage and prioritising care, including the use of priority dispatch systems, telephone and face-to-face clinical decision support systems;
- principles of management within organisations;
- clinical governance and maintaining/monitoring standards;
- research methods;
- application of all of these to paramedic care of clients and client groups.

Associated skills

The Health Professions Council has articulated the competency framework for paramedic students known as the *Standards of proficiency*. Some of the core skills are common to all health care professionals. The additional core skills specific for paramedics are identified below. Each education and training programme, however, will place greater or lesser emphasis on certain of these skills.

Communication and interpersonal skills

The award holder must be able to demonstrate:

 communication and counselling skills applied to specific client/patient situations in both emergency 'crisis intervention' and non-emergency patient interactions;

- communication skills within the care giving team;
- the ability to identify and manage challenging behaviours, including acute emotional disturbance in adults and children, intoxicated patients, the management of violence and the special needs of vulnerable groups;
- the ability to recognise anxiety, stress and depression, give emotional support and identify when specialist counselling intervention for patients is needed, including stress and 'burn out' in self and colleagues.

Information gathering

The award holder must be able to:

- use contemporary physical and/or psychosocial assessment tools to gather clinical and other data;
- use audit tools;
- seek out research-based evidence related to specific client groups.

Care delivery

The award holder must be able to:

- recognise the need for, and carry out promptly, emergency assessment, treatment and transport of patients;
- immediately assess and treat patients suffering acute medical or traumatic illness and injury in accordance with current national pre-hospital guidelines;
- provide advanced life support skills, as appropriate, including invasive treatments and pain relief;
- effect safe extraction, moving and handling of patients within a wide range of emergency and nonemergency situations including the use of associated technology and a knowledge of applied ergonomics;
- select the appropriate transport destination or referral option required for an individual patients condition;
- undertake the safe transportation of patients to hospitals and other facilities without incurring avoidable delays and consistent with patient need, including, where necessary, bypassing inappropriate facilities in order to deliver patients to early specialised care, as appropriate;
- assess patients with undifferentiated medical and social conditions, including those with chronic illness
 and disability, and transport or refer, as appropriate, as consistent with current national pre-hospital
 guidelines and local policies and procedures;
- provide relevant physical, psychological and social caring skills required of specific patients/clients or groups;
- instigate initial management of multiple casualty and major incident situations in accordance with agreed policies and procedures including CBRN incidents;
- exercise good judgement and prudence with due regard to interpersonal communication, patient safety and the practical, legal and ethic boundaries that constitute humane evidence based practice;
- interact and contribute to care in multidisciplinary and multiprofessional teams;
- delegate patients' care as appropriate.

Problem solving, data collection and interpretation

The award holder must be able to:

- assess and diagnose as a problem solving task;
- assimilate and assess new concepts;
- think critically;
- analyse, interpret and assess the value of evidence to inform problem solving.

Information technology

- use word processing, email, spreadsheets and informational databases;
- access health care research and literature databases;
- use the internet as an information source;
- use relevant electronic patient information systems and related information technology.

Numeracy

- understand and carry out drug calculation and administration of drugs via appropriate routes;
- manage information relevant to the particular patient or client group;
- record access patient data appropriate to the health care setting;
- report changes in patient information/data appropriately.

Teaching, learning and assessment

Decisions about the strategies and methods for teaching, learning and assessment are for HEIs to determine. It is not for benchmark statements to promulgate any one approach over others. However, this benchmark statement promotes an integrative approach to the application of theory and practice. It underlines the significance attached to the design of learning opportunities that facilitate the acquisition of professional capabilities and to assessment regimes that ensure these are being both delivered and rewarded to an appropriate standard.

In developing the curriculum, the relationship between theory and practice will require the use of practice in simulated emergency care and more general health and social care settings. Standards for preparing supervisors and assessors of practice must be explicit and conform to the professional regulatory bodies' recommendations. It is anticipated that, due to the particular demands placed upon paramedics, the use of medical simulation technology will be fully integrated into teaching to enable students to reach a standard of 'theoretical competence' in a safe environment using a minimum of intermediate level definition simulation technology.

