Faculty of Radiologists RCSI

Radiology Training in Ireland: Strategic Review

RCSI FACULTY OF RADIOLOGISTS

August 2016

The Strategic Review Group comprised senior elected representatives of the Faculty Board as well as the National Training Coordinator and the National Clinical Programme for Radiology co-lead for the training hospitals:

Dermot Malone (Dean); Max Ryan (Hon. Sec.); Patricia Cunningham (Hon. Treas.); Anthony Ryan (Vice Dean); Mark Knox (National Training Coordinator); Niall Sheehy (National Clinical Programme for Radiology).

Ms. Sarah Drumm was the Project Manager. The Strategic Review Group was advisory to the Education Committee, Trainee Subcommittee and Board.

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BACKGROUND TO THE FACULTY STRATEGIC REVIEW:
INTERNATIONAL DEVELOPMENTS IN RADIOLOGY TRAINING AND CERTIFICATION; NEW CHALLENGES AND GOALS

In October 2014, the Faculty was facing challenges from HSE/MET (subsequently renamed the National Doctors Training and Planning unit of HSE - NDTP), the reorganisation of the health services around Acute Hospital Groups, changes in the way other jurisdictions to which our graduates have traditionally migrated for higher training evaluate and examine their trainees, and a paucity of research training among qualified Radiologists compared to other specialties.

Prof. Dermot Malone, incoming Dean, undertook a tour of the training hospitals, accompanied by Ms. Sarah Drumm. They outlined the nature and extent of these problems and received many useful suggestions and feedback. The tour included Waterford University Hospital (formerly Waterford Regional Hospital). Results of the tour were reported back to the Board and an electronic survey was then circulated to the Educational Coordinators (**Appendix 1a – Stakeholder Survey**). The committees and Board worked on these issues in 2014-15 and a plenary meeting of Educational Coordinators in June 2015 set priorities for the Board in 2015-16. A trainee subcommittee was formed on the recommendation of the Medical Council accreditation of 2011.

Subsequently, during 2015, the Board approved several initiatives:

- Accreditation visits to Waterford University Hospital and Limerick University Hospital
- Further investigation of competence-based medical education in the Radiology programme; this being regarded as essential in view of developments in the UK (**Appendices 1b and 1c – GMC communications**), Australia, Canada and the USA.
- Pilot projects addressing
    - A new option for pre-Radiology clinical training
    - Introduction of Multisource Feedback for Radiology SpRs
- Formation of a subgroup to advise the Education Committee and Faculty of potential learning objectives and structure of rotations to Model 3 hospitals
- Development of research scholarship and bursary programmes for Faculty SpRs
- Changes in Examination Regulations to modernise the FFR Final Fellowship examination

This position paper outlines the results of the 2014-2016 process of evaluation, discussion and planning that has taken place internally between the Faculty strategic review group, subgroups, committees and Board.

In parallel, there have been policy discussions in Ireland with NDTP, the Medical Council, the Department of Surgical Affairs and the Faculty of Emergency Medicine, Royal College of Surgeons in Ireland (RCSI), and in the UK with the Royal College of Radiologists, London. North America has not been ignored; the US training hospitals have been met at an Irish diplomatic reception during RSNA in Chicago, a new US training centre has been developed through the scholarship programme (considered under ‘Higher Training Options’ – section 3.c.iii) and our links with the Canadian core training departments are being strengthened by a policy of Visiting Professorships and Honorary Fellowships that is outside the remit of this review.

The 'Contents' page lists the zones of training that have been considered. This position paper is not an end in itself. Following its wide circulation over the summer of 2016, a plenary meeting will be convened on Friday September 9th 2016 to which representatives of all facets of Irish Radiology will be invited. This meeting will be professionally facilitated with the goal of addressing the strengths, weaknesses, obstacles and challenges facing the incoming Dean, Dr Max Ryan, and the 2016/17 Board. It should assist them to make optimal and well-informed policy decisions that respect the wishes of our Faculty as a whole.

The October 2016 Train the Trainers meeting will further address specifics of Competence-Based Medical Education (CBME). Other projects and plenaries will be organised as the need arises. The goals are:

1. To produce an agreed framework for training jointly agreed by the Faculty and NDTP that can be presented to HSE Acute Hospitals and the Hospital Group CEOs as a centrally-approved plan for expansion of radiology training posts
2. To modify the structure of formative and summative assessments in line with current and developing international best practice
3. To allow the Faculty and NDTP consider a 3-5 year SLA framework replacing the annual framework in place to date
4. To improve linkage between Radiology training and workforce planning in Ireland, with a view to increasing graduate retention

Dermot E Malone
Dean
Faculty of Radiologists

SECTION 2

STRENGTHS AND WEAKNESSES OF THE FACULTY OF RADIOLOGISTS NATIONAL TRAINING PROGRAMME

STRENGTHS AND WEAKNESSES OF THE FACULTY OF RADIOLOGISTS NATIONAL TRAINING PROGRAMME

STRENGTHS

The Faculty of Radiologists' training programme has an international reputation with Irish-trained Radiologists held in high regard throughout the Radiology world. Within Ireland, Radiology attracts some of the highest achieving medical students. In recent years, approximately 20 entry places have been available. There have been approximately 50 applicants, of whom about 30 have been interviewed to fill the places and form a reserve panel.

Amongst the postgraduate training population, Radiology SpRs report very high satisfaction with their training and the structure of the programme, and with their training experience (**Appendix 2a - 'Your Training Counts' 2015**).

In 2014 the report of the Strategic Review of Medical Training and Career Structure Working Group (hereafter referred to as the MacCraith Report) identified many desirable features of training programmes which were already features of the Radiology programme (**Appendix 2b – link to MacCraith Report**). For example, modernisation of the multi-step Consultant training process identified in other specialties was not an issue as our SpRs already had a single point of entry to a 5-year programme (MacCraith Report, Section 7, p. 66). The training programme has a defined start and finish, and has a well-structured academic programme throughout.

The 'Cohort' System:

The Faculty has always embedded its SpRs in 'cohorts' in the University Training hospitals. Due to the nature of modern digital Radiology, unlike clinical specialties, multiple rotations are not essential for satisfactory Basic Radiology training if the training hospital supports a wide enough range of clinical subspecialty activity. The longitudinal continuity of the 'cohort' model in a training department permits a strong team bond to form between SpRs of different years, and results in a "team" mentality which mimics the future Consultant practice environment. For the SpR, this creates a sense of stability, security and support, particularly in the early years of training, now reportedly absent in many other training programmes in the 'shift-based' European Working Time Directive (EWTD) era. For the trainers, this provides an environment in which the professional and personal qualities of the SpRs can be assessed and moulded in preparation for Consultant "team" practice. Longitudinal observation and feedback makes multisource feedback and CBME more likely to be valid.

This structure provides certainty about SpR rotations, and is 'family-friendly', both of which have been identified as desirable features of Postgraduate training programmes in the MacCraith report (Appendix 1, Recommendation 5, p. 77). Doctor couples are not necessarily guaranteed that they will not be separated; however, given the high numbers of training places in Dublin, there is a likelihood that a couple could each secure a place in a Dublin Model 4 hospital.

In 2nd year, SpRs take the 3-part 'Professionalism' module. The first part is 'Practice-Based Learning' in which SpRs learn the psychology of group dynamics, methods of dealing with conflict and the theory and skills of the McMaster 'Evidence-Based Practice' paradigm. They are expected to complete a Critically Appraised Topic (CAT) from within their normal working

environment with no special allowance of time out of service and must present this to the group to pass the module. The second part of the module is 'Audit.' Again they are expected to complete an audit from within their normal working environment with no special allowance of time out of service and must present this to the group to pass the module. The 'cohort' system underpins this as they work in "teams" within their hospital cohort on these modules. Finally, a 'Systems-Based Practice and Management' module which explains the overall structures of public and private practice, including the legal environment to the SpRs, completes the module. This is formative in encouraging young doctors to be 'critical consumers' of the medical and industry literature and giving them the skill set to find and investigate new evidence in their practice and to audit the results. It also opens the SpRs' eyes to the option of becoming involved in Health Services Research as a career track. The cohort system also facilitates the introduction of 'Multisource Feedback' in 2nd year. Progress with this is reported in section 3.a.ii of this report.

It has been said that frequent rotation to many different hospitals, as in the UK training programmes, grants great confidence in becoming quickly accustomed to different manufacturers equipment, differing sizes of departments and a variety of consulting styles. However, there are downsides to such an approach. Confidence is not equivalent to competence, and multisource feedback and competence-based portfolios may be more difficult to deliver reliably. In the UK, the Deanery holds and administers the trainee salary. In the Irish system of Group Hospital finances, still delivered through the old Health Board infrastructure, SpRs must interact with multiple HR departments and there are problems with expensive short-let accommodations and re-adjustment of rotations for 'family-friendly' reasons. Irish Hospitals have allowed their residence facilities to waste away and cannot for the most part now offer short-term lets on campus or nearby.

A complete lack of rotation would limit SpRs' exposure to different styles / modes of practice. Some SpRs are limited in the specialties to which they are exposed. Therefore, in 2nd and 3rd year, SpRs participate in 'competence-based' rotations. These currently incorporate Paediatric Radiology, Neuroradiology and for two centres, exchange rotations for Breast Imaging and PET/CT experience.

The Faculty has been criticized for not following the national 'norm' of short (6-12 monthly) rotations of SpRs to multiple hospitals within different hospital groups. We stand over our current model of training and note that although different, it is scoring well on all academic metrics (pass rates, SpR assessment in other jurisdictions, and Consultant performance), for SpR satisfaction ('Your Training Counts' 2015) and for compliance with the recommendations of the MacCraith report. It provides a sound foundation for the Professionalism Module, Multisource Feedback and competence-based medical education. We note that, at the International Conference on Medical Education in Canada in 2016, the Plenary Programme contains a session entitled 'Can we still afford the rotational model or do we need to better embed residents?' We look forward to contributing to this debate.

WEAKNESSES

Rotations – opposing views

One of the criticisms of the Radiology Training Programme is that SpRs do not experience practice outside major urban centres and cannot, therefore, make experience-based decisions about whether they would like to apply for a Consultant post that was entirely or partly based in a Model 3 hospital. The Board has acknowledged that there is truth in this contention. The Board recognised that it was equally important to consider that SpRs who had never lived and/ or worked in a particular geographic location were less likely to apply for a post in that region. Therefore it authorised the exploration of the feasibility of extending

the 'cohort' training programme to all of the Model 4 hospitals. In 2015 and 2016 Waterford University Hospital (WUH) and Limerick University Hospital (LUH) underwent accreditation visits. WUH, which had an unaccredited training programme, was fully accredited. LUH, which had no Registrars, was accredited for 5th year training and given clear indications of what needed to be done to successfully apply for accreditation to train 1st year, and 2nd to 4th year SpRs.

The Board does not accept the proposition that the lack of rotation to Model 3 hospitals is solely responsible for the HSE's difficulty in recruitment to Model 3 hospitals. A recent report by the National Clinical Programme for Radiology (NCPR) identified that 13% of Consultant Radiologist posts are vacant. This compares with 14% of Consultant posts in all other specialties. All other specialties rotate to Model 3 hospitals. It is notable in some provincial towns, that there is a well-staffed private hospital and poorly staffed public hospital indicating that structural features of the HSE posts account for their unattractiveness. In April 2015, the Stakeholder Survey (**Appendix 1a**) was split on the impact of not having Model 3 rotations, but identified other factors which are, compared to what is available to SpRs abroad after 2-3 years of Fellowships and Australian or Canadian Radiology examinations, very important contributors to the current difficulties. These were the 2008 Consultant contract format, the lack of structured Radiologist practice plans, the established and increasing requirement for diagnostic and interventional Radiology services from small Consultant Groups at night and weekends and after-tax remuneration. Recent academic research by RCSI supports this. (References 1 and 2 at the end of this section)

These factors have contributed to a situation where the 'Your Training Counts' survey undertaken by the Medical Council in 2014 shows that just 54% of all trainees express plans to remain in Ireland.[1] There was a slight improvement in the 2016 survey with 58% indicating that they were definitely or probably going to remain in Ireland.[2] There is a large undecided group (25% in 2014 and 23% in 2016) and it is worthwhile working on conditions which would encourage them to remain in Ireland. The last Minister for Health (Dr Leo Varadkar) appeared to appreciate this, making a recent statement expressing his desire "to make posts financially attractive again through new pay scales that recognise experience and higher qualifications, reductions in taxes and the pension levy, by reducing working hours and by implementing the MacCraith report."[3]

Irish Academic Radiology

There is a very limited number of formal Professorial chairs in Irish Radiology - RCSI, UCC and NUIG - with a widespread lack of associated academic funding. Although Irish Radiology performs well in terms of 'descriptive Radiology' academic output, there are limitations to its potential by virtue of its relatively small population (4.6 million versus e.g. London, 7 million). The Board considers it highly advisable that SpRs with appropriate motivation and interest obtain higher training in research methodology in Translational Imaging and Health Services Research in addition to the interpretative and procedural training already available in the existing national/out-of-programme structure.

[1] p18 of http://www.medicalcouncil.ie/News-and-Publications/Reports/Your-Training-Counts-Trainee-Retention-and-Career-Intentions.pdf

[2] p21 of http://www.medicalcouncil.ie/News-and-Publications/Reports/Your-Training-Counts-Report-on-trainee-career-and-retention-intentions-2016.pdf

[3] Dr Varadkar speaking at the launch of the results of 2015 'Your Training Counts' survey, 15 October 2015 https://www.medicalcouncil.ie/News-and-Publications/News/2015/Items/Minister-Launches-the-Medical-Council-s-Your-Training-Counts-Report-on-Career-Intentions-.html

Pre-Radiology Basic Training Structure

Radiology is the only specialty in Ireland that solely requires one clinical year before beginning Radiology training, compared with other specialties which require two clinical years. Up to this point, aspirant Radiology SpRs had to pursue a "career" in another discipline, typically Medicine or Surgery, prior to commencing Radiology. This approach has a potential downfall of losing some of the best and brightest to these specialties. In addition, it has been a source of difficulty for the RCSI programme in that some Surgical SpRs traditionally abandoned their Basic Training Programme for Radiology. This created a deficit in SpRs going forward and potentially meant that an intern who wanted to do Surgery had been denied training for one who was more interested in Radiology. This problem is currently being addressed via the Common Stem SHO Pilot Project (Section 3.a.iii).

BASIC TRAINING ISSUES

Competence-Based Medical Education/ Multisource Feedback

As evinced by difficulties experienced by some of our SpRs in trying to gain access to the UK Higher Training posts, our lack of documentary evidence of competence-based medical education (CBME) and Multisource feedback (MSF) has been identified as a programme deficit by the GMC (**Appendices 1b and 1c**). CBME is the norm in Australia and is also becoming the norm in the USA and Canada. These deficits are addressed in sections 3.a.i and 3.a.ii of the Strategic Review.

Bullying and Undermining in the workplace

The 2015 'Your Training Counts' (YTC) survey reported that 37% of Radiology SpRs had experienced bullying or undermining in the workplace (Figure 27, p. 31 of 'Your Training Counts' 2015). The Faculty supports the HSE and RCSI 'Dignity at Work' policies, both of which are downloadable from our website. The YTC report is being further investigated and will be addressed through the Fellowship Advisory Committee and Trainee Subcommittee (**Appendix 2c – Statement from Trainee Subcommittee**).

HIGHER TRAINING PROGRAMME ISSUES

Until 2014, the Faculty recruited for a 4-year programme. It was expected that about 50% of 4th year SpRs would not stay for a 5th year of training, and all would be abroad by 6th year. Whether they would return depended on the balance between their training and the needs of the Health Services. There is no centrally planned strategy. Furthermore, the subspecialty descriptions in use in Europe and the UK are much broader than those used by the Consultant Applications Advisory Committee (CAAC) which are outdated and need to be addressed by the Faculty, NCPR, NDTP and CAAC. With regard to improving clarity around availability of Consultant posts by specialty and location, in 2014 the MacCraith report recommended more centralised and coordinated workforce planning and better matching of new posts to service requirement and SpR capacity (MacCraith report, Progress report on Implementation of Previous Reports, No. 6, p. 82).

The only precedent for good alignment of subspecialty descriptors and workforce planning in recent history is the development of the Breast Carcinoma services by the National Cancer Control Programme (NCCP) . The training requirements, location and timeframe for Consultant posts were made known to the Faculty SpRs. Those posts are now filled by Irish-trained Radiologists. If this could be achieved for other clinical programmes and a 5th year post existed for all 1st years it is postulated that Higher Training posts could be better aligned to workforce needs, SpRs could conceivably interview for Consultant posts in the final 6 months of 5th year, higher training abroad could take place proleptically as/ if required and increased graduate retention would likely result.

POST-CSCST TRAINING[4]

The final section of the MacCraith report, "Progress report on Implementation of Previous Reports" (No. 6, p. 82), which recommends the development of centralised workforce planning, also recommends the further development of post-CSCST Fellowship capacity in Ireland in order to retain specialist medical expertise in the public health system in advance of appointment to Consultant posts.

Some SpRs wish to do post-CSCST training in Ireland; usually this is no more than 1 or 2 in any given year. They have, so far, always being accommodated in the existing Higher Training Programme.

In reality, in a technologically driven field like Radiology, Ireland's weakened economy and relatively poor investment in healthcare technology limits Irish Radiologists' access to training and evaluation of "cutting edge" technology. Hospital groups rely on incoming Consultants trained abroad to remedy this technology-based knowledge gap. Hospital Consultants write the job descriptions and set the appropriate level of experience. There is no link between the job descriptions and shortlisting criteria, and the training programme of the Faculty of Radiologists. Typically, incumbent Consultants have been working with imaging equipment or interventional skills that are generations behind that of which they are aware, and to which they aspire. New Consultants are often only available as replacement posts. Specific skillsets are sought via the job description, and the appointments are made on that basis. Newly appointed Consultants usually begin by working with older equipment than that on which they have trained in an international centre. The established and new Consultants work together to acquire the necessary equipment and the new Consultant leads the implementation programme when it has been acquired.

In consultation with our SpRs, the viewpoint has been expressed that should a radiologist wish to remain in Ireland post-CSCST without going abroad, they have the option of taking up a General Radiology locum position. These positions are better remunerated than a permanent position, and historically this has been a preferred option.

The question of post-CSCST Fellowships has been discussed by the Education Committee and the Trainee Subcommittee of the Faculty. Neither committee can see how a further increase of the post-CSCST Fellowship capacity in the Higher Training system will benefit Radiology graduate retention. The Board is open to clarification by any involved party.

Mentoring

We do not yet have the formalised mentoring arrangements in place as recommended by Minister Varadkar. This will be reviewed by the Fellowship Advisory Committee.

References

1. McAleese S, Clyne B, Matthews A, Brugha R, Humphries N. Gone for good? An online survey of emigrant health professionals using Facebook as a recruitment tool. Human Resources for Health. 2016. http://human-resources-health.biomedcentral.com/articles/10.1186/s12960-016-0130-y

2. Humphries N, McAleese S, Matthews A, Brugha R. 'Emigration is a matter of self-preservation. The working conditions . . . are killing us slowly': qualitative insights into health professional emigration from Ireland. Human Resources for Health. 2015;13(1):35. http://epubs.rcsi.ie/ephmart/52/

[4] CSCST stands for Certificate of Satisfactory Completion of Specialist Training

SECTION 3(A)

PILOT PROJECTS 2015-2016:

(I) COMPETENCE-BASED MEDICAL EDUCATION
(II) MULTISOURCE FEEDBACK FOR SPRS IN THE RADIOLOGY PROGRAMME
(III) PRE-RADIOLOGY TRAINING: THE COMMON STEM SHO PILOT PROJECT

PILOT PROJECTS 2015-2016:
(I) COMPETENCE-BASED MEDICAL EDUCATION

The purpose of this process was to explore the development of Competence-Based Medical Education and Training in the Irish National Radiology Training Scheme. Competence-Based Medical Education (CBME) is an approach to training that is focused on outcomes in the form of abilities, rather than solely the examination of knowledge. CBME involves identifying the knowledge, skills and behaviours (competencies) required for a given role, and then providing training and assessment in these specific competencies.

Entrustable Professional Activities (EPAs) are a key component of CBME. EPAs are individual core units of professional practice (tasks or responsibilities), which can be entrusted to the SpR, once they have demonstrated the necessary competency to execute the activity unsupervised. Assessment of these competencies will usually involve direct observation of SpRs performing the task. Formal examinations (Primary and Final FFR) remain a key component in the evaluation of the SpR knowledge.

Milestones are levels of entrustability which can be allocated to an SpR, allowing grading of the level of supervision required for a given EPA. Milestones allow comparison of the SpR's level of competence with an agreed accepted level of practice.

Competency-based assessments are currently in use in the United Kingdom under the guidance of the Royal College of Radiologists (RCR). These comprise assessments in image interpretation, procedures, multidisciplinary meetings, teaching and research.[5] The Royal College of Physicians and Surgeons in Canada is currently developing CBME and in the United States, the American College of Graduate Medical Education (ACGME) and American Board of Radiology (ABR) have developed milestones for competencies for radiological SpRs.[6]

The Faculty of Radiologists applied to National Doctors Training and Planning (NDTP) for educational support funding. NDTP awarded a grant of €32,000 for the development of CBME within the Radiology Training Program and Educationalist support was contracted. The CBME project will initially be a paper based scheme however it is envisaged that an electronic (app based) program will be developed to streamline workflow.

