Health Professions Council - 3 July 2008

Application for the regulation of sonographers from the Society and College of Radiographers

Executive summary and recommendations

Introduction

At its meeting on 27 March 2008, the Council considered an application for the regulation of sonographers submitted by the Society and College of Radiographers ("the Society").

The Council invited the Society to attend this Council meeting to present on their application.

The following are attached:

- Criteria for aspirant professions, reproduced from the guidance notes.
- Application by the Society (including a CD ROM containing supporting information) considered by the Council at its meeting on 27 March 2008.
- Scoring of the application undertaken by the Executive, considered by the Council at its meeting on 27 March 2008.
- Additional written information submitted by the Society for consideration at this meeting.
- A copy of the Society's presentation.

Decision

The Council is invited, in light of the Society's presentation at this meeting and their written application, to consider whether it should recommend the regulation of the aspirant profession to the Secretary of State under Article 17 (a) of the Health Professions Order 2001.

Background information

Article 17 of the Health Professions Order 2001 says that the Council may—

a) make recommendations to the Secretary of State concerning any profession which in its opinion should be regulated pursuant to section 60(1)(b) of the Health Act 1999

Resource implications

None

Financial implications

None

Appendices

Please see the previous page.

Date of paper

23 June 2008

Each criteria to be addressed (taken from the Guidance Notes)

Part A of the assessment

The Council will first assess whether an occupation is eligible for regulation. Only those occupations involving at least one of the following activities are eligible:

- Invasive procedures
- Clinical intervention with the potential for harm
- Exercise of judgment by unsupervised professionals which can substantially impact on patient health or welfare.

Additionally, occupations where these activities are already regulated by other means will be ineligible. This includes occupations that already have a regulator (such as nurses and medical practitioners) or do not make independent clinical judgments. In general, the Council regulates health workers who are not otherwise supervised, practising autonomously, making professional and independent judgments on treatment, and taking full responsibility for their actions.

Part B of the assessment

The criteria that the Council will apply in Part B of the assessment were settled following a public consultation in the summer of 2002. The criteria will each have equal weight. Each occupation wishing to be regulated will be required to:

1) Cover a discrete area of activity displaying some homogeneity
2) Apply a defined body of knowledge
3) Practise based on evidence of efficacy
4) Have at least one established professional body which accounts for a significant proportion of that occupational group
5) Operate a voluntary register
6) Have defined routes of entry to the profession
7) Have independently assessed entry qualifications
8) Have standards in relation to conduct, performance and ethics
9) Have fitness to practise procedures to enforce those standards
10) Be committed to continuous professional development (CPD)

1. The occupation must cover a discrete area of activity displaying some homogeneity

This criterion covers **what a profession's scope of practice is**. The Council will assess applications for evidence that demonstrates that the applicant occupation practises activities that:

- Are distinctly its own
- Are common across the occupation
- Are distinct from the scope of practice of other occupations, although there may be some overlap.

2. The occupation must apply a defined body of knowledge

The *body of knowledge* criterion covers **what a profession does**. Frequently, the *body of knowledge* of a health profession will overlap those of other professions. However, each profession that the Council regulates has its own distinct *body of knowledge* and applications will not be successful if the Council considers that the applicant occupation has not provided sufficient evidence to demonstrate that it, too, has a distinct *body of knowledge*.

3. The occupation must practise based on evidence of efficacy

This criterion covers **how a profession practises**. The Council recognizes the centrality of evidence-based practice to modern health care and will assess applicant occupations for evidence that demonstrates that:

- Their practice is subject to research into its effectiveness. Suitable evidence would include publication in journals that are accepted as learned by the health sciences and/or social care communities
- There is an established scientific and measurable basis for measuring outcomes of their practice. This is a minimum—the Council welcomes evidence of there being a scientific basis for other aspects of practice and the *body of knowledge* of an applicant occupation
- It subscribes to the ethos of evidence-based practice, including being open to changing treatment strategies when the evidence is in favour of doing so.

4. The occupation must have at least one established professional body which accounts for a significant proportion of that occupational group

This criterion covers **how a profession has established itself**. The Council will assess applications for evidence that there is at least one established professional body. The Council will assess the application for evidence that membership of the body or bodies accounts for a significant proportion—at least 25%—of the occupation's practitioners. Suitable evidence for the existence of established professional body or bodies would include:

- A constitution or rules
- Minutes
- Standing Orders for the body or bodies and committees
- Election Rules and results

Where there is more than one professional body or representative organization for an applicant occupation, the Council will additionally seek evidence that all the bodies are involved in, and supportive of, the application process. The Council would welcome evidence of the existence of a steering group with representatives from all the bodies, and that a fair and effective decision-making process is in place. The Council would expect to work primarily with such a steering group and would also expect evidence that the steering group, and not an individual professional body, was involved in drawing up the application for regulation.

The Council will require an attestation from the applicant that there are no professional bodies or other representative organizations in existence for the profession that have not been informed of the application.

The Council will also seek evidence that practitioners who do not belong to the professional body or bodies or representative organization(s) are also supportive of the application. If any of these practitioners are likely not to have followed the applicant occupation's entry routes as described in sections 6 and 7 below, then the Council will require information about likely grandparenting requirements.

5. The occupation must operate a voluntary register(s)

This criterion covers **how a profession accounts for its members**. The Council's Register is its primary mechanism for protecting the public. The Council will seek to assess whether workers in an applicant occupation have accepted the principles, benefits and obligations of registration, by enrolling on a voluntary register or registers. The Council will require evidence that the voluntary register(s) cover at least 25% of an applicant occupation's workforce. These requirements are a minimum and the Council would consider very favourably evidence of plans to inform an applicant occupation's practitioners of the consequences of regulation by the Council. Such plans should cover issues that will be of particular importance to those members, particularly:

- Regulation of the practice of the profession's members. As explained in the introduction, members of the profession will be subject to the Council's regulatory authority, which it will exercise to protect the public.
- Arrangements for applying for entry to the Council's Register
- Protection of title
- Fees and other potential financial implications

The Council has published leaflets on these topics.

6. The occupation must have defined routes of entry

This criterion covers **how a profession ensures its practitioners have the requisite knowledge and skills on entry**. The Council will assess evidence of how entry to the applicant occupation is controlled. The Council will seek evidence that only individuals who have chosen defined routes of entry are recognized as being practitioners of the profession, in the eyes of educational institutions, employers, professional bodies and (where appropriate) the public at large. The Council will also assess evidence that the applicant occupation either already has a Subject Benchmark from the Quality Assurance Agency or equivalent body, or intends to work towards one as part of the process of becoming a regulated profession.

7. The occupation must have independently assessed entry qualifications

This criterion covers **how a profession ensures its recognized qualifications are valid**. The Council will require evidence that there are qualifications that are recognized as being a necessity for entry to the profession, awarded by

recognized educational institutions and independently assessed and monitored through a system of quality control.

8. The occupation must have standards of conduct, performance and ethics

This criterion covers **how a profession ensures high standards**. The Council will assess evidence that an applicant occupation has written standards of conduct, performance and ethics, covering the behaviour it expects of practitioners. The standards should cover similar ground to the Council's standards, and include health, character and competence, among other topics.

9. The occupation must have fitness to practise procedures to enforce those standards

This criterion covers **how a profession polices the behaviour of its practitioners**. The Council will assess evidence that an applicant occupation has a system for disciplining practitioners on its voluntary register (including striking-off) when it is determined that they are unfit to practice by reason of:

- Incompetence
- Misconduct
- Health

The Council will also assess evidence that breaches of the applicant occupation's code of ethics are taken into account when deciding whether a practitioner is unfit to practise. The Council will assess evidence of written procedures covering the administration of the system, and requires applicant occupations to submit anonymised information regarding cases that have been dealt with through the system.

10. The occupation must require commitment to continuous professional development (CPD)

This criterion covers **how a profession ensures its practitioners engage in life-long learning**. The Council is committed to the principles underpinning CPD, and will be requiring all registrants to undertake CPD from August 2005. Many of the currently regulated professions run CPD schemes at present. The Council will therefore be seeking evidence from applicant occupations that they are also committed to the principles of CPD. Suitable evidence would include written details of planned or existing CPD schemes.

SONONGRAPHER REGISTRATION

Application for Regulation of a new Profession by the Health Professions Council

Please refer to the accompanying notes to assist you in completing this form. Please place your completed response and accompanying documents into a binder, suitably divided into different sections for each of the topics. Please make 62 copies of your application for distribution to Council Members.

Section 1 Contact Details

Name of name contact:	Mrs Rita Phillips
Address:	Society of Radiographers 207 Providence Square Mill Street London
Postcode:	SE1 2EW
Country:	United Kingdom
Main telephone number:	0207 740 7200
Fax number:	0207 740 7233
Email address:	sonoreg@sor.org
Web site address:	www.sor.org
Name of applicant occupation:	Sonography
Suggested title(s) for protection (if different)	Sonographer (main title for protection),

If you have suggested more than one title, please explain your decision:
N/A

Section 2 Previous Application

Please indicate if this is the first time that the occupation has applied to be regulated by the predecessor, the CPSM.

No √

The SCoR believes that there has been two previous applications to the CPSM by other bodies (United Kingdom Association of Sonographers (UKAS) alone in 1992, and UKAS, The Society of Vascular Technology for Great Britain and Ireland (SVT) and The British Society of Echocardiography jointly on a second occasion in 1998.

If no, please describe the reasons for rejection(s)
It is believed that insufficient numbers was the reason for the rejection on the first occasion, and the impending change to the regulator on the second occasion.

Section 3 Consideration of Alternative Routes to Regulation

Has the applicant occupation considered seeking explored regulation as a distinct subsection within a profession already being regulated and if so have you rejected this route?
If so, what were the reason(s) for rejection of alternative route?

The applicant occupation has explored regulation as a distinct sub section within an already regulated profession, those of radiography and clinical science . It has also explored regulation by the HPC independently. As noted, of the already regulated professions, the two considered were Radiographers and Clinical Scientists. Following much discussion, within the ultrasound community, it was agreed that protection of the public would be best served by seeking regulation as a sub-section of the Part of the Register entitled Radiography. This decision was made partly from advice given by an HPC advisor and partly because the majority of sonographers that practice within the UK are radiographers whose practice includes or is solely

sonography. Some clinical scientists may undertake some ultrasound examinations in specific, limited fields and do this to a very high standard. However, in the main, their role in ultrasound, is scientific and technical rather than clinical. Additionally, it was recognized that the education standards for sonographers aligned more closely with radiography than with clinical science.

Protecting the title 'Sonographer' as a title within the family of titles covering the profession of radiography is also consistent with the fact that the Society of Radiographers is recognized as the primary professional body for ultrasound practice and is consulted on matters related to ultrasound practice by the four Governments in the UK, and by various other bodies, for example, the National Institute for Health and Clinical Excellence, The National Screening Programme.

The applicant occupation has members that are drawn from a variety of membership organizations and clinical backgrounds, although the majority are members of The Society of Radiographers (SoR). This application is made, therefore, by the SoR, supported fully by the United Kingdom of Sonographers (UKAS).

Has the applicant occupation considered joining other unregulated occupations in a similar field who are currently seeking HPC regulation or may do so?

Consideration was given in 2005 to linking with the British Society of Echocardiographers (BSE) and Society of Vascular Technology of Great Britain and Ireland (SVT) and the United Kingdom of Sonographers (UKAS) to seek regulation of sonographers and protection of the title "sonographer" by the HPC. This project was abandoned when the Chief Scientific Officer (Department of Health (DH), England) and the regulation branch of the DH (England) made it clear that echocardiographers and vascular scientists were already under consideration for regulation by the HPC. They advised that a joint application with BSE/SVT was inappropriate.

Section 4 The Occupation must cover a discreet area of activity displaying some homogeneity

Please define the applicant occupation's scope of practice in terms of activities practiced.

The mid 1950s first saw the introduction of ultrasound for diagnostic use. Since then, its use in medical institutions has proliferated and it is now the fastest growing clinical imaging modality. The scope of practice of sonographers and the application of ultrasound imaging has continued to grow to meet the demand for an ever increasing range of diagnostic ultrasound examinations. Ultrasound examination now forms an integral part of most patient care pathways. In the last ten years, the number of ultrasound investigations performed in the UK has risen from 4 million to 6.5 million (ONS). These figures are due to rise further with recommendations from bodies such as National Screening Committee (NSC) and the National Institute for Health and Clinical Excellence (NICE); and as a result of healthcare targets, for example, cancer treatment targets, and waiting time targets.

The availability of suitable and competent ultrasound workforce has been compromised over many years because of the shortage of staff groups within radiology, and in other disciplines such as midwives. To alleviate workforce shortages, sonographers from outside the UK have been employed in an attempt to maintain the level of service delivery required. These individuals are not generally eligible to be registered in the UK, whether by the HPC or another healthcare regulator but regulation is vital for public protection purposes., Regulation would also reassure employers that cases of misconduct can be dealt with appropriately (DH The regulation of non medical healthcare professions-a review by the DH July 2006) and assist them to verify that their sonographers can practise safely.

The White Paper of 2006 'Our Health, Our care, Our Say' aims to improve access to healthcare services by moving more into community settings. This will impact the provision of ultrasound services, with the need for yet more sonographers with broader scopes of practice.

Historically, the development of diagnostic ultrasound practice in the United Kingdom has been multidisciplinary in nature, driven by clinical need combined with evolving ultrasonic technology and underpinned by research into the efficacy of ultrasound applications. This is evidenced, for example, within obstetric ultrasound practice where early obstetric ultrasound teams comprised of obstetricians, physicists, midwives and radiographers. Inevitably, therefore, a range of professionals with varying initial underpinning, normally healthcare related, education and training has provided the ultrasound service. However, for over three decades, the largest group of professionals working in ultrasound has come from a radiography background via programmes of education offered at post-registration level; since the early 1970s, The College of Radiographers (CoR) Diploma in Medical Ultrasound (DMU) and, since the early 1990s when the College of Radiographers devolved responsibility for the development of education programmes to higher education providers, post registration post-graduate level programmes (PG Certificate/PG Diploma/MSc).

The activities performed by sonographers predominantly require the application of ultrasound technology to clinical practice and clinical problems. For those in the aspirant occupation, this leads on to them making diagnostic decisions, or referring for further diagnostic tests. The diagnostic decisions made can further lead on to interventional or minimally invasive procedures for some patients and clients, and some of these procedures will be under ultrasound control. Sonographers work autonomously to exercise clinical judgements which have a direct impact upon patient care, welfare and management. They report and act on their findings both in the light of expected and unexpected pathologies. Their actions and diagnostic findings are pivotal in determining the appropriate future management of their patients and clients.

Ultrasound services extend over a comprehensive range of settings from primary to tertiary level in both the NHS and private health care sectors, and may be delivered in dedicated scanning suites or at satellite or remote locations such as out-patient clinics, at the patient's bedside or in the operating theatre. Some practice settings require the sonographer to work in relative professional isolation either single-handedly, or as a lone individual within a multi-disciplinary team.

Sonographers are required to carry high levels of autonomy, accountability and responsibility, and need a clear professional identity. They exercise critical judgement to ensure the efficient, effective and safe delivery of the ultrasound service, taking individual responsibility for the conduct, assessment and reporting of ultrasound examinations.

The scope of practice of the aspirant occupation is broad and normal practice of sonographers includes at least one and usually two or more of the following clinical fields (each of these are, in themselves, broad in scope):

- ***Abdominal and general medical applications***
- ***Gynaecological applications***
- ***Obstetric applications***
- ***Paediatrics***
- ***Superficial organs; for example, breast, thyroid and testes***
- ***Musculoskeletal applications***
- ***Vascular application***
- ***Cardiac applications***

Additionally, sonographers practice in higher education, management, research, and technology development, and in the commercial/industrial sector as applications specialists or in sales and marketing.

Please see Appendix 1 which is a table that outlines the scope of sonographers practice in more detail.

Are there professions we currently regulate with whom the scope of practice overlaps?

YES

If yes, please provide evidence showing how the applicant occupation's scope of practice is distinct.

There is some overlap of activity with radiographers and clinical scientists. For radiographers the scope of practice overlap is apparent at post registration level in the

sub-group of radiographers who choose to specialize in sonography and who have usually gone on to obtain additional relevant qualifications. For the past thirty years at least, sonography has been included in the scope of practice of radiographers. Most recent evidence of this is contained within the publications of the College of Radiographers, The Scope of Practice (2003) and Role Development Revisited: The Research Evidence (2003). These documents can be accessed on the CD-ROM Rom that accompanies this application.

Clinical scientists are a diverse group of professionals with a sub set involved in ultrasound service provision. These include medical physicists who, in relation to ultrasound service provision, predominately undertake ultrasound equipment research and development, testing, quality assurance and servicing. However, some carry out clinical examinations usually in a more narrowly defined range; for example, ophthalmic ultrasound, vascular examinations, and echocardiography.

Finally, it should be noted that other regulated professions and aspirant occupational groups use ultrasound imaging as a part of their practice; for example nurses, midwives, physiotherapists, a variety of medical practitioners, clinical technologists and clinical physiologists. This may mean that some individuals will need to retain dual registration with the Nursing and Midwifery Council but it is believed that the number would be very small.

Section 5 The Occupation must apply a defined body of knowledge

Please attach evidence of applicant occupation's body of knowledge

The body of knowledge for sonography is extensive. It can be identified from a range of literature covering health technology assessments, the efficacy of sonographic practice, practice outcomes, scopes of practice, course submission documents for sonographer education programmes in higher education, and a range of other professional documents.

The document that demonstrates the scope of the body of knowledge most succinctly is that produced by the Consortium for the Accreditation of Sonographic Education (CASE) entitled Consortium for the Accreditation of Sonographic Education (2000)

Validation and Accreditation Handbook of the Consortium for the Accreditation of Sonographic Education. This represents agreement on the core body of knowledge for sonography by the constituent partners of CASE which are :

- British Medical Ultrasound Society
- British Society of Echocardiography
- College of Radiographers
- Institute of Physics and Engineering in Medicine
- Royal College of Midwives
- Society for Vascular Technology of Great Britain and Ireland
- United Kingdom Association of Sonographers

An extract from this document is included as appendix 2, and the full document is on the CD-ROM accompanying this application.

As the document identifies, the body of knowledge can be described broadly as follows:

- It is sub-divided into specific fields of practice;
- It requires appropriate selection and use of ultrasound technology and techniques to differentiate normal from abnormal anatomy, to characterize disease conditions and to monitor effectiveness of treatment or progress of disease. This demands considerable knowledge and understanding of the spectrum of disease processes; .
- Reporting skills, report writing and the implications of missed diagnoses and mis-diagnoses are core topics;
- It incorporates the science, technology and contemporary advancements of ultrasound equipment and the implications of health and safety for the public and practitioners. This includes technical aspects of quality assurance, equipment performance monitoring, equipment selection, procurement and maintenance, as well as image recording and archiving, image appearances and imaging artefacts;
- It includes generic components such as self-knowledge, professional and practice development, service provision, health policy, and research and

development. Additionally, medico-legal, professional and ethical issues related to health care and ultrasound practice are included.

The body of knowledge in ultrasound practice is growing continually and this growth is related to advances in ultrasound technology, and to the increasing application of the use of ultrasound in both diagnostic and therapeutic situations across an expanding range of clinical fields.

Are there professions we currently regulate with whom the applicants occupation's body of knowledge overlaps?

YES

If yes, please provide evidence showing how the applicant occupation's body of knowledge is distinct.

The body of knowledge for sonographers is drawn upon by other occupational groups registered with the HPC, or with other regulatory bodies. For sonographers, the conduct of clinical diagnostic ultrasound examinations forms the core of their practice and needs to be underpinned by the entire body of knowledge. This differs from other groups who use ultrasound techniques as an additional tool in their practice and so require relevant and selected parts of the body of knowledge only. Where the body of knowledge overlaps with others, this tends to be for fundamental knowledge of ultrasound physics and equipment and specific, limited clinical applications.

Section 6 The Occupation must practise based upon evidence of efficacy

Please provide evidence of research into the efficacy of the applicant occupation's practice.
You are encouraged to attach copies of articles published in journals accepted as learned by the health sciences community.

Literature on the clinical use of ultrasound is extensive and of varying levels of robustness, ranging from grey literature to that published in peer review journals. There is an emphasis within the peer-reviewed literature on scientific and biomedical

knowledge. Published evidence shows that non-medically qualified health care staff are playing an increasingly important role in providing diagnostic medical ultrasound services and are undertaking a range of minimally invasive diagnostic and therapeutic ultrasound guided procedures. Clinical applications are wide ranging and the individual practitioner may be dedicated to a service delivery area such as musculoskeletal or obstetrics and be performing a range of tasks within their scope of practice, or they may be dedicated ultrasound specialists performing sonographic examinations across multiple areas, usually within a clinical imaging department.