This should help enable institutions to provide students with a safe learning environment that reproduces realistic scenarios exploring the relationship between clinical, operational and teamwork factors that independently and collectively influence patient outcome. In addition, students will need access to high quality and approved driving instruction and to other resources within partner ambulance services and other relevant clinical placements.

Increasingly fundamental to the basis upon which pre-registration students are prepared for their professional career, is the provision of programmes of academic study and practice-based learning which lay the foundation for career-long professional development and lifelong learning to support best professional practice and the maintenance of professional standards. The learning processes for paramedics can be expressed in terms of four interrelated themes:

Cognitive and conceptual

Programmes must develop cognitive skills in students, eg the ability to reconstruct knowledge and apply it to individual situations. Such skills must be developed through a variety of teaching and learning methods and must exploit modern approaches to simulation at the intermediate level of definition or above. Students are encouraged to become actively and practically engaged with the process.

Clinical and technical

Paramedic skills are necessarily sophisticated and must be developed in both the HEI and the practice setting. These skills must be acquired through exercises using intermediate level definition simulators permitting students to reach 'theoretical' competence in a safe controlled setting. Developmental learning experiences that are structured supervised and assessed. Students must receive formative and summative judgements and feedback on their performance throughout the programme.

Paramedic practice in a social and personal context

The programme must enable students to develop an awareness of the cultural diversity, values, beliefs and social factors that affect the context of paramedic practice. This must be achieved from both theoretical and practice perspectives and by exposing students to clinical practice in a wide variety of settings.

Generic and enabling skills

Programmes must be designed to facilitate students' acquisition of effective communication skills, teamworking, problem solving, the use of IT, research methodology and critical reasoning. The generic nature of these skills must enable them to be achieved through interprofessional education where their acquisition must be through activity-based experiences.

The assessment strategy

Methods should match the teaching and learning strategy, meet learning outcomes and encompass a wide variety of tools. Academic assessment must be designed to develop and test cognitive skills drawing on the context of practice and reflecting the learning and teaching methods employed. Methods should normally include case study presentations and analyses, practice-focused assignments, essays, project reports, clinical assessments and examinations of a written or practical nature, macro simulation and practical exercises. The assessment of competence to practise should be determined in partnership between lecturers and practice placement staff. Professional registration is dependent upon meeting HEI requirements that include statutory completion of a period of clinical practice, as specified by the professional and regulatory bodies.

Academic and practitioner standards

The following standards are commensurate with the academic awards of diploma in higher education, foundation degree and honours degree. They reflect the Health Professions Council's *Standards of proficiency* requirements for pre-registration paramedic programmes, the Quality Assurance Agency for Higher Education frameworks for higher education qualifications and the College of Paramedics expectations on pre-registration courses for paramedics. The standards for the diploma in higher education, the foundation degree and the College of Paramedics competencies are expressed as the minimum requirements for registration on the regulatory body's professional register.

These standard statements are underpinned by the expectations of health care professionals more generally, as identified in section A; the principles and concepts as applied to paramedics, as stated in section B; and the subject knowledge and associated skills as stated in section C.

A Working as a professional in health care: expectations

Diploma and foundation degree

The award holder should be able to:

- manage themself, their practice, and that of others, in accordance with the Health Professions Council's Standards of conduct, performance and ethics, recognising own abilities and limitations;
- transfer knowledge and skills to a variety of clinical settings and unexpected situations;
- work in partnership with patients, clients, families and colleagues recognising when this given approach
 to patient care may be inappropriate;
- provide support to patients, clients, carers, families and colleagues in changing and stressful situations;
- practice in accordance with the professional ethical and legal framework and with due regard to health and safety consideration, modifying practice accordingly to reflect individual situations;
- demonstrate sound clinical judgement and teamwork across a range of situations;
- contribute to public protection by creating and maintaining a safe environment of care;
- delegate care to others, as appropriate, ensuring effective supervision and monitoring;
- demonstrate understanding of the roles of others, by participating in multi-professional care.