Currently there are two EPAs in development. These are based on key elements of a radiologists work; EPA 1, Interpretation and Reporting of Radiological Studies and EPA 2, Radiologically Guided Interventional Procedures. Draft competencies have been defined for each EPA and have also been mapped to the Irish Medical Council eight Domains of Good Professional Practice[7] (**Appendix 3a - CBME**). Typically, an EPA is assessed using a Workplace Based Assessment (WPBA) tool and a logbook documenting the number of satisfactorily completed activities. WPBAs are completed during or immediately after the task being assessed, with feedback given to the SpR at that time.

Each of the EPAs in development will comprise nested EPAs related to Radiological domains of practice (for example plain film or ultrasound). These nested EPAs will be

[5] https://www.rcr.ac.uk/clinical-radiology/specialty-training/workplace-based-assessment
[6] https://www.acgme.org/Portals/0/PDFs/Milestones/DiagnosticRadiologyMilestones.pdf
[7] https://www.medicalcouncil.ie/Existing-Registrants-/Good-Professional-Practice/

grouped into core and subspecialist domains. SpRs will be required to reach independent practice level milestones in core domains for satisfactory accreditation of training, whereas a lesser level of competency may be acceptable for subspecialist domains of practice. Examples of core domains of practice could include Plain Film, Ultrasound, On-call reporting and general CT / MRI; examples of subspecialist domains may include Breast Imaging, Nuclear medicine Imaging and Interventional Radiology.

Further aspects of this project, which require consideration by the Faculty Board, Education Committee and Trainee Subcommittee, include:

- Which domains of practice will be evaluated as core and subspecialist nested EPAs and what is the agreed level of competence and entrustability required for each nested EPA
- Number of assessments and completed activities required for each EPA and at what stage(s) of training the assessment(s) will occur
- Who will perform the workplace based assessments?
- What further EPAs should be developed? Options include:
    - Research and Education
    - Multidisciplinary Interaction
    - Leadership and Management
- How CBME and EPAs will affect/ determine progression within the Radiology training scheme (SpR progression criteria will need to be determined). A robust system for addressing significant below par achievement should be in place prior to implementation.

The CBME and EPA project will be discussed in detail at the Faculty of Radiologists' 'Train the Trainers' meeting in October 2016 with the aim of running a pilot project in early 2017.

PILOT PROJECTS 2015-2016:
(II) MULTISOURCE FEEDBACK FOR SPRS IN THE RADIOLOGY PROGRAMME

This pilot project was designed with 'Real World Group' UK (RWG) and funded by a developmental grant of €18,865 from the NDTP Development Grant Programme (2015-16).

'Multisource' or '360 degree' feedback (MSF) is widely regarded as a critical tool for assessing and subsequently developing the leadership style and interpersonal behaviour of staff whilst also increasing self-awareness of their behaviour and how it impacts on others. It has proved to be useful in terms of aligning individual behaviour and performance with corporate values, such as reinforcing team behaviours and implementing strategic initiatives. It is an integral part of the GMC specialist equivalence evaluation domains (**Appendix 1c**). MSF provides individuals with insights about their performance and behaviour from the viewpoints of their colleagues, subordinates, and leaders. It is well accepted that MSF fosters individual involvement, provides fair and accurate performance feedback and leads to self-development. In general it works because when individuals see a gap between their feedback ratings and the desired goal, they generally work to reduce the gap as a way of maintaining a positive sense of self-esteem. It has been shown to create positive change in individuals once implemented with an actionable plan to address any issues raised during feedback. Improvements in performance are most likely to occur when the feedback given clearly indicates that change is necessary; the person receiving the feedback has a positive feedback orientation; individuals perceive the need to change their behaviour, believe the change is achievable, set appropriate goals to change the behaviour and take actions to improve their performance.

Twenty-one 2nd year SpRs agreed to complete the MSF exercise during this pilot phase. The MSF feedback output remains the property of the SpR and is confidential between RWG and the SpR unless certain 'red flags' were raised, in which case the local Educational Coordinator would be informed. The feedback output would, if circumstances in which it needs to be consulted arise, be accessible to the Fellowship Advisory Committee and to other individuals who are legally responsible for accrediting and signing off the students as being a safe and acceptable Doctor.

Relevance / value / importance to the Irish Health Service

RWG currently list the following as clients using this MSF tool: NHS, University College London, Glasgow Caledonian University, Canterbury Christ Church University, University of Salford, University of Newcastle, National Police College, Metropolitan Police, University of Sydney Business School (Australia). In the NHS, MSF has been proven to have a direct impact on productivity, alongside the following outcomes for direct reports:

- Greater motivation
- Greater satisfaction
- Greater commitment to the job and the organisation
- Improved self-confidence and self-esteem
- Reduced job-related stress.

The model is extensive in its assessment of how to increase a culture of constant improvement, innovation, engagement, clear focus, partnership working, strategic direction, and a range of other important outcomes. A clear report will provide the students with information on how they are perceived by their colleagues, supervising Consultants, and other stakeholders with whom they regularly work. It also contains powerful information about the impact they are having on their colleagues' wellbeing and positive attitudes to work.

Project Quantifiable Objectives

1. That the MSF process will be satisfactorily benchmarked to the highest UK standards
2. All 2nd year SpRs in active practice were invited to participate in the MSF process, the results of which will be regarded as their data unless pre-specified boundaries are crossed, as described above
3. That the Faculty can attest to this if/ when so requested by SpRs applying for accreditation of training or examinations abroad while on or after Out of Programme Experience, or by graduates applying for GMC specialist registration. (While Irish CSCST holders can currently be registered as UK specialists under EU law, this window will close when Brexit is complete. Lack of MSF will then be a barrier for Irish-trained Radiologists who wish to enter the GMC Specialist Register by the equivalence of training route)
4. That the Faculty and NDTP will have anonymised whole group data to help them decide on whether/ how to make MSF a recurrent event for all 2nd and 3rd year SpRs in the programme, and whether/ how to modify training programme content to address any widespread issues that arise

Questionnaire Design

A 360° questionnaire, incorporating the Northern Ireland MSF programme profile for Radiology SpRs and the RWG 'Engaging Leadership' model was designed (**Appendix 3b – Questions asked of raters in MSF process**). All questions from the GMC-approved RCR radiology MSF programme currently used by the Northern Ireland deanery were included. The support and assistance of Dr Anton Collins, Head of School of Diagnostics with the Northern Ireland Radiology training programme, is gratefully acknowledged. This profile was mapped against RWG's engaging leadership model and associated Transformational Leadership Questionnaire (Clinical Leadership 360) items to ensure that all critical areas of Engaging Leadership were covered by the customised questionnaire. Finally, the questions were grouped under the Medical Council domains of Good Professional Practice.

Survey 'Target' Group Agreement

The 2nd year SpRs were considered to be an appropriately representative sample to include in the pilot project. The proposal was discussed with them and with the Trainee Subcommittee. There was unanimous support for the proposal. It was agreed that the Target group should also include three Radiation Oncology 2nd year SpRs as well as the Diagnostic Radiology SpRs.

MSF Questionnaire Recipient Identification

The Strategic Review Group modified the Royal College of Radiologists (N. Ireland) guidelines to identify the optimal recipients of the MSF questionnaire. The assistance of Dr Anton Collins and the N. Irish 2nd year SpRs was very helpful at this state of the Pilot Programme. These recipients are referred to as the 'Raters'. (**Appendix 3c – Categories of raters selected for MSF project**)**.** RWG provided advice and guidelines based on best practice to enable the SpRs to make properly informed decisions when choosing their raters, the grades of which were prescribed by the Faculty. Individual raters are chosen by the participants.

Training of feedback providers within the Faculty

Due to a temporary shortage of internal capacity within the Faculty for RWG to train and accredit internal feedback providers, an experienced facilitator delivered the feedback to the pilot project participants following completion of the questionnaires by the participants and their raters.

Conclusion of MSF and Reports

The MSF project ran from late April to early June 2016, with all feedback to the SpRs delivered within this period. A preliminary report was provided to the Faculty and is included in the Appendices (**Appendices 3d and 3e - MSF Report and Global Results**). No worrisome trends emerged. SpR group performance was satisfactory. Individual SpR reports are confidential to the SpRs unless 'red flags' are raised.

Future Developments

The Faculty hopes to be in a position to run the MSF in the 2016-17 academic year, with the participation of the 3rd year SpRs (who were part of the pilot project in their 2nd year), and the incoming cohort of 2nd year SpRs. The form will be amended based on feedback from the raters and SpRs. In addition, the Faculty hopes to accredit internal coaches within the Faculty to provide 360° feedback utilising RWG diagnostics. This could include both people involved in delivering the feedback to SpRs and also those who would potentially need to read and understand the reports as part of the SpR review process. Collaboration with other PGTBs working on MSF initiatives is also a possibility.

PILOT PROJECTS 2015-2016:
(III) PRE-RADIOLOGY TRAINING: THE COMMON STEM SHO PILOT PROJECT

Background

Radiology is the only specialty that requires, as a minimum, just one post-internship clinical year before applying for the training programme. In 2013-14 the Faculty was approached by the RCSI and Prof. Eilis McGovern of the NDTP about the issue of first-year surgical SHOs exiting Basic Surgical Training to apply for the Radiology Programme. The NDTP viewpoint was that this is not good for the Surgical programme, especially for surgical patients whose clinical service may be one 2nd year SpR short, for other SpRs who must compensate for a missing 2nd year colleague, or for the Interns who really wanted to be Surgeons and who were denied entry to that Higher Training programme. The Faculty was asked whether an option could be developed to create an alternative pathway for entrance to Radiology training that would be advantageous to all parties.

NDTP also expressed concern that the traditional 12-13 years post-medical school journey to an Irish Consultancy is outmoded. In the Faculty's case, the European standard for Radiology is 5 years subspecialty training after a minimum of 2 years post-graduation training (often 3 or 4) and, for Radiology, at least one post-CSCST year of Fellowship is completed by most. This means Consultant Radiologists usually have undergone 7-10 years of training after graduation from Medical school. Many graduating medical students are now 'Graduate Entry' students. They started their medical journey at least 5 years after leaving school and were liable for higher University fees. They have often accrued greater debt and responsibilities by the time they enter Postgraduate Training. The Faculty has been asked to take this into account in their overview of training. The Common Stem SHO programme partly addresses this issue.

The question was raised in every training hospital during the 2014-15 Dean's visits. It was agreed that many clinical paths can lead to Radiology training. Sometimes the decision is made after one year as a clinical SHO, others make the decision after completing basic Medical or Surgical training and Membership examinations. The more experienced NCHDs typically form the top half of the cohort appointed to the Faculty training programme each year.

The Academic Radiology community and the Faculty have recently encouraged medical students with an interest in Radiology by promoting the availability of Medical School Radiology medals and the Fielding Medal for Medical Student Research. On consideration, while the Surgical Training Programme had, to a large extent, brought the problem under discussion upon itself by a very rigid structure, the Board considered it a weakness in Radiology's image as a mature specialty that (unlike Northern Ireland for example) an Intern cannot openly declare an interest in Radiology early, follow a clear and Radiology-focused clinical training pathway for one year, and then apply to our Training Programme in open competition with a reasonable prospect of success. Typically, Interns must pretend to want to be Physicians or Surgeons, gain a place on those highly competitive 2-year programmes and leave after the first year. The fact that it 'had always been that way' did not make it the optimal approach for the image of Radiology and Radiologists in Ireland.

After visiting the Faculty training centres, an online survey was performed. The wording of the question regarding a pre-Radiology training pilot project was as follows:

"After several iterations and discussion at 2 consecutive Board meetings, the Faculty Board has agreed to commence discussions with the RCSI Surgical and Emergency Medicine training departments to create a Radiology SHO track. The goal of the track is to provide an option for interns who are targeting a career in Radiology to spend their year 1 SHO experience in a post that will provide clinical experience relevant to Radiology and allow them to spend their academic half-day in the Radiology Department. A 2-year pilot is proposed. We will ask for Surgical and ED posts in hospitals with a Radiology training programme and in Surgical subspecialties with high Radiology input/ integration (Abdominal, Orthopaedic, Vascular, Thoracic). This will likely involve conversion of service posts to SpR grade. The Radiology SHOs will not be guaranteed acceptance onto the Radiology Training Programme, they must interview in open competition. On the other hand, if they decide Radiology is not for them, the post should be eligible for consideration as a year of Emergency Medicine or GP training. In return for these posts, the Faculty will change entrance criteria to preclude acceptance of applications from SpRs who are half-way through their Basic Surgical Training programme. We have two goals. First, we hope to remove the need for interns who really want to do Radiology to sign up for a 2-year surgical programme they have no intention of completing, thereby displacing interns who really want to do surgery. Second, we wish (as part of the give-and-take of negotiation with NDTP) to help them to eliminate the problem of vacant Year 2 Surgical SHO posts due to resignations by SpRs accepted into the Radiology Programme. What is your opinion of this pilot project?"

Reply options ranged from 'strongly disagree' to 'strongly agree.' All training centres agreed or agreed strongly. Having received this mandate, the proposed project was regularly discussed at subsequent Board Meetings and at the Training Coordinators' Plenary session on June 19th 2015. There were no objections.

As a result of these issues, in conjunction with the NDTP, the RCSI Surgical Training Programme and the Faculty of Emergency Medicine RCSI, a pilot programme, named the 'Common Stem SHO' pilot project, was approved by the Board in 2015 and began in 2016.

Phase I – Implementation

Interviews took place on January 18th 2016. There were 15 applicants, 14 were eligible for interview and 10 were appointed. Subsequently one person took up a residency programme in Radiology in the USA and another opted for an MSc track so that 8 candidates commenced their posts in July 2016. These posts are in St. Vincent's University Hospital, Tallaght Hospital and Galway University Hospital. The interview panel comprised representatives from Surgical Affairs, Faculty of Emergency Medicine and Faculty of Radiologists. In addition to the interview there were Radiology and Clinical OSCEs.

Subsequently, it emerged that a Surgical trainee had intended to apply for Radiology after the 1st year of the Basic Surgical Training Programme. Some Radiologists were aware of, and supportive of, his predicament when his application was refused. The negotiation team had no knowledge of this planned recruitment situation at any time during the negotiations and, while we regret the inconvenience caused to an individual, we believe the principles on which the initiative has been built are sound, and had been universally agreed throughout the Programme, as judged by feedback from the Educational Coordinators and Board, based on all information available at the time. This should not happen again as interns now

have the option of applying to the Common Stem programme for surgical experience, rather than the Basic Surgical Training Programme.

A curriculum has been devised for the SHOs in conjunction with Surgical Affairs and the Faculty of Emergency Medicine. It was agreed that the Common Stem SHOs would be released from clinical duties for an aggregate of one half-day per week. They will undertake the following education programmes:

- Surgical Bootcamp: Each SHO attends for 1 week in July
- Human Factors in Patient Safety (3 modules and an assessment)
- Emergency Medicine Workshops (4 modules)
- School for Surgeons – online 'e-learning' module

In the balance of academic time remaining after completion of the above commitments, SHOs will be given one half-day training in Radiology per week. This will be co-ordinated locally within each hospital site and SHOs will get an opportunity to experience Diagnostic and Interventional Radiology first hand, become familiar with all the modalities of imaging, undertake a research project and be involved with audit. This will be in addition to their attendance at Radiology/clinical conferences and multidisciplinary conferences with their clinical teams.

The SHOs will be assessed bi-annually (December and June each year), with representatives from Surgery, Emergency Medicine and Radiology in attendance. A certain number of key milestones will be set for Emergency Medicine and Surgery, similar to the SHOs in their programmes.

Phase I – Analysis

The pilot project has been met with a mixture of support, concern and some criticism. As with all new ventures there are advantages and disadvantages, some anxiety about change and there are lessons to be learned regarding the process and implementation. There are likely to be some changes for the second year of the pilot based on the feedback received, concerns raised and lessons learned from year 1.

The benefits from the new pilot project include meeting a need from a population of young doctors who have a desire to become radiologists and have made this decision early in their careers. These people get recognition of their decision early and enter a pathway that gives them support from the outset. They gain valid clinical experience with more Faculty of Radiologists input than any other potential Radiologists in clinical training. They get an opportunity to become involved with clinical Radiology, participate in research and audit, and establish themselves in a Radiology department as potential SpRs and colleagues.

There are also concerns regarding the programme in terms of the candidates themselves and, consequently, the Radiology training programme itself. The main concerns expressed were:

1. Most entrants to Radiology at present have medical experience, not Surgery or Emergency Medicine experience and some were concerned that the new programme would adversely affect this. The Faculty receives about 50 applications annually, from which 20 are appointed. It is hoped, as outlined later in this Review, to increase the number appointed annually. Many young doctors are not sure what they want to do when they qualify. They do 1-2 years of medicine, take their Membership examination and decide on a future career path during this time. The proportionally small Common Stem SHO programme does not change this. This has been discussed with the RCPI. While it was agreed that interns who openly state that they

want to change to Radiology after year 1 might lose some competitive advantage at interview, RCPI view the first two years post-internship as a useful 'feeder' grade for many specialties. They recruit a large number of SHOs annually and do not find transfers out of Medicine at the end of year problematic. There is no reason why Interns should not continue to apply to RCPI medical SHO posts and then apply for Radiology during year 1, not proceeding in Medicine if successful.

2. It was also suggested that Emergency Medicine rotations are inappropriate to the goal of producing well-trained clinical Radiologists who will be respected by other specialities. The Faculty regulations have never attempted to parse the one year of clinical experience or to exclude certain types of clinical experience from consideration (either for entry to Radiology or validation of credentials obtained abroad and submitted to the Faculty by the Medical Council for approval). The Emergency Department (ED) rotations and curriculum of the pilot project are in University Teaching Hospitals and under the supervision of the Faculty of Emergency Medicine and the Faculty of Radiologists, RCSI. Considering the inevitability of interaction between SpR / Consultant Radiologists and Emergency Departments, and the need (described later in this review) to develop Emergency Radiology as a recognised Radiology subspecialty, there are medium to long-term benefits in building a collaborative relationship with the recently established Faculty of Emergency Medicine, RCSI. During our negotiations about the structure and curriculum of the pilot project posts, Faculty of Radiologists representatives raised the point that some centres had concerns regarding the quality of training ED SpRs receive, and that it is unsuited for pre-Radiology clinical training. We have no evidence to support this contention. It is also worth noting that Emergency Medicine is already a common rotation for Irish NCHDs who do their clinical year in Australia and then apply to the Faculty training programme. We recognise that training as appropriate clinical experience and have always done so. To 'de-list' Emergency Training would unjustifiably disadvantage a cohort of young Irish doctors who are gaining clinical SHO experience in Australia.
3. Finally, concerns were expressed regarding the future for the candidates involved with the Common Stem programme if they were not successful in their application for the Radiology training programme. The Faculty has considered this and has noted a number of potential options for the year after their Common Stem year. These include a year as a medical SHO, a possible opportunity to interview for Radiology lecturer posts in University teaching hospitals or an opportunity to interview for Anatomy Demonstrator posts. These all have potential to enhance the candidates' application to Radiology in a subsequent year. There is also a possibility that candidates will successfully apply for Radiology in other jurisdictions or decide to follow a Surgical or Emergency Medicine career path instead.

In conclusion the 'Common Stem SHO' project is a pilot project, scheduled to run in 2016-2018. It will be evaluated as it progresses by a group led by the Dean, Dr Max Ryan, and the incoming Honorary Treasurer, Dr Niall Sheehy, and will evolve over that time. As with all new practices there are difficulties, anxieties and concerns but mostly there are opportunities for improvement, innovation and expansion of Radiology. For the first time, Interns who want to pursue a career in Radiology can do so in an atmosphere that encourages, supports and most importantly respects their career choice from day one. The fact that the Common Stem SHO programme received 15 applications in its first year confirmed that an 'unmet need' existed in this regard.

SECTION 3(B)

BASIC TRAINING PROGRAMME ISSUES:

(I) PRIMARY FFR: PHYSICS

(II) FINAL FFR: EXAMINATION STRUCTURE AND TIMING, SPR PROGRESSION CRITERIA

(III) TRAINING FOR HOSPITAL GROUPS IN THE NIMIS ERA: THE ROLE OF ROTATIONS

BASIC TRAINING PROGRAMME ISSUES
(I) PRIMARY FFR: PHYSICS

As part of the Strategic Review, the Faculty of Radiologists undertook to review the Physics modules of the training programme. It was noted that the RCR now teaches 'Scientific Basis of Medical Imaging' and it was considered that a review of the Faculty's training programme was required. An advisory committee was convened, containing representatives from Radiology and Physics. A number of questions were addressed under the following headings:

- Curriculum
- Teaching format
- Assessments

Curriculum
Under this heading the group looked at the number of Physics teaching hours in the curriculum, and investigated the possibility of reducing them to approximately 85/90. There is some overlap in the topics covered by various lecturers and there is an opportunity to streamline the current curriculum - for example CT could be assigned to just one lecturer. It was agreed that while there was not much to cull, there should instead be an emphasis on different areas. Functional and molecular imaging should be included and the IR skills day could include a module on radiation protection/Dosimetry in IR.