In 2005, the SoR and UKAS commissioned an independent study of the ultrasound literature in preparation for seeking protection of the title 'sonographer'. This is included on the CD-ROM attached to this application and shows the depth and breadth of the evidence underpinning ultrasound practice.

Publications (papers/books)

Titles of recent, relevant publications, both papers and books, are given in appendix 3 and selected papers from this list are included in full on the CD-ROM.

Presentations

There are a variety of multi-disciplinary conferences at which sonographers present their work, including:

- British Medical Ultrasound Society (BMUS) annual scientific meeting
- United Kingdom Radiological Annual Congress (UKRC) (The College of Radiographers is a partner organization in this congress)
- Radiological Society of North America (RSNA) annual meeting
- The European Federation of Ultrasound in Medicine and Biology (EFSUMB)
- The international Society of Ultrasound in Obstetrics and Gynaecology (ISUOG)
- The World Federation of Ultrasound in Medicine and Biology (WFSUMB)

Please provide evidence demonstrating the scientific and measurable basis for measuring practice outcomes. You are encouraged to provide evidence demonstrating the scientific basis for the applicant occupation's body of knowledge and other aspects of its practice as well, if possible.

Appendix 3, together with the commissioned study of the ultrasound literature and selected papers included on the CD-ROM, demonstrate the scientific basis of ultrasound practice. These also demonstrate that sonographers are committed to promoting and publishing their work, and that research is integral to practice. Particular examples of evidence based practice include routine early pregnancy screening, Down's screening, abdominal aortic anuerysm screening, Doppler evaluation of high risk pregnancies, and the use of trans-cranial Doppler (TCD) in the evaluation of stroke risk. Further evidence shows that ultrasound guidance is essential in interventional procedures to ensure correct siting of catheters or instruments and to reduce the incidence of complications. Examples of such procedures are placing central venous catheters, amniocentesis, chorionic villus sampling, fetal blood sampling, and biopsies of thyroid and breast lesions. The attached CD-ROM includes guidelines from the National Institute for Health and Clinical Excellence as well as other recognised authorities such as the Scottish Intercollegiate Guidance Network and the National Screening Committee.

Please attach any additional evidence that demonstrates that the applicant occupation subscribes to the ethos of Evidence based practice. You are encouraged to provide examples of how treatment strategies have changed in the light of evidence.

Appendix 3 lists relevant papers with particularly pertinent ones included in full on the attached CD-ROM. For example, papers by O'Shea, Armstrong, O'Hara, et al (2007); Clough, Truscott and Haigh (2006); Ying and Ahuja (2006), and Dongola, Guy, Giles and Ward (2003).

Section 7 The occupation must have at least one established professional body which accounts for a significant proportion of that occupational group

Please provide documentary evidence of established professional bodies for the applicant occupation.
For each body, you are encouraged to include:

- **The Constitution or rules**
- **Copies of minutes of meetings**
- **The Standing Orders of the governing body and its constituent committees**
- **The election rules and results**

The Society and College of Radiographers is the established professional body accounting for a large majority of the aspirant occupational group. It was established in 1920 and its members have been at the forefront of ultrasound practice since the introduction of ultrasound as a clinical imaging tool in the early 1950s. The constitution and rules of the organization, the standing orders of the governing body (the Council of the Society of Radiographers), and its election rules are contained in the 2007 edition of the 'Amended Memorandum and New Articles of Association and Members Handbook' which is on the accompanying CD-ROM. Two extracts from these are included as appendices: The Objects of the Society of Radiographers (appendix 4) and the index to the Members Handbook (appendix 5).

The Council of the Society of Radiographers meets approximately eight times per year. Minutes for the final four meetings of 2007 are included on the CD-ROM. Agenda items relevant to the practice of ultrasound considered during these meetings include:
July 2006 and September 2006: Ultrasound Clinical Effectiveness Group
October 2006: Industry standards for the prevention of work related musculoskeletal disorders in sonography
November 2006: Ultrasound Advisory Group (UAG); Revised Ultrasound Professional Indemnity Statement
September and November 2007: Professional Standards for Independent Practitioners

November 2007: Scope of practice for Assistant Practitioners in Ultrasound

With effect from July 2006, the Council appointed an Ultrasound Advisory Group (UAG), reviewing and refreshing its membership each year at the July Council meeting. Previous to the UAG, Council had an Ultrasound Clinical Effectiveness Group undertaking a similar but narrower advisory function. Minutes of the UAG meeting for the July 2006 – June 2007 are included in full on the attached CD-ROM.

Please provide evidence demonstrating the number of practitioners of the applicant occupation

The Society of Radiographers Membership Database lists almost 2000 members with ultrasound qualifications. As membership is not compulsory, there will be a small additional number of radiographers with ultrasound qualifications for which the Society holds no current records.

If there is more than one established professional body or representative organization for the applicant occupation, please attach evidence that all bodies are involved in and support this application. You are encouraged to provide evidence of a steering group or similar structure, and to provide evidence of its work.

There is a second established professional body for the applicant group. This is the United Kingdom Assocation of Sonographers (UKAS) which was set up in 1990. Currently, it has a membership of approximately 500 of which 70% are members also in membership of the Society of Radiographers. UKAS has participated in the development of this application and supports it fully.

Are there any professional bodies or other representative organizations for the applicant occupation that have not been informed of this application?

As far as is known all interested parties in all four countries of the UK are aware of this application and appendix 6 shows the organizations and individuals that have been contacted regarding this application.

If there are practitioners who have not followed the defined routes of entry to the profession, please discuss potential grand parenting requirements and implication.

At present there are various routes to becoming a sonographer, largely dependent upon the nature of an individual's background and job role. For those who belong to the body making this application the defined routes of entry are:

For Radiographer Sonographers, Diploma of the College of Radiographers (DCR)/BSc or BSc Hons (Radiography); Diploma of Medical Ultrasound, or a CASE approved postgraduate award.

For Sonographers other than radiographers, the Certificate or Diploma of Medical Ultrasound (CMU, DMU) or CASE approved postgraduate award. (Please note that initially the CMU and DMU were identical in terms of syllabus and examinations but the diploma was reserved for registered radiographers while the certificate was for general use.)

There are also individuals who have become 'sonographers' through personal development and experience, and have been appointed to posts such as clinical assistants. They come from a diverse range of backgrounds and it is this group for whom grand parenting requirements and implications are likely to be the most relevant. Probably the common features of this group are education to first degree level or equivalent, and a variable period of supervised clinical practice. It is difficult to know how many of these people exist but all potentially require grand parenting. A conservative estimate for this group is 500. This number may escalate as more healthcare staff from other parts of the world, particularly doctors ineligible for registration with the General Medical Council, migrate to the UK or through harmonization arrangements within the EU. Additionally, there are individuals' practising sonography in the UK currently who have overseas qualification in the field of ultrasound and these will need to be included in the register.

Section 8 The occupation must operate a voluntary register(s)

Please complete this section for each voluntary register that covers the applicant occupation

How many practitioners of the applicant occupation are on the voluntary register?

A National Voluntary Register of Sonographers was set up in May 2007 jointly by the SoR and UKAS. To promote awareness of this register within the sonography community, various communication channels were, and continue to be, used. For example, individual letters to all relevant SoR and UKAS members, newsletters, communication via professional magazines such as Synergy News (SoR) and Reverberations (UKAS), presentations at relevant national conferences, notably BMUS 2006 and 2007, and via the public websites of SoR and UKAS The current total number on the register at the time of making this application was 410, with applications continuing to arrive. Many more are anticipated as its value is further promoted and becomes better understood. The National Voluntary Register includes information on members such as relevant education, ultrasound specialisms and continuing professional practice and development.

It is envisaged that a "Grand Parenting" route for entry to the Voluntary Register will become available to those practitioners who have not taken an approved education programme, but have relevant experience and are able to meet the criteria for entry to the Register. This route will only be available for a short time, after which the only route onto the Register for people trained in the UK will be to take a course approved by the Consortium for the Accreditation of Sonographic Education.

Are these figures independently audited, and if so, by whom?

No

Please give date of opening of the register

May 2007

Finally, please provide evidence indicating how many practitioners of the applicant occupation are not on any of the voluntary registers for which you have provided details above.

The combined number of sonographers in membership of SoR and UKAS is in the order of 2250 and all of these should consider applying for entry to the voluntary register. Of the sonographers not in membership of either SoR or UKAS, hard evidence is very difficult to obtain but anecdotal evidence suggests there are a sizeable number practising under the job title of sonographer" or "clinical assistant" or similar. As noted earlier, this number is estimated conservatively at 500.

Section 9 The occupation must have defined routes of entry to the profession
Please provide evidence as to how entry to the applicant occupation is controlled, by providing:

Details of the routes of entry

Prior to 1992, entry to the applicant occupation was controlled by successful completion of the College of Radiographers Diploma or Certificate in Medical Ultrasound (DMU/CMU) and this was the only award available in ultrasound. In the period 1992 to 1997, entry was via the DMU or CMU, or by obtaining a post graduate award in clinical or medical ultrasound accredited by the Consortium for the Accreditation of Sonographic Education (CASE) of which the College of Radiographers and UKAS were a founding partners. From 1997 onwards, entry has been solely through CASE accredited awards. In parallel to the routes identified above, a number of individuals have become sonographers based on a professional, registerable qualification (notably in radiography), and supervised clinical practice and in-house training and development.

As can be seen the current entry qualifications are diverse and there is no single identified standard. Almost all entry routes, however, have built on an initial healthcare practitioner related qualification, or a relevant first degree, or equivalent. Hence, courses are currently at post registration level leading to a minimum award of

a post-graduate certificate. These courses prepare individuals for specialist or advanced practice rather than entry-level practice.

There has been much debate about developing direct entry routes at first-degree level for sonographers. A number of Strategic Health Authorities (England) have signalled the need to do this to meet patient expectations of the health service. This application makes it timely to define the route of entry to the profession of sonography at first-degree (Hons) level in line with the majority of professions regulated by the HPC, and concordant with the family of protected titles pertinent to radiography within which the title of 'sonographer' is expected to fit. Direct entry will offer an educational route for those seeking to work in this field without the necessity to undertake a first degree (or equivalent) in another healthcare discipline, and give rise to more structured career progression for sonographers.

The SoR feels it is particularly important to set the entry standard at first-degree (Hons) level so that those who currently fall outside of any regulatory framework are not faced with insuperable difficulties in becoming regulated. However, it is also essential that for a significant period of time (at least five years) existing routes of entry to the profession be maintained, and approved for entry to the HPC register of sonographers, once this is opened. This is necessary to enable the NHS to maintain a competent sonographic workforce in the shorter term. It is also consistent with the SoR's framework for career progression (Education and Professional Development: Moving Ahead, 2003), a copy of which is included on the CD-ROM.

Evidence that demonstrates that only individuals choosing one of the entry routes are recognised as being practitioners of the profession. You are encouraged to provide supporting statements to this effect from educational institutions and employers.

The recent change in the pay and conditions of employment of NHS staff (Agenda for Change) identified a job profile for a radiographer specialist (reporting sonographer).In this is a requirement under knowledge and understanding that *"the practitioner has specialist knowledge across a range of procedures, underpinned by theory.and specialist knowledge acquired through degree supplemented by specialist*

diploma or equivalent level short specialist course". In addition, under responsibility for patient /client care,the profile also states that the "*practitioner should provide highly clinical technical services, carrying out scans and reporting on them*" This profile is included in full in appendix 7. Further evidence is provided by the job advertisements for sonographers in Synergy News and Rad Magazine, and the associated job descriptions. These confirm that the NHS and employers in the sector value the qualifications identified above. See appendix 8 for two typical examples of a job advertisements, and see the CD-ROM for a series of relevant job descriptions.

Guidance documents from the National Institute for Health and Clinical Excellence (NICE) and others issued by the health departments outside of England recognise sonographers as members of multidisciplinary NHS teams, and note their value to sevice provision. There is guidance to employers on the appropriate qualifications for those undertaking obstetric ultrasound examinations (see appendix 9).

The need for ultrasound qualified personnel is fully recognized by the higher education sector across the UK, especially in England but also in Scotland, Wales and Northern Ireland. Appendix 10 lists the current providers of ultrasound education qualifications and gives the total number of applicants accessing and successfully completing CASE approved ultrasound programmes at these centres for the 2005-2006 academic year. The full directory of CASE approved education programmes is included on the CD-ROM.

Information about the applicant occupation's QAA Subject Benchmark or equivalent. If none yet exists, please provide evidence demonstrating an intent to work towards a benchmark.

There is no subject benchmark for ultrasound, nor is there one in preparation by The Quality Assurance Agency for Higher Education (QAA). Hence, a draft subject benchmark has been developed by sonographers overseen by SoR and UKAS jointly. This is similar in nature to other healthcare related subject benchmarks published by QAA. The draft benchmark is included as appendix 11

Additionally, a draft Standards of Proficiency was developed jointly by SoR and UKAS and these is included as Appendix 12.

Section 10 The occupation must have independently assessed entry qualifications

Please provide details of qualifications recognised as being a necessity for entry to the applicant occupation, including details of the provider bodies and system of monitoring.

Currently, the Consortium for the Accreditation of Sonographic Education (CASE) undertakes the accreditation of ultrasound education programmes. All CASE approved courses are administered and delivered through Higher Education Institutions (HEIs) in the UK. In addition to the CASE process, all ultrasound education programmes are subject to the following monitoring systems:

- Standard institutional external and internal validation, approval and monitoring procedures
- Major review by QAA
- Annual review and quality monitoring by the HEI and CASE
- Validation and Approval, and Periodic Approval by the HEI and CASE.

The CASE procedures are set out in the CASE Handbook which is included in the CD-ROM accompanying this application (CASE Validation handbook). (please note: the handbook underwent minor revisions in 2005 and is currently under major revision)

Section 11 The occupation must have standards in relation to conduct, performance and ethics

Please attach evidence describing the applicant occupation's written standards of conduct, performance and ethics.

The Society and College of Radiographers has its own written standards of conduct, performance and ethics that are regularly reviewed and updated as necessary in

response to changes in practice. The most recent version has just been approved and is included in full on the attached CD-ROM. Additionally, those sonographers who also hold the protected title 'radiographer' are regulated by the HPC and so must conform to its Standards of Conduct, Performance and Ethics.

Section 12 The occupation must have disciplinary procedures to enforce those standards

Please attach evidence demonstrating the system used for disciplining practitioners. Please also attach descriptions of the procedures used to administer the system, along with at least three anonymised case reports. This information will be handled confidentially and will not be shared outside the HPC.

The Society and College of Radiographers have disciplinary procedures laid out in Section 3 page 11 of the Articles of Association, and on expulsion in Section 5 (see appendix 13 and the full document (Articles of Association and members Handbook) which is included on the CD-ROM accompanying this application).

As the vast majority of members of the SoR are regulated by the HPC, the HPC's procedures take precedence and the SoR has not had cause to use its procedures for several years. The following summarises complaints against radiographers by the HPC recently:

HPC complaints hearings

In the period April 2006 – March 2007, one radiographer was suspended, two were cautioned, and one was issued with conditions of practice order. No further action was taken in one case and another case was discharged. (NB. These are cases heard only. There are a number outstanding, either under investigation or awaiting a hearing date.)

Since January 2005, there were two cases of radiographers with sonography as their scope of practice who were subject to disciplinary procedures. The details of these are included in appendix 14.

Section 13 The occupation must require commitment to Continuous Professional Development (CPD)

Please provide evidence demonstrating that the profession is committed to the principles of CPD. You are encouraged to provide details of any planned or existing CPD schemes.

The Society of Radiographers has clear CPD policies; these are set out in *A Strategy for Continuing Professional Development* (SoR, 2003). This document defines responsibilities with regard to CPD for the individual practitioner, the employer and the professional body. (see CD-ROM for the complete document). To fulfil its commitment to members in relation to CPD, the Society and College of Radiographers provides a web-based CPD tool (CPD Now) to enable all members to plan, undertake and record their CPD activities. A brief overview of this tool is outlined in the publication included in Appendix 15. CPD Now is available to all members and enables users to have their individual CPD portfolios accredited by the College of Radiographers, under the auspices of the College's Approval and Accreditation Board. The CPD requirements for accreditation laid down by the College of Radiographers enable individuals to meet comfortably the CPD Standards set by the Health Professions Council.

Additional resources provided by the Society to support members with their CPD include:

- Conferences and events. The College's conferences and events programme has been developed to address members' CPD needs in a more focused way. New initiatives include the provision of commissioned legal training for radiographers and associated practitioners, delivered by legal experts.
- CPD directed reading. 'Synergy' also has a monthly 'CPD in Focus' article – this contains guidance on using the article for CPD purposes as well as suggested further learning activities and suggestions for recording the evidence in the on-line portfolio.

Individuals admitted to the SoR/UKAS Voluntary Public register are required to comply with the CPD requirements for members of SoR and/or UKAS.

Section 14 Views of others

Please attach any documents you have received from other organizations or individuals in which a view is expressed about your application.

Considerable debate and consultation over a number of years has helped shape this application. Particularly important has been the input and support of UKAS. A large number of other organizations and individuals were also contacted (detailed in appendix 6) regarding their views on and support for this application and many responses were given which were generally supportive (appendix 16 provides a copy of the letter sent seeking views and support). All responses, both supportive and otherwise, are included on the CD-ROM attached to this application. It should be noted that some organizations were not able to indicate support or otherwise prior to the submission of this application. A later update on these will be provided in due course.

Section 15 Impact on Council's ability to carry out its functions effectively

Regulation by the Council is, to a large extent, dependent on participation by members of the regulated profession in a number of roles. The inability of an applicant occupation to provide this input will never, of itself, be a reason for the Council to recommend that the application be turned down. However, the Council will discuss this in its report to the Secretary of State accompanying its recommendation for an application. If the applicant occupation wishes, it can provide information or comment on this issue here:

The Society and College of Radiographers is committed to providing the appropriate levels of participation and support for the HPC to discharge its business. This includes supporting sonographer members to apply to be HPC partners and visitors, encouraging members to attend HPC Council meetings as observers and have an ongoing expectation that their members will contribute to this process as an integral part of being a regulated profession.

APPENDICES

Appendix 1-Scope of practice

Appendix 2-Core Body of Knowledge extract

Appendix 3-Titles of recent, relevant publications

Appendix 4- Objects of The Society of Radiographers

Appendix 5- Index to SoR Members Handbook

Appendix 6-Oranisations and individuals aware of application

Appendix 7- Agenda For Change Job Profile for Reporting Sonographer

Appendix 8- Job Advertisements 1 and 2

Appendix 9- Ante-natal care full guideline DRAFT September 2007

Appendix 10- List of ultrasound education providers and summary student data

Appendix 11-Draft benchmark statements for Ultrasound 2007

Appendix 12-Draft Standards of Proficiency for Ultrasound 2007

Appendix 13 Expulsion from SoR Membership

Appendix 14 HPC proceedings against sonographers

Appendix 15 Information on SoR Continuous Professional Development tool "CPD Now"

Appendix 16 Master letter seeking views on this application

CD-ROM Contents

1 SoR/CoR publications

i. CoR Code of Conduct and Ethics 2007
ii. CoR education and Role Development –Moving Ahead 2006
iii. CoR Role development revisited The Research evidence 2003
iv. CoR Scope of Practice 2003
v. SoR Articles of Association and Members handbook
vi. CoR Strategy for Continuous Professional Development 2003

2 Consortium for the accreditation of Sonographic Education

i. 2006 Directory of courses
ii. Validation and Accreditation Handbook

3 Minutes of meeting

i. SoR Council meeting minutes
ii. Ultrasound Clinical Effectiveness meeting minutes
iii. Ultrasound Advisory Group meeting minutes

4 Literature Review SCoR/UKAS

5 Recruitment-selection of Job advertisements

6 Examples of full published papers in Radiography and Synergy relevant to Ultrasound Practice

7 National guidelines

i. Ante natal Care Guidelines (NICE)
ii. Ultrasound screening recommendations (RCOG)
iii. Post Menopausal Bleeding Guidelines (SIGN)
iv. Management of early pregnancy loss (RCOG)
v. Amniocentesis/Chorionic villus Sampling (RCOG)
vi. High Intensity Focussed Ultrasound (NICE)
vii. Management of UTI in Children (NICE)

APPENDIX 1

Scope of Practice for Sonographers

The setting

Primary Health Care Trusts and Boards; Acute and Tertiary Health Care Trusts and Boards; Independent Sector Treatment Centres (ISTCs); Health Centres and independent practice.