Honours degree

The award holder should be able to:

- manage themself, their practice and that of others in accordance with the Health Professions Council's *Standards of conduct, performance and ethics*, and critically evaluate own abilities and limitations;
- select and apply knowledge and skills to complex and unexpected situations;
- implement strategies to promote and evaluate partnership working;
- anticipate potential stressful situations and participate in minimising risk;
- recognise the complexity of the professional ethical and legal framework and its impact on care decision-making;
- demonstrate sound clinical judgement across a range of situations and critically evaluate the
 effectiveness of clinical judgement and teamwork across a range of professional care contexts;
- practice in accordance with the professional ethical and legal framework and with due regard to health and safety consideration, modifying practice accordingly to reflect individual situations;
- participate in a range of quality assurance, quality improvement and risk management strategies to create and maintain a safe environment;
- provide appropriate levels of guidance, role-modelling and support to others in the delivery of health care;
- critically analyse roles within the multi-professional team and propose ways to strengthen patientcentred care.

 deliver care across a broad range of clinical conditions to the standard consistent with the newly published Emergency Care Practitioner level.

B Principles and concepts: application

Diploma and foundation degree

The award holder should be able to:

- apply theories, concepts and principles of paramedic practice to deliver patient-centred care for individuals, families and communities in emergency care and other settings;
- recognise potential risk and intervene to prevent, where possible, complications occurring in order to maintain high standard of patient, public and personal safety;
- use appropriate research and other evidence to underpin decision making, even when making decisions
 on the basis of limited information;
- undertake and document a comprehensive, systematic and accurate paramedic assessment of the
 physical, psychological, social and spiritual needs of patients, clients and communities, modifying
 practice to take account of the criticality of the patients condition;
- assess priorities in practice, including in multiple casualty situations;
- formulate, implement and document a plan of care without avoidable delay and, where feasible, in
 partnership with, and with the consent of, patients, clients and, where appropriate, their carers and
 families:
- demonstrate accountability for the paramedic care delivered, taking into account social, spiritual, cultural, legal, political and economic factors;
- accurately document and evaluate the outcomes of paramedic care and other interventions;
- demonstrate knowledge and understanding of effective multiprofessional/multi-agency working
 practices and participate in teamwork that respects and uses the contributions of members of the health
 and social care team;
- analyse and interpret relevant health education/promotion information and use this knowledge to promote the health and well-being of patients, clients and groups.

Honours degree

The award holder should be able to:

- apply theories, concepts and principles of paramedic practice to deliver patient-centred care for individuals, families and communities in emergency care and other settings;
- recognise potential risk and intervene to prevent, where possible, complications occurring in order to maintain high standard of patient, public and personal safety;
- use appropriate research and other evidence to underpin decision-making, even when making decisions on the basis of limited information;
- undertake and document a comprehensive, systematic and accurate paramedic assessment of the physical, psychological, social and spiritual needs of patients, clients and communities, modifying practice to take account of the criticality of the patients condition;
- assess priorities in practice, including in multiple casualty situations, reacting within due regard to national and local policies and procedures;
- formulate, implement and document a plan of care without avoidable delay and, where feasible, in partnership with, and with the consent of, patients, clients and, where appropriate, their carers and families;
- demonstrate accountability for the paramedic care delivered, taking into account social, spiritual, cultural, legal, political and economic factors;
- accurately document and evaluate the outcomes of paramedic care and other interventions;
- demonstrate knowledge and understanding of effective multiprofessional/multi-agency working
 practices and participate in teamwork that respects and uses the contributions of members of the health
 and social care team;

- analyse and interpret relevant health education/promotion information and use this knowledge to promote the health and well-being of patients, clients and groups;
- demonstrate critical understanding of research-based knowledge and the application to practice;
- contribute to the development of protocols, systems of working and other factors that influence patient outcome using a quality improvement approach;
- capitalise on the potential for health improvement for patients, clients and groups through the development of health education/promotion strategies;
- articulate and justify decision-making and problem-solving processes associated with paramedic practice;
- monitor and update priorities within a changing environment and communicate appropriately;
- critically evaluate research findings and suggest changes to planned care;
- demonstrate an ability to critically challenge and develop paramedic practice taking into account the dynamic social, cultural, technical, spiritual, legal, political and economic factors;
- critically evaluate outcomes of paramedic and other interventions, adjusting care accordingly;
- contribute with skill and confidence to effective multi-professional/multi-agency working;
- demonstrate an ability to work at the practitioner standards specified by the relevant national bodies.