The curriculum was last reviewed in 2013, and is currently following the Royal College of Radiologists' (RCR) curriculum. The group examined the RCR and the European Society of Radiology (ESR) curricula to determine which would be the better fit for the Faculty going forward. One of the strengths of the ESR curriculum is that it highlights learning objectives and outcomes. The group agreed that a modified RCR Physics curriculum would be adopted and developed for the Faculty. This would involve defining learning objectives and outcomes for the Physics teaching programme. Any new changes to the curriculum are dependent on Faculty proposed changes to Final FFR Part 2a & 2b examinations. The practical applications of Physics should be considered, and links should be developed in terms of what is taught in the Physics curriculum, what applications our SpRs require for their everyday jobs and how we make clinical decisions.

A question that was raised was whether the Faculty could improve senior SpR understanding of the more sophisticated technologies such as advanced MR sequences in a structured way, for example in years 2 to 4. There was general consensus that the basics of Physics be covered in Year 1, with a move toward the delivery of advanced Imaging techniques in years 2 & 3 eg Cardiac CT, MRI applications, dual energy. To facilitate the changes, some of the teaching on MRI could be moved to year 2, with basics in year 1. Dosimetry is taught more extensively in the ESR curriculum, and is a gap in the current Faculty curriculum. The recording and auditing of Dose in CT should be emphasized and expanded in the Physics programme. The group advised better use of Radimetrics software on the NIMIS system and DoseWatch at Agfa PACS sites, in addition to participation in the ESR 'EuroSafe' initiative. The Faculty should also make better use of, and get input from Radiographers, specifically in technique optimization to reduce patient dose for the Primary FFR (Part 1) programme.

Teaching Format
Currently all Physics teaching is in a classroom context, with no link between Physicists and Radiologists. Additionally, the challenge for the organisers of the Physics programme is to reproduce the same programme content and quality at all training centres nationally. This appears to be a particular issue in the South/South West Group (CUH and UH) Waterford, who are currently short of Physics lecturers. The group reviewed the possibility of delivering lectures via video conferencing, but this is not possible with existing IT Faculty infrastructure. One possible option would be to look at teaching core topics centrally with advanced topics delivered at a local level by way of tutorials/interactive teaching sessions. An anchor person could be responsible for each technology type/modality to ensure consistency across all centres.

Modular training was discussed by the group but it was noted that while there are some advantages to the SpRs, the RCR is moving away from modularisation, and lack of resources would be an obstacle to this.

Assessments
Currently the Physics programme is assessed by an MCQ and Oral during the Primary FFR (Part 1) examinations which take place towards the end of the SpRs' first year in the training programme. The results of the Physics exams since 1990 were reviewed to determine whether there was any link between failure in this and SpRs leaving the programme. The results were as follows:

- 18 Fails on >3 attempts
- 5 candidates left the programme after 4 unsuccessful attempts (last one in 2014)
- Only 1 candidate left in preceding 8 years (Previously 2006)

This demonstrates that failing the Physics exam is not the primary reason for an SpR to leave the programme, but it may be a contributing factor

The current marking structure for the MCQ is negative marking as opposed to single best answer (SBA). SBA is considered a better test of knowledge application, and negative marking is out of step with modern assessment elsewhere. The RCR has recently recommended a move from True/False with negative marking MCQs to SBAs. An interim plan would be to consider dropping negative marking, and move to SBA for the MCQ examination. Another option would be to move to a limited negative marking scheme whereby some fraction (e.g.1/5 in the case of five choices) of the incorrect answers are subtracted from the correct answers. It was noted that this is the norm in many international centres.

Assignments were discussed by the groups, and it was recommended that an assignment form part of a continuous assessment which would go towards the final grade. The SpRs could choose a topic from a list complied and approved by the Physics subgroup that would be drawn from the Physics curriculum but with a focus on clinically relevant topics. Examples could include CT, MRI, Interventional, and hybrid imaging and MRI (further topics are listed in **Appendix 3f**). The SpR could work on the assignment with a physicist and potentially present this at a Faculty meeting. This would satisfy a number of competencies, including communication, presentation and self-directed learning. Should this be introduced, it would need to be duplicated in the Kuwait Training Programme.

Recommendations of the Review Group

- A Physics subgroup to be formed comprising all centres and with Radiology participation
- The initial priority is to ensure a standardised curriculum is being delivered across all centres
- The Faculty should strive towards a modified RCR curriculum
- An ongoing external review and validation of the exam should be built into the system
- The process for appointment and succession planning for the Physics examiners needs to be considered
- The Physics coordinators of the local and overseas programmes should be part of the Faculty Educational committee
- Any substantive change to Physics course should be part of a harmonised approach to the whole course
- Local coordinators need permanent access to lecture material and programme that SpRs use
- Stronger links be formed between clinically experienced physicists, radiologists and radiographers
- A course handbook detailing curriculum, assessment and other aspects of the course to be produced
- Due to the volume of the curriculum, basic core material and appropriate learning tools could be recommended to incoming SpRs prior to the start of the formal teaching programme in September
- It was considered important to obtain feedback from SpRs on the programme
- An SpR representative from the trainee subcommittee could sit on the Physics committee
- Physics should be divided into basic principles in 1st year with more specialist techniques in years 2-5
- Move away from a purely exam-based format to competence-based assessment, combining continuous assessment with a summative final exam
- It was considered that there is huge potential for advanced imaging techniques to be incorporated into a 5th year MSc programme in Physics. Such a programme would require independent funding
- The Faculty should liaise with UCC's Assert centre in regard to their work with Mentice on radiology training CR simulators which measure an SpR's ability on machinery, dosage etc

BASIC TRAINING PROGRAMME ISSUES
(II) FINAL FFR: EXAMINATION STRUCTURE AND TIMING, SPR PROGRESSION CRITERIA

Examination Regulations
The Final FFR examination comprises MCQ and Clinical components. In Ireland, the MCQ is a true-false MCQ and the clinical component comprises rapid reporting, long cases and oral examinations. There are two relevant points.

First, historically, our SpRs have always sat both components together. In the UK, the Part 2 examination was divided into Part 2a and Part 2b several years ago. The MCQ, Part 2a, has comprised several modules which SpRs sat at 6-monthly intervals. In 2018 this will change. UK SpRs will sit a single MCQ, which will be available in the Spring and the Autumn. Only those who pass it will proceed to Part 2b (clinical).

The true-false MCQ examination is outdated. Its ability to discriminate between safe and unsafe radiologists is no longer accepted and other jurisdictions (e.g. the RCR in the UK and the ESR) do not use it. The preferred MCQ examination format is the single best answer (SBA) MCQ which tests both knowledge and reasoning. Blueprinting to the curriculum and standard-setting to correctly evaluate the appropriateness of the question and grade the level of difficulty of the question are part of the process. This enables the examiners to assign individual questions to the MCQ paper in proportion to their difficulty. It is a very complex process to undertake by our small organisation. The Dean and Dean-Elect are exploring the possibility of developing an SLA with the Royal College of Radiologists. This SLA would allow the Faculty Final FFR Chief Examiner to join the RCR Examinations Panel with another Irish colleague, to participate in question design and contribution, and to arrange for a Faculty Final Part 2a SBA paper to be developed and delivered in parallel with the RCR paper.

In order to allow this to happen, the examination regulations have had to be changed. SpRs who passed the Primary FFR examination in or after May 2016 will now be eligible to sit the MCQ examination Final FFR (Part 2a) in April of 3rd year, whether or not an SLA with RCR is developed. A copy of the section of the examination regulations pertaining to the Final Fellowship is included in the Appendices (**Appendix 3g**).

Progression Criteria
Occasionally an SpR has had to take multiple attempts at the Primary FFR and Final FFR examinations. In 2015, the Board decided that as the 1st and 2nd years are now very different because of a more structured 2nd year curriculum and the introduction of 'on call' responsibilities, it was no longer appropriate for SpRs who failed the Primary FFR in both the May and September sittings to be accredited for SpR year 1 and that a repeat of SpR year 1 would be required.

This year, the Board has decided that as Final FFR (Part 2a) candidates who fail the MCQ exam in April and the repeat exam in November have a proven knowledge deficit and are less likely to pass the Final 2b examination, from 2018 they will not be accredited for SpR year 3 and that a repeat of that year will be required. They will not be eligible to be shortlisted for the Higher Training Programme in the January after their 2nd failed attempt at Part 2a. Full details of the progression criteria can be read in the Appendices (**Appendix 3h – Summative Assessments and Progression Criteria 2016**).

BASIC TRAINING PROGRAMME ISSUES
(III) TRAINING FOR HOSPITAL GROUPS IN THE NIMIS ERA: THE ROLE OF ROTATIONS

As noted in the section on Strengths and Weaknesses of the Programme (section 2, p. 6), the Board has recognised that the concept of rotations should be investigated further by the Faculty.

Model 3 Hospital Rotations
Currently the Irish Health Service is divided into several Hospital Groups. Each Group has a University Teaching Hospital (affiliated with TCD, RCSI or NUI Medical Schools). This is termed a 'Model 4' hospital. There are also several smaller hospitals in each group, 'Model 3' hospitals. Step-down and long-term facilities are termed 'Model 2' and 'Model 1' hospitals. NDTP criticized the Faculty's lack of rotations to Model 3 hospitals, maintaining that it is now recognised that SpRs are reluctant to apply for posts in Model 3 hospitals if they have never worked there during training, and have had no experience of the potential benefits of that type of post. While the Faculty agreed there was evidence to support the concept of a rotation to a Model 3 hospital, it is believed that this is neither the sole, nor the main reason for difficulties in recruitment. This is addressed in the 'Strengths and Weaknesses' section.

Nevertheless, in recognition of the evidence behind the NDTP concern, a subgroup was formed to investigate the potential 'added value to training' of SpR rotations taking place outside Model 4 hospitals, to Model 3 hospitals. The terms of reference of the subgroup were to evaluate the merits, difficulties and requirements for rotating Radiology SpRs to Model 3 hospitals within several pre-requisites established in the 2014 survey (**Appendix 1a**).

The subgroup that was formed comprised representation by a number of Consultant Radiologists based in Model 3 hospitals representing all hospital groups around the country, and Radiology SpRs from the Trainee Subcommittee. The terms of reference of the 'Model 3 Hospital' subgroup were: "To ensure that appropriate learning objectives, structures and assessment criteria were proposed for the rotations, which would emphasize the skillset required for successful professional practice in non-University Training Hospitals." This project was approved by the Board and Education Committee as part of the Strategic Review. As established in the 2014 pre-requisites, SpR rotations will only eventually occur on condition that the number of SpRs in the Model 4 Training Hospitals is not reduced. A process for selecting and accrediting Model 3 hospitals for SpR rotations will be developed if a plan based on the Strategic Review is agreed to by the Faculty, the NDTP and HSE Acute Hospitals.

The process involved an introductory meeting in December 2015, a proposals meeting in January 2016, participation in an online survey in February and a final subgroup meeting in March 2016. The results of the online survey are in **Appendix 3i - Hospital Group Survey**.

The subgroup addressed a number of issues around the possible SpR rotations and ultimately rotations of 3 months duration in 2nd/3rd year were deemed the most appropriate. This would only be possible if funding was secured to supply the necessary uplift in overall training numbers to maintain the current high level of training, as well as to ensure no loss to the Model 4 base hospital, and be EWTD compliant. There was considerable reluctance to implement rotations unless it was programme-wide with SpRs in all the current training sites

rotating to Model 3 Hospitals at the same time. The online survey provided detailed specific information in relation to rotations during basic training and also at higher training in year 5. Over 85% of the subgroup agreed that rotations during 2nd and 3rd year were optimal with all agreeing that rotations should be 4 months or less (85%: 3 months or less). Respondents felt that the most beneficial aspects of Model 3 rotations for an SpR would be plain film reporting, running lists, cross sectional imaging and management. In terms of higher level training (year 5), 71% felt that it would be beneficial for SpRs to rotate to Model 3 Hospitals (6 months was deemed appropriate at this level by 43% of those surveyed). Management and running lists were seen as the greatest advantage at this stage of training. All respondents agreed it would be acceptable to release the SpR from the Model 3 hospital for academic day release for activities such as RCSI leadership or other postgraduate training in year 5. In conclusion, the subgroup formed to investigate the potential 'added value to training' of SpR rotations taking place outside Model 4 hospitals to Model 3 hospitals agreed that 3-4 month rotations were appropriate during the 2nd/3rd years of training. The proposed evolution of the Faculty national training programme 2014 - 2021 if negotiations with NDTP, HSE Acute Hospitals and the Model 3 hospitals are successful is shown in the figures in **Appendix 3j**.

Competence based rotations

It is proposed that, if the number of SpRs in the programme can be increased, the duration of Paediatric Radiology rotations can be increased from 2 to 3 months. An uplift in the number of Radiology SpRs in training would also allow cross-programme standardised rotations in Breast and Radionuclide Imaging and Interventional Radiology. These issues will be considered further during the September 2016 Plenary.

SECTION 3(C)

HIGHER TRAINING PROGRAMME ISSUES:

(I) HARMONIZATION OF SUBSPECIALTY DESCRIPTORS USED BY THE FACULTY, HSE, NDTP AND THE INTERNATIONAL RADIOLOGY COMMUNITY

(II) INTERVENTIONAL RADIOLOGY TRAINING

(III) FORMAL HIGHER TRAINING IN TRANSLATIONAL/MOLECULAR, HEALTH SERVICES AND OTHER RESEARCH METHODS

HIGHER TRAINING PROGRAMME ISSUES

(I) HARMONIZATION OF SUBSPECIALTY DESCRIPTORS USED BY THE FACULTY, HSE, NDTP AND THE INTERNATIONAL RADIOLOGY COMMUNITY

Subspecialty Descriptors and Consultant Radiology Numbers in Ireland
The National Clinical Programme for Radiology (NCPR) carried out a survey of public and private Radiology in Ireland in 2015. The purpose was to ascertain the number and location of consultant Radiologists in Ireland.

The main results were:

- There are 267 Full Time Equivalent (FTE) consultant Radiologists
- 229 FTE Radiologists are employed by the HSE and voluntary hospitals
- In total this equates to 5 Radiologists/100,000 of the population - this ratio is similar to that in the UK
- The European average is 8 Radiologists per 100,000
- Some countries have higher ratios, e.g. 11.3/100,000 in France

The survey also looked at provision in the new hospital groups:

- Saolta (34.7 approved - pop 700,000) 4.9/100k
- University of Limerick (13 approved - pop 400,000) 3.3/100k
- South/South West (43.7 approved - pop 850,000) 5.1/100k
- Ireland East (46.79 approved - 1,000,000) 4.7/100k
- Dublin Midlands incl. Children's Hospital Group (37.82 approved - pop 800,000) 4.7/100k
- RCSI Group (33.6 approved, pop 800,000) 4.2/100k

Therefore, the current provision of consultant Radiologists is both inadequate and poorly distributed. The position is similar with other key staff most especially Radiographers. The results of this underprovision are clear throughout the system, which cannot cope with the demand placed upon it. The mismatch between demand and supply has resulted in:

- Very poor provision of diagnostic imaging in primary care
- Prolonged inpatient admission times
- Very long outpatient waiting lists - exceeding one year in many locations

Projected Requirement for Consultant Radiologists 2016-2026
The NCPR project that the public and private system will need to expand Radiology provision to deal with the demand capacity mismatch in Radiology. This will require provision of additional facilities and employment of more staff. We forecast that the additional number of consultant Radiologists required in the expanded system will increase the ratio of Radiologists to 8.5/100,000. This will require the training of 150 Radiologists in addition to those required to replace existing retiring Radiologists.

The number of Radiologists in training required to sustain this increase has been studied by the government in a FÁS study published in 2009 entitled: "A Quantitative Tool for Workforce Planning in Healthcare: Example Simulations."[8] At that time the proposed target was 7 Radiologists per/100,000, which they forecast would require an additional 80 Radiologists. FÁS proposed that a Radiology training scheme output of 18 SpRs per annum, which is

[8] http://www.fas.ie/nr/rdonlyres/9abc5ee1-cf20-4aa5-aca4-c5b81dd9fe5e/792/slmru_fas_egfsn_final_version_report_aquantitative.pdf

roughly the current situation, would be sufficient. However, the FÁS paper was flawed in a number of respects. Firstly it overestimated the number of Radiologists currently working in Ireland, and secondly it assumed that all Radiologists trained on the scheme would work full-time in Ireland.

The NCPR would like the Faculty and NDTP to expand current Radiology training to provide 150 additional Radiologists over the next decade. The NCPR believes that a realistic view needs to be taken of the number of Radiologists who will ultimately work as FTE Consultants in Ireland. It is proposed that it should be assumed that there will be only 6.5 FTEs for every 10 SpRs that graduate from the scheme to allow for those SpRs who emigrate or choose to work part-time. Currently there is an average of 8 retirements per annum. If the additional Radiologists are hired in an expanding system over 10 years, this will require 23 trained Radiologists per annum. Allowing for those SpRs who will not become FTEs, this will require a training scheme output of 35 SpRs per annum for ten years, declining thereafter when the expansion has been completed. Clearly if graduate retention can be increased, the number of SpRs required to achieve a steady state will decrease.

Hospital Group based network model for Radiology service provision: Implications for the structure of training

The NCPR aims that every patient will have access to the best Radiology expertise on a 24-hour basis. Currently Radiology services are provided on a hospital by hospital basis. Most hospitals employ less than 10 Radiologists and the largest public department employs approximately 18. Allowing for the number of Radiology subspecialties and the requirements of the EWTD, it is clear that the hospital based model will never have enough numbers to provide the required expertise. This problem has also been studied by the Royal College of Radiologists[9] who have proposed that a network of Radiologists of 150-200 consultants would be needed to provide such services with hospitals linked by an IT backbone: each Radiologist acts as a generalist in their own hospital and provides subspecialty expertise to the network.

The hospital groups provide a mechanism to achieve a similar concentration of expertise allowing the provision of general Radiology services in individual hospitals and subspecialty expertise in the group by the same Radiologist. In several hospital groups the IT support needed for this already exists in the NIMIS PACS. The NCPR will propose that the hospital groups organise their Radiology departments into networks or single directorates, where appropriate. The implications of this for training are that the Radiology SpRs, who are currently based in single hospitals and trained in that model need to be trained in a group or network based environment. Radiology SpRs should therefore be rotated through the Model 3 and 4 hospitals in their group (Model 1 and 2 hospitals would typically not have an on-site Radiology presence). This will require a re-organisation of the training scheme offered by the Faculty of Radiologists and an expansion of training numbers so that the service provision currently provided by registrars in Model 4 hospitals is not lost when the registrars rotate to Model 3 hospitals.

Subspecialty requirements

Most Radiology reporting requirements can be provided by a general Radiologist and this training and service provision will remain the cornerstone of Radiology service provision. The provision of subspecialty opinion is under-provided in the current system and leads to suboptimal patient care and needless duplication of work. The network/group model will increase the pool of Radiologists available to provide reports and should facilitate easier

[9] https://www.rcr.ac.uk/sites/default/files/RCR_Clinical_Radiology_response_to_Dalton_Review.pdf

access to subspecialist opinion. The structure of Radiology training currently provides Radiologists who are trained in general Radiology and one or two subspecialties. SpRs typically obtain subspecialty training in their fifth year of the training scheme and in overseas fellowships. This is done in an unplanned fashion and there has not been any attempt to match subspecialty training with service requirements. The HSE Radiology subspecialty descriptors (**Appendix 3k**) need to be updated.

The European Society of Radiology recognises 13 different subspecialties in Radiology training:

- Breast Radiology
- Cardiac and Vascular Radiology
- Chest Radiology
- Emergency Radiology
- Gastrointestinal and Abdominal Radiology
- Gynaecological and Obstetric Radiology
- Head and Neck Radiology
- Interventional Radiology
- Musculoskeletal Radiology
- Neuroradiology
- Oncoradiology (Oncologic Imaging)
- Paediatric Radiology
- Genitourinary Radiology (Uroradiology)

The National Clinical Programme in Radiology has recommended that the HSE consider creating the following subspecialties in addition to the list above:

- MRI
- Radionuclide Medicine
- Radiology Informatics/Radiology Systems Management (which this review proposes re-labelling Radiology Service Optimisation)

This document is the first to propose the recognition of Radiology Service Optimisation as a subspecialist interest meriting specific sessional allocations within Consultant contracts and Practice Plans. It is envisaged that this special interest will encompass several training tracks and higher qualifications primarily focused on the utilisation of Radiology as a platform service for clinical programmes rather than interpretative or procedural (Diagnostic or Interventional) Radiology. Initially these include, but may not necessarily be permanently limited to:

1. Informatics: The American Boards in Informatics. This is proof of proficiency in integration of computer technology with Radiology services that will facilitate better Radiology utilisation e.g. point of care decision support integration with NIMIS
2. Health Services Research (HSR): Masters in Public Health and completion of a HSR Fellowship. This field encompasses comparative effectiveness, cost and outcomes research
3. MSc in Evidence-Based Health Care (Oxford University): This is proof of proficiency in generating robust evidence-based solutions to questions facing the Radiology Programme and in the skillset required to train and support Radiologists and Clinicians who wish to develop evidence-based guidelines for endorsement as National Guidelines by the National Clinical Effectiveness Committee
4. PhD or MD in Radiation Dose optimization: The radiation dose to the population from CT is of particular concern. Ireland has a national PACS programme (NIMIS) and

radiation dose management system (Radimetrics). Radiologists with appropriate clinical and physics training are needed to work alongside the existing and proposed team of Medical Physicists to ensure that the patient's risk:benefit ratios are appropriate.