Sub Speciality	***Details of applications***
Abdomen & general medical Clinical applications include: screening, e.g abdominal aortic aneurysm intraoperative, emergency, one stop clinics, outpatients, inpatients, intensive care. Trans-abdominal, trans-rectal and intra-cavity scanning methods may be used; intravenous contrast agents may also be used.	Hepato-biliary system Uro-genital system Renovascular disease Abdominal aorta and large vessels Gastro-intestinal tract Ultrasound guided biopsies/aspirations of masses and fluid pools Oncological assessment Transplant assessment
Gynaecology Clinical applications include: Gynaecological emergencies, outpatients, inpatients, oncology, one stop clinics, infertility and sub-fertility, dysfunctional menstrual bleeding. Trans abdominal and trans vaginal scanning methods may be used.	Assessment of the uterus, ovaries and adnexae Post operative fluid collections Congenital anomalies Ovarian screening Contrast studies such as examination of the fallopian tubes (HYCoSy) Saline infusion examinations
Obstetrics Clinical applications include: Prenatal screening, obstetric emergencies, fetal medicine, Invasive diagnostic procedures such as amniocentesis and chorionic villus sampling in-patients, outpatients. Trans abdominal and trans vaginal scanning methods may be used.	Assessment of gestational age Early pregnancy assessments Down's screening Congenital abnormality screening in 1st and 2nd trimesters Fetal echocardiography Fetal presentation Fetal growth and well being Placental and cervical complications Amniotic fluid assessment Maternal complications and incidental disease

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Paediatrics Clinical applications include: Paediatric emergencies, out-patients, in-patients, screening/surveillance scanning. Trans abdominal / transcutaneous scanning methods are the norm.	Cardiology Intracranial haemorrhage Developmental hip dysplasia Congenital renal anomalies Gastro-intestinal tract Diagnosis and monitoring of paediatrics cancers
Superficial Organs Clinical applications include: Emergency situations, for example, retinal detachment, outpatients, in-patients, one stop clinics. *Scanning method is normally topical.*	Ophthalmic Salivary glands Breast Testes Thyroid
Sub Speciality	***Details of applications***
Musculoskeletal Clinical applications include: Emergencies, outpatients, in-patients, one stop clinics. Scanning is by topical probe application normally.	Rheumatology Assessments of joints, for example, shoulder, hip Ultrasound guided joint injections Assessments of ligaments, muscles and tendons Foreign body detection & retrieval
Vascular Clinical applications include: Outpatients, in-patients, emergencies, screening /surveillance, intensive care. Scanning is topical, with Doppler techniques usual.	Intra-vascular line placement Deep venous thrombosis assessment Carotid artery disease Lower limb arterial disease Pre-operative vein mapping Ankle-brachial pressure indices Intracranial stenosis / aneurysm / arterial-venous malformations Aortic aneurysm detection and assessment

APPENDIX 1

Cardiac	
Clinical applications include: Adult and paediatric cardiovascular systems. Scanning methods include the use of 2D, 3D and Doppler techniques, and trans-oesophageal probe placement. Contrast agents are also used.	Diastolic dysfunction Ventricular function Ventricular volume Mitral / aortic valve disease Right ventricular volume Cardiac stress testing Aortic dissection Hypertension Congestive cardiac failure Congenital heart disease Transplant assessment Congenital anomaly detection and monitoring

Core Body of Knowledge

(extract from *Validation and Accreditation Handbook of the Consortium for the Accreditation of Sonographic Education*)

Note: The entire document from which this extract is taken is on the accompanying CD-ROM.

SECTION 9: CASE CRITERIA FOR SUCCESSFUL ACCREDITATION

9.1 The contents of this section are appropriate for both accreditation and reaccreditation. The criteria included must be met, irrespective of whether accreditation is being sought through an accreditation event or a process accreditation. As the aim of CASE is to promote the best and most relevant sonography education and training its primary role in course accreditation is to ensure these objectives are adequately met. Four areas of particular importance in the pursuit of CASE accreditation: course content, learning outcomes, the teaching team and the learning environment (both clinical and academic).

9.2 Course Content

9.2.1 CASE will consider the course content in terms of core and additional specific clinical topic area. Although the names of comparative modules may vary between Institutions, the content of the modules, and of comparative programmes, will contain essential or core material that is common across all programmes. CASE requires the Institution to clearly evidence that the programme seeking accreditation delivers this core material effectively.

9.2.2 Core Topic Areas

For purposes of accreditation, CASE will divide the core material into two components: -

a) Science and Technology
b) Professional Studies

9.2.3 Specific Clinical Areas

All CASE accredited courses are required to provide specific clinical topics in addition to the core material. The specific clinical topic areas currently considered are:

a) Cardiac
b) General Medical
c) Gynaecology
d) Obstetric
e) Vascular

Other clinical areas such as breast, paediatric, fertility, musculo-skeletal ultrasound could also be considered.

9.2.4 The content of the specific clinical topic areas must reflect the appropriate referenced documents of the member organisations identified in Appendix B for accreditation to be achieved.

9.2.5 An Institution seeking CASE accreditation must satisfy CASE:

a) That the learning outcomes associated with the core and specific clinical topics given below can be a satisfactorily achieved through the programme to be accredited.

b) That the assessments address and match the relevant learning outcomes.

9.3 CASE Learning Outcomes

Identified below are the learning outcomes that CASE requires to see evidenced.

9.3.1 Core Component: Science and Technology

On completion of this component, the student should be able to:

a) Demonstrate a thorough knowledge of the physical and technological processes by which ultrasound information is obtained.

b) Apply this knowledge to the implications of artefacts in clinical practice.

c) Recognise and critically discuss the limitations and biohazards of the equipment and techniques employed.

d) Consider and evaluate the above knowledge to enable optimal use of the ultrasound equipment within the current, internationally recognised recommendations for safe practice.

9.3.2 Core Component: Professional Issues

On completion of this component, the student should be able to:

a) Demonstrate a thorough knowledge of the legal, ethical and organisational aspects of current diagnostic imaging practice.

b) Consider and evaluate professional accountability and the parameters of the professional role.

c) Evaluate the emotional impact of the ultrasound examination on the client or patient and relevant health professionals.

d) Critically discuss this knowledge in the changing health care needs of clients, patients and organisations.

9.3.3 Specific Clinical Topic

On completion of this component, the student should be able to:

a) Demonstrate an understanding of normal ultrasound appearances and ultrasound appearances of the common pathologies relating to specific clinical topics.

b) Produce, recognise and interpret normal and abnormal ultrasound B-mode images, colour flow images and Doppler ultrasound waveforms relating to the specific clinical topics where appropriate.

c) Evaluate the merits, limitations and their implications that influence the choice of ultrasound techniques and equipment relative to the specific clinical topic.

d) Analyse the needs of the patient in order to perform all aspects of the ultrasound examination safely and competently.

APPENDIX 3

Titles of Recent, Relevant Publications

This appendix provides titles of a selection of books and publications that are of relevance to sonography. They are arranged under the clinical specialities identified earlier.

BOOKS

Abdomen and General Medicine

Title: Abdominal and general ultrasound / edited by Hylton B. Meire
Volume information: Vol. 1
Edition: 2nd ed.
Publication info: London : Churchill Livingstone, 2001

Title: Abdominal ultrasound : a practitioner's guide/ Kathryn A. Gil
Publication info: Philadelphia : W. B. Saunders, c2001

Title: Abdominal ultrasound : how, why and when / Jane A. Bates
Edition: 2nd ed.
Publication info: Edinburgh ; New York : Churchill Livingstone, 2004

Title: An atlas of ultrasound color flow imaging / edited by Barry B. Goldberg, Daniel A. Merton and Colin R. Deane
Publication info: London : Martin Dunitz, 1997

Title: Atlas of ultrasound measurements / Barry B. Goldberg, John P. McGahan.
Edition: 2nd ed.
Publication info: Philadelphia, PA : Mosby, c2006

Title: Diagnostic ultrasound. Vol. 1 / [editors], Carol M. Rumack, Stephanie R. Wilson, J. William Charboneau; associate editor, Jo-Ann Johnson.
Edition: 3rd ed.
Publication info: St. Louis : Elsevier Mosby, c2005

Title: Diagnostic ultrasound. Vol. 2 / [editors], Carol M. Rumack, Stephanie R. Wilson, J. William Charboneau; associate editor, Jo-Ann Johnson.
Edition: 3rd ed.
Publication info: St. Louis : Elsevier Mosby, c2005

Title: Differential diagnosis in abdominal ultrasound / R.A.L. Bisset and A.N. Khan
Edition: 2nd ed.
Publication info: London : Saunders, 2001

Title: General ultrasound in the critically ill / Daniel Lichtenstein ; forewords by Michael R. Pinsky and François Jardin.
Publication info: Berlin ; [Great Britain] : Springer, c2005

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Title: Manual of emergency and critical care ultrasound / Noble, Vicki E
Publication info: Cambridge University Press, 2007

Title: Measurement in ultrasound : a practical handbook / Paul S. Sidhu, Wui K. Chong.
Publication info: London : Arnold, 2004

Title: Pocket protocols for ultrasound scanning / Betty Bates Tempkin
Publication info: Philadelphia : W.B. Saunders, c1999

Title: Ultrasound of the urogenital system / Grant M. Baxter,
Paul S. Sidhu ; with contributions by P.L. Allan [et al.]
Publication info: Stuttgart : Thieme, c2006

Title: Urogenital ultrasound : a text atlas / [edited by] Dennis L. Cochlin [et al.]
Edition: 2nd ed.
Publication info: London : Taylor & Francis, 2006

Title: General and vascular ultrasound : case review / William D. Middleton.
Publication info: St. Louis, Mo. ; London : Mosby, c2002

Title: Emergency ultrasound / Romolo Joseph Gaspari, J. Christian Fox,
Paul R. Sierzenski.
Publication info: Philadelphia, Pa. : Mosby, 2006]

Title: Emergency ultrasound made easy / Justin Bowra, RussellE. McLaughlin.
Publication info: Edinburgh : Churchill Livingstone Elsevier, 2006

Title: Ultrasound-guided procedures and investigations : a manual for the clinician / edited by Armin Ernst, David J. Feller-Kopman.
Publication info: New York : Taylor & Francis, 2006

Title: Emerging therapeutic ultrasound / edited by Junru Wu
and Wesley Nyborg.
Publication info: Singapore : World Scientific Publishing, 2006

Title: High-intensity focused ultrasound for prostate cancer.
Publication info: London : National Institute for Clinical Excellence, 2005

Obstetrics and Gynaecology (Note: obstetrics and gynaecology texts overlap so these two clinical areas are joined here)

Title: Obstetric ultrasound : how, why and when / Trish Chudleigh, Basky Thilaganathan.
Edition: 3rd ed.
Publication info: Edinburgh : Churchill Livingstone, 2004

Title: Obstetrics and gynaecology ultrasound : a self-assessment guide / Oluwakemi O. Ola-Ojo; foreword by Jean Wilson.
Publication info: Edinburgh ; New York : Churchill Livingstone, 2004

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Title: Obstetric and gynaecological ultrasound made easy / Norman C. Smith, A. Pat M. Smith.
Edition: 2nd ed.
Publication info: Edinburgh ; New York : Churchill Livingstone, 2006

Title: Making sense of obstetric Doppler ultrasound : a hands-on guide / Christoph Lees, Colin Deane, Gerard Albaiges.
Publication info: London : Arnold, 2003

Title: Fetal heart ultrasound : how, why and when ; 3 steps and 10 key points / Catherine Fredouille, Jean-Eric Develay-Morice.
Publication info: Edinburgh : Churchill Livingstone, 2007

Title: Embryo and fetal pathology : color atlas with ultrasound correlation / Enid Gilbert-Barness, Diane Debich Spicer ;
Publication info: Cambridge, UK ; New York : Cambridge University Press, 2004

Title: Doppler ultrasound in gynecology and obstetrics / [edited by] Christof Sohn, Hans-Joachim Voigt, Klaus Vetter
Publication info: Stuttgart : Thieme, c2004

Title: Doppler ultrasound in obstetrics and gynecology / editor, Dev Maulik ; associate editor for gynecology, Ivica Zalud.
Edition: 2nd, rev. and enl. ed.
Publication info: Berlin : Springer, c2005

Title: Case review : obstetric and gynecologic ultrasound / Karen L. Reuter, T. Kemi Babagbemi. Cover title: Obstetric and gynecologic ultrasound
Edition: 2nd ed.
Publication info: Philadelphia, Pa. : Mosby Elsevier, c2007

Title: Practical gynaecological ultrasound / edited by Jane Bates.
Edition: 2nd ed.
Publication info: Cambridge : Cambridge University Press, 2006

Title: Step-by-Step ultrasound in obstetrics / Kuldeep Singh, Narendra Malhotra.
Variant title: Ultrasound in obstetrics
Publication info: New York : McGraw-Hill Professional, 2004

Title: Ultrasound in gynaecology / guest editors T. Bourne and L. Valentin.
Publication info: London : Bailliere Tindall, 2004

Title: Ultrasound in obstetrics and gynaecology / edited by Keith Dewbury [et al]
Volume information: Vol. 3
Edition: 2nd ed.
Publication info: London : Churchill Livingstone, 2001

Paediatrics

Title: Pediatric ultrasound : how, why and when / Rose de Bruyn.
Publication info: Edinburgh : Elsevier Churchill Livingstone, 2005

Title: Neonatal cranial ultrasonography : guidelines for the procedure and atlas of normal ultrasound anatomy / Gerda van Wezel-Meijler.
Publication info: Berlin : Springer, c2007

Superficial organs

Title: Practical head and neck ultrasound / edited by Anil T. Ahuja and Rhodri M. Evans
Publication info: London : Greenwich Medical Media, 2000

Title: Breast ultrasound / Rahul Sachdev, Manjula Handa Virmani, Ashok Khurana.
Other title: Step by step breast ultrasound
Publication info: Tunbridge Wells : Anshan Ltd, 2006

Musculoskeletal

Title: Practical musculoskeletal ultrasound / Eugene G. McNally.
Publication info: Philadelphia, [Pa.] ; Edinburgh : Elsevier Churchill, 2004

Title: Musculoskeletal ultrasound : a beginner's guide to normal peripheral joint anatomy / by David Kane and Peter Balint.
Publication info: ARC, 2007

Title: Fundamentals of musculoskeletal ultrasound / Jon A. Jacobson.
Publication info: Philadelphia, Pa. ; Edinburgh : Elsevier Saunders, c2007

Vascular

Title: Vascular diagnosis with ultrasound : clinical reference with case studies. Vol. 1. Cerebral and peripheral vessels / Michael Hennerici, Doris Neuerburg-Heusler;
Edition: 2nd rev. ed.
Publication info: Stuttgart : Thieme Publishing Group, 2006

Title: Peripheral vascular ultrasound : how, why and when / Abigail Thrush, Timothy Hartshorne.
Edition: 2nd ed.
Publication info: Edinburgh : Elsevier Churchill Livingstone, 2005

Title: Introduction to vascular ultrasonography. Edited by William J. Zwiebel, John S. Pellerito.
Edition: 5th ed.
Publication info: Philadelphia, Pa. : Saunders, c2005

Title: Making sense of vascular ultrasound : a hands-on guide / Kenneth A. Myers, Amy Clough.
Publication info: London : Arnold, 2004

Title: An atlas of ultrasound color flow imaging / edited by Barry B. Goldberg, Daniel A. Merton and Colin R. Deane
Publication info: London : Martin Dunitz, 1997

Title: Clinical Doppler ultrasound / Paul L. Allan [et al]
Publication info: London : Churchill Livingstone, 2000

Title: Duplex scanning in vascular disorders / Eugine Strandness
Edition: 3rd ed.
Publication info: Philadelphia, Penn. : Lippincott, Williams and Wilkins, 2002

Title: General and vascular ultrasound : case review / William D. Middleton.
Publication info: St. Louis, Mo. ; London : Mosby, c2002

Cardiac

Title: Cardiac ultrasound / Leonard M. Shapiro, Antoinette Kenny.
Publication info: London : Manson, 2003

Other relevant books

Title: Guidelines for professional working standards : Ultrasound practice / United Kingdom Association of Sonographers
Publication info: London : United Kingdom Association of Sonographers, 1996

Title: Ultrasound training recommendations for medical and surgical specialties / Faculty of Clinical Radiology, The Royal College of Radiologists.
Publication info: London : Royal College of Radiologists, c2005

Title: Acuson Sequoia 512 ultrasound imager : technical evaluation - image quality / assessment carried out by A.J. Watson
Publication info: London : The Stationery Office, c2000

Title: Routine quality assurance of ultrasound imaging systems / Institute of Physical Sciences In Medicine (IPSM)
Publication info: York : IPSM, 1995

Title: Diagnostic ultrasound : physics and equipment / Peter Hoskins [et al].
Publication info: London : Greenwich Medical Media, 2003

Title: Diagnostic ultrasound : principles and instruments / Frederick W. Kremkau.
Edition: 7th ed.
Publication info: St. Louis, Mo. : Saunders Elsevier, c2006

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Title: Recent advances in diagnostic and therapeutic 3-D ultrasound imaging / Suri, Jasjit
Publication info: Artech House, 2007

Title: The Safe use of ultrasound in medical diagnosis / edited by G. ter Haar and F. A. Duck
Publication info: London : British Institute of Radiology, c2000

Title: Science and technology of ultrasonics / Baldev Raj, V. Rajendran, P. Palanichamy.
Publication info: Pangbourne : Alpha Science, c2004.

Title: Ultrasound in medicine / edited by Francis A. Duck, Andrew C. Baker, Hazel C. Starritt.
Publication info: Bristol : Institute of Physics Pub, c1998

Title: Essentials of ultrasound physics / James A. Zagzebski.
Publication info: St. Louis, Mo. ; London : Mosby, c1996

Title: Ultrasound physics and instrumentation / Wayne R. Hedrick, David L. Hykes, Dale E. Starchman.
Edition: 4th ed.
Publication info: St. Louis, Mo. : Elsevier Mosby, c2005

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JOURNALS

Cardiovascular ultrasound	ISSN: 1476-7120
European journal of ultrasound	ISSN: 0929-8266
Journal of clinical ultrasound	ISSN: 0091-2751
Journal of ultrasound	ISSN: 1971-3495
Journal of ultrasound in medicine	ISSN: 1550-9613
Radiography	ISSN: 1078-8174
Seminars in ultrasound, CT and MRI	ISSN: 0887-2171
Ultrasound in obstetrics and gynecology	ISSN: 1365-2885
Ultrasound quarterly	ISSN: 0894-8771
Ultrasound	ISSN: 1742-271X

SELECTED PUBLISHED PAPERS

(these papers are from *Radiography,* the peer reviewed journal of the Society and College of Radiographers)

Evaluation of critical thinking application in medical ultrasound practice among sonographers in south-eastern Nigeria
Radiography, Volume 13, Issue 4, November 2007, Pages 276-282
K.K. Agwu, S.O.I. Ogbu and E. Okpara

Validation of an external ultrasound device for bladder volume measurements in prostate conformal radiotherapy
Radiography, In Press, Corrected Proof, Available online 31 August 2007
Evelyn O'Shea, John Armstrong, Tom O'Hara, Louise O'Neill and Pierre Thirion

Longitudinal changes in extended roles in radiography: A new perspective
Radiography, Volume 13, Issue 1, February 2007, Pages 18-29
R.C. Price and S.B. Le Masurier

Longitudinal changes in extended roles in radiography: A new perspective
Radiography, Volume 13, Issue 1, February 2007, Pages 18-29
R.C. Price and S.B. Le Masurier

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Occupational stress and its predictors in radiographers
Radiography, In Press, Corrected Proof, Available online 22 November 2006
D.R. Rutter and M.J. Lovegrove

Ultrasound breast boosts: A pilot study
Radiography, In Press, Corrected Proof, Available online 13 November 2006
J. Cameron, M. Smith and I. Kunkler

Critical thinking and the role of the clinical ultrasound tutor
Radiography, Volume 12, Issue 3, August 2006, Pages 209-214
Hazel Edwards

The role of ultrasound in the accurate diagnosis of a case of thanatophoric dysplasia
Radiography, Volume 12, Issue 3, August 2006, Pages 258-263
G. Martin and J.G. Johnson

Can high frequency ultrasound predict metastatic lymph nodes in patients with invasive breast cancer?
Radiography, Volume 12, Issue 2, May 2006, Pages 96-104
Gillian R. Clough, John Truscott and Isobel Haigh

Ultrasound of neck lymph nodes: How to do it and how do they look?
Radiography, Volume 12, Issue 2, May 2006, Pages 105-117
Michael Ying and Anil T. Ahuja

Sonographic measurement of thyroid gland volume: A comparison of 2D and 3D ultrasound
Radiography, Volume 11, Issue 4, November 2005, Pages 242-248
Michael Ying, Man-hong Sin and Shuk-fan Pang

Can sonographers offer an accurate upper abdominal ultrasound service in a district general hospital?
Radiography, Volume 9, Issue 1, February 2003, Pages 29-33
N. A. Dongola, R. L. Guy, J. A. Giles and S. Ward

Recruitment, training and retention of healthcare professionals in clinical ultrasound (April 2001–December 2002)
Radiography, Volume 8, Issue 4, November 2002, Pages 211-214
M. J. Lovegrove and R. C. Price

Fetal choroid plexus cysts and their association with Trisomy 18: 5 years' prospective ultrasonic screening
Radiography, Volume 7, Issue 2, May 2001, Pages 95-100
J. Dodgeon

Sonographic detection of a meniscal cyst
Radiography, Volume 7, Issue 2, May 2001, Pages 137-141
V. Gibbs and A. Jones

APPENDIX 3

Intra-operative ultrasound of brain and spinal cord lesions
Radiography, Volume 7, Issue 1, February 2001, Pages 55-60
M. Cellerini, P. Innocenti, M. Milazzotto, M. Bartolucci, G. Guizzardi and P. Mennonna

Clinical Diagnostic Ultrasound
Radiography, Volume 6, Issue 4, November 2000, Page 309
E. Dillon

Ultrasound scanning principles and protocols
Radiography, Volume 6, Issue 4, November 2000, Pages 310-311
Heather Venables

Radiographer performed general diagnostic ultrasound: current UK practice
Radiography, Volume 6, Issue 3, August 2000, Pages 179-188
G. A. Mckenzie, S. A. Mathers, D. T. Graham and R. A. Chesson

An unusual ultrasonographic appearance of a uterine leiomyoma micking an ovarian mass
Radiography, Volume 6, Issue 2, May 2000, Pages 123-125
Amir Laor, Reuven Sharony, Rami Aviram, Ilan Cohen, Yoram Beyth and Ron Tepper

Occupational standards for the practice of diagnostic ultrasound: Part 2, the process and the outcomes
Radiography, Volume 6, Issue 1, February 2000, Pages 43-50
Regina Fernando, Neil James Prime, Linda Miller and Lindsay Mitchell

The development of occupational standards in the practice of diagnostic ultrasound: Part 1, background
Radiography, Volume 5, Issue 4, November 1999, Pages 215-220
Neil James Prime, Regina Fernando, Linda Miller and Lindsay Mitchell

The radiographer reporting debate—the relationship between radiographer reporting, diagnostic ultrasound and other areas of role extension
Radiography, Volume 5, Issue 3, August 1999, Pages 177-179
Regina Fernando

Objects of The Society of Radiographers

The Companies Act 1985
Company limited by guarantee and not having a share capital

Memorandum of Association
of
The Society of Radiographers Limited

1. **Company name**
The Company's name is The Society of Radiographers Limited (the **"Society"**).
2. **Registered office**
The Society's registered office is to be situated in England.