C Subject knowledge, understanding and associated skills

Diploma and foundation degree

The award holder should be able to:

- demonstrate knowledge and understanding of the subjects underpinning paramedic practice in emergency care and other settings;
- evaluate an individual patient's condition, the evaluation being based on the criticality of the patient, and apply treatment to nationally agreed evidence-based practice standards;
- react appropriately to multiple casualty situations employing triage and major incident procedures as appropriate to the circumstances and with reference to national and local policies;
- understand and apply the values that underpin anti-discriminatory working practices;
- communicate effectively with patients, clients, carers and other health care professionals;
- demonstrate an understanding of research and other evidence and where appropriate, apply findings to practice;
- engage in, and disengage from, therapeutic relationships through the use of effective interpersonal skills;
- provide safe and sensitive care through the use of practical skills and knowledge of current best practice;
- interpret and use data with the aid of technology to enhance the management of care.

Honours degree

The award holder should be able to:

- demonstrate knowledge and understanding of the subjects underpinning paramedic practice in emergency care and other settings;
- evaluate an individual patient's condition, the evaluation being based on the criticality of the patient, and apply treatment to nationally agreed evidence-based practice standards;
- react appropriately to multiple casualty situations employing triage and major incident procedures as appropriate to the circumstances and with reference to national and local policies;
- use knowledge and understanding of the subjects underpinning paramedic practice to provide creative solutions to health care situations;
- critically examine the impact of political and social contexts on the provision of health care;
- understand the differences in beliefs and cultural practices of individuals and groups and recognise and challenge discriminatory practice;

- confidently present information orally, in writing and, where appropriate through the use of technology, to provide coherent and logical arguments in the support of decision-making;
- critically evaluate research findings, suggest changes to practice and contribute to health care research to inform practice development;
- use practical skills and knowledge with confidence and creativity to enhance the quality of care;
- critically analyse and interpret data and appraise the value for care delivery and management.
- demonstrate a level of subject understanding that facilitates the ability to work at practitioner standards specified by the relevant national bodies.

Appendix 1

Paramedic science benchmark group membership

Mr Bob Fellows London Ambulance Service NHS Trust
Mr Roland Furber The British Paramedic Association

Mr Andrew Newton (chair)

Mr David Whitmore

Mr Tom Berrie

University of Hertfordshire

Health Professions Council

Health Professions Council

With acknowledgement to:

Ms Indra Jones Teaching and learning fellow, University of Hertfordshire

Members of the British Paramedic Education and Training Committee

Appendix 2

Benchmark steering group membership

Professor Michael Aulton Royal Pharmaceutical Society
Dr Elizabeth Campbell The British Psychological Society
Mrs Margaret Coats General Chiropractic Council
Mr Vince Cullen General Osteopathic Council

Ms Jill Galvani The Royal Liverpool University Hospital

Ms Rosemary Grant Avon, Gloucestershire and Wiltshire Strategic Health Authority

Dr Mike Hewins Norfolk, Suffolk and Cambridgeshire Strategic Health Authority

Ms Ruth Howkins succeeded by

Ms Meriel Hutton Quality Assurance Team, Department of Health (England)

Ms Prue Kiddie Department of Health
Professor Jeff Lucas University of Bradford

Mrs Helen Marshall Standing Conference of Principals
Mrs Susan Montague University of Hertfordshire

Professor Audrey Paterson The Society of Radiographers, representing Allied Health Professions

Professor Mike Pittilo (Chair)

Ms Jenny Routledge

Mr Alvan Seth-Smith

Mr David Skinner

University of Hertfordshire

University of East Anglia

General Dental Council

Mr Roger Thompson Nursing and Midwifery Council
Professor Steve Trevillion General Social Care Council
Professor Diane Waller Health Professions Council

Professor Barry Winn University of Hull
Mr David Young Universities UK