It is recommended that the NCPR, HSE Acute Hospitals and HSE NDTP would include this subspecialty when planning national and/or group Radiology services. It is anticipated that this type of forward planning would add value to the essential and extremely expensive Radiology service infrastructure. The national requirement, in terms of Consultant numbers, is likely to be relatively small. Therefore it is expected that Radiologists with these qualifications will also be fully qualified to apply for positions as General Radiologists, Radiologists with a clinical Radiology subspecialty interest or Subspecialist Radiologists so that the posts can also comprise part of the national clinical Radiology workforce as per the list above.

These subspecialties are provided to a varying extent in each hospital network/group. However, each network/group should be capable of providing an expert subspecialty opinion across each domain and when the networks/groups form, each should perform a needs analysis that can factor in the provision of subspecialty training by the Faculty. The Radiology programme will require the Faculty to provide training in these areas to match to group requirements. In addition the Radiology programme recognises that Group management, Quality Improvement and Informatics will be key to efficient provision of Radiology services in the new networks/groups and should also form part of planned subspecialty training.

All Consultants are required to be registered as a specialist in the Specialist Division of the Register of Medical Practitioners maintained by the Medical Council in Ireland in the specialty of Radiology. Three broad categories of Consultant Radiologist are recognised:

- Consultant Radiologist: one or more of the above subspecialties may be specified as a preferred skill in the detail of the job description but the appointee would be expected to devote less than 50% of their time to this subspecialty and a majority of his/her time covering general Radiology work
- Consultant Radiologist with a 'special interest' in one of the above subspecialties, specified in the header of the job description, and where the appointee spends a significant portion of his/her time devoted to that subspecialty, and a roughly equal amount of time covering general Radiology work. Eligibility for such positions would include a minimum of 1 year at higher specialist/fellowship training level, or equivalent
- Dedicated subspecialist Radiologist (e.g. Paediatric Radiologist), in one of the above subspecialties, where the appointee spends a majority of his/her time devoted to that subspecialty. Eligibility for such positions would include a minimum of 2 years at higher specialist/fellowship training level, or equivalent. Such appointments would typically be in Model 4 hospitals or specialist hospitals

Summary

- The number of Radiologists currently practicing in Ireland is inadequate for service provision
- The Faculty needs to train 150 additional Radiologists over the next decade, which will require an expansion of the training scheme to 35 SpRs per annum unless retention of SpRs can be improved
- Radiology service provision in the future will occur across networks of Model 2 and 3 hospitals and Radiology training needs to be altered to reflect this

- Each network/group must plan their subspecialty reporting needs, which needs to feed into Faculty training provision
- The HSE must therefore explicitly factor general and subspecialist Radiology support into clinical service plans e.g. orthopaedic, emergency, trauma, stroke etc, rather than Radiology playing ‘catch-up’ as is currently the case

HIGHER TRAINING PROGRAMME ISSUES: (II) INTERVENTIONAL RADIOLOGY TRAINING

Introduction

Originally arising piecemeal from the extension of Diagnostic Radiology procedures into minimally invasive therapies, Interventional Radiology (IR) has evolved into a distinct field of expertise with its own clinical and technical skill-set and knowledge base. IR procedures have become an integral part of medical care both in and out of hours. It is true to say that in modern medicine, no mid-sized or larger hospital can operate effectively without Interventional Radiology, as so many other specialties depend on its procedures for both diagnostic and therapeutic purposes. The larger the hospital, and the more advanced the care, the greater the requirement for IR. Particularly dependent on IR are patients under the care of Haematology, Oncology, Nephrology, Urology, Vascular Surgery, Hepatobiliary Surgery and Gynaecology.

In IR, minimally invasive procedures are performed using image guidance (e.g. ultrasound, fluoroscopy and CT) to treat patients with many medical conditions. The range of conditions which can be treated by IR is enormous and continually expanding. There are a number of subcategories of IR treatment. These are vascular IR (including venous interventions, arterial reperfusion and transcatheter embolisation), non-vascular IR and Interventional Oncology.

For readers unfamiliar with the field, a short list of the treatments offered in these categories can be found in **Appendix 3l** and a more extensive list in **Appendix 3m** (with links to further explanations).These treatments may be elective or emergent.

1. Vascular IR can be subdivided into Arterial reperfusion and occlusion and Venous IR:
    a. Arterial reperfusion typically refers to the treatment of blocked arteries using balloon angioplasty or stents (patients with peripheral vascular disease, diabetic foot disease and dialysis arterio-venous fistula stenosis among others)
    b. Arterial occlusion refers to transcatheter embolisation. This is a process whereby an artery is deliberately blocked either to stop bleeding or to occlude a tumour circulation. Embolisation and vascular procedures are typically performed through small holes in an artery (usually in the groin), whereby small catheters and guide wires are manipulated to the anatomy/disease of interest through the vascular tree under image guidance
    c. Venous intervention refers to intervention in the venous system and ranges from insertion of special tubes for delivering chemotherapy (PICC lines, Hickman catheters, Portacaths) and for haemodialysis (tunnelled haemodialysis catheters) to placing a stent though the liver to control life-threatening bleeding from varices or medically uncontrollable ascites in patients with cirrhosis (Transjugular Intrahepatic Portosytemic Shunt-TIPS)

2. Non Vascular IR refers to image guided biopsy or drainage procedures. Image guided biopsy is a standard radiologic procedure where a needle is inserted into a body organ to obtain a sample for diagnostic purposes (e.g. lung, liver, kidney, lymph glands, thyroid, prostate, bone, joint). Drainage procedures refer to the drainage of obstructed systems (biliary, urinary) or abscesses. Tubes are placed using image guidance to drain abscesses or obstructed systems obviating the need for surgery. Nonvascular procedures often use ultrasound or CT guidance as well as fluoroscopy whereas vascular and embolisation procedures generally use fluoroscopic guidance.

3. Interventional Oncology is a relatively new area of practice which offers cancer therapies for local control of certain cancers in the kidney, liver and lung using image-guided ablative technology to deliver energy causing cell death. Transcatheter embolisation can also be used to deliver chemotherapeutic or radioactive therapies to the tumour through a catheter, manipulated intra-arterially, into the tumour arterial supply.

When appropriately resourced, the established advantages of these minimally invasive techniques include reduced risks, shorter hospital stays, lower costs, greater comfort, quicker convalescence and return to work.

IR services, once available, are required 24/7, 365 days a year. Embolisation procedures used to treat uncontrollable GI haemorrhage, variceal bleeding, iatrogenic or traumatic haemorrhage, haemopytysis and post-partum haemorrhage can be lifesaving and avoid the morbidity and mortality of emergency surgery. Emergent IR services also include stroke thrombectomy in selected patients, drainage procedures (abscess drainage, nephrostomy for obstructed renal tracts, drainage of obstructed biliary systems in jaundiced patients with sepsis) and thrombolysis for acute limb ischemia, acute ilio-femoral venous occlusion and dialysis arterio-venous fistula occlusion.

Current training structures described below are considered as Basic IR within General Training) and Subspecialist training level. Syllabus, Curriculum, delivery and assessment are discussed. Neurointervention and Paediatric Intervention are two important subspecialties that are outside the scope of this review.

Basic IR Training
As part of general training, the current Faculty Syllabus and Curriculum is informed to a great degree by the ESR Syllabus (levels I-III) for general training (**Appendix 3n – Link to ESR syllabus**), currently delivered in all Model 4 hospitals. If and when rotations to Model 3 hospitals commence, exposure to IR skills will be entirely dependent on the range of services provided by the target hospital.

In terms of Competence-Based Medical Education, definable Entrustable Professional Activity modules will be developed for the core procedures which would be expected to be within the remit of a generally-trained Radiologist (to include image-guided biopsy e.g. thyroid FNA, non-targeted Liver biopsies and drainage of easily accessible collections including plural effusions, ascites and large superficial abscesses).

It is anticipated that non-IR Radiologists training in other sub-disciplines will attain system-specific skills e.g. MSK Radiologists will acquire Arthrography and bone biopsy competencies, which will complement the IRs in a department and increase the overall access within a given department to both Diagnostic and Interventional procedures. Specialist IR training will not detract from either this system specific learning or the training of the core competencies in General Radiology.

Specialist IR Training
The Fifth year subspecialty training in IR will be based on the delivery of the Cardiovascular and Interventional Radiology Society of Europe (CIRSE) syllabus (**Appendix 3o – Link to CIRSE Syllabus**), acknowledging that it is not possible to cover all the super-specialised competencies in one (or even two) full year(s) of IR (previously acknowledged by the CIRSE Curriculum authors). CIRSE is one of the two largest IR societies in the world (along with the Society of Interventional Radiology (SIR – the North American equivalent) and is the

overarching body governing the Education of Interventional Radiologists in Europe. CIRSE also sets the European Board of Interventional Radiology (EBIR) examination, which, in the long term, is likely to become the means of certification of IRs in Europe. This process is supported and partly overseen by The European Union of Medical Specialists (Union Européenne des Médecins Spécialistes – UEMS), which is a non-governmental organisation representing national associations of medical specialists in the European Union and associated countries.

All Model 4 Hospitals offer training at 5th year level. At present, a 5th year in the Irish programme is optional and not all of these jobs are filled each year. The current system of SpR recruitment involves some interchange between basic and higher training programme posts. Given the current total national SpR numbers, this occasionally requires suppressing an IR 5th year post to create a 1st year post.

Section 4 of this Position Paper (p. 44) describes the Faculty's proposal for a planned uplift in the SpR numbers between 2016 and 2021. It is proposed to set the number of protected 5th year posts in IR to 8 by 2021. Changes in summative metrics (ranking SpR positions in the Primary and Final Part 2a examination and the introduction of CBME datapoints e.g. EPAs) will increase the objective datapoints available in SpR assessment. At that point, it is being considered whether it will be possible to replace Higher Training Programme interviews with a 'Matching' system in which SpRs can be assigned to posts based on SpR preferences and the metrics recorded during the first four years of training.

In the current structure, each of the Model 4 hospitals can provide tailored 5th year programmes to incorporate specific emphases depending on the anticipated service need e.g. the increasing incorporation of Oncologic IR into clinical pathways will require an increase in competencies involving catheter based chemotherapy delivery to specific arterial territories, and specific rotations can be provided accordingly. It is anticipated that subspecialised rotations, e.g. two 6-month periods in different hospitals is planned to optimise the training in centres with identified strengths e.g. Arterial Interventions in St. Vincent's University Hospital, the Mater Misericordiae University Hospital, Beaumont Hospital and University Hospital Waterford (UHW); Hepatobiliary Intervention and Interventional Oncology in St. Vincent's University Hospital; Interventional Oncology at St. James' Hospital; Genitourinary intervention in Tallaght Hospital and UHW; Pulmonary Arteriovenous Malformation treatment in Cork and Venous Interventions in Galway University Hospitals. Limerick University Hospital has just joined the Higher Training Programme and would be included in this plan – the full details of such rotations are currently being explored. Flexibility will be required to match specific Subspecialty, Hospital and Hospital Group workforce planning.

Fifth year SpRs will be assessed as they progress through their year, primarily via workplace based assessments including mini-CEX (mini-clinical examination assessment centred on case based discussion of patients potentially requiring IR), DOPS (Direct Observation of Procedural Skills), and through formative assessment in the traditional apprenticeship model. Reflecting the emphasis on Proficiency Based Progression, in order to add further objectivity to these processes, the Faculty may explore the use of simulation as a means of objectively assessing (initially) and monitoring progress in catheter skills. Discussion between Faculty and RCSI has begun with a view to collaborating on this initiative in the current Surgical Skills Lab and in the new Simulation building currently being constructed on the RCSI campus.

In addition, the ASSERT centre in UCC has four of the Simulators used for catheter skill assessment and development (VIST, Mentice Inc., Gothenburgh, Sweden) in the Surgical Skills lab and Faculty is engaging with ASSERT to secure access to the lab and to collaborate with Professor George Shorten in research in this field.

By way of summative assessment/certification, 5th years will be expected to take the EBIR during, or immediately after their 5th year. Current regulations permit this for our SpRs as they are in a 5-year programme (compared to four in a majority of European countries). CIRSE are modifying their admission criteria so that an SpR will have to have fully completed their training prior to sitting the exam. Currently, if the SpR is involved in IR in their base hospital, is highly motivated, has studied, and their base Hospital IR trainer is happy to propose them for the exam, they would be allowed to sit the EBIR in the March of their 5th year. If the proposed changes come into effect and the SpR is obliged to have completely finished their training, the first opportunity to sit the exam would be at the CIRSE annual meeting in the September following completion of their 5th year. Whichever sitting is taken, advance planning is required as entrants are accepted on a first come, first served basis.

Post CSCST training
Some specific training is potentially available in the programme for "higher" training e.g. in the subspecialties within IR as mentioned above with regards to inter-hospital rotations; however, for high volume training in very advanced and novel procedures, ongoing requirements for Fellowships abroad are anticipated. It is, for practical purposes, possible that this could take place proleptically after a successful Consultant interview in the second half of the 5th year of training.

Workforce planning
Requirements need to be based on current numbers in practice, numbers needed to replace anticipated retirements and numbers needed to expand services in line with the National Clinical Radiology Programme for IR to include Hospital group-based service delivery, including the delivery of sustainable on-call rotas. Planning also needs to take into account the increasing scope of practice, and the transition of IR from a Radiology procedure room-based discipline to a more clinical discipline with need for OPD time etc.

On a population basis (drawing on the UK experience, which is likely to be proposed as the European norm), the Republic of Ireland requires a bare minimum of 46 FTE Interventional Radiologists (1 per 100,000). An estimate has been made that the programme should include 8 IR 5th year posts per annum. The rationale for this is detailed in **Appendix 3p**.

Subspecialty status
Interventional Radiology has full subspecialist status in the United Kingdom, the USA and Canada. The Faculty of Radiologists will support an application to the Irish Medical Council for subspecialist status when the process reopens. This will consider the recognised need for IR, the Irish system of governance, sustainable workforce planning appropriately linked to training numbers and will outline anticipated effects on Radiology practice.

HIGHER TRAINING PROGRAMME ISSUES: (III) FORMAL HIGHER TRAINING IN TRANSLATIONAL/MOLECULAR, HEALTH SERVICES AND OTHER RESEARCH METHODS

During the past 10 years the Faculty has made significant progress in aligning its profile of 'Scholarly activities in Radiology' with 'Lentle's Spectrum'[1].

Table 1. Spectrum of scholarly activities in medical practice*

Ability to critically interpret the literature and manufacturers' claims	
Mastery of the tools of scholarship (e.g., library searches)	
Commitment to continuing education	
Personal professional audits	
Retrospective analyses of "experience" (nonprotocol)	"Professionalism"
Participation in prospective clinical research (protocol-based)	
Origination of clinical studies and protocol design	
Clinical practice improvement and health policy research	"Creative science"
Cooperation in multidisciplinary research	
Addressing fundamental questions about health and disease mechanisms in the laboratory or in the field	
Leadership of independently funded groups in basic or applied medical research	

*Modified from Lentle[1] with the permission of the publisher.

First, 'Professionalism' was addressed. Over the past 2 years the Research committee has worked to address 'Creative Science.'

Using terminology developed by the American Committee for Graduate Medical Education (ACGME) a 'Professionalism' module was built into the SpR 2nd year between 2008 and 2012. Completion of this module during the five years of accredited training is now mandatory for CSCST. It incorporates 'Practice-Based Learning' (PBL), Audit and 'Systems-Based Practice' (SBP). PBL and SBP are terms used by the ACGME[2] and are clearly recognizable when Irish SpRs' CVs are reviewed in North America. ACGME defined the learning objectives for PBL as *'Residents must demonstrate the ability to investigate and evaluate their care of patients, to appraise scientific evidence and to continuously improve patient care based on constant self-evaluation and lifelong learning.'* Accordingly, the Faculty's PBL module teaches the principles and skills of 'Evidence-Based Medicine' alongside small group psychology, conflict resolution and child-centred vs. adult-centred learning theory. It has received some international attention as an innovation. Those interested in learning more can find a detailed description in the 2105 Radiographics monograph[3 4.]The Audit module teaches SpRs the theory and practice of audit. Both the PBL and Audit courses require project completion for credit. There are awards for the best project in each section and the best eight PBL and Audit projects are presented in dedicated sessions during the Spring Meeting and Annual Scientific Meeting. The ACGME defined Systems-Based Practice as "*An awareness of and responsiveness to the larger context and*

system of health care and the ability to effectively call on system resources to provide care that is of optimal value."[2] A module, without examination, is provided during 2nd year as the third component of 'Professionalism.'

The Research Committee, dormant since 2010, was reconvened in 2014 and is currently chaired by the Dean. Over the past two years it has worked towards the goal of incentivising and developing Higher Training options incorporating MSc, MD or MPH degrees both abroad, in parallel with clinical Radiology Fellowship training, and in Ireland, where the goal is to foster an academic track in Irish Radiology training that will synergise with indigenous higher degree programmes. With the support of the Finance and General Purposes Committee and the Board, Faculty funds have been invested to yield a 5-year funding cycle incorporating two scholarships and a Bursary programme.

Scholarship in Molecular/Translational Imaging

The first international scholarship, which the Faculty has now taken over from the Academic Radiology Research Trust of St. Vincent's Radiology Group, is the MGH-MacErlaine Hybrid Clinical and Molecular Imaging Fellowship Program. This unique endeavour incorporates basics of translational molecular imaging with higher training in body imaging and interventional techniques within a 3-year training program. The successful implementation of the molecular imaging program requires robust training and familiarity with core principles that bridge the life and physical sciences.

The molecular imaging program at Massachusetts General Hospital (MGH) headed by Professor Weissleder is housed at the Center for Systems Biology (CSB), which was established as one of the five thematic interdisciplinary Centers at MGH and is home to over 200 researchers in 12 Principal Investigator groups. The mission of the Center is to analyse at a systems level how biological molecules, proteins and cells interact in both healthy and diseased states. Through a multidisciplinary approach that combines clinical insight with powerful technologies, CSB Faculty pursue systems-level research that is at once fundamental, and yet immediately linked to the diagnosis and treatment of human disease.

Timeline Summary

The fellow will complete a research project as part of their first clinical year and, if so motivated, could start other research projects to continue into the dedicated research year focusing on molecular imaging. The fellow could continue their research along with their clinical training in their second clinical year to complete the 3-year MGH-MacErlaine Hybrid Clinical and Molecular Imaging Fellowship Program.

Clinical Abdominal Imaging Fellowship

The overall educational goal of the clinical Abdominal Imaging Fellowship component of this MGH-MacErlaine Hybrid Clinical and Molecular Imaging Fellowship Program is to prepare the fellow to practice competently and independently as a subspecialty abdominal Radiologist. The fellowship strives to attain this goal by providing a comprehensive multi-modality focus on abdominal and pelvis imaging and some basic non-vascular abdominal interventional procedures in line with ACGME guidelines for abdominal radiology fellowships. Rotations include CT, PET-CT, CT colonography, ultrasound, abdominal and pelvic MRI, fluoroscopy/plain radiography, and minor non-vascular abdominal interventional procedures. The fellow participates in general teaching and research activities and attends a daily conference where residents, fellows, and Faculty discuss all the interesting and teaching cases of the day, as well as subspecialty conferences involving specialists from related non-radiologic specialties.

While funded by the Academic Radiology Research Trust, 2 Fellows completed this track.

1. Dr Shaunagh McDermott was the first MGH-MacErlaine fellow and successfully completed her Fellowship. She was instrumental in the clinical development of magnetic nanoparticles for staging of pancreatic cancer and published her results in Translational Oncology.[5] In addition she has been part of the team pioneering the use of magnetic nanoparticles as noninvasive tools for imaging other tumours[6], medical renal disease and transplant organ assessment[7], as well as emerging research in quantifying inflammation.
2. Dr Aoife Kilcoyne is the second MGH-MacErlaine fellow. She is currently completing her 2nd (research) year of the programme. She will continue and build on the work commenced by Dr McDermott on the use of magnetic nanoparticles. In particular, Dr Kilcoyne will evaluate ultrasmall superparamagnetic iron oxide (USPIO)-enhanced MRI in evaluating tumour vascularity in patients undergoing renal ablation therapy as well as with patients with pancreatic adenocarcinoma. This will be used as a measure of predicting tumour recurrence and response to treatment. She has registered her research as an MD project with her home university, University College Cork.