3. **Objects**
3.1 The objects for which the Society is established (the **"Objects"**) are:

(a) to promote and develop for the public benefit the science and practice of radiography and radiotherapeutic technology and allied subjects;

(b) to promote study and research work in radiography and radiotherapeutic technology and allied subjects and to publish the results of all such study and research;

(c) to further public education therein;

(d) to protect the honour and interests of persons engaged in the practice of radiography and radiotherapeutic technology and allied subjects including the regulation of relations between such persons and employers or employers' associations; and

(e) to further all such objects which a trade union may lawfully pursue in accordance with statute.

3.2 For the purpose of furthering the Objects but not further or otherwise the Society shall have the following powers:

(a) to improve the training education and professional standards of persons engaged in the practice of radiography, radiotherapeutic technology and allied subjects;

(b) to provide for the delivery of lectures, the holding of classes and examinations, the establishment of scholarships and the granting of prizes, diplomas and certificates of merit and efficiency in connection with the science practice and

teaching of radiography, radiotherapeutic technology and allied subjects and to make institute and establish grants awards or other benefactions in connection with study and research work therein;

(c) to establish and maintain libraries and museums and to promote, organise and conduct exhibitions of apparatus, plant and processes connected with the science and practice of radiography, radiotherapeutic technology and allied subjects;

(d) to print, publish, sell, lend and distribute a Journal and such other papers, communications, works or treatises as may be necessary or desirable to promote the Objects;

(e) to establish, undertake, superintend, administer and contribute to any charitable fund in connection with or for the benefit of persons engaged in the science and practice of radiography, radiotherapeutic technology and allied subjects and of their dependants;

(f) to establish, maintain and contribute to schemes, funds and trusts to provide pensions, gratuities and bonuses to and for employees and exemployees of the Society and their dependants (including any employee or exemployee who is also a Member) but so that no such benefits as aforesaid shall be paid directly or indirectly to any member of the UK Council;

(g) to promote and carry out the objects of the Society in affiliation or association to or with any other charitable society or association not formed for profit and having objects similar to the Objects;

(h) to borrow any moneys required for the purposes of the Society and to give security for the repayment thereof;

(i) to purchase, lease, hire or otherwise acquire any real or personal property andto construct, alter and maintain any buildings;

(j) subject to all such consents as are by law required to sell, lease, dispose of or otherwise deal with the property of the Society as may be deemed expedient with a view to the promotion of the Objects;

(k) to make grants or loans of money and to give guarantees;

(l) to deposit or invest the funds of the Society not immediately required for its purposes in any manner;

(m) to insure the property of the Society and arrange insurance cover for its employees, servants and voluntary workers from and against all such risks incurred in the course of the performance of their duties as may be thought fit;
(n) to provide indemnity insurance to cover the liability of any of the members ofthe UK Council or any of the trustees of the College of Radiographers;

(o) to arrange for investments or other property of the Society to be held in the

name of a nominee;

(p) to undertake and execute any trusts the undertaking whereof may be deemed conducive to the promotion of the Objects;

(q) to do all such other lawful things as are necessary for the attainment of the Objects or any of them; provided also that in case the Society shall take or hold any property subject to the jurisdiction of the Charity Commissioners for England and Wales or any other relevant person the Society shall not sell, mortgage, charge or lease the same without such authority, approval or consent as may be required by law, and as regards any such property the members of the UK Council shall be chargeable for such property as may come into their own hands, and shall be answerable and accountable for their own acts, receipts, neglects, and defaults and for the due administration of such property. In case the Society shall take or hold any property that may be subject to any trusts, the Society shall only deal with the same in such manner as is allowed by law having regard to such trusts.

4. The income and property of the Society shall be applied solely towards the promotion of the Objects and no portion thereof shall be paid or transferred directly or indirectly by way of dividend, bonus or otherwise howsoever by way of profit to the Members of the Society provided that nothing herein shall prevent:

4.1 the payment, in good faith, of reasonable and proper remuneration to any officer or employee of the Society or to any Member of the Society in return for any services actually rendered to the Society;

4.2 the payment to any Member of any annuity or bonus in accordance with subclause 3.2(f) of this Memorandum of Association;

4.3 the receipt by any Member of the Journal or any other publication of the Society or any other benefit conferred on Members from time to time by the Society in return for the payment of subscriptions;

4.4 the payment of interest at a rate not exceeding 6 per cent per annum on money lent to the Society by any Member;

4.5 the payment of reasonable and proper rent for the premises demised or let by any Member to the Society; and provided further that no member of the UK Council shall be appointed to any salaried office of the Society or any office of the Society paid by fees and that no remuneration or other benefit in money or money's worth shall be given by the Society to any member of the UK Council except repayment of out of pocket expenses and interest at the rate aforesaid in respect of money lent to the Society or reasonable and proper rent for premises demised or let to the Society.

5. The liability of the Members is limited.

6. Every Member of the Society undertakes to contribute to the assets of the Society, in the event of the same being wound up during the time that he is a Member, or within one year afterwards, for payment of the debts and liabilities of the Society contracted before the time at which he ceases to be a Member, and of the costs,

charges and expenses of winding up the same, and for the adjustment of the rights of the contributories amongst themselves, such amount as may be required, not exceeding
£1.00.

7. If upon the winding up or dissolution of the Society there remains after the satisfaction of all its debts and liabilities, any property whatsoever, the same shall not be paid to or distributed among the Members of the Society, but shall be given or transferred to some other charitable institution or institutions not formed or carrying on business for profit, having objects similar to the Objects, to be determined by the Members of the Society at or before the time of dissolution and if and so far as effect cannot be given to the aforesaid provision then to some charitable object.

8. True accounts shall be kept of the sums of money received and expended by the Society and the matters in respect of which such receipts and expenditure take place, and of the assets, credits and liabilities of the Society in books of account which shall be kept at the registered office of the Society or at such other place or places as the Society think fit and; subject to any reasonable restrictions as to the time and manner of inspecting the same that may be imposed in accordance with the rules of the Society for the time being, shall be open to the inspection of the Members. Once at least in every year the accounts shall be examined and the correctness of the statement and balance sheet ascertained by one or more properly qualified auditor or auditors.

We, the several persons whose names, addresses and descriptions are subscribed, are desirous of being formed into a Society in pursuance of this Memorandum of Association.

19TH July 1920

APPENDIX 5

Index to The Society of Radiographers' Members Handbook

Organisations and Individuals contacted about this application **APPENDIX 6**

Title	Initial	Surname	Job Title/Role	Organisation
Dr	K	Martin	President	BMUS
Dr	K	Ison	President	IPEM
Ms	M	Elliot	President	RCM
Mrs	M	Buchanan	President	RCN
Professor	A	Adam	President	RCR
Mrs	R	Conlon	Chair	CASE
Professor	S	Arulkumaran	President	RCOG
Professor	D	Haslam	President	RCGP
Ms	E	Chapman	Chair	UKAS
Professor	S	West	Chair	Council of Deans
Dr	E	Denton	Chair	National Imaging Board (England)
Professor	P	Soothill	Chairman	National Fetal Anomaly Screening Programme
Ms	K	Middleton	Chief Health Professions Officer	Department of Health (England)
Professor	S	Hill	Chief Scientific Officer	18 week programme workforce lead
Dr	E	Robinson	National Clinical Lead: Radiology, Diagnostics Collaborative Programme for Scotland	Scottish Health Department
Ms	J	Lundy	Chief Health Professions Officer	Scottish Health Department
Ms	S	Lam	Director of Allied Health Professions	NHS Education Scotland
Ms	J	Wylie	Professional Practice Development Officer	NHS Quality Improvement Scotland
Dr	P	Duffy	Clinical Director for Diagnostics	NHS Greater Glasgow and Clyde
Ms	C	Muir	Clinical Service Manager	Western Infirmary
Ms	J	McGeath	Regional Antenatal and Newborn Screening Coordinator	DHSSPS in Northern Ireland
Ms	N	McArdle	Allied Health Professions Officer	DHSSPS in Northern Ireland
Ms	B	Hughes	Royal College of Midwives	UK Board for Northern Ireland
Ms	P	Quinn	Director of Operations and Chief Nurse Advisor	Regulatory Quality Improvement Authority
Ms	R	Kelso	School of Heath Science	University of Ulster
Dr	O	Crawley	Chief Scientific Advisor	Welsh Assembly Government
Dame	C	Elcoat	Director of Nursing and Patient Care	East Midlands SHA
Ms	E	Foley	Allied Health Professions Lead	Yorks and Humber SHA
Ms	S	Huszak	Allied Health Professions Lead and Specialist Advisor	West Midlands SHA
Ms	J	Nicklin	Allied Health Professions Lead	East of England SHA
Ms	T	Morris	Executive Director of Nursing	London SHA
Ms	A	Allen	Allied Health Professions Lead	South East Coast SHA
Ms	K	Fenton	Director of Clinical Standards/Chief Nurse	South Central SHA
Ms	L	Simpson	Executive Director of Operations and Regional Nurse	North East SHA
Ms	S	Louth	Allied Health Professions Development Manager (Greater Manchester)	North West SHA
Ms	K	Tanner	Associate Director of Patient Care	South West SHA

APPENDIX 7

Job Title: **Radiographer Specialist (Reporting Sonographer)**

Job Statement:

1. Assesses & reports on own specialist workload of patients/clients (for ultrasound scans), maintains associated records
2. Supervises recently qualified Radiographers/ assistants/ students working with postholder
3. May participate in departmental research, clinical trials, equipment testing

Factor	Relevant Job Information	JE Level
1. Communication & Relationship Skills	Provide and receive highly complex, sensitive or contentious information; barriers to understanding Communicates information relating to foetal and other abnormalities	5(a)
2. Knowledge, Training & Experience	Specialist knowledge across range of procedures, underpinned by theory Specialist professional knowledge acquired through degree supplemented by specialist diploma or equivalent level, short specialist courses	6
3. Analytical & Judgemental Skills	Complex facts or situations requiring analysis, interpretation, comparison of a range of options Specialist skills for interpreting, reporting on patient conditions, range of options	4
4. Planning & Organisational Skills	Plan and organise straightforward activities, some ongoing Plans & prioritises own patient workload, training sessions	2
5. Physical Skills	Highly developed physical skills, high degree of precision Dexterity & sensory skills for positioning, ultrasound scanning, amniocentesis	4
6. Responsibility for Patient/Client Care	Provides highly specialist clinical technical services Carries out ultrasound scans and reports on them	6(b)
7. Responsibility for Policy/Service Development	Implement policies and propose changes to practices, procedures for own area Proposes changes to ultrasound protocols	2
8. Responsibility for Financial & Physical Resources	Safe use of expensive equipment. Safe use and maintenance of expensive specialist equipment used by self and others	2(e)
9. Responsibility for Human Resources	Day to day; clinical supervision; practical training Supervises work of other qualified staff/assistant(s)/ students; provides clinical training	2(a)(b)(c)
10. Responsibility for Information Resources	Record personally generated information Updates client records	1
11. Responsibility for Research & Development	Occasionally participates in/regularly undertakes R&D activity; clinical trials Occasionally/ regularly participates in Research and Development	1-2(a)(b)
12. Freedom to Act	Broad occupational policies Accountable for own professional actions, including reporting: lead practitioner for specialist area	4
13. Physical Effort	Occasional/frequent moderate effort, several short periods Positioning, manoeuvring patients, equipment	2(d)-3(c)
14. Mental Effort	Frequent concentration, work pattern predictable Concentration on patient scanning & reporting	2(a)
15. Emotional Effort	Frequent highly distressing or emotional circumstances Identifies cancers, reports foetal abnormality to patient	4(b)
16. Working Conditions	Frequent unpleasant; occasional/frequent highly unpleasant conditions Body odours/trans-vaginal scans	3(a)(b)-4(b)
JE Score/Band	JE Score 467- 485	Band 7

West Hertfordshire Hospitals NHS
NHS Trust

HEMEL HEMPSTEAD GENERAL, ST ALBANS CITY AND WATFORD GENERAL HOSPITALS

Advanced Practitioner Sonographers

Band 7
Full-time or part-time applications considered
Ref: 360-1612

Vacancies have arisen for Advanced Practitioner Sonographers to join our dedicated team at West Hertfordshire Hospitals NHS Trust. You should hold the PgD in Medical Ultrasound or DMU.

Working in these friendly departments, you will scan and independently report on a range of ultrasound examinations, including obstetric, gynaecology and general abdominal.

You will be offered support for internal and external training courses discussed at your annual appraisal.

If you are interested in joining this Trust and would like the opportunity to discuss these positions, please contact Mrs Sue Daniels, Radiology Services Manager on 01442 287330.

To arrange an informal visit at Hemel Hempstead or St Albans, please contact Jill Giles, Lead Superintendent Sonographer on 01442 287334 or to arrange an informal visit at Watford, contact Mandie Johnson, Lead Superintendent Sonographer on 01923 217340.

For an application pack or for information on other opportunities across the Trust, please visit www.jobs.nhs.uk and apply online quoting reference 360-1612.

Closing date: 22nd November 2007.

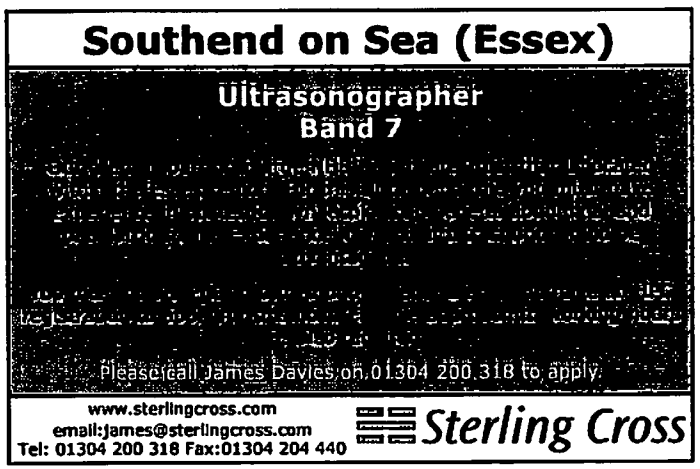
Recruitment line available Mon-Fri 9-5pm on 0845 6098000.

We offer a range of development opportunities, including clinical supervision and preceptorship.

For Central Bank call 01442 287933.

www.westhertshospitals.nhs.uk

Working Towards Equal Opportunities
The Trust operates a no smoking policy


Southend on Sea (Essex)
Ultrasonographer
Band 7
Pleasecall James Davies on 01304 200 318 to apply
www.sterlingcross.com
email:james@sterlingcross.com
Tel: 01304 200 318 Fax:01304 204 440
Sterling Cross

Appendix C 1
Training and equipment standards for ultrasound screening in pregnancy

- Sonography is not recognised as a speciality by the Health Act 1999, so there is no obligation for sonographers to be registered to practise.
- There is currently no statutory requirement for ultrasound practitioners to receive accredited training.
- Many sonographers will have achieved a postgraduate certificate or diploma in clinical ultrasound.
- Well-established programmes leading to these qualifications are available in a number of universities in the UK and courses are accredited by the Consortium for the Accreditation of Sonographic Education (CASE). Members of the consortium include the British Medical Ultrasound Society, the Royal College of Radiographers (RCR), the Royal College of Midwives and the United Kingdom Association of Sonographers.
- To achieve and attain CASE accreditation, an individual course must demonstrate that both its academic and clinical teaching programmes and its assessment methods are sufficiently rigorous to ensure that successful students are safe to practise in the ultrasound areas for which they have studied.
- Current postgraduate education certificates and diploma training programmes in obstetric ultrasound are designed with the provision of a safe, accurate and efficient screening service for fetal anomaly in mind.
- With regard to the implementation of the National Down's Syndrome Screening Programme for England, all professionals involved in providing antenatal screening information & services should have received the appropriate education for their roles and responsibilities and any specific tasks required.
- All health professionals undertaking an ultrasound scan must have an accredited certificate in obstetric ultrasound or equivalent and also attend an appropriate communication/counselling course.
- (Extracted from Antenatal screening – working standards, National Down's Syndrome Screening Programme for England, (March 2004)) 964
- There is a need for practical competence tests at NHS trust level. The RCOG Working Party recommends that local departments monitor standards and keep checks on them.
- Trusts should have a process for retraining and updating as required but at present there is little provision for this in trust budgets. Clinical governance provides a facilitating mechanism.
- The RCOG is in the process of implementing Advanced Training Skills Modules (ATSM's) and all
- medical staff who undertake fetal anomaly scanning should hold the relevant ATSM. Skills shouldbe maintained by performing detailed scans in at least one and preferably two sessions per week.

- Medical and midwifery staff should not undertake scans of any sort if they have not been specifically trained.
- A scan to perform a fetal structural survey demands the use of modern equipment (not more than 5 years old) of modest sophistication. The scanner must be capable of performing the necessary measurements and should provide good image quality. As always, regards for safety in the use of ultrasound is paramount and minimum output should be used in accordance with the ALARA principle: as low as reasonably attainable.
- [Extracted from the recommendations of the Royal College of Obstetricians and Gynaecologists July 2000 Supplement to Ultrasound Screening for Fetal Abnormalities]

Information on current ultrasound education providers, and numbers of students 2004 – 2006

Ultrasound Education Providers

The higher education institutions currently providing ultrasound education programmes approved by the Consortium for the Accreditation of Sonographic Education are:

Anglia Ruskin University, Cambridge

Canterbury Christ Church University, Canterbury

City University, London

Glasgow Caledonian University, Glasgow

King's College, London

Sheffield Hallam University, Sheffield

London South Bank University, London

University of Cumbria, Lancaster

Birmingham City University, Birmingham

University of Derby, Derby

University of Hertfordshire, Hatfield

University of Leeds, Leeds

University of Liverpool, Liverpool

University of Portsmouth, Portsmouth

University of Salford, Salford

University of Teesside, Middlesborough

University of the West of England, Bristol

APPENDIX 10

Student Numbers

Data from CASE monitoring reports shows the student population recruited in 2005/2006, and the numbers recruited in 2004/2005.