In March 2016, Dr Aileen O'Shea, a 2nd year Beaumont SpR, was recommended by the Board of the Faculty of Radiologists for the 3rd MGH-MacErlaine scholarship. She will take up her post in 2018. We wish to thank Prof. Adrian Dixon (Master, Peterhouse College, Cambridge University) for his valuable participation in the interview process.

Scholarship in Health Services Research allied to Clinical Radiology

The second international scholarship combines the basics of Health Services Research training, aiming towards an MD or MPH degree with clinical subspecialty imaging in a 2-3 year training program. The successful implementation of a health services research programme requires training and experience in several parallel disciplines. This scholarship is offered in collaboration with:

1. The Centre for Comparative Effectiveness, Cost and Outcomes Research Center, University of Washington (CECORC, UW): This would serve as the lead center and coordinate the training programme
2. The Centres for Comparative and Health Systems Effectiveness (CHASE) Alliance: http://depts.washington.edu/chaseall/Funded.shtml This is a multi-center alliance at UW. Irish SpRs will train side by side with Agency for Healthcare Research and Quality (AHRQ) K12 Scholars
3. The Pharmaceutical Outcomes Research & Policy Program (PORPP): https://sop.washington.edu/department-of-pharmacy/pharmaceutical-outcomes-research-policy-program-porpp/ This is the home for the K12 scholars program

The lead Radiologists are Jeffrey (Jerry) Jarvik, Janie Lee and Christoph Lee. The duration of the proposed programme is 2-3 years with the University of Washington, Seattle, providing funding for one year of clinical training and the Faculty funding one year of research training. In the first year, the SpR can choose either 80% clinical and 20% research or 20% clinical and 80%. If 80% clinical path is chosen in year 1, year 2 will be 20% clinical, 80% research or if 80% research path chosen in year 1, year 2 will be 80% clinical and 20% research. An optional third year would be available, with a 100% research focus, dependent on the SpR applying for and obtaining funding.

Clinical Radiology Fellowship Options:

a) Neuroradiology (ACGME accredited)
b) Breast Imaging
c) Emergency Radiology

Level of Supervision
The fellow first independently interprets all diagnostic studies. Subsequently the studies are reviewed in conjunction with a staff Radiologist. The Fellow is mentored as to the imaging findings, differential diagnosis for the imaging findings, discussion of the disease processes, subsequent management and correct wording for dictated reports.

Other Learning and Research Sessions
One month/year clinical elective time that can be spent focused in one particular modality within the Division or in another division within the department.

Health Services Research Track Option(s)
These are technology assessment, comparative effectiveness research, quality improvement, bioinformatics, patient centred outcomes research, cost-effectiveness research and health system evaluation.

Higher Degree option(s) and number of years required for each degree

a) MPH (21-24 months): http://sph.washington.edu/prospective/programDetail.asp?progID=mph-hs
b) MSc (24 months): http://sph.washington.edu/prospective/programDetail.asp?progID=ms-hs
c) PhD (3-5 years; contingent on the SpR obtaining funding): http://sph.washington.edu/prospective/programDetail.asp?progID=phd-hs

Interviews for this scholarship were held in June 2016 and Dr Michael O'Reilly, a 2nd year SpR in the Mater, was appointed. He will begin his Seattle training in 2018. He has selected Neuroradiology and Emergency Radiology as his chosen fellowships.

Support for other Higher Training options in Research
The Bursary option is intended to devote approximately €50,000 of Faculty investment revenue over a 5-year period to supporting appropriate higher training, supported applications should ideally lead to a higher degree (MSc, MD, PhD). A call for interest for this was made in July 2018 (**Appendix 3q – Call for Interest: Faculty of Radiologists Higher Degree Support Bursary**)

In Q4 of 2016, the Research committee will explore the development of an Academic track in Radiology, based on the principles already accepted by NDTP for Anaesthetic higher training. This will, it is hoped, facilitate Radiology SpRs who are so inclined obtaining higher degrees during the Irish phase of their training and support indigenous programmes.

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SECTION 4

TRAINING PROGRAMME 2016-2021: CRITERIA FOR EXPANSION AND PROPOSED NUMBERS

TRAINING PROGRAMME 2016-21:
CRITERIA FOR EXPANSION AND PROPOSED NUMBERS

In conjunction with the other parts of the Faculty Strategic Review, an uplift is required according to the following criteria:

1. Equal annual intake into each Model 4 hospital in the programme
2. A 5th year post for every SpR who enters the Faculty programme
3. No reduction in Model 4 SpR numbers during Model 3 rotations
4. EWTD compliance in all centres
5. Capacity that can be utilised, if required, to facilitate SpRs who require remediation, repeat of training years, returning from sick or maternity leave, etc.
6. A minimum Consultant FTE:SpR ratio of 1:1 in any Model 4 hospital

The process involved determining the number of SpRs in each year in each hospital as of July 2016. The following criteria were applied in the calculation of the SpR uplift figures:

- Posts in years 1-4 are protected (i.e. posts will not be suppressed or increased depending on presence or absence of 5th year SpRs)
- 2019 has been assumed as the year of introduction of 5th year subspecialty training in Ireland as the 'norm'. SpRs intending to undertake fellowships in North America following successful completion of four years of training typically start the application process over two years in advance at the end of 2nd year. Guaranteed funded places for all 5th years are not in place for the current 2nd year group. As of May 2016, as the required uplift of posts has not yet been secured, and given the fact many of the 2nd year SpRs will need to commence applications, the introduction of the guaranteed 5th year has been assumed to be 2019. This is the 2015 - 2016 1st year SpR group
- Intake of SpRs per year in each hospital is standardized as per Table 1 (p. 46)
- 5th year numbers in each institution have been estimated from current SpR numbers and preferences from previous years
- Posts in Breastcheck, Paediatrics and Cappagh National Orthopaedic Hospital are filled depending on SpR preferences and are not included within these projections. These posts (outside of base hospitals) will allow flexibility within the base hospitals for maternity leave, sick leave and repeat years as necessary. An estimate of six of these posts filled per year has been made for the purposes of this projection.

Please note, these figures are intended to form an outline and the exact uplift required in each hospital/hospital group is dependent on factors including future 5th year uptake and any required additional years of training.

Table 1: Proposed SpR intake in each hospital

Training Centre	Projected SpRs in years 1-4
Beaumont	3
MMUH	3
SJH	3
SVUH	3
Tallaght	3
CUH/MUH	4
UHG	3
UHW	2
(LUH) *pending accreditation	(2)
Total	**24 (2)**

A breakdown of the uplift required to facilitate these changes to the training scheme in each hospital/hospital group per year is outlined below (Table 2).

Table 2 – Uplift for each hospital 2016-2021

	Dublin Northeast	Ireland East		Dublin Midlands		South/ Southwest		Saolta	Total
Intake	**Beaumont**	**MMUH**	**SVUH**	**SJH**	**Tallaght**	**CUH/MUH**	**UHW**	**UHG**	
2016									
2017	1				2	2	2		**7**
2018				1			2	1	**4**
2019*	1	3	2	2		1	2	3	**14**
2020	1	1			1			1	**4**
2021									

Please note
The National Clinical Programme for Radiology (NCPR) has projected there will need to be an expansion in Consultant Radiologist provision in Ireland in the next 10 years to deal with increased demand. Projected numbers have been described in section 3.c.i (p. 30) of this document. We currently award about 20 CSCSTs in Radiology per annum, from a basic (Yr 1-4) training SpR cohort of about 80 SpRs plus approximately 20 SpRs in Higher (Yr 5) Training (50% of whom are abroad). The NCPR projected figures for training scheme output required to facilitate the necessary Consultant expansion are in the order of 35 SpRs per annum, from a total SpR cohort of 175 (years 1-5). This assumes graduate retention of 65%. In this document, the Faculty proposes a combined approach, both increasing training programme numbers and striving for better coordination with workforce planning to improve graduate retention. We are seeking an increase to a training scheme CSCST award to 26 SpRs per annum from a total SpR basic training cohort of 104 plus approximately 26 SpRs in Higher Training (about 90% of whom are in Ireland). In this proposed model, the 5th (subspecialty) year of the programme in Ireland would become the 'norm.' If, as recommended in the MacCraith report, centralised workforce planning is better developed, the Higher Training Programme can better reflect the service needs of the Hospital Groups and 5th year SpRs could target and then interview for posts in the final 6 months of training, subsequently obtaining proleptic training abroad if this is required before taking up the post.

Barriers to proleptic training exist. The current system of North American Fellowship recruitment requires 2 years advance planning at least. It is possible that, with partial HSE funding, negotiations could be undertaken with selected institutions abroad for structures tailored to the Irish situation. Maintaining eligibility of Irish SpRs to enter Higher Training in the UK, where less advance planning is required, will be important in the post-Brexit era.

Another reason an increase in SpR numbers is required is because the Faculty Board has also been asked to plan for rotations to Model 3 hospitals, as well as longer Paediatric, Interventional Radiology, Breast and Radionuclide Imaging rotations to conform with international norms.

SpR Uplift by Hospital Group

RCSI Hospital Group
Table 3: Beaumont Hospital, Model 4 Hospital

Beaumont							
Year	**SpR 1**	**SpR 2**	**SpR 3**	**SpR 4**	**SpR 5**	**Total SpR cohort**	**Uplift Required**
2016	2	2	3	2	3	12	
2017	3	2	2	3	3	13	**Yes: 1 post**
2018	3	3	2	2	3	13	
2019*	3	3	3	2	3	14	**Yes: 1 post**
2020	3	3	3	3	3	15	**Yes: 1 post**
2021	3	3	3	3	3	15	

Ireland East Hospitals Group

Table 4: Mater Misericordiae University Hospital, Model 4

Mater Misericordiae University Hospital							
Year	**SpR 1**	**SpR 2**	**SpR 3**	**SpR 4**	**SpR 5**	**Total SpR cohort**	**Uplift Required**
2016	2	2	3	3	1	11	
2017	3	2	2	3	1	11	
2018	3	3	2	2	1	11	
2019* 5th year as norm	3	3	3	2	3	14	**Yes: 3 posts**
2020	3	3	3	3	3	15	**Yes: 1 post**
2021	3	3	3	3	3	15	

Table 5: St. Vincent's University Hospital, Model 4

St Vincent's University Hospital							
Year	**SpR 1**	**SpR 2**	**SpR 3**	**SpR 4**	**SpR 5**	**Total SpR cohort**	**Uplift Required**
2016	3	3	3	3	1	13	
2017	3	3	3	3	1	13	
2018	3	3	3	3	1	13	
2019*	3	3	3	3	3	15	**Yes: 2 posts**
2020	3	3	3	3	3	15	
2021	3	3	3	3	3	15	

Dublin Midlands Hospitals Group:
Table 6: St. James' Hospital, Model 4

St James's Hospital							
Year	**SpR 1**	**SpR 2**	**SpR 3**	**SpR 4**	**SpR 5**	**Total SpR cohort**	**Uplift Required**
2016	3	3	2	3	1	12	
2017	3	3	3	2	1	12	
2018	3	3	3	3	1	13	**Yes: 1 post**
2019*	3	3	3	3	3	15	**Yes: 2 posts**
2020	3	3	3	3	3	15	
2021	3	3	3	3	3	15	

Table 7: Tallaght Hospital, Model 4

Tallaght Hospital							
Year	**SpR 1**	**SpR 2**	**SpR 3**	**SpR 4**	**SpR 5**	**Total SpR cohort**	**Uplift Required**
2016	2	5	3	1	0	11	
2017	3	2	5	3	0	13	**Yes: 2 posts**
2018	3	3	2	5	0	13	
2019*	3	3	3	2	1	12	**No: (-1)**
2020	3	3	3	3	1	13	**Yes: 1 post**
2021	3	3	3	3	1	13	

South/South West Hospitals Group

Table 8: Model 4 Hospitals – Cork University Hospital and Mercy University Hospital

Cork University Hospital/Mercy University Hospital							
Year	**SpR 1**	**SpR 2**	**SpR 3**	**SpR 4**	**SpR 5**	**Total SpR cohort**	**Uplift Required**
2016	4	4	4	2	2	16	
2017	4	4	4	4	2	18	**Yes: 2 posts**
2018	4	4	4	4	2	18	
2019*	4	4	4	4	3	19	**Yes: 1 post**
2020	4	4	4	4	3	19	
2021	4	4	4	4	3	19	

Table 9: University Hospital Waterford, Model 4

University Hospital Waterford*							
Year	**SpR 1**	**SpR 2**	**SpR 3**	**SpR 4**	**SpR 5**	**Total SpR cohort**	**Uplift Required**
2016	2	0	0	0	1	3	
2017	2	2	0	0	1	5	**Yes: 2 posts**
2018	2	2	2	0	1	7	**Yes: 2 posts**
2019*	2	2	2	2	1	9	**Yes: 2 posts**
2020	2	2	2	2	1	9	
2021	2	2	2	2	1	9	

*WUH is currently converting Registrar posts to SpR posts at a rate of 2 per annum

Saolta Hospitals Group
Table 10: University Hospital Galway, Model 4

University Hospital Galway							
Year	**SpR 1**	**SpR 2**	**SpR 3**	**SpR 4**	**SpR 5**	**Total SpR cohort**	**Uplift Required**
2016	2	1	2	4	0	9	
2017	4	2	1	2	0	9	
2018	3	4	2	1	0	10	**Yes: 1 post**
2019*	3	3	4	2	1	13	**Yes: 3 post**
2020	3	3	3	4	1	14	**Yes: 1 post**
2021	3	3	3	3	1	13	**No: (-1)**

SECTION 5

FACILITATED PLENARY SESSION

FACILITATED PLENARY SESSION

A Plenary session is planned for September 9th, 2016. It will be held in the Herbert Park Hotel, Ballsbridge and will run from 8.30am to 4.30pm. The session will be facilitated by Mr Vincent Barton of Prospectus Management Consultants.

The programme will comprise a mixture of didactic briefing sessions, small group workshops and plenary sessions. Representatives have been invited from the Board, Training Coordinators, Hospital Subgroup, Strategic Review Group, Trainee Subcommittee and a variety of subspecialties.

The goal of the meeting is to address the strengths, weaknesses, obstacles and challenges facing the incoming Dean, Dr Max Ryan, and the 2016/17 Board. It should assist them to make optimal and well-informed policy decisions that respect the wishes of our Faculty as a whole.

APPENDICES

APPENDICES

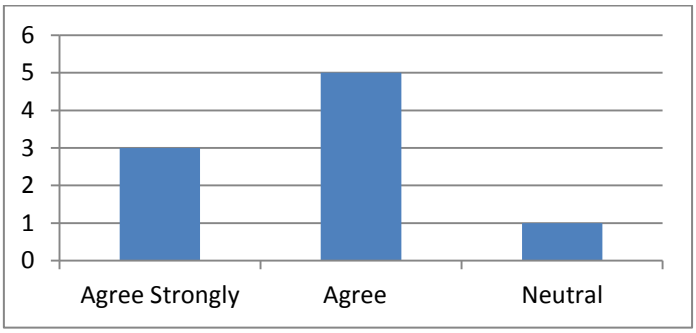
APPENDIX 1A
STAKEHOLDER SURVEY

In April 2015, a survey was sent to the training coordinators in each of the training hospitals to solicit their feedback on a number of areas pertaining to the Faculty training programme. They were asked to communicate with their departmental colleagues to ensure that the answers provided represented the views of the department.

Section 1: Competence Based Training

Question 1

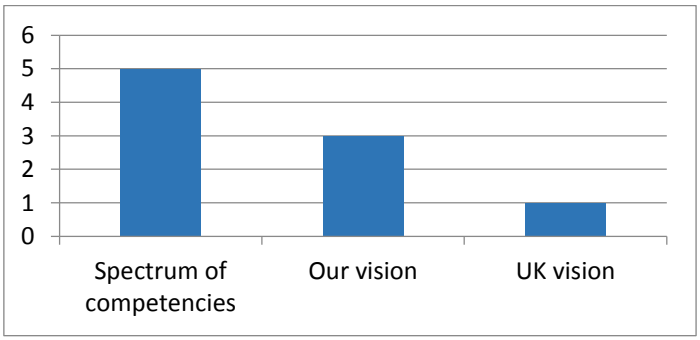
The training programme needs to adapt and include more competence-based training (CBT) metrics



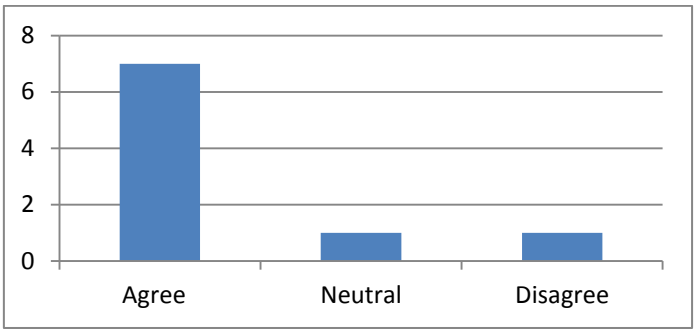
Question 2

The programme should proceed predominantly based on...(choose one)

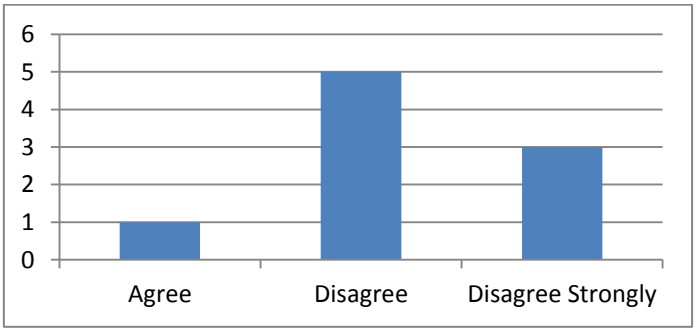
- The UK educational vision of the ideal proportion of competence-based to time-based training
- The spectrum of competencies for which our SpRs are currently being asked for evidence when they apply for licencing/examinations in major 'target' jurisdictions (UK, Canada, Australia, USA).
- Our vision of the ideal proportion of competence-based to time-based training



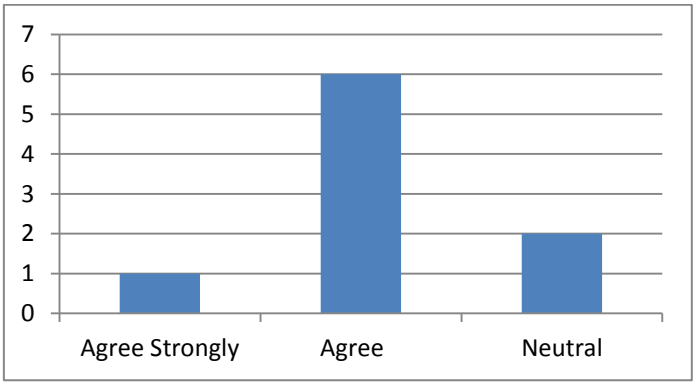
Question 3
The programme should follow the UK, Australian and N. American educational practices and institute workplace based assessments



Question 4
The programme should not institute workplace-based assessments; OSCEs during formal exams will suffice

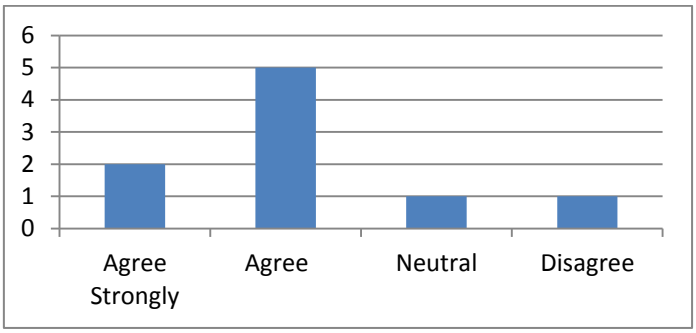


Question 5
The Faculty should analyse the range of available specialties across the core Teaching Hospitals and investigate the feasibility and appropriateness of short “competence-based” rotations in second and third year, to even out registrar subspecialty experience across the programme



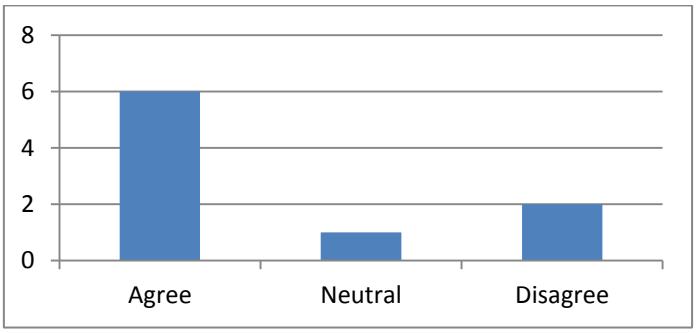
Question 6

The Faculty should investigate online organ system assignments for second and third year registrars to complement the lecture programme and provide continual assessment of knowledge acquisition in parallel with the lecture programme



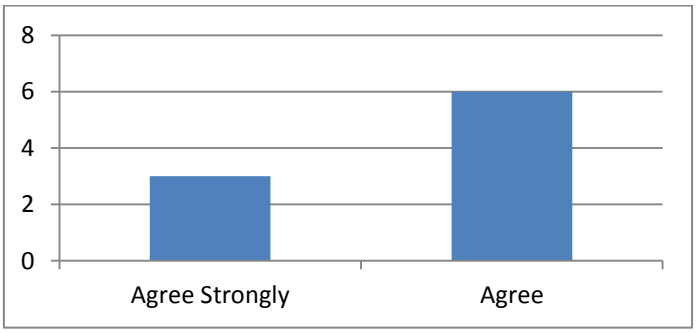
Question 7

The Faculty should change the Part 2 examination so that the MCQ examination (Part 2a) is taken in the November of 3rd year, with repeats in April of 4th year and only candidates who have passed the MCQ examination can take the Image Interpretation (Part 2b) examination



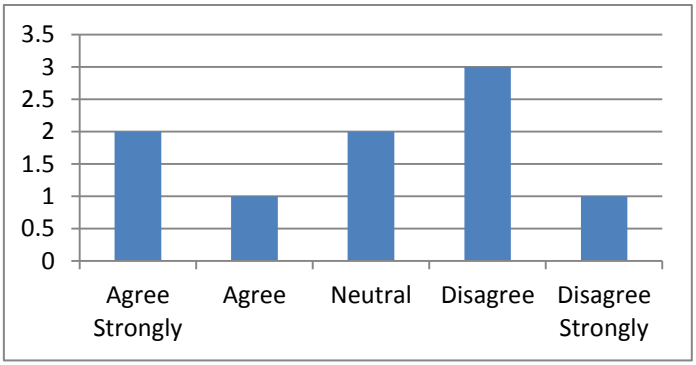
Question 8

To retrospectively demonstrate 'competence' and within reasonably flexible limits, the system should evolve so that only SpRs who have logged appropriate clinical experience, attended an appropriate proportion of lectures and completed their online assignments in the relevant organ system should be eligible to sit the MCQ in 3rd year



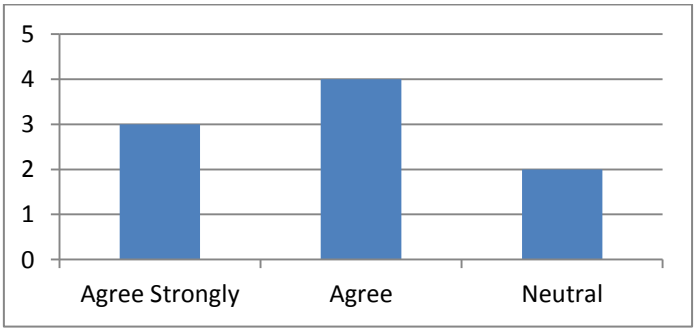
Section 2: Training outside Model 4 hospitals (University-associated teaching hospitals)

NDTP have stated “the fact that Radiology SpRs never experience a rotation during which they work outside a Model 4 hospital environment is a contributor to the difficulty the HSE has in recruiting Consultant Radiologists for Model 3 and Model 2 centres.” What is your opinion of this?