Total students recruited in:	2005/2006	(2004/2005)
Post Graduate Certificate	100	(98)
Post Graduate Diploma	130	(127)
MSc	23	(43)
Single Module (where offered)	34	(29)
Total	287	(297)
Total for Programmes	253	(268)
Total for Module only	34	(29)

DRAFT BENCHMARK STATEMENTS: HEALTH CARE PROGRAMMES.

ULTRASOUND

Preface

Subject benchmark statements provide a means for the academic community to describe the nature and characteristics of programmes in a specific subject or subject area. They also represent general expectations about standards for the award of qualifications at a given level in terms of the attributes and capabilities that those possessing qualifications should have demonstrated.

Subject benchmark statements are used for a variety of purposes. Primarily, they are an important external source of reference for higher education institutions (HEIs) when new programmes are being designed and developed in a subject area. They provide general guidance for articulating the learning outcomes associated with the programme but are not a specification of a detailed curriculum in the subject.

Subject benchmark statements also provide support to HEIs in 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. Subject benchmark statements allow for flexibility and innovation in programme design and can stimulate academic discussion and debate upon the content of new and existing programmes within an agreed overall framework. Their use in supporting programme design, delivery and review within HEIs is supportive of moves towards an emphasis on institutional responsibility for standards and quality.

Subject benchmark statements may also be of interest to prospective students and employers, seeking information about the nature and standards of awards in a given subject or subject area.

The relationship between the standards set out in this document and those produced by professional, statutory or regulatory bodies for individual disciplines will be a matter for individual HEIs to consider in detail.

This subject benchmark statement was produced by a group of subject specialists drawn from, and acting on behalf of, the subject community. The final draft subject benchmark statement went through a full consultation with the wider academic community and stakeholder groups. The process was overseen by the Quality Assurance Agency for Higher Education (QAA). This subject benchmark statement will be revised no later than five years from its publication date, to reflect developments in the subject area and the experiences of HEIs and others who have been working with it. The review process will be overseen by QAA in collaboration with the subject community.

QAA publishes and distributes this subject benchmark statement and other subject benchmark statements developed by similar subject-specific groups.

The Disability Equality Duty (DED) came into force on 4 December 20062. The DED requires public authorities, including HEIs, to act proactively on disability equality issues.
The Duty complements the individual rights focus of the Disability Discrimination Act (DDA) and is aimed at improving public services and outcomes for disabled people as a whole. Responsibility for making sure that such duty is met lies with HEIs.

The Disability Rights Commission (DRC) has published guidance3 to help HEIs prepare for the implementation of the Duty and provided illustrative examples on how to take the duty forward. HEIs are encouraged to read this guidance when considering their approach to engaging with components of the Academic Infrastructure4, of which subject benchmark statements are a part.

Additional information that may assist HEIs when engaging with subject benchmark statements can be found in the DRC revised Code of Practice: Post-16 Education5, and also through the Equality Challenge Unit6 which is established to promote equality and diversity in higher education.

2 In England, Scotland and Wales

Copies of the guidance Further and higher education institutions and the Disability Equality Duty, guidance for principals, vice-chancellors, governing boards and senior managers working in further and higher education institutions in England, Scotland and Wales, may be obtained from the DRC at www.drc- gb.org/employers_and_service_provider/disability_equality_duty/sectoral_guidance/further and higher education.aspx

4 An explanation of the Academic Infrastructure, and the roles of subject benchmark statements within it, is available at www.qaa.ac.uk/academicinfrastructure

5 Copies of the DRC revised Code of Practice: Post-16 Education may be obtained from the DRC at www.drc-gb.org/employers_and_service_provider/education/higher_education.aspx

6 Equality Challenge Unit, www.ecu.ac.uk

Contents

Foreword

This draft benchmark statement describes the nature and standards of programmes of study in ultrasound that leads to awards made by higher education institutions in the United Kingdom (UK) in the subject.

It has been developed in collaboration with a number of other health care .Although initial work was undertaken in subject specific groups, the analysis of these early drafts identified a number of features which all the subject groups shared. It was, therefore, agreed by each of the specialist benchmark groups that their respective statements could be cast using a common structure. As work progressed it became increasingly apparent that there was considerable overlap within the details of the subject-specific statements and a common health professions framework was emerging. This emerging framework is, accordingly, displayed in each of the subject statements in order to illustrate on the one hand, the shared context upon which the education and training of health care professionals rests and, on the other, the uniquely profession-specific context within which programmes are organised. It is important to emphasise that benchmark statements are not cast in tablets of stone and will need to be revisited in the light of experience and further developments in health care. Moreover, we are confident that the emerging framework has the potential to embrace other health related professions such as social work, dentistry, medicine and other therapies. It is anticipated that further work in a second phase of the project could lead to an overarching health professions framework.

The initial section of this statement sets out the health professions framework 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 ultrasound, describes the profession-specific expectations and requirements under the same three categories.

The key feature in this statement, as in the associated statements, is the explicit articulation of the academic and practitioner standards associated with the award in ultrasound. 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 team-working 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 inter-professional 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 and the associated statements will therefore allow higher education institutions, 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 radiography. 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 higher education institutions 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 higher education institutions are expected, as a minimum, to set their standards for the award.

An emerging health professions framework

The subject specific statements for Ultrasound have been set within the emerging health professions framework outlined below. As indicated in the foreword, this framework developed as a result of the benchmarking work undertaken collaboratively by 11 different health professional groups. Further evolution of the framework is anticipated through a second phase of the project which will address its goodness of fit with a range of other health and social care professions benchmark statements.

A Expectations of the health professional in providing patient/client services
This section articulates the 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 should 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 should be able to:

- participate effectively in inter-professional 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

The award holder should be able to:

- demonstrate the ability to deliver quality patient/client-centred care;
- practise in an anti-discriminatory, anti-oppressive manner;
- draw upon appropriate knowledge and skills in order to make professional judgements, recognising the limits of his/her 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 work place.

A4 Profession and employer context

The award holder should be able to:

- show an understanding of his/her role within health and social care services;
- demonstrate an understanding of government policies for the provision of health and social care;
- take responsibility for his/her 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 health promoting/health educating/caring/diagnostic/therapeutic 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 should 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 his/her 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 his/her 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

The award holder should be able to:

- work with the client/patient, (and his/her relatives/carers), group/community/population, to consider the range of activities that are appropriate/feasible/acceptable, including the possibility of referral to other members of the health and social care team and agencies;
- plan care within the context of holistic health management and the contributions of others;
- use reasoning and problem solving skills to make judgements/decisions in prioritising actions;
- formulate specific management plans for meeting needs/problems, setting these within a timescale and taking account of finite resources;
- record professional judgements and decisions taken;
- synthesise theory and practice.

B3 Practice

The award holder should be able to:

- conduct appropriate activities skillfully 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 should 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. Consequently, in this introductory section, the attributes and capabilities expected of the student are expressed at a generalised level.

C1 Knowledge and understanding

The award holder should 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 evidenced based practice;
- the relevance of the social and psychological sciences to health and healthcare;
- 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 should 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 should be able to demonstrate:

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

Communication
The award holder should 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 should be able to demonstrate:

- ability in understanding, manipulating, interpreting and presenting numerical data.

Information technology
The award holder should be able to demonstrate:

- an ability to engage with technology, particularly the effective and efficient use of information and communication technology.

Draft benchmarks for Ultrasound

Introduction

All Ultrasound education is delivered in higher education institutions (HEIs) and all register able qualifications obtained in the United Kingdom (UK) are awards of UK HEIs that have validated those awards conjointly with the statutory regulatory body and the professional body

Ultrasound requires the safe use of non-ionising to achieve a diagnostic or therapeutic health gain. Sonographers require an ability to interpret and effectively execute information referred from other health care professionals, in order to maximise health gain whilst minimising bio effects from Ultrasound energy. Exposure to non- ionising radiation carries risk to both the individual and future generations.

Ultrasound is concerned with diagnostic and interventional procedures, health surveillance screening and research. Sonographers practise within an ethical and legal framework. A key part of the Sonographers's role is to manage complex interpersonal dynamics, counselling and breaking bad news and to act as an advocate for each patient.

Team work is a notable feature of practice in both inter-professional and intra-disciplinary frameworks although individual and autonomous practice is also a significant feature. Sonographers are responsible for providing safe, rapid and accurate diagnostic imaging examinations in a wide range of clinical situations, using a range of imaging techniques, applications, interpretation and reporting so that appropriate management and treatment of patients and clients may proceed. They are also responsible for the physical and psychosocial care of patients whilst in their care.

Graduates of Ultrasound programmes must be able to practise safely and independently, ensuring the confidence of both patients and the broad health care sector. Safe practice requires an education based on sound scientific and technical knowledge, critical examination of evidence informing practice and development, and enhancement over time in an ethos of continuing professional development. Accordingly, undergraduate programmes in Ultrasound need to address subject knowledge and skills, transferable skills, and clinical outcomes and behaviours. However, in keeping with an underpinning professional philosophy that expects curriculum development and innovation to be a continuous process, HEIs, in partnership with health care providers and agencies, are charged with the responsibility of creating curricula that enable both the development of competence to practise, and in corporation of new and emerging developments within the discipline. Similarly, HEIs may decide on the mode of delivery, management, content and organisation of programmes, although there is an expectation that the education process will be facilitated by considerable contact with patients in relevant and appropriate health care settings. There is also an expectation that assessment of students' capability for practice will be undertaken in the clinical environment, at least in part. Again, the methods used are a matter for HEIs to determine.

Teaching, learning and assessment

Decisions about the strategies and methods for teaching, learning and assessment are for institutions to determine, but should complement the learning outcomes associated with health profession programmes. It is not for benchmark statements to promulgate any one, or combination of, approaches 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. Fundamental to the basis upon which 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.

Nature and extent of programmes in ultrasound

Background

The mid 1950s first saw the introduction of ultrasound for diagnostic use. Since then, its use in medical institutions has proliferated and it is now the fastest growing clinical imaging modality. The scope of practice of sonographers and the application of ultrasound imaging has continued to grow to meet the demand for an ever increasing range of diagnostic ultrasound examinations. Ultrasound examination now forms an integral part of most patient care-pathways.

Ultrasound is concerned with a range of patients and clients, as well as a range of techniques, applications and interventions. Examinations undertaken span the life-cycle of the population, from fetal life and ante-natal care to old age; and the extremes of health, from screening well women and men to coping with patients in the terminal stages of life or suffering acute, often severe, illness or trauma. Ultrasound services extend over a comprehensive range of settings from primary to tertiary level in both the NHS and private health care sectors, and may be delivered in dedicated scanning suites or at satellite or remote locations such as out-patient clinics, at the patient's bedside or in the operating theatre. Some practice settings require the sonographer to work in relative professional isolation either single-handedly, or as a lone individual within a multi-disciplinary team.
Significantly, sonographers provide this service throughout the 24-hour day, often working alone or in very small teams, and integrating their work with that of emergency or acute care medical teams.

The scope of practice of Ultrasound is broad and normal practice of sonographers encompasses a number of sub-specialities, notably Obstetrics, Gynaecology, Abdominal and General medical, Paediatrics, Vascular, Musculoskeletal, superficial organs and cardiac Additionally, sonographers practice in higher education, management, research, and technological development, and in the commercial/industrial sector as applications specialists or in sales and marketing.

Ultrasound practice is unusual within the health care professions in that it is characterised by very short episodes of care during which intense and concentrated activity is focused on individual patients. A mastery of interpersonal skills and a high level of communication skills is, therefore, required for effective practice. Sonographers usually have a very limited time in which to establish rapport and effective communication with their patients who are invariably anxious and whose health status is often acutely and/or severely compromised. The activities performed by sonographers predominantly require the application of ultrasound technology to clinical practice and clinical problems. This leads on to them making diagnostic decisions, or referring for further diagnostic tests. The diagnostic decisions made can further lead on to interventional or minimally invasive procedures for some patients and clients, and some of these procedures will be under ultrasound control.

Sonographers work autonomously to exercise clinical judgements which have a direct impact upon patient care, welfare and management. They report and act on their findings both in the light of expected and unexpected pathologies. Their actions and diagnostic findings are pivotal in determining the appropriate future management of their patients and clients.

Sonographers are responsible for the physical and psychological well-being of patients for their defined episodes of the care continuum and, therefore, Ultrasound must be practised with regard to medical emergencies and other situations which may arise during treatment or examination.
A large number of patients/clients will be examined by sonographers whilst being cared for in hospital, They require highly specialised skills to ensure the efficient, effective and safe delivery of the ultrasound service, taking sole responsibility for the conduct, assessment and reporting of ultrasound examinations

The profession also plays a key role in implementing health improvement screening programmes, for example Fetal anomaly and Down's , Abdominal Aortic Aneurism, Congenital Hip Dysplasia, ovarian and cancer care services, and influencing and responding to government health policies.

Benchmark statements for ultrasound

A The sonographer as a registered health care practitioner; expectations held by the profession, employers and public

A1 Professional autonomy and accountability of the sonographer

The award holder should be able to:

- appreciate the significance of professional regulation;
- understand the legal responsibilities and ethical considerations of professional self-regulation;
- respect the need to maintain the integrity of the profession and not bring it into disrepute;
- take account of the expectation to maintain registered professional status through appropriate means;
- demonstrate probity in professional matters.

A2 Professional relationships of the sonographer.

The award holder should be able to:

- build and sustain professional working relationships with other staff or experts involved in the examination, treatment and care of patients and clients;
- communicate the outcome of scans to colleagues
- manage professional and support staff and students effectively and efficiently in accordance with accepted practice needs.

A3 Personal and professional skills of the sonographer

The award holder should be able to:

identify and undertake the most appropriate ultrasound examination required for each patient;

- select ultrasound equipment, settings and techniques , to ensure that ultrasound dose is minimised and image appearances are optimised;
- undertake his/her duties in accordance with current national and international ultrasound guidelines and other legislation governing employment and professional status;
- recognise and respond to the physical, psychological and social needs of patients and clients as these become apparent during the ultrasound examination;
- identify a range of normal human anatomical structures seen on ultrasound images;
- recognise and respond appropriately to abnormal, aberrant and pathological appearances on ultrasound images;
- communicate effectively with patients/clients and their carers, peers, other health care professions and other agencies;
- articulate the significance of continuing professional development and the maintenance of competence.

A4 Profession and employer context

The award holder should be able to:

- behave in accordance with codes of professional conduct;
- care for and respect patients and clients so that they are able to maintain their human dignity and rights;
- act responsibly at all times towards patients, clients and other members of the health care team;
- exemplify good character within the professional context, and internalise professional standards in private life;
- recognise the value of research and other scholarly activity to the development of the profession;
- initiate and conduct research within the field of ultrasound;
- engage in lifelong learning, developing new skills relevant to changing technology and practice and changing patterns of health care.

B Principles and concepts held by the profession of ultrasound which are applied to secure, maintain or improve health and well-being

B1 Identification and assessment of health needs

The award holder should be able to:

- make appropriate clinical decisions informed by a knowledge of anatomy and pathology, ultrasound science, and patient treatment and care;
- assess information given on referral in order to justify examinations;
- use protocols and evidence to assist in justifying and determining the nature of examinations to be carried out.

B2 Formulation of plans and strategies and their application in practice

The award holder should be able to:

- establish whether the clinical details provided are sufficient to perform the examination requested and whether the correct examination has been requested
- be aware of current guidelines from the relevant professional and other organisations relating to ultrasound examinations, and in particular, intimate ultrasound examinations, ultrasound examinations using contrast media and ultrasound examinations of children or individuals unable to give informed consent (Intimate Examinations; Report of a Working Party: September 1997. RCOG Press.)
- consider the necessity for the presence of a chaperone
- utilise the information from the case notes/previous investigations and other sources correctly
- employ a systematic approach which is modified according to the individual client/patient and the findings relating to that client/patient, in particular:
  - respiration
  - body habitus
  - organ position/acoustic properties
  - pathological findings
  - client/patient cooperation
- proceed to further techniques or examination of additional areas/organs where necessary in accordance with locally agreed practice

- be aware that the examination may be incomplete and the implications of this
- be competent to assist with ultrasound guided invasive procedures
- be aware of potential risks involved in the procedure to the client/patient
- understand the role of the ultrasound examination in the clinical context of that client/patient
- attend to the after care of the client/patient
- be aware of the appropriate local Health and Safety regulations including ways of minimising work related work disorders and infection control.
- bring work to a satisfactory conclusion, including accurate completion of necessary documentation;
- meet deadlines for the completion of work to required standards.

B3 Evaluation

The award holder should be able to

- maintain a standard of service to clients/patients and clinicians which reflects current best clinical practice
- evaluate and ensure optimal equipment performance is maintained
- be aware of current guidelines regarding replacement of ultrasound equipment
- take part in personal, departmental and wider audit programmes, where appropriate, to evaluate clinical practice and service to clients/patients including the reporting of ultrasound examinations
- actively participate in activities designed to improve the service to clients/patients and clinicians
- continue ongoing personal professional development
- demonstrate reflective practice in the light of sound clinical and scientific knowledge, and an understanding of the holistic needs of patients from a variety of social and clinical contexts;
- recognise the limitations to his/her scope of competence and seek advice and guidance accordingly

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 healthcare 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. Consequently, in this introductory section, the attributes and capabilities expected of the student are expressed at a generalised level.

C1 Knowledge and Understanding

The award holder should 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 evidenced based practice;
- the relevance of the social and psychological sciences to health and healthcare;
- 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.

These can further be identified for ultrasound practitioners as follows:

- knowledge and understanding of scientific, technical, safety and ergonomic principles that underpin medical ultrasound practice;

- the synthesis, transfer and application of key concepts of embryology, sectional anatomy, patho-physiology and biochemistry across a range of clinical referrals in order to undertake medical ultrasound examinations and facilitate clinical judgements that influence patient management;

- the influence and relevance of behavioural, communication and psychological sciences in medical ultrasound practice;

- knowledge of the pharmacological principles and methods of administration of ultrasound contrast agents and complex issues related to interventional and surgical procedures in order to undertake or assist with extended medical ultrasound examinations;

- knowledge of the multifaceted process of image acquisition, manipulation and interpretation in order to make judgements that support the written outcome of medical ultrasound examinations;

- the appropriate methods and practices of examination reporting that answer clinical questions asked of the practitioner in order to provide diagnostic information for effective patient management;

- the influential role of the ultrasound practitioner to promote medical ultrasound practice amongst the general population in order that informed decisions can be made by patients and clients, supported by other health professionals and carers;

- current legislation and regulations, including statutory codes of conduct, ethical and research frameworks that underpin, influence and ensure safe medical ultrasound practice in an evidence based healthcare environment;

- understanding of current scientific, technical and health-related developments in medical ultrasound practice that have an effect on the socio-economic, ethical and professional debates surrounding medical ultrasound practice;

- the critical review process and application of the most appropriate research methodology in order to critique or progress the knowledge base underpinning medical ultrasound practice.

C2 Skills

The award holder in medical ultrasound should be able to demonstrate:

- an ability to assess patient/client needs, identified from a variety of sources, relate these to the specific ultrasound request and select the appropriate ultrasound examination.
- competent and professional evidence based practice whilst undertaking a range of ultrasound examinations and assessments within a patient/client centred environment.
- an ability to recognise and work within ethical and legal, national and local policies in ultrasound practice in order to ensure patient/client autonomy.
- an ability to appraise the diversity of health and safety issues that arise within ultrasound practice in order to maintain a safe and secure environment.
- an ability to critically evaluate the outcome of the ultrasound examination in order to make clinical decisions.

Reflection

The award holder in medical ultrasound should be able to demonstrate:

- an ability to think logically, systematically and conceptually in clinical situations.
- an ability to reflect on current evidence and apply theory to practice to solve problems within the practice setting.
- an ability to reflect on self, identifying strengths and limitations, in order to increase personal autonomy and responsibility within clinical practice.
- an ability to articulate and evidence own learning needs in order to progress personal development.

Problem-solving & Decision-making

The award holder in medical ultrasound should be able to demonstrate:

- an ability to utilise information from a variety of sources and apply this knowledge to each situation and the subsequent interpretation of the ultrasound image.
- an ability to relate and apply theory to practise, synthesising different approaches and rationalising and justifying their use.
- an ability to draw reasoned conclusions and make sustainable, professional judgements even in the presence of contradictory evidence, in order that ultrasound examinations are undertaken in a sensitive and informed manner.