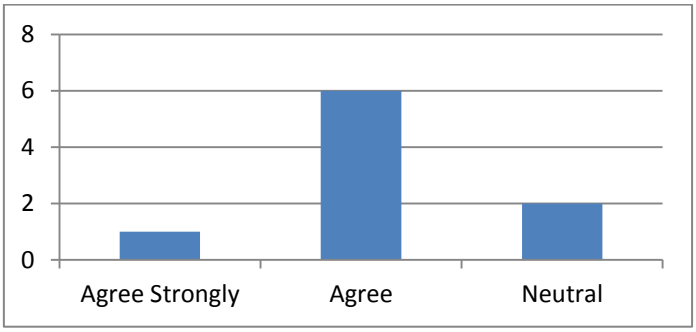


Section 3: The following factors have been proposed as relevant to the problem of recruiting radiologists for Model 3 and 2 hospitals. Please state your opinion of each of these conditions.

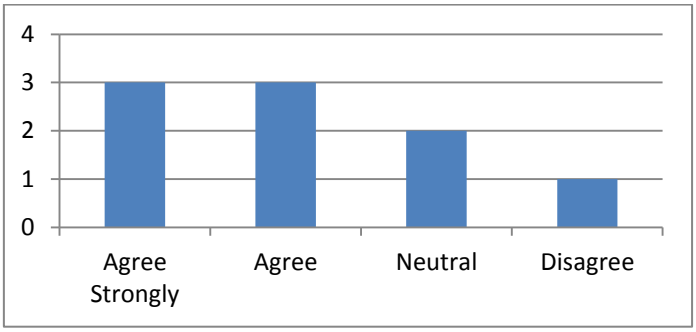
Condition 1: The 2008 Consultant contract



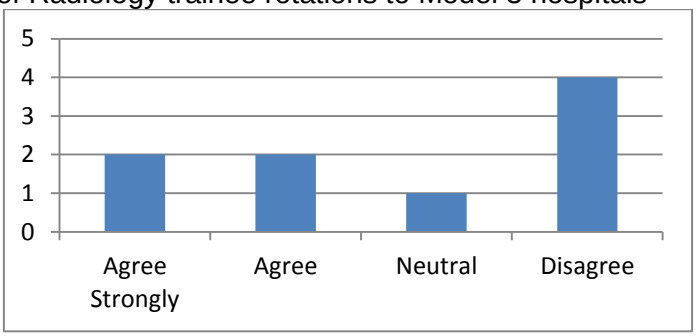
Condition 2: The structure of Radiologist practice plans, compared to those available in other English-speaking countries



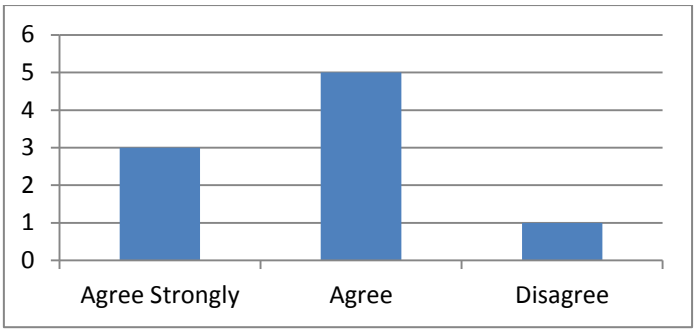
Condition 3: Radiologist (after tax) remuneration, compared to that available in other English-speaking countries



Condition 4: Lack of Radiology trainee rotations to Model 3 hospitals

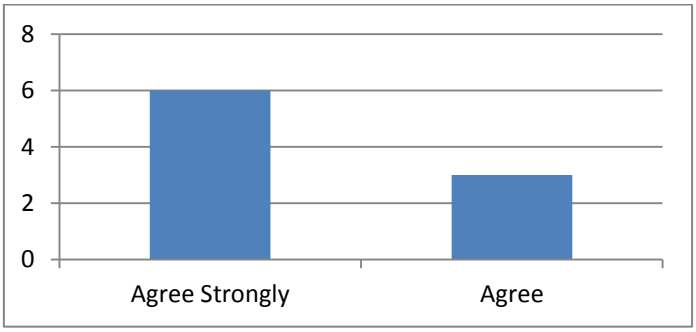


Condition 5: The established and increasing demand for imaging and interventional services outside "routine" hours in Regional Hospitals

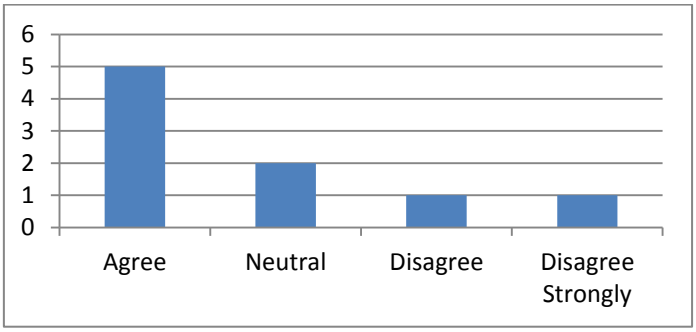


Section 4: The following conditions have been proposed as prerequisites for the rotation of second or third year registrars to a Model 3 hospital for a period of up to 6 months. Please state your opinion of each of these conditions.

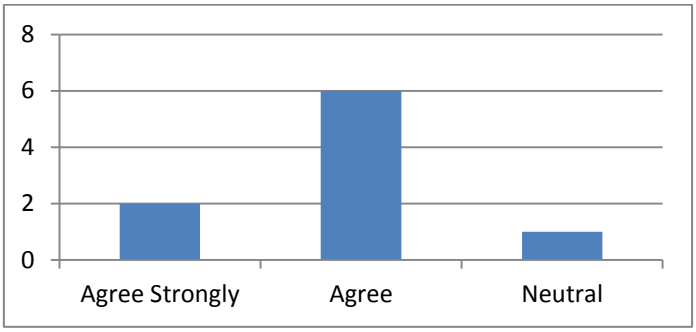
Condition 1: No reduction in teaching hospital registrar numbers



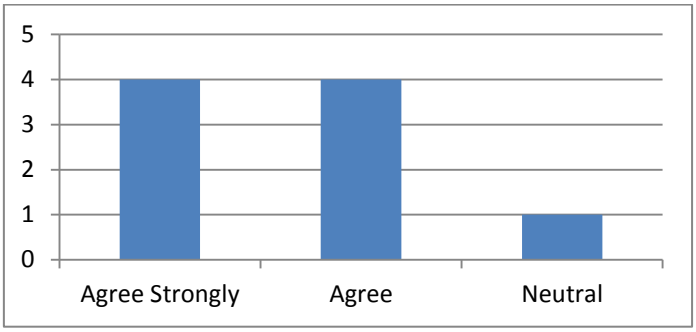
Condition 2: Radiology intake will be stabilised at three registrars per existing core teaching hospital annually



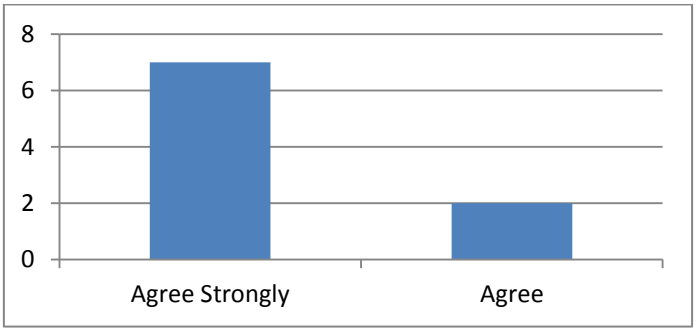
Condition 3: The basic training cohort (years 1-4) will be conceptually separated from the higher training cohort (years 5-6)



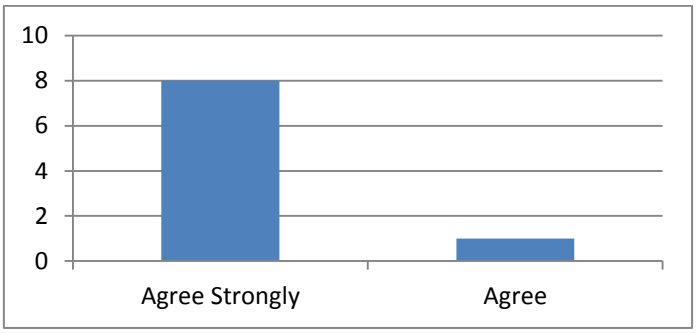
Condition 4: The Model 3 hospital will be funded to pay the SpR salaries during the rotations



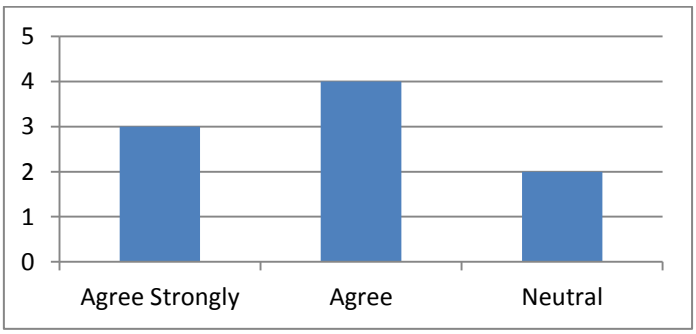
Condition 5: The SpR must not have to resign from the core teaching hospital post and apply for reemployment in the regional hospital



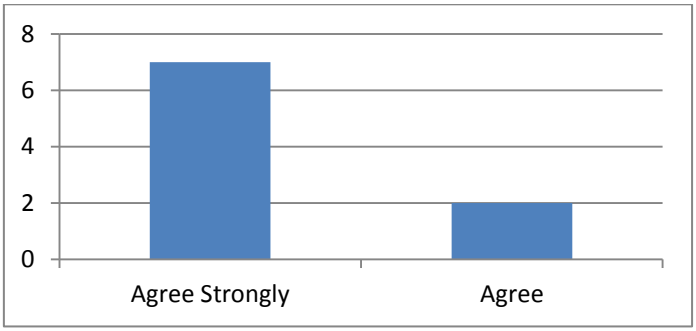
Condition 6: No bad/service gap rotations; no dilution of the quality of the training programme



Condition 7: The EWTD directive will be respected; registrar training by day will take precedence over call commitments in their scheduling



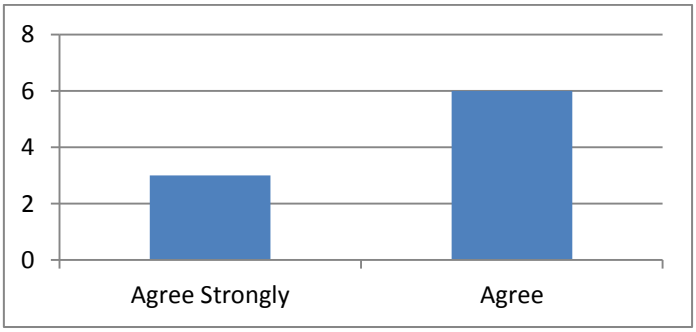
Condition 8: The Faculty of Radiologists will be given representation in Radiology workforce planning committees



Section 5: Radiology SHO posts

After several iterations and discussion at 2 consecutive Board meetings, the Faculty Board has agreed to commence discussions with the RCSI Surgical and Emergency Medicine training departments to create a Radiology SHO track. The goal of the track is to provide an option for interns who are targeting a career in Radiology to spend their year 1 SHO experience in a post that will provide clinical experience relevant to Radiology and allow them to spend their academic half-day in the Radiology Department. A 2-year pilot is proposed. We will ask for Surgical and ED posts in hospitals with a Radiology training programme and in Surgical subspecialties with high Radiology input/integration (Abdominal, Orthopaedic, Vascular, Thoracic). This will likely involve conversion of service posts to SpR grade.

The Radiology SHOs will not be guaranteed acceptance onto the Radiology Training Programme, they must interview in open competition. On the other hand, if they decide Radiology is not for them, the post should be eligible for consideration as a year of Emergency Medicine or GP training. In return for these posts, the Faculty will change entrance criteria to preclude acceptance of applications from SpRs who are half-way through their Basic Surgical Training programme. We have two goals. First, we hope to remove the need for interns who really want to do Radiology to sign up for a 2-year surgical programme they have no intention of completing, thereby displacing interns who really want to do surgery. Second, we wish (as part of the give-and-take of negotiation with NDTP) to help them to eliminate the problem of vacant Year 2 Surgical SHO posts due to resignations by SpRs accepted into the Radiology Programme. What is your opinion of this pilot project?



APPENDIX 1B

LETTER FROM GMC RE AN APPLICANT FROM THE FACULTY TRAINING PROGRAMME

25/03/2014

Your GMC reference number:

General Medical Council

3 Hardman Street
Manchester M3 3AW

Telephone: +44 (0) 161 923 6602
Facsimile: +44 (0) 161 923 6201
Email: [redacted]
www.gmc-uk.org

Dear Dr I

Decision on your application for entry onto the Specialist Register through specialty equivalence

I am writing to let you know that we have reached a decision on your application.

I am sorry to have to tell you that we are not satisfied that your specialist training, qualifications and experience are equivalent to the standards required for a Certificate of Completion of Training (CCT). I therefore have to confirm that your application has been unsuccessful.

I know this will be a disappointing outcome. I can assure you that, before arriving at our decision, we undertook a thorough assessment of all of the information and evidence available to us, including the structured reports we received from your nominated referees, and where appropriate a comprehensive evaluation by the relevant College or Faculty.

A copy of the evaluation, which we have endorsed, is enclosed with this letter. You will see that the evaluation form sets out the criteria that have not been met, and makes recommendations as to the evidence you should submit if you wish to make a further application. I hope you find these recommendations helpful.

I should clarify that where the recommendations involve additional training or assessments you will need to make your own arrangements to undertake them. The GMC is not in a position to do this for you nor would a Royal College or Faculty, Postgraduate Dean or employer be under any obligation to do so, although they may be well placed to provide you with advice on the practicalities involved.

If you decide to follow the course of action outlined in the enclosed evaluation form you can reapply **within three years** of the date of this letter. Please note you will be assessed against the curriculum in place at the time of your application and you will be evaluated in full and not just against the recommendations. Should you wish to re-apply the GMC will require evidence to demonstrate that you have maintained your skills across the depth and breadth of the curriculum since the date of your last application.

If you disagree with our decision, you have two options:

1. You can request a review of the decision if you have **new** relevant documentary evidence, or you believe we have made a procedural error or acted unfairly when reaching our decision. Please bear in mind that you must request a review **within 90 days** of the date of this letter.

2. You can appeal against our decision. You must notify us that you wish to appeal **within 28 days** of the date of this letter. You will then have a further 56 days in which to submit any additional evidence.

Full details of how to request a review or make an appeal, including details of the associated fees, are available on our website at:

www.gmc-uk.org/CertFurtherOptions.

If we can be of any further assistance please contact us and we will do our best to help.

Yours sincerely

Head of Specialist Applications
Registration and Revalidation Directorate
Enc. Evaluation form

APPENDIX 1C

EVALUATION BY GMC OF AN APPLICANT FROM THE FACULTY TRAINING PROGRAMME

Evaluation of an application for entry onto the Specialist Register through specialty equivalence assessed against the standards of the relevant Certificate of Completion of Training (CCT) curriculum
GMC reference number:

General Medical Council
Regulating doctors
Ensuring good medical practice

Summary

Applicant details

GMC reference number:		Assessed against:	The standards of the relevant Certificate of Completion of Training (CCT) curriculum
Name:	Dr		
Primary medical qualification:	[redacted]	Specialty:	Clinical radiology

Eligibility requirements

Please state whether the applicant has a specialist medical qualification: ☒ Yes ☐ No, and/or specialist medical training: ☒ Yes ☐ No, in accordance with the standards of the relevant Certificate of Completion of Training (CCT) curriculum.).

Evaluation requirements

Please evaluate the application against the standard indicated above. Please list the evidence that was taken into account and give examples from the evidence provided (including referee comments). You will need to consider the complete application and conclude whether the relevant information provided meets the standards for the applicant's specialty.

Evaluation of an application for entry onto the Specialist Register through specialty equivalence assessed against the standards of the relevant Certificate of Completion of Training (CCT) curriculum
GMC reference number:

General Medical Council
Regulating doctors
Ensuring good medical practice

Evaluation against Domain 1 – Knowledge, skills and performance

a) Has the applicant demonstrated that they have the full range, depth and breadth of experience and skill to the level required?

b) Has the applicant demonstrated application of knowledge and experience to practise (for example recognising and working within the limits of their competence). In particular, keeping up to date with Continuing Professional Development (CPD), audit, clinical governance, applying the skills and attitudes of a competent teacher/trainer, making appropriate referrals to colleagues and keeping clear and legible records?

Please evaluate the application against this domain taking into account the appropriate standards for the specialty and explain whether the applicant has demonstrated the above. If they have, give examples of how they have demonstrated this. If they have not, why not, and what additional evidence could be provided.

Dr has applied for a CESR in clinical radiology. The application has been assessed against the standards set out in the 2010 (updated 2012) CCT curriculum in clinical radiology.

Dr completed an appropriate amount of non-radiology training before entering radiology training in Ireland in 2005; the formal four years of this concluded in 2009. Between 2010 and 2011 she completed two periods of Fellowship (higher training) [redacted], the first in body imaging and the second in [redacted] radiology. Her most recent post is as a temporary consultant radiologist in the .

Dr . obtained a specialist qualification in radiology in 2009 from the Faculty of Radiologists in Ireland and submitted the diploma to confirm this. This is a nationally standardised qualification analogous to the FRCR, which can be taken after a minimum of three years of radiology training. She has provided a curriculum for her training, which covers the CCT curriculum in the core radiology specific areas of breast, cardiac, chest, GI, head and neck, musculoskeletal, neuro, obstetrics and gynaecology, oncology, [redacted] vascular, CT, MRI, radionuclide radiology, ultrasound and interventional radiology. Confirmation of her satisfactory completion of the Irish training and her [redacted] can be found in her structured reports.

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As well as demonstrating equivalence to the breadth and depth of the CCT curriculum in terms of training or experience, evidence that Dr ' ' can currently practise competently and independently across the breadth of the curriculum must also be submitted.

Dr ' ' has provided a number of radiology reports (p189- p200 and p204-247). These cover MRI, ultrasound, plain film, barium procedures and CT. The radiology reports which are available meet the standard expected as a result of training according to the CCT curriculum but do not fully cover the breadth of the curriculum. Dr appears to have been practising as a [redacted]adiologist over the last few years, and this is reflected in the radiology reports available which contain only 11 adult studies, with the res[redacted]studies. This does not reflect the full range of the CCT curriculum. The CCT curriculum requires trainees to have their competence assessed in the workplace through various forms including appraisal and assessment of clinical skills through workplace based assessment (WpBA) and reflective practice, which will include formal multisource feedback and patient feedback where available. Brief reference to annual assessments has been made; in one of the structured reports (p108) where assessments throughout training are said to have been "satisfactory", and there is reference in a letter on p175 in respect of her [redacted]Fellowship: " was evaluated throughout her fellowship by faculty and resident trainees. In our mid-year evaluation, she was also evaluated using a 360 degree evaluation, where she was evaluated by other staff, such as support staff and technologists. evaluations have consistently shown her dedication and focus with a genuine commitment to her patients". The evaluators note that no primary evidence of structured appraisal has been provided about which an objective evaluation can be made.

Section I of the CCT curriculum indicates that teaching activity is required and various knowledge, skills and behaviours are set out in the curriculum including delivery of varying teaching formats, demonstrate effective presentation of information in a variety of ways, delivery of small group teaching to medical students, nurses or colleagues and others. There is no specific mention of teaching activity in any of the structured reports. Six letters of testimonials are available, three of whom are from people who have written structured reports. This is not the range of comment that structured, objective multisource feedback can provide, and it cannot be given as much weight. These comment briefly on teaching activity e.g. p201: "Dr has proved to be a keen tutor, rarely missing an opportunity to expand upon various teaching points for the benefit of the radiographers with whom she works" and p179: "She is a patient teacher, who gives her time to educate other members of the multidisciplinary team on an individual basis or at the weekly radiology and [redacted] meetings". Unfortunately no objective evidence about teaching has been provided such as timetables, formal feedback or examples of presentations.

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Dr has participated in regular and relevant CPD activity, and has submitted evidence of research in the form of a published paper (p 254 – 263). Audit and clinical governance activity is dealt with in Domain 2.

Dr . ... has submitted six structured reports from her radiology supervisors in Ireland and the USA. These all support her application for specialist registration. Dr says (p 80) "I am completely confident that has the required range of skills and the relevant experience to fully meet the CCT requirements in Clinical Radiology with a subspecialty interest in [redacted] Radiology. I am aware of the details of her formal training. I have directly observed six months of that training and most importantly I have working with her as a clinical colleague and directly overseen her work as a clinical director for a period of eight months this year (2013)". Dr says (p 62) "I can confirm that . progressed through the training scheme as expected and more than achieved the requirements to satisfy her being awarded her CCST from the FRRCSI." Dr .. says (p 71) "Dr worked as a radiology trainee for the above years. She participated fully in all aspects of the radiology department including direct patient care, liaising with other specialties, liaising with fellow colleagues and her superiors. She was absolutely satisfactory in all areas. In Radiological terms she is absolutely satisfactory; she passed the Irish Fellowship exams on the first attempt (FFR RCSI); they are UK FRCR standard. After that she went on to work in dedicated [redacted] radiology positions and this is where her career has gone since in an excellent manner".

These comments and others have been weighed in the evaluation, but it is concluded that there is insufficient primary evidence to allow an objective assessment to be made in terms of her clinical competence across the full breadth of the curriculum, and insufficient evidence available in the areas of teaching and appraisal.

It is therefore concluded that Dr has not met the standards of knowledge, skills and performance as set out in the 2010 (updated 2012) CCT curriculum for clinical radiology.

Dr ' has not met the requirements of Domain 1 in full.

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Please list the evidence considered in the evaluation of this domain which supports the comments above.

- Correspondence between applicant and GMC pp 3-29
- Application form pp 31-57
- CV pp 114

STRUCTURED REPORTS

- [redacted]

- Certificates of specialist doctor, registration and current professional status, Irish Medical Council p 132-134
- Letter from Dean confirming completion of training p 135
- Fellow of the Faculty of Radiologists, Ireland, 2009 p 136
- Confirmation of date of Body Imaging fellowship p 137 and [redacted] Fellowship p 138-139
- Temp US registrations p 140-141
- Curriculum for Irish training p 142-165

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- Letter from supervisor [redacted] p 170
- Certificate confirming internal medicine p 172
- Letters from Dr [redacted] re training, p 176; Dr [redacted] training, p 176; SpRs re applicant's teaching/mentorship p 179, 180; other letters p 201 and p 203 with the second half of this letter on p 248 (in lieu of 360 degree)
- Workload stats Jan-July 2013 [redacted] p 182 and rotas p 183-184
- Workload stats 2011-2012 p 185
- RIS report [redacted] 2010-2011 p 186-188
- **Radiology reports** p 189-200 and p 204-247
- **CPD activity** - RSNA exhibit 2007 p 167; BLS and ALS p 168, 169; ESOR/GALEN course p 249, ECR 2013, RSNA 2012 and other certificates p 265-273
- Published paper p 254 – 263
- Audit of applicant's own professional competence letter from Irish medical council p 276
- NB applicant also has First FRCR 2004 p 166, no attempts at Final Part A.

Please indicate whether the applicant has satisfied Domain 1: ☐ Yes ☒ No

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Evaluation against Domain 2 – Safety and quality
a) Has the applicant demonstrated putting into effect systems to protect patients and improve care (for example taking part in, and responding to, the outcome of audit, appraisals, performance reviews, risk management and clinical governance procedures, and reporting adverse drug reactions or concerns about risks to patients)?
b) Has the applicant demonstrated that they monitor and respond to risks to safety and that they safeguard and protect the health and wellbeing of vulnerable people (for example responding to risks posed by patients and following infection control procedures)?
c) Has the applicant demonstrated that they protect patients and colleagues from any risk posed by their health?
Please evaluate the application against this domain taking into account the appropriate standards for the specialty and explain whether the applicant has demonstrated the above. If they have, give examples of how they have demonstrated this. If they have not, why not, and what additional evidence could be provided.
Dr . has completed relevant courses in basic and [redacted] advanced life support. There are positive statements in the structured reports about Dr in respect of some elements of safety and quality activity, particularly in respect of the contact a radiologist has with patients – e.g. p73: "Dr attention to cleanliness was exemplary and she works strictly to protocol within her clinical judgement" and p90: "Dr practiced safe patient handling procedures based upon my direct observations, with respect to hand washing, being mindful of different risks to different patients based on patient size and condition, etc. Dr. was sensitive to her patient's needs and actively served as an advocate for her patient's safety and well-being". Clinical radiology has less direct contact with patients than may be the case in other specialties, and such evidence is sufficient to confirm that the applicant safeguards the health and wellbeing of vulnerable people. There is no indication that I suffers from any health problem; no such problem has been identified any structured report or letter. Quality improvement, patient safety, clinical governance and audit are key components of the 2010 (updated 2012) CCT curriculum (see particularly Sections E and H). Participation in clinical audit, MDT activity and quality improvement initiatives are significant elements throughout the curriculum.

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Some reference is made in papers to such activity e.g. in the structured report on p81: " has participated in a very active Audit/Quality Assurance culture in my department. She has participated in departmental Audits and is a named participant in Audits presented at the Hospital's Audit Day. She has contributed cases for our regular Radiology Discrepancy Meeting" (p81). This, however, is not supported by any primary, objective evidence of such activity. There are no examples of audits, quality improvement projects or activity or any other evidence that can be evaluated. There are no minutes of clinical governance or other relevant meetings, no examples of protocols or procedures she has implemented or any other evidence of the nature of any such activity she has participated in. As stated in Domain 1, there is no evidence of appraisal activity and furthermore, there is no evidence of sustained reflective practice or personal development plans. There is no primary evidence of any multidisciplinary activity. From the evidence available it is concluded that Dr has not met the standards of safety and quality as set out in the CCT curriculum in clinical radiology. Dr has not met the requirements of Domain 2 in full.
Please list the evidence considered in the evaluation of this domain which supports the comments above. • BLS and ALS training • Letters and structured reports
Please indicate whether the applicant has satisfied Domain 2: ☐ Yes ☑ No

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Evaluation against Domain 3 – Communication, partnership and teamwork	
a)	Has the applicant demonstrated that they communicate effectively with: • patients (for example keeping them informed about progress of their care) and • colleagues (for example physician colleagues, nursing staff, allied health professionals, GPs and other appropriate agencies) in both clinical and management situations within and outside the team (for example passing on information when patients transfer, encouraging colleagues to contribute to discussions)?
b)	Has the applicant demonstrated that they work constructively with colleagues by supporting them, delegating effectively, acting as a positive role model and providing effective leadership?
c)	Has the applicant demonstrated that they establish and maintain partnerships with patients and encourage them to take an interest in their health and obtain appropriate consent to treatment?

Please evaluate the application against this domain taking into account the appropriate standards for the specialty and explain whether the applicant has demonstrated the above. If they have, give examples of how they have demonstrated this. If they have not, why not, and what additional evidence could be provided.

Dr attended a leadership skills course in 2010. The only other evidence available in respect of communications, partnership and teamworking is letters and structured reports from nine colleagues - six structured reports from radiology supervisors, three of which are supplemented by additional letters from those people, and three letters of testimonial from non-radiology colleagues.

As previously stated, these are all positive in areas including communications, partnership and teamworking – e.g. p74: "Dr. is an excellent communicator – she is clear, thoughtful and forthright in her medical opinion. She has excellent written and spoken English. She puts patients- particularly patients- at ease with her manner and openness. . Dr. works well with a variety of colleagues; she delegates well, she provides good leadership"; p83: "She has always adequately included in the clinical relationship. She has been open in discussions and with information provided to She is very conscious of the need to ensure that patients remain fully informed and consenting in the radiological diagnostic pathway and procedures/interventions"; p201: "In my experience, Dr employs excellent communication and interpersonal skills, which lead to a very

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productive and effective working environment. Dr seems to favour a collaborative approach to patient care, and her open, friendly demeanour lends itself well to such multi-disciplinary team-work. Dr appears to be held in the highest regard by the radiographers in this hospital, and I believe this is due to her marked sense of fairness, integrity and objectivity."

These structured reports and testimonials have been carefully noted, and are a useful indicator as to how Dr is regarded, but this is not the range of comment that primary evidence such as recent, properly structured and regular appraisal, patient feedback and MSF can provide and cannot be given as much weight. There is no other primary evidence with which these comments can be triangulated, such as evidence of leadership or management activity other than one course.

It is therefore concluded that Dr has not demonstrated equivalence to the requirements of communications, partnership and teamworking as set out in the CCT curriculum.

Dr has not met the requirements of Domain 3 in full.

Please list the evidence considered in the evaluation of this domain which supports the comments above.

- Leadership course p171
- Letters from junior/non-medical staff
- Other letters and structured reports

Please indicate whether the applicant has satisfied Domain 3: ☐ Yes ☒ No

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Evaluation against Domain 4 – Maintaining trust	
a)	Has the applicant demonstrated that they show respect for patients (for example they are polite, considerate and honest with patients and implement systems to protect patient confidentiality)?
b)	Has the applicant demonstrated they treat patients and colleagues fairly and without discrimination (for example being honest and objective when appraising or assessing colleagues and writing references, giving constructive feedback, raising issues of colleagues' performance and responding promptly to complaints)?
c)	Has the applicant demonstrated they act with honesty and integrity (for example, they are honest and accurate in any financial dealings, practice reports, and obtain appropriate ethical approval for research projects)?
Please evaluate the application against this domain taking into account the appropriate standards for the specialty and explain whether the applicant has demonstrated the above. If they have, give examples of how they have demonstrated this. If they have not, why not, and what additional evidence could be provided.	
Dr has full GMC registration. The only other evidence available for this domain is the letters and structured reports referred to elsewhere. These structured reports and testimonials have been carefully noted, and are a useful indicator as to how Dr is regarded, but this is not the range of comment that primary evidence such as recent, properly structured and regular appraisal, patient feedback and MSF can provide and cannot be given as much weight. It is therefore concluded that Dr has not demonstrated equivalence to the requirements of maintaining trust as set out in the CCT curriculum. Dr has not met the requirements of Domain 4 in full.	

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Please list the evidence considered in the evaluation of this domain which supports the comments above.
• Letters and structured reports
Please indicate whether the applicant has satisfied Domain 4: ☐ Yes ☒ No

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Further required training, assessment and examination
Does the applicant's training or specialist qualifications and experience meet the requirements of the relevant CCT curriculum? ☐ Yes ☒ No
Please provide a brief statement outlining how the applicant has or has not met these requirements.
Dr has applied for a CESR in clinical radiology. The application has been assessed against the standards set out in the 2010 (updated 2012) CCT curriculum in clinical radiology. This application has been evaluated against the requirements of the 2010 (updated 2012) CCT curriculum for clinical radiology. Although a number of radiology reports have been provided, which are in order as far as they go, they do not demonstrate Dr competence across the full breadth of the curriculum. There is no primary evidence of appraisal, MSF, clinical audit or quality improvement activity, teaching, leadership, management or multidisciplinary activity. Dr is clearly a valued colleague but the primary evidence upon which an objective assessment for a CESR can be made is limited for the reasons set out above. Many of these are referred to within the letters and structured reports and Dr may be able to provide evidence to address the recommendations from her current and previous posts. When making any re-application or applying for a review, Dr should ensure that she applies against the requirements of the CCT curriculum current at that time, which may differ from the 2010 (updated 2012) curriculum. The RCR is not currently able to recommend Dr for the award of a CESR in clinical radiology.

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If No please specify any periods of additional training required and the fields to be covered by it. This should include details of any documentation, examination, assessment or other test of competence that the applicant should undertake during this period to satisfactorily demonstrate the standards required for their specialty (add additional rows as necessary)	
Period of additional training (if any) and fields to be covered by it.	**Documentation, examination, assessment or other test of competency to satisfactorily demonstrate the standard required**
Recommendation 1 Evidence of recent clinical audit activity and/or quality improvement activity	**Submission of** **EITHER** At least two examples of clinical audit activity to include outcomes where appropriate, and at least one of which should show a re-audit to identify whether a change in practice was identified or necessary. **AND/OR** At least two examples of a quality improvement project which shows a resulting change in practice. Dr can submit a mixture of clinical audit and quality improvement if she chooses. Information about clinical audit activity can be found on the RCR website here http://www.rcr.ac.uk/content.aspx?PageID=293

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Recommendation 2 Evidence of clinical governance activity over a sustained period of at least six months	**Submission of:** (a) Evidence of participation in MDT activity to include minutes, case histories, and reflective notes; (a) Evidence of participation in relevant meetings e.g. radiology meetings and quality assurance meetings, service improvement and other clinical governance meetings, risk management meetings by submission of minutes, action points and any other evidence of implementation of a change in practice such as protocols
Recommendation 3 Evidence of management and leadership skills	**Submission of** Evidence which could include rota/audit or budget management; management committees; undertaking WpBA on others; attendance at recent management courses with a course outline
Recommendation 4 Evidence of teaching experience and achievement	**Submission of** (a) Formal feedback and /or letters of testimonial from students must be submitted (b) Examples of presentations (c) Formal teaching timetables, if available (d) WpBA - Teaching observation would be useful if available

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Recommendation 5 Evidence of participation in formal appraisal	**Submission of** Submission of at least one recent structured appraisal which must include appropriate multisource feedback. Formal patient feedback should be included where available. The appraisal should include a personal development plan setting objectives for the next appraisal and include evidence of reflective practice which could include examples of a reflective diary maintained over a period of months and reflection on CPD activity Information about appraisal can be found on the RCR website here http://www.rcr.ac.uk/content.aspx?PageID=1899
Recommendation 6 Evidence of reporting competence across the core CCT curriculum in adult reporting (plain film, CT, US, MRI, fluoroscopy, interventional procedures, radionuclide radiology) over a recent period, to cover the breadth and depth of the system based specialties in the CCT curriculum – breast, cardiac, GI, head and neck, musculoskeletal, neuroradiology, obstetric, thoracic, uroradiology, vascular imaging including intervention and oncological imaging.	**Submission of** Submission of either (a) At least 40 radiology reports covering the core CCT curriculum. These must be as recent as possible and certainly from within the last five years and must cover the spectrum of non-[redacted] reporting OR If the applicant cannot demonstrate her competence in any area, she must undertake a period of additional training covering the area(s) in which she

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	cannot demonstrate competence, the indicative period for which is 3-6 months in each area, followed by submission of (a) submission of a letter from a supervisor to confirm the period of training satisfactorily completed (b) a logbook maintained during these period(s) of training and (c) at least 40 radiology reports as set out above.

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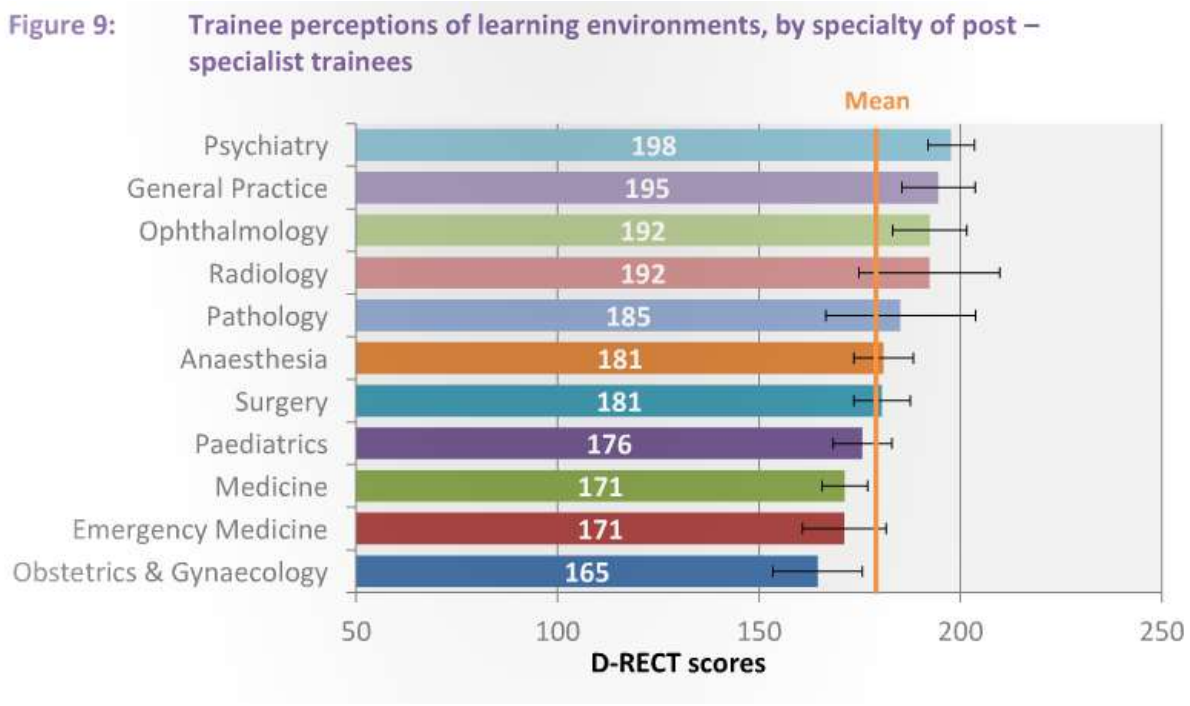
Endorsed					
College or Faculty name:	The Royal College of Radiologists				
Signature:	(on behalf of the Chairman of the Equivalence Committee)	Position:	Senior Training Administrator	Date:	28/01/2014
Please note the contents of this form will be made available to the applicant					

APPENDIX 2A
FIGURE 9 FROM P. 18 OF 'YOUR TRAINING COUNTS 2015', THE ANNUAL NATIONAL TRAINEE EXPERIENCE SURVEY UNDERTAKEN BY THE MEDICAL COUNCIL

Link to full report is here:
https://www.medicalcouncil.ie/News-and-Publications/Reports/Your-Training-Counts-2015-.html



APPENDIX 2B
LINK TO MACCRAITH REPORT

http://www.radiology.ie/wp-content/uploads/2012/01/McCraith_Final_Report_300614_FINAL1.pdf

APPENDIX 2C
STATEMENT FROM TRAINEE SUBCOMMITTEE ON RESULTS OF 'YOUR TRAINING COUNTS' SURVEY

On behalf of the Trainee Committee we would like to express our disappointment at hearing the results of the recent medical council survey, "Your Training Counts", where 37% of trainees said that they had experienced bullying in the workplace.

It is a matter of great concern that our colleagues would be made to feel this way in their work environment. It is the expectation and right of every trainee to feel safe and comfortable in the workplace. This is a matter that we as a committee have an obligation and compulsion to investigate and we intend to raise the issue at the upcoming Trainee Committee meeting this September and at the Trainee AGM at the Faculty Annual Scientific Meeting.