Information Gathering, Evaluation & Dissemination

The award holder in medical ultrasound should be able to demonstrate:

- accurate acquisition, analysis and synthesis of knowledge on which to base clinical reasoning.
- an ability to present a structured, rational, evidenced, coherent argument using an appropriate register and demonstrating grammatical accuracy.
- an ability to use methods of enquiry to collect, interpret and distribute data in order to provide information that would inform or benefit practice.

Communication & Interpersonal Skills

The award holder in medical ultrasound should 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 students.
- an ability to present a structured, rational, evidenced, coherent argument using an appropriate register and demonstrating grammatical accuracy.

Leadership & Team-building

The award holder in medical ultrasound should be able to demonstrate:

- an ability to operate independently, critically reviewing own performance and as part of a team, including the acceptance of a leadership role relevant to level of practice.
- the required qualities for effective team working.
- an ability to undertake a mentoring responsibility within a multi-disciplinary environment.
- an ability to maintain and enhance the high standards of the ultrasound profession, engaging in multi-professional debate.

Information Management & Technology

The award holder in medical ultrasound should be able to demonstrate:

- an ability to gather, organise, analyse and evaluate evidence and information from a wide range of sources utilising appropriate numeracy, Information Management and Technology skills in order to guide and inform practice.
- an ability to engage with a wider range of technology, particularly that related to the safe and effective delivery of medical ultrasound information.

Academic and practice standards for ultrasound

On successful completion of education programmes designed to provide an award that also confers eligibility for state registration as a diagnostic radiographer, graduates should be able to demonstrate the following clinical skills and behaviors, underpinned by the subject knowledge and understanding described below.

A Working as a professional in diagnostic ultrasound

Communication and management

skills The award holder should be able to:

- use effectively information technology and data processing, storage, retrieval and manipulation in diagnostic imaging;
- develop and sustain professional working relationships with colleagues involved in the examination, treatment and care of patients and clients;
- meet deadlines for the completion of work to required standards;
- bring work to a satisfactory conclusion, including completion of necessary documentation.

Transferable skills

The award holder should be able to:

- communicate in English, both orally and in writing;
- interpret written instructions accurately and safely;
- apply numerical skills accurately to radiographic information and data;
- interpret and use numerical and statistical information accurately;
- use computing and information technology to select, analyse, present and communicate radiographic information;
- perform assigned tasks safely and accurately within a team setting and participate in group activities to achieve team goals;
- instruct other people clearly and precisely, orally and in writing, to undertake simple tasks;
- work safely and accurately within time management constraints;
- recognise and work within the limitations of his/her own personal and professional skills;
- undertake independent and self-directed study and learning;

- identify and present material and the evidence-base to support a reasoned argument.

Professional behaviours
The award holder should be able to:

- behave in accordance with codes of professional conduct;
- explain the differences between codes of conduct arising from professional and from statutory sources;
- care for and respect patients and clients so that they are able to maintain their human dignity and rights;
- act responsibly at all times towards patients, clients and members of the health care team;
- exemplify good character within the professional context, and internalise professional standards in private life.

B Application of principles and concepts

Clinical reasoning skills
The award holder should be able to:

- recognise the nature of the clinical examination requested, plan a suitable course of action and make reasoned choice between alternatives available;
- demonstrate sound professional judgement and the ability to evaluate referral information on the clinical needs of the patients before selecting the appropriate examination;
- apply scientific and ethical principles to the practice of diagnostic ultrasound;
- evaluate the risks and benefits of different imaging techniques;
- adapt working practices to meet the needs of individual patients and situations;
- demonstrate application to practice of professional codes of conduct, guidelines, policies and protocols;
- think logically and systematically.

Clinical skills and behaviours
The award holder should be able to:

- carry out the range of standard clinical examinations required of a newly qualified practitioner, safely, efficiently and with a high degree of accuracy;
- care for the patients and clients he/she will encounter in his/her first post with due regard for human dignity and rights of all members of society;
- work appropriately with other health care professionals within a multi-professional environment;
- contribute to departmental risk management, audit and quality assurance activities;
- use research findings and other sources of information, where appropriate, in his/her practice;
- participate in applied research in the clinical setting;
- demonstrate reliability and integrity in all matters associated with practice in ultrasound;
- demonstrate probity in both public and private matters consistent with being a state registered practitioner.

Psychomotor skills

The award holder should be able to:

- manipulate technological equipment used for ultrasound imaging safely and efficiently;
- position patients/clients for examination, accurately, safely and sensitively.

Clinical outcomes
The award holder should be able to:

- identify and perform the most appropriate imaging examination required for each patient;
- assess information given on referral in order to justify examinations, informed by pre-determined protocols where appropriate;
- select imaging equipment, techniques and exposure parameters to ensure that dose is minimised and image appearances are optimised;
- recognise and respond to the physical, psychological and social needs of patients and clients as these become apparent during the imaging examination;
- identify normal human anatomical structures seen on ultrasound images;
- recognise and respond appropriately to abnormal, aberrant and pathological appearances on ultrasound images;
- assume responsibility for managing a list of patients and clients so that they are seen in accordance complete documentation accurately and promptly;
- with their appointment times, or are prioritised according to clinical need;
- assume responsibility for assessing the quality of his/her own work and, when necessary, for remedying faults;
- seek assistance or consult colleagues when appropriate;
- work as a member of a health care team within the diagnostic imaging department and in other relevant health care environments;
- apply research findings to practice;
- participate in research projects undertaken within the clinical department.

C Subject knowledge and understanding

The award holder should be able to:

- describe the philosophy underpinning practice in diagnostic ultrasound;
- demonstrate understanding of the physical principles underpinning diagnostic ultrasound;
- describe the nature of non-ionising radiation and their use in medicine, and demonstrate understanding of the effects of radiation on human tissue;
- describe normal and normal variant human anatomy, physiology and biochemistry;
- describe specific pathological processes and their imaging appearances;
- demonstrate understanding of the technology used in diagnostic ultrasound;
- demonstrate understanding of the range of clinical examinations in diagnostic ultrasound;
- describe and exemplify effective management of standard episodes of care;
- describe the pharmacology of the limited range of drugs and contrast agents used in diagnostic ultrasound;
- describe and exemplify care for people undergoing diagnostic ultrasound examinations, their families and
  their carers, based on sociological and psychological principles;
- describe the legal, policy, ethical and research frameworks in which diagnostic ultrasound is practised;
- explain the differences between codes of conduct arising from professional and from statutory sources.

Summary of standards of proficiency in ultrasound

Expectations of a health professional

1a: Professional autonomy and accountability
Registrants must:
1a.1 be able to practise within the legal and ethical boundaries of their profession
1a.2 be able to practise in a non-discriminatory manner
1a.3 be able to maintain confidentiality and obtain informed consent
1a.4 be able to exercise a professional duty of care
1a.5 know the limits of their practice and when to seek advice
1a.6 recognise the need for effective self-management of workload and be able to practise accordingly
1a.7 understand the obligation to maintain fitness to practise
1a.8 understand the need for career-long self-directed learning

1b: Professional relationships
Registrants must:
1b.1 know the professional and personal scope of their practice and be able to make referrals
1b.2 be able to work, where appropriate, in partnership with other professionals, support staff, patients, clients and users, and their relatives and carers
1b.3 be able to contribute effectively to work undertaken as part of a multi-disciplinary team
1b.4 be able to demonstrate effective and appropriate skills in communicating information, advice, instruction and professional opinion to colleagues, patients, clients, users, their relatives and carers
1b.5 understand the need for effective communication throughout the care of the patient, client or user

2 The skills required for the application of practice

2a: Identification and assessment of health and social care needs
Registrants must:
2a.1 be able to gather appropriate information
2a.2 be able to use appropriate assessment techniques
2a.3 be able to undertake or arrange clinical investigations as appropriate
2a.4 be able to analyse and evaluate the information collected

2b: Formulation and delivery of plans and strategies for meeting health and social care needs
Registrants must:
2b.1 be able to use research, reasoning and problem solving skills (and, in the case of clinical scientists, conduct fundamental research)
2b.2 be able to draw on appropriate knowledge and skills in order to make professional judgements
2b.3 be able to formulate specific and appropriate management plans including the setting of timescales
2b.4 be able to conduct appropriate diagnostic or monitoring procedures, treatment, therapy or other actions safely and skilfully
2b.5 be able to maintain records appropriately

2c: Critical evaluation of the impact of, or response to, the registrant's actions
Registrants must:
2c.1 be able to monitor and review the ongoing effectiveness of planned activity and modify it accordingly
2c.2 be able to audit, reflect on and review practice

3a: Knowledge, understanding and skills
Registrants must:

3a.1 know the key concepts of the biological, physical, social, psychological and clinical sciences which are relevant to their profession-specific practice
3a.2 know how professional principles are expressed and translated into action through
a number of different approaches to practice, and how to select or modify approaches to meet the needs of an individual
3a.3 understand the need to establish and maintain a safe practice environment

Expectations of a health professional

1a: Professional autonomy and accountability
Registrant ultrasound practitioners must:
1a.1 be able to practise within the legal and ethical boundaries of their profession
-understand what is required of them by the Health Professions Council
- understand the need to respect, and so far as possible uphold, the rights, dignity and autonomy of every patient including their role in the diagnostic and therapeutic process
- be able to practise in accordance with current guidelines governing the safe use of ultrasound for medical purposes
1a.2 be able to practise in a non-discriminatory manner
1a.3 be able to maintain confidentiality and obtain informed consent
1a.4 be able to exercise a professional duty of care
1a.5 know the limits of their practice and when to seek advice
- be able to assess a situation, determine the nature and severity of the problem and
call upon the required knowledge and experience to deal with the problem
-be able to initiate resolution of problems and be able to exercise personal initiative
1a.6 recognise the need for effective self-management of workload and be able to practise accordingly

- be able to balance the need to spend time with patients to enable them to adjust to outcomes of ultrasound examinations while meeting the other demands of the work role
1a.7 understand the obligation to maintain fitness to practise understand the importance of maintaining health and care for themselves
- understand processes that lead to MSI and endeavor to avoid problems by correct use of equipment and highlight practices that are likely to lead to musculo-skeletal problems
1a.8 understand the need for career-long self-directed learning

1b: Professional relationships
Registrant ultrasound practitioners must:
1b.1 know the professional and personal scope of their practice and be able to make referrals
1b.2 be able to work, where appropriate, with other professionals, support staff, patients, clients and users, and their relatives and carers
- understand the need to build and sustain professional relationships as both an
independent practitioner and collaboratively as a member of a team
- understand the need to engage patients, clients, users and carers in planning and
evaluating diagnostics, treatments and interventions to meet their needs and goals
- be able to interpret and act upon information from other health care professionals, in order to maximise health gain whilst minimising dose to the patient
- be aware of the general working of health and social care services
1b.3 be able to contribute effectively to work undertaken as part of a multi-disciplinary team
1b.4 be able to demonstrate effective and appropriate skills in communicating information, advice, instruction and professional opinion to colleagues, patients, clients, users, their relatives and carers
- be able to communicate in English to the standard equivalent to level 7 of the International English Language Testing System, with no element below 6.5
-understand how communications skills affect the assessment of patients, clients and users, and how the means of communication should be modified to address potential barriers such as age, physical and learning disability
-be able to communicate distressing news or results to patients/clients

be aware of the general working and availability of support services following communication of distressing news/results to patients/clients

- *be aware of the characteristics and consequences of non-verbal communication and how this can be affected by culture, age, ethnicity, gender, religious beliefs and socio-economic status*
- *understand the need to provide patients, clients and users (or people acting on their behalf) with the information necessary to enable them to make informed decisions - understand the need to use an appropriate interpreter to assist patients whose first language is not English, wherever possible*
- *recognise that relationships with patients, clients and users should be based on mutual respect and trust, and be able to maintain high standards of care even in situations of personal incompatibility*
- *be able to advise other health care professionals about the relevance and application of ultrasound and other imaging modalities to the patient's needs*
- *understand the behaviour of people undergoing ultrasound examinations within the healthcare setting, as well as that of their families and carers*
- *understand the psychology of illness, anxiety and uncertainty and the likely behaviour of patients undergoing diagnostic ultrasound procedures, as well as that of their families and carers*

1b.5 understand the need for effective communication throughout the care of the patient, client or user

- *recognise the need to use interpersonal skills to encourage the active participation of patients, clients and users*
- *be aware of the need to empower patients to participate in the decision-making processes related to their ultrasound examination*

be aware of situations that need rapid and timely consultations with clinical colleagues

The skills required for the application of practice

2a: Identification and assessment of health and social care needs

-be able to interrogate and process data and information gathered accurately in order to conduct the ultrasound examination most appropriate to the patient's needs
-be able to use physical, graphical, verbal and electronic methods to collect information froma range of sources including patient history, diagnostic images and biochemical reports.
-be able to use appropriate assessment techniques using appropriate techniques and equipment
-be able to assess, monitor and care for the patient before, during and after the scan

-be able to undertake and record a thorough, sensitive and detailed assessment,
-be able to interpret the data and information gathered in accordance with current evidence based literature
-be aware of limitations to the ultrasound examination and state these clearly in the report of the findings
-be able to undertake or arrange clinical investigations as appropriate
-be able to analyse and evaluate the information collected

2b: Formulation and delivery of plans and strategies for meeting health and social care needs
Registrant ultrasound practitioners must:

2b.1 be able to use research, reasoning and problem solving skills to determine appropriate actions
- recognise the value of research to the systematic evaluation of practice
- be able to conduct evidence-based practice, evaluate practice systematically, and participate in audit procedures
- be aware of methods commonly used in health care research
- be able to demonstrate a logical and systematic approach to problem solving - be able to evaluate research and other evidence to inform their own practice
- understand the problems encountered at the patient-ultrasound technology interface
and be able to find appropriate solutions to such problems
- be able to select and explain the rationale for examination and treatment techniques and immobilisation procedures appropriate to the patient's physical and disease management requirements

2b.2 be able to draw on appropriate knowledge and skills in order to make professional judgements
- be able to change their practice as needed to take account of new developments
- be able to demonstrate a level of skill in the use of information technology appropriate to to their profession
- be able to apply the risk-benefit philosophy to ultrasound exposure to protect the individual patients
-be able to formulate specific and appropriate management plans including the setting of timescales
- understand the requirement to adapt practice to meet the needs of different client groups distinguished by, for example, physical, psychological, environmental, cultural or socio-economic factors

-be able to conduct appropriate diagnostic or monitoring procedures, treatment, therapy or other actions safely and skillfully
- understand the need to maintain the safety of both patients, clients and users, and those involved in their care
- ensure patients, clients and users are positioned (and if necessary immobilised) for safe and effective interventions
- have knowledge of sedation guidelines for transoesophageal studies
- be able to manage complex and unpredictable situations including the ability to adapt planned ultrasound imaging examinations, interventions or treatments and to
- manage adverse and critical care incidents, to prioritise workload and use of resources - be able to use independent methods to establish and confirm patient identify prior
to treatment or imaging
- recognise the need for spatial awareness, visual precision and manual dexterity in the
precise and safe manipulation of imaging equipment and related accessory equipment
- be able to operate ultrasound diagnostic imaging equipment safely and accurately
- be able to check that equipment is functioning accurately and within the specifications, and to take appropriate action in the case of faulty functioning and operation

Ultrasound practitioners

-be able to perform the full range of ultrasound examinations within their scope of practice, including those undertaken on patients suffering from acute trauma, and where the patient's medical, physical or mental health needs require examinations to be carried out in standard and non-standard imaging environments

-be able to manage and assist with biopsies and interventional procedures as appropriate
- be able to manipulate scanning and image recording parameters to optimal effect

-be able to use to best effect the processing and related technology supporting film-based and computer-based imaging systems

- be able to analyse, evaluate and interpret ultrasound images

2b.5 *be able to maintain records appropriately*

- be able to keep accurate, legible records and recognize the need to handle these
records and all other clinical information in accordance with applicable legislation, protocols and guideline s

- understand the need to use only accepted terminology (which includes abbreviations) in making clinical records

- be able to apply the correct systems for identifying patients' records, images, and other documents associated with ultrasound imaging examinations

Knowledge, understanding and skills
3a:
Ultrasound practitioners must:
3a.1 know the key concepts of the biological, physical, social, psychological and clinical sciences which are relevant to their profession-specific practice - understand the structure and function of the human body, relevant to their scope of practice,
together with a knowledge of health, disease, disorder and dysfunction
- be aware of the principles and applications of scientific enquiry, including the

2c: Critical evaluation of the impact of, or response to, the registrant's actions
Ultrasound practitioners *must:*

2c.1 be able to monitor and review the ongoing effectiveness of planned activity and modify it accordingly
- be able to gather information, including qualitative and quantitative data, that helps to evaluate the responses of patients, clients and users to their care
- be able to evaluate management plans against treatment milestones using recognised
health outcome measures and revise the plans as necessary in conjunction with the
patient, client or user
- recognise the need to monitor and evaluate the quality of practice and the value
of contributing to the generation of data for quality assurance and improvement programmes

- be able to make reasoned decisions to initiate, continue, modify or cease treatment or the use of techniques or procedures, and record the decisions and reasoning appropriately

- understand that outcomes may not always conform to expectations but may still meet the needs of patients, clients or users

2c.2 be able to audit, reflect on and review practice

-understand the principles of quality control and quality assurance

- be aware of the role of audit and review in quality management, including quality
evaluation of treatment efficacy and the research process
- recognise the role of other professions in health and social care
- understand the theoretical basis of, and the variety of approaches to, assessment
and intervention
- know the physical principles of ultrasound generation, interaction, modification and protection underpinning the use of ultrasound for diagnosis and intervention
- understand the risk benefit philosophy and principles involved in the practice of ultrasound
-understand the principles of bioeffects and electrical hazards that

underpin the safe use of ultrasound
- understand concurrent and common pathologies and mechanisms of disease - understand the capability, applications and range of technological equipment used in ultrasound imaging
- know the pharmacology of drugs used in ultrasound imaging, as it relates to their scope of practice
- understand the methods of administration of drugs appropriate to their scope of practice
- understand the role of the ultrasound practitioner in the promotion of health and health education in relation to healthy living and health screening for disease detection - be aware of the current developments and trends in the science and practice of ultrasound
- understand the quality assurance processes in place within ultrasound imaging
- understand the legislative, policy, ethical and research frameworks that underpin, inform and influence practice

- know the concepts and principles involved in the practice of ultrasound imaging and how these inform and direct clinical judgement and decision-making - be able to formulate and provide information to patients and their carers about the
imaging process and procedures, with regular reappraisal of their information needs, as appropriate
- be able to remove and re-apply dressings and supports appropriately and in a safe,
effective and considerate manner
- distinguish between normal and abnormal appearances evident on images

- know the structure and function of the human body in health and disease, especially ultrasound regional and cross sectional anatomy

- know the diagnostic procedures, investigations and physiological symptoms which
result in patients being referred for ultrasound

- know the signs and symptoms of disease and trauma that result in patients being referred for ultrasound procedures
- know the structure and function of the human body in health, disease and trauma, the musculo-skeletal system, the soft tissue organs, regional and cross-sectional anatomy and the cardiovascular, respiratory, genito-urinary, gastro-intestinal and neuro-endocrine systems appropriate to the scope of practice
- know the physical and scientific principles on which image formation using ultrasound is based
3a.2 know how professional principles are expressed and translated into action through a number of different assessment, treatment and management approaches and how to select or modify approaches to meet the needs of an individual

3a.3 understand the need for, and be able to establish and maintain, a safe practice environment

- *be aware of applicable health and safety legislation, and any relevant safety policies and procedures in force at the workplace, such as incident reporting, and be able to act in accordance with these*
- *be able to work safely, including being able to select appropriate hazard control and risk management, reduction or elimination techniques in a safe manner in accordance with health and safety legislation*
- *be able to select appropriate personal protective equipment and use it correctly*
- *be able to establish safe environments for clinical practice, which minimise risks to patients, clients and users, those treating them, and others, including the use of hazard control and particularly infection control*
- *understand the need to ensure the physical safety of all individuals in the immediate work environment at all times*
- *be aware of immunisation requirements and the role of occupational health*
- *know the correct principles and applications of disinfectants, methods for sterilisation and decontamination and dealing with waste and spillages correctly - know and be able to apply appropriate moving and*

handling techniques
- *be able to use basic life support techniques and be able to deal safely with clinical emergencies*

APPENDIX 13

Expulsion from Membership of The Society of Radiographers

Page 27 Amended Memorandum and new Articles of Association and Members' Handbook

5. Expulsion

5.1 If, after due and proper enquiry and subject always to the requirements of the 1992 Act, the Chief Executive is of the opinion that a Member has been guilty of conduct which in his or her opinion renders such person unfit to remain a Member or is injurious to the character or interests of the Society, the Chief Executive may remove his or her name from the register whereupon such person shall cease to be a Member of the Society.

5.2 The UK Council may from time to time prescribe criteria for the expulsion of Members by the Chief Executive (provided that such criteria shall not infringe any right conferred by the 1992 Act).

5.3 A Member whose name is so removed from the register will be notified of the removal in writing and informed that an appeal can be made against that decision to the UK Council and that notice of appeal must be in writing and received by the Chief Executive within 28 days of the date of the written notification of the right to appeal.

5.4 If notice of appeal is received within the time specified, the UK Council will give the person whose name has been removed an opportunity to be heard and may accept or reject the appeal or impose conditions as it may in its absolute discretion think fit. The decision of the UK Council shall be final.

5.5 The UK Council may by resolution remove from the register the name of any Member whose name is removed from any register maintained by the Health Professions Council pursuant to section 60 of the Health Act 1999 or any other such register to which Members must subscribe whereupon such person shall cease to be a Member of the Society.

5.6 Any Student Member who ceases for any reason to be a registered student Radiographer of the College of Radiographers shall also cease to be a Student Member of the Society and his or her name shall be removed from the register accordingly.

The following are summaries of two cases of HPC action against sonographers (radiographers):

Case 1

Registration Number: RA29815

Allegation Number: FTP00784

Date & Time of hearing: 11/06/2007 - 10:30

Health Professions Council, 184 Kennington Park Road, London

Outcome: Caution

Hearing of the Conduct and Competence Committee

Region: England

Panel: Conduct and Competence Committee

Notice Of Allegation:
Your fitness to practise as a registered health professional is impaired by reason of your caution for the theft of a computer which was NHS property, from Beckenham Hospital on Thursday 12th January 2006.

Committees Finding:

The registrant was present and represented by Mr Paul Bromley from the Society of Radiographers. The registrant admitted the facts in relation to the caution but denied that her fitness to practise was impaired as a result.

Committees Direction:

The registrar be directed to annotate the register with a caution order for a period of three years.

Case 2

Registration Number: RA17495
Allegation Number: FTP00752

Date & Time of hearing: 28/03/2007 - 10:30
Dragon Hotel, Swansea

Outcome: Conditions of practise

Hearing of the Conduct and Competence Committee

APPENDIX 14

Panel: Conduct and Competence Committee

Notice Of Allegation:

The radiographer/sonographer's fitness to practise is impaired by reason of a lack of competence in that, between June 2004 and September 2005, and failed to:

1. Complete accurate and reproducible ultrasound examinations;

2. Follow protocols;

3. Interpret examinations accurately.

Committees Finding:

The conclusions of the investigation were that in 5 cases images were misdiagnosed.

The Panel found proved the allegation of a lack of competence.

The evidence was that in one case you failed to complete an accurate and reproducible ultrasound examination as you should have repeated the ultrasound where the scan was a poor image; in another case you missed the fact that the foetus had multiple abnormalities by failing to follow protocols which required you to take images of the foetus's tibia and fibula of both legs. In another case you had failed to interpret the patient's scan accurately, missing an anterior abdominal mass; in another case you diagnosed an ectopic pregnancy where the patient had a retroverted uterus. As a consequence, a laparoscopy was performed which showed the patient's ovaries and tubes to be normal. In a further case, you missed a left renal tumour and in the last case you mistakenly reported a swollen epididymis when the patient suffered a varicocele.

The Panel referred to the Standards of Conduct, Performance and Ethics and the Standards of Proficiency for Radiographers.

It considered that there were breaches of the following standards:

Standards of Conduct, Performance and Ethics 1, 4, 5 and 13 and Standards of Proficiency for Radiographers 1a.4, 2a (all), 2b.2 and 2b.4.

In the light of these failings, which the Panel recognised as resulting in serious consequences for the patients, the Panel determined that your fitness to practise is impaired. It is clear that the public were placed at risk by your lack of competence.

Testimonials were submitted from the Chief Executive Officer of the Society of Radiographers, the Deputy Chair of the Welsh Council of the Society of Radiographers and the Chair of the Welsh Council. Your Superintendent Radiographer at the Royal Glamorgan Hospital stated that you are a very capable and reliable radiographer who works well on his own as well as in a team.

The Panel next considered imposing a Conditions of Practice order. In all the circumstances, the Panel regards this to be a proportionate and appropriate sanction as the evidence is that you are a competent and capable radiographer apart from in the area of sonography.

Committees Direction:

That from the date this order takes effect ('the operative date') for a period of three years, the registrant shall comply with the following conditions of practice:

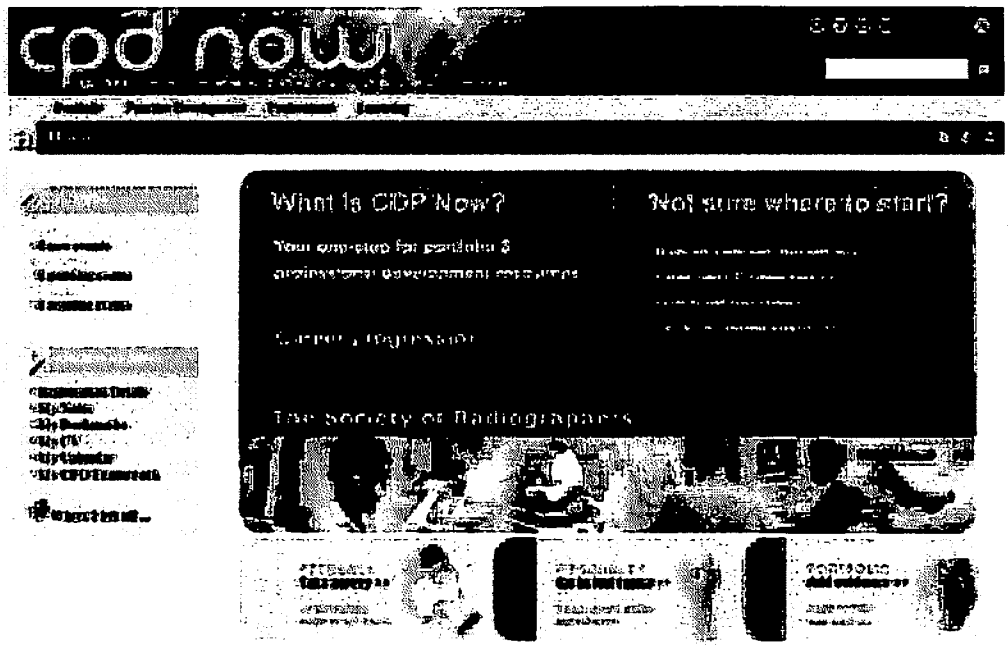
1. He shall not work as a sonographer.

2. He shall inform his current employer and any future employer of this condition of practice.

The Panel will review your case at a further hearing which will be held before the order expires. At that hearing it will consider whether any further action needs to be taken in relation to your registration. You will be informed of the date and venue of that hearing and will be entitled to attend and put your case. It is for you to determine what evidence you wish to put before that hearing, but it is likely that the Panel will wish to consider evidence of your compliance with this order.

CPD Now

SoR CPD Officer Sean Kelly describes the College of Radiographers' new, web-based CPD tool – 'CPD Now'.



Key features

The new system includes the facility to devise and action a CPD plan or framework related to the four levels of clinical practice, as well as to management, educational and research roles. The system can also be developed to allow users to demonstrate compliance with a range of requirements (including the Health Professions Council's CPD Standards and the NHS Knowledge and Skills Framework) using a single portfolio and archive for all post-registration learning activities. Equally importantly, CPD Now enables users to have their CPD portfolio accredited by the College on a continuing basis.

Background

The need for the Society and College of Radiographers to develop a new CPD tool was highlighted in the document *A Strategy for Continuing Professional Development* (SoR 2003). Reasons for this included the expiry of the previously licensed CD-ROM 'CPD Manager' and a clear indication that the HPC was keen to progress the development and implementation of its CPD Standards – the requirement for all registrants to undertake and evidence CPD as a condition of registration.

However, the development and implementation of the career progression framework (or four-tier structure) had significant implications for the CPD agenda. Any CPD system offered by the Society should clearly support the career progression framework, as well as taking account of the broader requirements of the profession – many of whose members do not undertake a primarily clinical role.

Following careful consideration of the profession's requirements the Society concluded that a new CPD system should have three main features:

- Availability and ease of access;
- The facility for the user's individual portfolio to be accredited by the professional body (ie, the College of Radiographers);
- Flexibility and adaptability – it was clear that the demands on individual practitioners to evidence compliance with an ever-growing range of requirements could be eased by the provision of a one-stop system to address all such requirements.

Development

A small steering group oversaw the development of the new system. This group comprised representation from medical imaging and radiotherapy, together with external CPD expertise and software development consultancy.

The steering group invited and reviewed partnership bids from the commercial sector to develop the new CPD software, although SoR UK Council took the final decision on the awarding of the contract.

What is CPD Now?

CPD Now is a web-based system available to all members of the SoR as a member benefit – there are no extra fees or dues payable for CPD Now. Access is via the Society's website at *www.sor.org*.

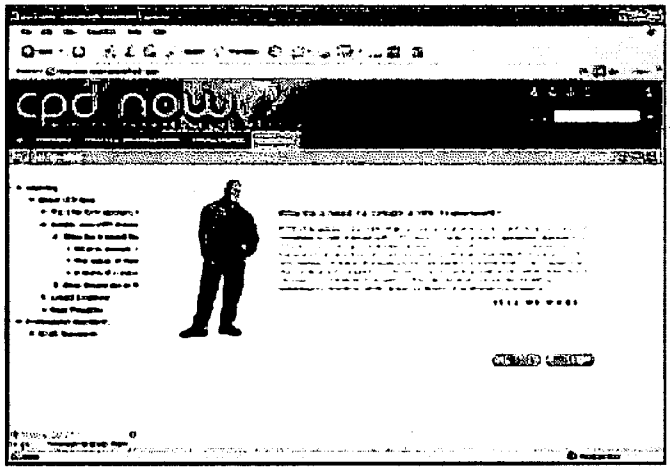
Users are required to complete a registration screen. This is partially to enable the Society to gather anonymous data regarding the use of the system by geographical region and areas of clinical interest or professional practice. This data will be used to enable the Society to plan appropriate CPD provision in line with members' requirements. CPD Now complies with the requirements of the Data Protection Act, as well as with appropriate software industry standards.

The homepage of CPD Now contains a number of quick links to some of the key features of the system. The most important of

these for the new user is the 'getting started' wizard which provides a quick tour of the system and demonstrates its main features and applications.

CPD Now contains a number of features and has the capacity for more to be added and developed as the need arises. Authorship rests with the Society and College, so that any required modifications to the text or content can be actioned promptly, without the need to refer to the software developers. As CPD Now is a web-based system all changes and modifications are available to users instantly, without the need to download an updated programme or patch.

CPD Now is divided into a number of sections, although these are linked to provide users with clear and comprehensive navigation. The main sections are accessed from the horizontal menu across the top of the page and are colour coded for ease of navigation. The main sections are:



- ***Portfolio***

This is the core of the application and for the majority of users will be the focus of activity. This is the section in which users will plan, record and evaluate their CPD activities. The portfolio will provide a body of evidence from which users will be able to extract data to demonstrate their compliance with any learning or development requirements. It is important to note that the SoR is quite clear that the ownership of the portfolio rests with the individual user and that the individual user controls the process by which information from the portfolio is shared with any third party.

- ***Practice development***

This section contains useful information about planning CPD, particularly with regard to service developments that might be taking place. It also contains a clinical supervision diary, in which users can record the outcomes of discussions they might have as part of the clinical supervision or mentorship process.

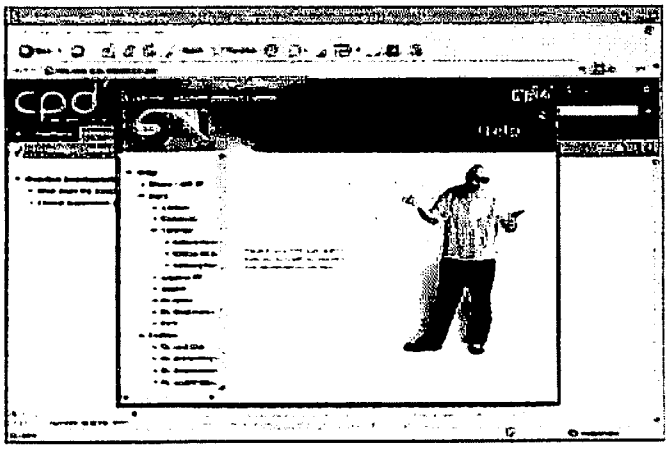
- ***Professional***

Engagement with the SCoR, as a professional body and trade union, can provide a range of CPD opportunities. These include the personal and professional development opportunities offered by SoR representative roles, or involvement in the Society's National Councils or Regional Committees and attendance at meetings and events organised by the Society and conferences and study days organised by the College. Trade union activities within your place of employment can provide CPD and the Society's affiliation to the TUC enables members to access learning opportunities provided nationally and locally through TUC Learning.

The reading and evaluation of the implications for your practice of Society publications can form the basis of self-directed learning. These publications include professional journals, SoR policy and guidance documents and information disseminated through the Society's website.

- ***Learning***

It is anticipated that the Society will be able, with time, to provide web-based learning materials through this section. For the moment the learning section contains links to a number of largely web-based resources, together with guidance on undertaking CPD and using CPD Now.



How does it work?

CPD Now is designed to enable users to plan, undertake, evaluate and record their CPD activities. It uses a standard process to do this and is based on four steps:

- ***Step 1***

Put together an individual and customised CPD Framework. This forms a template or 'shopping list' of the areas of practice or subjects in which the user will undertake CPD. The CPD Framework is derived from the user's professional role(s) and is automatically generated by CPD Now. The CPD Framework also provides a checklist against which the College assesses the user's Portfolio for accreditation. This is the mechanism by which CPD is linked to professional practice.

The CPD Framework can be modified where the user undertakes combined roles (for instance combining clinical practice with education or management) or where the user wishes to demonstrate working towards another role that as yet is not achieved. For example, a radiographer employed at practitioner level, but who is keen to develop into a managerial or advanced practitioner post.

The CPD Framework is based on the professional and learning outcomes defined by the CoR in *'A Curriculum Framework for Radiography'* (CoR 2003). The College has also developed, for the purposes of CPD Now, similar outcomes for manager, educator and researcher roles.

- ***Step 2***

Derive from the CPD Framework a Learning Plan. This is really about translating the general requirements of the CPD Framework into concrete learning activities that are to be undertaken. The Learning Plan will develop and change as new items are added and completed items removed. The Learning Plan can, of course, be used for departmental systems of personal development planning and review and can be modified independently of the CPD Framework.

- ***Step 3***

Undertake the learning set out in the Learning Plan and record this activity in the Portfolio. It cannot be stressed enough that the simple recording of the date, time and place of learning is not enough! The essential part of this recording process is to evaluate the learning that has taken place and its implications for the user's professional practice. The template used in CPD Now to record learning activities uses a series of prompt questions to guide the user through this reflective process.

This reflective process undertaken may well result in the

identifying of further learning needs to go into the Learning Plan and these should be added.

● *Step 4*

The CPD activity recorded should be logged against the relevant professional and learning outcome or outcomes in the CPD Framework. This is essential if the user is to obtain CPD accreditation from the CoR.

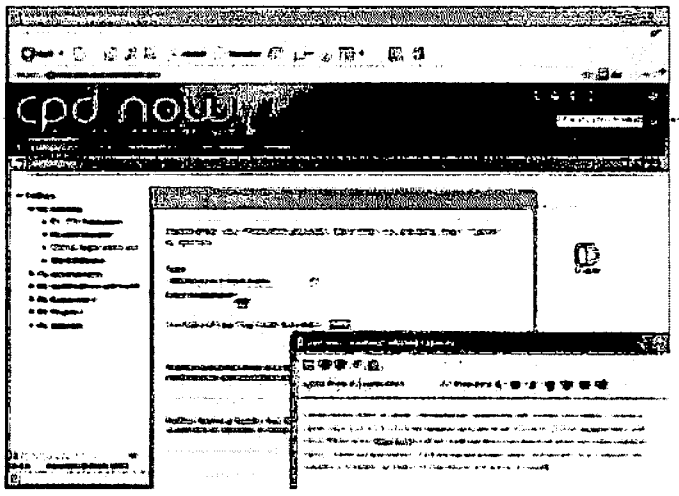
Once this cycle has been completed the user simply goes back to the beginning of Step 2 and revisits the learning plan with a view to identifying the next CPD activity to be undertaken. The cycle then continues with the user engaging with an ongoing programme of learning, evaluation, reflection, identifying further learning needs and back to learning to repeat the process.

How does the user obtain the College's CPD accreditation?

CPD accreditation is awarded to the individual under the auspices of the CoR's Approvals and Accreditation Board.

Users of CPD Now are able to apply for the CoR CPD accreditation once 12 CPD activities have been recorded and logged against the appropriate professional and learning outcomes set out in the CPD Framework. The College's requirements are set out in CPD Now, but essentially 12 CPD activities must be undertaken within any two-year period. This means that the user can claim a certificate of CPD accreditation at any time, provided that the College's requirements have been met during the two-year period immediately preceding the date on which the certificate is sought. This provides greater flexibility in that users do not have to wait until the end of a period of time to claim accreditation and can plan and undertake CPD around breaks in working such as maternity or care leave.

In practice, for the majority of users the College's CPD requirements will translate into recording a minimum of one CPD activity every two months. The College does not define the number of hours to be spent on each activity and CPD Now does not provide a points or credits system to calculate the volume of CPD undertaken. CPD Now is based on outcomes, rather than input, in keeping with newer thinking and best practice in CPD.



Endorsement of CPD events and learning materials

As part of its overall CPD accreditation package the CoR also provides, through the Approvals and Accreditation Board, for the endorsement of short courses, study days, seminars and other events held to provide CPD opportunities for members of the radiography profession. This endorsement can also be given to learning materials such as on-line learning packages and CD-ROMs.

CPD endorsement is conditional on the meeting of a number of standards. These pertain to education quality and clarity of information for potential consumers regarding expected learning outcomes. All endorsed events and products receive a certificate of endorsement from the College and this details the College's recommendations regarding the CPD Framework outcomes that the event or product can most usefully support.

Endorsed events and products will be promoted with the College's CPD Now logo. Of course, the absence of endorsement does not necessarily imply that the event is of inferior quality – it might simply be that the event is not primarily targeted at radiographers and that endorsement would be neither practical nor financially viable. However, the Society and College expects that CPD events organised primarily with radiographers in mind will seek endorsement.

The benefits of using CPD Now

CPD Now has been developed to enable users to engage in meaningful and appropriate CPD and to meet minimum standards set by the professional body. CPD Now will also reflect the CPD Standards set by the HPC, so that members using CPD Now and meeting the accreditation requirements can be confident that they are undertaking CPD in a way that would be deemed acceptable to the HPC – should they be selected for random audit, as proposed in the HPC's recent CPD consultation paper.

CPD Now will be developed to enable users to evidence that they are meeting the standards set out in the NHS Knowledge and Skills Framework.

All SoR members are encouraged to use CPD Now and to take a few moments to complete the on-line user surveys that will be run from time to time. Only by receiving users' views and comments can the Society modify and develop CPD Now to take account of users' developing requirements.

APPENDIX 16

Direct Line: 020 7740 7208
Facsimile: 020 7740 7233
E-mail: audreyp@sor.org

Our ref: AMP/ /YR
Your ref:

Insert date

Name and adddress

Dear

Re: Regulation of Sonographers in the UK

I am writing to seek you support for an application that the Society and College of Radiographers, supported by the United Kingdom Association of Sonographers, is making to the Health Professions Council (HPC). The Society and College is seeking protection of the title 'sonographer' and, hence, the regulation of staff practising sonography.

Currently there is no regulation of health care practitioners in this field. There is growing demand for sonographers to be regulated to protect the public and it is well known that The Society and College of Radiographers, as well as others have been pursuing protection of the title 'sonographer' for some years. Indeed, the first moves in this direction were made to the HPC's predecessor body, The Council for Professions Supplementary to Medicine.

Following advice from the HPC in 2005, it was apparent that an application by a single professional body, and with support from as many other bodies and stakeholders as would be possible would be preferred. Recently, we have also been advised that an application in the near future would be timely. It would be very helpful if your body would be prepared to provide a letter of support for this important initiative. Our understanding is that letters of support can be simple statements to that effect, or can detail views as to why sonographers should be regulated.

Should you require further details or wish to discuss this matter further before responding, I would be more than happy to assist. Please contact Yvonne Reihill on 0207740 7236 or yvonner@sor.org to arrange a mutually convenient time to speak by telephone, or to meet.

In the event that you feel unable to support the application, or indeed oppose it, it would be helpful to know this as we are expected to take into account the spectrum of views in our application.

Please note that organisations and individuals providing letters of support will be referenced in the application.

Many thanks indeed for your attention in this matter and I look forward to hearing from you.

Yours sincerely

Professor Audrey M Paterson FCR, MSc, TDCR, DMU
Director of Professional Policy

Application for the regulation of sonographers scoring: Overview

Part	Number	Criteria	Score	Comments
A		At least 1 of invasive procedures, clinical intervention with potential for harm, exercise of judgement by unsupervised professionals	Partly met	The Council will wish to consider whether the potential for harm is sufficiently mitigated by existing regulation. The title of 'sonographer' is not currently protected.
B	1	Discrete area of activity displaying some homogeneity	Partly met	The Council will wish to consider the extent of overlap of activity with other regulated professions.
B	2	Defined body of knowledge	Partly met	The Council will wish to consider the extent of overlap with the body of knowledge of other professions.
B	3	Evidence of efficacy	Met	Evidence provided of efficacy.
B	4	At least 1 established professional body a/c for significant proportion of occupation	Met	Society and College of Radiographers membership accounts for the majority of practitioners who use the title 'sonographer'.
B	5	Voluntary register(s)	Partly met	A voluntary register exists and can accept applications from professionals who are already regulated elsewhere.
B	6	Defined routes of entry to the profession	Met	There are defined routes of entry at post-registration level. There is the possibility of direct entry in the future.
B	7	Independently assessed entry qualifications	Met	The Consortium for the Accreditation of Sonographic Education accredits programmes in sonography.
B	8	Conduct, performance and ethics standards	Met	HPC standards of conduct, performance and ethics and Society and College of Radiographers code.
B	9	Disciplinary procedures to enforce those standards	Met	HPC fitness to practise procedures.
B	10	Commitment to continuous professional development (CPD)	Met	HPC CPD standards and professional body activity.
Overall		The application is for the regulation of sonographers as a sub-section of the existing radiographers part of the Register and the protection of the title 'sonographer'. The criteria for aspirant groups are tailored towards groups who are not substantially covered by existing regulation and therefore may not apply in the same way to this application. The Council will wish to explore whether existing HPC regulation is sufficient in order to protect the public. As the application is for a new sub-section of a existing part of the Register, the Council is invited to agree that the Executive should undertake further analysis of the application and present it at a future Council meeting. This will also take into account in more detail the supporting information provided in hard copy, and on the accompanying CD ROM. **(Scoring considered by the Council 27/03/2008)**		

Application for the regulation of sonographers scoring: A

CRITERIA:	SCORE:
Either invasive procedures or clinical intervention with the potential for harm or exercise of judgment by unsupervised professionals which can substantially impact on patient health or welfare	Partly met

Summary comments (10 words max.)

Evidence of potential for harm but majority of practitioners are already HPC regulated

Detailed comments

Evidence of exercise of professional judgement which could have potential for harm.

Most, though not all, sonographers will already be HPC regulated as diagnostic radiographers. However, the title 'sonographer' is not protected.

Application acknowledges that some nurses who practise as a sonographers would be registered with the Nursing and Midwifery Council.

Application for the regulation of sonographers scoring: 1

CRITERIA:	SCORE:
Discrete area of activity displaying some homogeneity	Partly met
Summary comments (10 words max.)	
Some overlap with functions undertaken by other regulated professions	
Detailed comments	
The scope of practice of sonography is described in the main body application and in the supporting information. There is some overlap with the functions undertaken by other professions, including radiographers, nurses, midwives, physiotherapists medical practitioners, clinical technologists and clinical physiologists. These professions are either already regulated, or awaiting statutory regulation. It is unclear the extent to which the title 'sonographer' is used by regulated health professionals other than radiographers.	

Application for the regulation of sonographers scoring: 2

CRITERIA:	SCORE:
Defined body of knowledge	Partly met
Summary comments (10 words max.)	
Some overlap with the body of knowledge of other professions	
Detailed comments	
Some overlap in the body of knowledge with other professions. However, it is argued that other professions who use sonography do more so as a 'tool' in their practice and are therefore not required to have the depth and breadth of underpinning knowledge of a sonographer, whose core role is conducting clinical diagnostic ultrasound examinations.	

Application for the regulation of sonographers scoring: 3

CRITERIA:	SCORE:
Evidence of efficacy	Met
Summary comments (10 words max.)	
Evidence of efficacy supplied	
Detailed comments	
Evidence provided of research, books, journals and papers	
Evidence provided to support scientific and measurable basis for measuring practice outcomes	
Evidence provided of research which supports ethos of evidence based practice	

Application for the regulation of sonographers scoring: 4

CRITERIA:	SCORE:
At least 1 established professional body a/c for significant proportion of occupation	Met

Summary comments (10 words max.)

There is an established professional body

Detailed comments

A significant proportion of sonographers will be HPC registered as diagnostic radiographers and a significant proportion of those are likely to be members of the Society and College of Radiographers (SoR).

A number of other organisations are likely to have an interest in the regulation of sonographers and the SoR has made efforts to seek the views of other likely interested parties

Application for the regulation of sonographers scoring: 5

CRITERIA:	SCORE:
Voluntary register(s)	Partly met

Summary comments (10 words max.)

Most practitioners will already be HPC regulated. A voluntary register has also been established.

Detailed comments

Majority of practitioners will be already registered in the radiographers part of the Register by HPC.

National Voluntary Register of Sonographers set up in May 2007 by the Society and College of Radiographers (SoR) and the United Kingdom Association of Sonographers (UKAS). Numbers on voluntary register at time of application were 410, around 70% of which were Society and College of Radiographers members.

The National Voluntary Register of Sonographers accepts applications from sonographers already regulated elsewhere, including midwives. Applicants from medical practitioners who are regulated by the General Medical Council are not accepted.

Application for the regulation of sonographers scoring: 6

CRITERIA:	SCORE:
Defined routes of entry to the profession	Met

Summary comments (10 words max.)

There are defined routes of entry followed by the majority of practitioners

Detailed comments

Education and training is at post-registration level and is accredited by the Consortium for the Accreditation of Sonographic Education.

A Quality Assurance Agency benchmark statement for sonography does not exist, but a draft benchmark statement is included in the information supporting the application.

Direct entry into sonography does not yet exist, but could be developed in the future.

There may be a number of individuals, estimated at around 500, who are not members of SoR and UKAS and some of these may not be registered professionals. This could include overseas qualified sonographers who cannot register as diagnostic radiographers or as doctors.

Application for the regulation of sonographers scoring: 7

CRITERIA:	SCORE:
Independently assessed entry qualifications	Met
Summary comments (10 words max.)	
Evidence of independently assessed entry qualifications	
Detailed comments	
The Consortium for the Accreditation of Sonographic Education, a consortium of a number of professional bodies, accredits programmes in ultrasound education. Programmes are delivered through UK Higher Education Institutions.	

Application for the regulation of sonographers scoring: 8

CRITERIA:	SCORE:
Conduct, performance and ethics standards	Met

Summary comments (10 words max.)

A code of conduct is in place which applies to the majority of practitioners

Detailed comments

The Society and College of Radiographers has a code of conduct.

Sonographers who are HPC registered as radiographers will already be bound by the standards of conduct, performance and ethics.

Application for the regulation of sonographers scoring: 9

CRITERIA:	SCORE:
Disciplinary procedures to enforce those standards	Met

Summary comments (10 words max.)

Most sonographers are bound by HPC's fitness to practise process

Detailed comments

Most sonographers are radiographers and are bound by the HPC's fitness to practise process.

The Society and College of Radiographers also has procedures to expel members.

Application for the regulation of sonographers scoring: 10

CRITERIA:	SCORE:
Commitment to continuous professional development (CPD)	Met

Summary comments (10 words max.)
A clear commitment to CPD has been evidenced

Detailed comments
Sonographers who are regulated as radiographers have to meet the HPC's CPD requirements.
There is evidence of commitment to CPD at professional body level.

Sonographer Regulation: Additional Information

Introduction

The Council of the Society of Radiographers submitted an application for regulation of a new profession to the Health Professions Council in March 2008. Specifically, the application sought protection of the title 'sonographer'.

The Health Professions Council gave preliminary consideration to the application at its meeting towards the end of March 2008. As a result, further information was requested as follows:

- Additional information on the number of sonographers outside of any regulatory framework at present;
- further detail as to why regulation is important, and particularly the potential dangers to the public of unregulated sonographers
- more depth on the potential for harm from sonographic investigations, and especially the role of sonographers in causing such harm
- differences that might exist across the four countries of the United Kingdom (UK)
- some information on the current status of draft benchmark statement included in the original application
- a note about timescales in relation to regulation, should the application be successful.

In addition, the Health Professions Council invited the Society of Radiographers to attend a future meeting to give the Council a short presentation and to enable Council members to ask questions of the Society's delegation.

This paper is in two parts; the first section is text to provide the further information requested while the second part supports the oral presentation to be given to the Council on 3rd July 2008.

Part 1: Supplementary Statement to Application for Protection of the Title 'Sonographer'

Sonographers currently outside any UK regulatory framework

The number of sonographers outside of any UK regulatory framework is very difficult to establish. In the original application, the number was estimated conservatively at 500 and this still stands. The current workforce crisis in ultrasound in the UK is likely to drive this figure upwards if NHS organisations are to meet and sustain the various 'referral to treatment' targets set in each of the four countries of the UK. This is supported by the view of the National Imaging Board of the Department of Health (England) that ultrasound is the biggest of the problem areas in delivering the necessary imaging services (it is also worth noting that the Chair of the National Imaging Board, Dr Erika Denton, provided a letter of support for the application and this can be found on the CD-ROM submitted with the original application).

Anecdotal evidence of sonographers outside regulation and received since the application was submitted earlier this year includes:

- Two employing organisations raised questions with the Society regarding whether sonographers from overseas and ineligible for registration with one of the health care practitioner regulators in the UK may be employed in the NHS in the UK; one of these queries was from England, and the second from Scotland.
- Several employment and professional problems raised by non-radiographer sonographer members of the Society of Radiographer; the most extreme of these was a sonographer whose employer suddenly demanded she become HPC registered knowing that this was not possible and that they had not only employed her as a sonographer for in excess of four years but had previously trained her to become a sonographer.
- Receipt of a draft employment policy that shows the employer is looking to recruit overseas sonographers to address its current sonographer workforce shortage.
- Information from one employer indicating that it is employing overseas doctors as sonographers while they attempt to gain entry to the General Medical Council's Register.

These various matters that have arisen in the very short period (three months) since the application was submitted to the Health Professions Council show confusion about sonographer regulation and concern about the sufficiency of the sonographer workforce available currently. Both matters could be better addressed if the title of 'sonographer' was to be protected and sonographers were to come within a statutory regulatory framework.

In addition to the above, analysis of the voluntary register of sonographers established in May 2007 shows that in excess of 30% of those accepted onto the register are not radiographers. This is a high proportion and supports our view that the number of individuals that should be regulated as sonographers is sizeable.

Potential Dangers to the Public from Sonographers

Currently in the UK there is no regulation of the purchase and installation of diagnostic medical ultrasound equipment, and no regulatory restrictions or requirements on those using equipment. As a result, quite literally anyone can purchase and use diagnostic ultrasound equipment and such equipment is available at starting prices of approximately £6,000.

In obstetric ultrasound, there is a lucrative market for social scans and the use of 4D ultrasound to produce social DVDs of 'baby in the womb' is common-place. While such equipment is at the upper end of the price range, and while some of this scanning is carried out by already regulated midwives and radiographers who work within the appropriate guidance, much is not; perusal of local newspapers in more affluent parts of the country will reveal advertisements offering social scanning / 'movies' of unborn babies. The lack of regulation of sonographers means that women have no way of distinguishing the responsible from the irresponsible and there will some individuals willing to scan women very regularly throughout pregnancy.

A similar situation is emerging for vascular 'screening' scans. Men and women are being offered the 'opportunity' to have carotid, peripheral arterial, and aortic scans as health screening tests; unsolicited mail shots are being used to promote these with the advice that those attending will get a report which they are encouraged to then discuss with their general practitioner. The role of vascular scans for health screening purposes is still emerging but for health screening to be useful it should be targeted to an appropriate population and be evidenced base. There is now an evidence base for aortic screening for aneurysm but in the male population only with a single screen at age 65; quite different from the vascular screening scans being marketed to individuals at present.

Of course, individuals are free to spend their own money as they would wish within the framework of the law. However, if sonographers were regulated, they would be obliged to advertise and practise ethically (not so at present where emotions and worries are used in advertising material to encourage people to have scans); they would not be able to carry out unnecessary and, in some cases, useless scans (aortic scans of women and men under 65); they would be educated and trained to a recognised standard (they may have no training at all at present, and may be largely self-taught); they would need to demonstrate that they meet the established standards of proficiency (there is no requirement to comply with any such standards at present); and they would have to work within a clinical/medical care framework where they took responsibility for scan findings and took relevant and appropriate action.

In summary, the biggest danger posed to the public by sonographers is that there is no way of distinguishing the acceptable from the unacceptable and educating the public to seek out only regulated practitioners. Protection of the title 'sonographer' by the Health Professions Council would enable the public information and education process to be simplified and to begin, and so better protect the public from danger.

Harm, or potential for harm, from Sonographic Investigations

The traditional view is that ultrasound imaging is 'safe' and in comparison to ionising radiations this is the case. However, it is an over-simplification and there are examinations where the acoustic energy has the potential to damage human tissue, for example, trans-vaginal scans in early pregnancy, and follicular monitoring in in-vitro fertilisation work. The safety of ultrasound is still a research topic and there is authoritative guidance that expects practitioners to limit power levels and exposure to ultrasound to that consistent with obtaining a satisfactory clinical examination; this suggests that some of the practices referred to above (social scanning; vascular screening) are inappropriate when carried out by unregulated / untrained individuals.

There are other risks; for example, the potential for cross-infection if probes are not cleaned properly – especially important in trans-vaginal techniques. However, probably, the most harm can arise from the interplay of the adequacy of the scanning technique and the resulting report.

Inadequate scanning technique can lead to false negative results; for example, the failure to identify metastatic disease of the liver or to identify some fetal structural anomalies. These can result in false re-assurances regarding health status, delays in obtaining appropriate treatment, and the reduction in (or lack of) choice to seek termination of an abnormal pregnancy. For missed fetal abnormalities due to inadequate scanning, parents may be led to expect a normal, healthy baby and are shocked and disappointed when their baby is born with a structural abnormality.

Equally, inadequate scanning can lead to false positives and so to further investigations and/or treatment that were not necessary or, in obstetrics, to elective termination of a normal, healthy fetus because the fetus was found to be abnormal on scanning – such cases make headline news in the national press from time to time.

Differences in Sonography across the Four Countries of the UK

The use of ultrasound is now very wide-spread across the whole of the UK, and features in almost every branch of medical practice. Similarly, the use of sonographers (those using ultrasound who are not registered medical practitioners) is also widespread but with variations in the nature of their practice. Probably the most striking variation is in Northern Ireland where obstetric ultrasound practice is not as advanced as in the remainder of the UK. There are also variations in 'who does what' in the four countries due mainly to the roots from which ultrasound grew. In England and Wales, most ultrasound in healthcare settings is done by radiographers and they practice across the spectrum of ultrasound investigations available. This differs in Scotland and Northern Ireland where there is a higher proportion of midwives undertaking obstetric examinations.

All four countries face the same problem, however, in that the use of ultrasound is continuing to grow, as is the range of applications; while the pool of those who have traditionally undertaken ultrasound scanning is not growing at the same rate (and the range of demands on these people is also widening). This, together with the lack of any regulatory requirements, has led to service providers seeking others (non-regulated) staff to sustain the service. Inevitably, this leads to a situation whereby the public cannot be certain that the person carrying out their scan has met standards

similar to persons carrying out other imaging investigations; it also increases risk for service providers who employ non-regulated sonographers.

Draft Benchmark Statement and its Status

The benchmark statement submitted in the original application is an advanced draft that was developed by the sonographer community in preparation for the application. It mirrors the benchmark statements that already exist for diagnostic and therapeutic radiography, with the threshold standard being related to the BSc (Hons) level.

It was felt appropriate to set the education standard at this level as it is anticipated that, once sonographers become regulated, the normal route to becoming a sonographer will parallel that of radiographers; i.e. a three or four year undergraduate, pre-registration programme leading to a BSc (Hons) in diagnostic ultrasound practice. As pointed out in the original application, this transition will not (and cannot) take place quickly. Much like midwifery education, opportunities to enter sonography directly will emerge as Strategic Health Authorities begin to commission these alongside opportunities that will remain in existence as at present for sonographers to undergo additional education and training at postgraduate level, following an initial education in radiography, another healthcare discipline, or a first degree in a health or science related subject.

Timescales for Regulation

The need for sonographers to be regulated has been recognised in the sonographer community for at least a decade. Following the establishment of the Health Professions Council, work to prepare an application began in earnest in anticipation of submitting this during 2005. During the final preparation stages, it became clear that the Department of Health (England) would not welcome the application and did not consider it to be necessary. As a result, the application was not made at that time.

Since then, the work of the National Imaging Board in England, and the 'referral to treatment' initiatives underway across the whole of the UK have identified ultrasound services as a major stumbling block in relation to minimising/eradicating delays in patients' care pathways. The lack of a suitable sized workforce has been identified as the critical factor and the need to grow the workforce quickly has been identified. Rapid growth of the ultrasound workforce is likely to have to focus mainly on seeking entrants from non-traditional sources and these will not fall within the ambit of any of the current healthcare practitioner regulators. The need to begin the journey to regulation for sonographers has, therefore, become imperative. The Society of Radiographers believes this to be pressing and would urge the Health Professions Council to support the application and to explore ways to expedite the legal process thereafter.

Summary

A supplementary statement on a number of matters has been provided as requested. These matters feature already in the application submitted in March. This supplementary statement should be read in conjunction with the application. The Society of Radiographers is of the view that the dangers posed to the public from the

lack of regulation, and the potential for harm to occur as a result of inadequate ultrasound scanning underscore the need for sonographers to become a regulated group. Accordingly, the Society would ask the Health Professions Council to support the application and do all in its power to bring sonographers within its regulation reach as soon as possible.

Audrey M Paterson
Director of Professional Policy

On behalf of the Council of the Society of Radiographers

June 2008

Sonographer Regulation

Application by
The Society of Radiographers
with support from
The United Kingdom Association of Sonographers

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The Application:

- Why
- Why now
- Benefits to the Public
- Benefits to Healthcare Service Providers
- Benefits to Sonographers
- A couple of illustrations

Why?

- In untrained hands, ultrasound is dangerous
- The public is unaware and ill-informed
- There are charlatans at large
- The ‘good’ sonographers need protection

Why now?

- The crisis in imaging service provision
- The growth in 'private providers' of ultrasound services; some dubious
- The need to grow the ultrasound workforce quickly
- The need to expand education opportunities and commissioning
- The breadth of ultrasound practice
- The level of knowledge and skills required

Benefits to the Public

- The title ‘sonographer’ will become meaningful
- Standards of practice will be driven up
- A regulator will be batting for them

Benefits to Service Providers

- Regulated staff = safer staff = less risk
- A uniform standard for imaging services
- Workforce planning and education commissioning better facilitated
- 'direct entry' education commissioning can begin without any associated ethical dilemma

Benefits to sonographers

- Recognition for the importance of their role
- Clarity of their status
- Certainty / mobility of employment opportunity
- Opportunity to enter sonography directly

An illustration:

- Eastern European radiographer not elegible for registration by HPC recruited to train and work as sonographer in England
- NHS Trust supports training, and employs individual as a sonographer
- Recognised as an advanced practitioner in ultrasound
- Achieves Band 7 pay band under Agenda for Change arrangements
- 2008 employer changes mind and requires her to become HPC registered, and suspends her from work

Another illustration:

- Individual completes a first degree in zoology
- Obtains a job in a research focussed obstetric ultrasound environment
- Becomes an excellent obstetric sonographer, and gains DMU
- Continues to practice at a high level and completes PhD
- Runs major obstetric ultrasound unit in large teaching hospital
- Is internationally renowned and well published
- Is *NOT* regulated

Summary

- Ultrasound has grown uncontrollably
- No planning has gone into the necessary workforce
- Regulation is non-existent – anyone can do it
- Employers and individuals are confused
- The public doesn't know that it, too, is confused
- The time is right to put this right - now

Thank you for the opportunity to speak

Questions?