We do not know the exact nature of this bullying. For example, we do not know whether the bullying is from our radiology colleagues or seniors or indeed colleagues outside the radiology department. Perhaps more crucial again, is our lack of understanding as to how this bullying impacts upon our fellow trainees. However, these are clearly questions that need to be addressed and we will endeavor to shed further light on this troubling issue.

Michael O'Reilly and Aileen O'Shea
Trainee Committee President and Vice President

APPENDIX 3A
CBME APPENDIX

EXAMPLE OF AN ENTRUSTABLE PROFESSIONAL ACTIVITY (EPA)

TABLE 1: Title and Description of EPA

EPA No. 1	
Title	**Interpretation and reporting of diagnostic tests and investigations**
Description:	This activity involves interpreting the clinical situation from information provided and making decisions so as to perform the appropriate diagnostic test. The advantages and disadvantages of diagnostic imaging techniques in different clinical contexts need to be taken into account and the benefits and risks communicated to the patient/referring clinician as appropriate. The performance of diagnostic investigations involves being able to oversee the use of equipment and work with the radiology staff in achieving diagnostic images. The interpretation of images and provision of a radiological report is a key element of the reporting process. The ability to provide a single most likely diagnosis with an appropriate differential diagnosis using an evidence-based approach should be demonstrated. Comparison with previous images if available, should be performed. This activity encompasses making decisions about the need for further imaging, where appropriate. This core clinical activity includes communicating the radiological result of the images to the referring clinician in an appropriate timescale and manner, and discussing the need for further investigation or intervention as required.
Modalities	Plain film, Ultrasound, MRI, CT, Breast imaging, Paediatric imaging, Nuclear medicine
Prerequisites or co-requisites:	Ability to use programmes to enhance, improve, compare and report images
Assessment tools used for determining progress	• Image interpretation and reporting exercise (IIREx) • IIREx – for Ultrasound (IIREx US), incl. patient encounter • Case based discussion (CbD) – a retrospective review (where necessary) • (Multisource Feedback (MSF)– evidence provided by SpR)

TABLE 2: EPA mapped against Medical Council 8 domains of professional practice

EPA	Mapping EPAs against the Medical Council 8 domains of good professional practice	1 Patient Safety & Quality of Patient Care	2 Relating to Patients	3 Communication and Interpersonal Skills	4 Collaboration and Teamwork	5 Management including Self-Management	6 Scholarship	7 Professionalism	8 Clinical Skills
No.	**Interpret diagnostic tests and investigations**	x							x

TABLE 3: Criteria to be met for successful achievement of each nested EPA

- Expected Proficiency
- Minimum Volume of practice
- Minimum number of Observed Practices (to required proficiency level for that modality)

	Stage of Training/ Milestone	Milestone 2 Directly supervised (Year 2)			Milestone 3 Indirectly supervised (Year 3)			Milestone 4 Ready for independent practice (Year 4)		
	Nested EPA (Reflecting domains of Radiological Practice)	Expected Proficiency	Min. Vol of practice	Observed practice	Expected Proficiency	Vol of practice	Observed practice	Expected Proficiency	Min. Vol of practice	Observed practice
	Core									
1.A	Plain film	2	tbc	2 IIREx (1 CbD optional)	3	-	-	4	tbc	2 IIREx (1 CbD optional)
1.B	Ultrasound	2	tbc	2 IIREx (1 CbD optional)	3	-	-	4	tbc	2 IIREx (1 CbD optional)
1.C	MRI	2	tbc	2 IIREx (1 CbD optional)	3	-	-	4	tbc	2 IIREx (1 CbD optional
1.D	CT	2	tbc	2 IIREx 1 CbD	3		-	4	tbc	2 IIREx (1 CbD optional)
	Sub-specialty									
1.E	Breast imaging	-		-	2	tbc	2 IIREx (1 CbD optional)	2		-
1.F	Paediatric imaging	-		-	3	tbc	2 IIREx (1 CbD optional)	3		-
1.G	Nuclear medicine	-		-	2	tbc	2 IIREx 1 CbD	2		-

CbD (optional) to be used by assessor where SpR needs support or where assessor needs further opportunity to determine gaps in understanding, skills of attitudes.

Level[1]	Guide to Proficiency Levels	Milestones
Level 1:	SpR has acquired knowledge and skills, but insufficient to perform, not allowed to enact the EPA	Novice: pre practice (n/a)
Level 2:	SpR may perform an activity under full, proactive supervision, full supervision in the room for procedures	Directly supervised practitioner
Level 3:	SpR may perform an activity under qualified, reactive supervision, the SpR asks for supervision or advice.	Indirectly supervised practitioner
Level 4*:	SpR may perform an activity independently with back stage, mainly informal supervision.	Ready for independent practice
Level 5:	SpRs may provide supervision and instruction to junior learners	Specialist/Experienced practitioner

Note: In Radiology, sign-off of reports is as carried out as per local protocols for different modalities

* Level 4 is the threshold level of competence. Once this level is reached, the activity may be safely entrusted to the SpR. Growth of competency after reaching this threshold is likely as a result of further deliberate practice prior to achievement of Certificate of Completion of Specialist Training (CCST).

TABLE 4: Competencies within the EPA, classified by type

(K: Knowledge, S: Clinical Skill, A: Attitudes/Behaviour i.e. 'non-technical'

No.	Type	Competencies (For all nested EPAs)
		Interpret and report diagnostic tests and investigations
1.	K	Interpret the clinical situation from the referral indication or the referring clinical colleague
2.	A	Establish rapport and demonstrate an awareness of the patients' clinical condition (where appropriate) [Ultrasound]
3.	S	Make decisions on the most appropriate diagnostic test and imaging protocol with due regard for available evidence, cost effectiveness and risk-benefit analysis
4.	A	Communicate the benefits and risk to patients so they can be involved in the decision making process (where appropriate) [Ultrasound]
5.	K	Demonstrate technical knowledge of diagnostic equipment, patient positioning and other optimizing parameters to generate a diagnostic image (where appropriate)
6.	S	Use (where appropriate) and/or oversee the use of diagnostic equipment and respond to any complications that may arise during the course of an investigation
7.	K	Apply knowledge of relevant anatomical detail
8.	S	Identify and interpret radiological abnormalities appropriately
9.	S	Review and compare with historical images
10.	S	Select the most likely single diagnosis
11.	S	Formulate and prioritise a differential diagnosis
12.	S	Construct a clear and concise report
13.	A	Communicate results to the medical team and/or patient in a time appropriate manner especially with regard to critical/urgent results
14.	A	Act immediately and seek assistance as appropriate
15.	S	Make recommendations for specific further investigations with due regard for available evidence or best practice, cost effectiveness and risk-benefit analysis
16.	A	Others to add (MSF)

Table 5: Mapping Competencies against Medical Council Domains

	Medical Council Domain/s[2]								Competencies
	1. Patient Safety and Quality of Patient Care	2. Relating to Patients	3. Communication and Interpersonal Skills	4. Collaboration and Teamwork	5. Management (including Self-Management	6. Scholarship	7. Professionalism	8. Clinical Skills	**Interpretation and reporting of diagnostic tests and investigations**
1.								x	Interpret the clinical situation from the referral indication or the referring clinical colleague
2.		x							Establish rapport and demonstrate an awareness of the patients' clinical condition (where appropriate)
3.								x	Make decisions on the most appropriate diagnostic test and imaging protocol with due regard for available evidence, cost effectiveness and risk-benefit analysis
4.		x							Communicate the benefits and risk to patients so they can be involved in the decision making process (where appropriate)
5.								x	Demonstrate technical knowledge of diagnostic equipment, patient positioning and other optimizing parameters to generate a diagnostic image (where appropriate)
6.								x	Use and/or oversee the use of diagnostic equipment and respond to any complications that may arise during the course of an investigation
7.						x			Apply knowledge of relevant anatomical detail
8.								x	Identify and interpret radiological abnormalities appropriately
9.								x	Review and compare with historical images
10.								x	Select the most likely single diagnosis
11.								x	Formulate and prioritise a differential diagnosis
12.			x						Construct a clear and concise report
13.				x					Communicate results to the medical team and/or patient in a time appropriate manner especially with regard to critical/urgent results
14.	x								Act immediately and seek assistance as appropriate
15.					x				Make recommendations for specific further investigations with due regard for available evidence/best practice, cost effectiveness and risk-benefit analysis
16.									Others to add (MSF)

[2] Alignment between the required Competencies and the 8 Medical Council Domains of Professional Practice (indicate ONE most relevant domain)

TABLE 6: Blueprinting of Competencies and Observed Practice Tools

EPA	Interpretation and reporting of diagnostic tests and investigations	Blueprinting of Observed Practice Tools				
	Competencies	DOPS n/a	IIREx	CbD *	IIREx/ US	MSF
1.	Interpret the clinical situation from the referral indication or the referring clinical colleague		X	X	x	
2.	Establish rapport and demonstrate an awareness of the patients' clinical condition (where appropriate)				X	
3.	Make decisions on the most appropriate diagnostic test and imaging protocol with due regard for available evidence, cost effectiveness and risk-benefit analysis		x	x	X	
4.	Communicate the benefits and risk to patients so they can be involved in the decision making process (where appropriate)				X	x
5.	Demonstrate technical knowledge of diagnostic equipment, patient positioning and other optimizing parameters to generate a diagnostic image (where appropriate)		X	X	X	
6.	Use (where appropriate) and/or oversee the use of diagnostic equipment and respond to any complications that may arise during the course of an investigation		X	x	X	
7.	Apply knowledge of relevant anatomical detail		x	x	X	
8.	Identify and interpret radiological abnormalities appropriately		x	x	X	
9.	Review and compare with historical images		x	x	X	
10.	Select the most likely single diagnosis		x	x	X	
11.	Formulate and prioritise a differential diagnosis		x	x	X	
12.	Construct a clear and concise report		x		X	
13.	Communicate results to the medical team and/or patient in a time appropriate manner especially with regard to critical/urgent results		x	X	x	x
14.	Act immediately and seek assistance as appropriate					x
15.	Make recommendations for specific further investigations with due regard for available evidence or best practice, cost effectiveness and risk-benefit analysis		x	x	X	
16.	Others to add (MSF)					

* CbD (optional) to be used by assessor or coordinator where the SpR needs support or where they need further opportunity to determine gaps in understanding, skills or attitudes.

TABLE 7: Curriculum Mapping of Competencies

EPA	Interpretation and reporting of diagnostic tests and investigations	Mapping						
		Teaching and learning activities						
	Competencies	SELF-DIRECTED (e/text)	CLINICAL TEACHING	FORMAL TEACHING	SIMULATION	EXPERIENCE	TEACHING/PRESENTING	Other?
1.	Interpret the clinical situation from the referral indication or the referring clinical colleague							
2.	Establish rapport and demonstrate an awareness of the patients' clinical condition (where appropriate)							
3.	Make decisions on the most appropriate diagnostic test and imaging protocol with due regard for available evidence, cost effectiveness and risk-benefit analysis							
4.	Communicate the benefits and risk to patients so they can be involved in the decision making process (where appropriate)							
5.	Demonstrate technical knowledge of diagnostic equipment, patient positioning and other optimizing parameters to generate a diagnostic image (where appropriate)							
6.	Use (where appropriate) and/or oversee the use of diagnostic equipment and respond to any complications that may arise during the course of an investigation							
7.	Apply knowledge of relevant anatomical detail							
8.	Identify and interpret radiological abnormalities appropriately							
9.	Review and compare with historical images							
10.	Select the most likely single diagnosis							
11.	Formulate and prioritise a differential diagnosis							
12.	Construct a clear and concise report							
13.	Communicate results to the medical team and/or patient in a time appropriate manner especially with regard to critical/urgent results							
14.	Act immediately and seek assistance as appropriate							
15.	Make recommendations for specific further investigations with due regard for available evidence or best practice, cost effectiveness and risk-benefit analysis							
16.	Others to add (MSF)							

Image interpretation and reporting exercise (IIREx)

1 Details

SpR name:		**EPA No.**	1
Year of training:		**Modality**	
Site of training:		**Clinical context**	
Clinician name:			
Clinician's MC no.		**Date**:	

2. Global Assessment

On the basis of the evidence reviewed (or observed) *viz*. referral, the image, the report, this SpR would require the following level of supervision when interpreting and reporting a similar test/investigation.

Proficiency Level/ Level of supervision	**1 Pre-practice**	**2 Directly Supervised Practitioner**	**3 Indirectly Supervised Practitioner**	**4 Independent Practitioner**	**5 Experienced Practitioner**
Tick one:					

3. Feedback from reviewer: (Refer to EPA competencies for specific points)

Aspects of good practice	
Suggested areas for development	

4. Response from SpR

Response to feedback	
Specific learning plan	

Signed

Observer	SpR	Date

EPA 1

No.	EPA Interpretation and reporting of diagnostic tests and investigations	
	Competencies relevant to an IIREx	
1.	Interpret the clinical situation from the referral indication or the referring clinical colleague	
2.	Establish rapport and demonstrate an awareness of the patients' clinical condition (where appropriate) [Ultrasound]	
3.	Make decisions on the most appropriate diagnostic test and imaging protocol with due regard for available evidence, cost effectiveness and risk-benefit analysis	
4.	Communicate the benefits and risk to patients so they can be involved in the decision making process (where appropriate) [Ultrasound]	
5.	Demonstrate technical knowledge of diagnostic equipment, patient positioning and other optimizing parameters to generate a diagnostic image (where appropriate)	
6.	Use (where appropriate) and/or oversee the use of diagnostic equipment and respond to any complications that may arise during the course of an investigation	
7.	Apply knowledge of relevant anatomical detail	
8.	Identify and interpret radiological abnormalities appropriately	
9.	Review and compare with historical images	
10.	Select the most likely single diagnosis	
11.	Formulate and prioritise a differential diagnosis	
12.	Construct a clear and concise report	
13.	Communicate results to the medical team and/or patient in a time appropriate manner especially with regard to critical/urgent results	
14.	Act immediately and seek assistance as appropriate	
15.	Make recommendations for specific further investigations with due regard for available evidence or best practice, cost effectiveness and risk-benefit analysis	
16.	Others to add (MSF)	

	Guide to Proficiency Levels	Milestone
Level 2:	SpR may perform an activity under full, proactive in room supervision	Directly supervised practitioner
Level 3:	SpR may perform an activity under qualified, reactive supervision: the SpR asks for supervision or advice.	Indirectly supervised practitioner
Level 4*:	SpR may perform an activity independently with back stage, mainly informal supervision.	Ready for independent practice
Level 5:	SpRs may provide supervision and instruction to junior learners	Specialist/Experienced practitioner

* Level 4 is the threshold level of competence. Once this level is reached, the activity may be safely entrusted to the SpR. Growth of competency after reaching this threshold is likely as a result of further deliberate practice prior to achievement of Certificate of Completion of Specialist Training.

APPENDIX 3B
QUESTIONS ASKED OF RATERS IN MSF PROCESS

Dimension Name	Origin of Dimension	Dimension Description		Individual Items
Patient Safety and Quality of Care	Medical Council's Domains of Good professional practice	This is about SpRs ensuring that patient safety and quality of care is maintained. It includes SpRs acting in the best interest of patients, being aware of their strengths and limitations, being accountable for their actions and, when appropriate, ensuring there are clear lines of communication and systems of accountability in place for others.	Q1	Acts in a way that ensures patient safety
			Q2	Does what they can to ensure the best quality of care for patients
			Q3	When taking the lead in a clinical situation ensures there are clear lines of communication and systems of accountability in place
			Q4	Takes responsibility for their own clinical actions
			Q5	Justifies their course of action/behaviour when appropriate
			Q6	Understands their own strengths and limitations with regards to clinical practice
			Q7	Acts in the best interests of patients
Relating to Patients	Medical Council's Domains of Good professional practice	This is about SpRs building positive relationships with patients that are based on trust, respect, empathy, honesty, openness and informed choice. It is ultimately about SpRs working in partnership with their patients.	Q1	Works in partnership with patients to achieve the best outcomes for the patients
			Q2	Treats patients with dignity and respect
			Q3	Respects the confidentiality of patients
			Q4	Is honest and open with patients
			Q5	Develops and maintains a sensitive and understanding attitude with patients
			Q6	Presents the treatment options available to patients and provides the information for them to be able to make an informed choice
Communication and Interpersonal Skills	RWGs Engaging leadership model and Medical Council's 'Communication and Interpersonal Skills' dimension	This is about SpRs demonstrating positive communication and interpersonal skills in a way that allows them to effectively engage with colleagues. It involves being approachable, accessible, sensitive, patient and empathetic, open and honest.	Q1	Is welcoming and approachable to colleagues
			Q2	Listens to colleagues patiently and empathetically, without interrupting them
			Q3	Uses face-to-face communication whenever possible
			Q4	Is consistent in their behaviour rather than being moody or unpredictable
			Q5	Is able to control their emotions
			Q6	Is honest and open in the way they behave
			Q7	Is sensitive to the emotions of colleagues and alters their behaviour accordingly
Collaboration and Teamwork	RWGs Engaging leadership model and Medical Council's 'Collaboration and Teamwork' dimension	This is about SpRs working effectively as part of a team to achieve the best outcomes for patients. It includes supporting and praising colleagues, dealing professionally with disagreements and conflict, and having an inclusive approach to problem solving.	Q1	Does what they can to support colleagues to overcome problems and issues
			Q2	Works effectively with colleagues from other disciplines and teams to achieve the best outcome for patients
			Q3	Involves appropriate colleagues when seeking solutions to problems
			Q4	Deals with conflict with colleagues in a professional manner
			Q5	Discusses areas of disagreement with colleagues openly
			Q6	Displays a strong sense of loyalty and commitment to colleagues
			Q7	Gives regular praise for their colleagues' achievements
Scholarship	Medical Council's 'Scholarship' standard	This is about SpRs ensuring that their practice is guided by the best evidence and demonstrating a commitment to improvement and excellence.	Q1	Ensures their practice is guided by the best evidence
			Q2	Is committed to continuous improvement and excellence
			Q3	Welcomes other peoples' suggestions and ideas for improvement
Supporting a Development Culture	RWG	This is about SpRs role modelling best practice and promoting a learning culture in which suggestions for improvement are welcomed and mistakes are learned from, rather than used as a cause for blame.	Q1	Uses mistakes as learning opportunities rather than a cause for blame
			Q2	Encourages colleagues to share mistakes openly
			Q3	Acts as a role model of best clinical practice for others to learn from
			Q4	Is prepared to admit when they are wrong or have made a mistake
Management and Professionalism	Medical Council's Domains of Good professional practice	This is about SpRs appreciating the healthcare context in which they work. It is also them fulfilling their professional responsibilities required by the Medical Council and having the appropriate skills required for the stage in their training.	Q1	Understands and appreciates the healthcare context in which they work
			Q2	Is able to effectively balance finite resources with quality patient care
			Q3	Demonstrates a commitment to fulfilling the professional responsibilities required by the Medical Council (select the 'Don't Know' option if you are unsure)
			Q4	Acts in a professional manner
			Q5	Overall, this person has the appropriate skills (clinical, interpersonal, professional etc.) required for the stage in their training.
Qualitative Questions		Qualitative Questions: Two qualitative questions that allow raters to expand on the SpR's strengths and areas for development.		Please identify three key strengths you feel this SpR possesses
				Please identify three key areas in which you feel this SpR would benefit from developing

Appendix 3B (contd.)

The scale that the Raters used when answering the questions on the MSF was as follows:

1.0 – 1.4	1.5 – 2.4	2.5 – 3.4	3.5 – 4.4	4.5 – 5.4	5.5 – 6.0
Strongly disagree	Disagree	Slightly disagree	Slightly agree	Agree	Strongly agree

APPENDIX 3C
CATEGORIES OF RATERS SELECTED FOR MSF PROCESS

- Self
- 20 from Core Training Hospital
  - Educational Coordinator from Core Training Hospital
  - 5 Radiology Consultants
  - 5 Radiology SpRs (must include senior, junior and peer)
  - 5 Radiology Department staff (spread among Radiographers, Nurses, Clerical Staff, Aides, others)
  - 4 non-Radiology Department staff (1 Clinical Consultant, 2 non-Radiology SpRs in departments with which the SpR interacts, 1 paramedical staff member outside Radiology)

APPENDIX 3D
MSF REPORT FROM REAL WORLD GROUP (ABRIDGED VERSION)

Respondees in the process
A total of 19 SpRs out of a possible 21 completed the process.
Table 1 illustrates their combined reviews.

Reviewer category	Invited	Completed	Response rate	Av. number
Educational Coordinator from Core Training Hospital	22	20	91%	1
Radiology Consultants	92	73	79%	4
Radiology SpRs (must include senior, junior and peer)	99	85	86%	4.5
Radiology Department staff (spread among Radiographers, Nurses, Clerical Staff, Aides, others)	88	79	90%	4
Non-Radiology Department staff (1 Clinical Consultant, 2 non-Radiology SpRs in departments with which the SpR interacts, 1 paramedical staff member outside Radiology)	62	53	85%	3

Table 1: Feedback completion rate

The response rates are high in MSF terms. They are also closely aligned to the requested numbers. This is good news, as it suggests that the feedback provided is from a positively representative group of reviewers.

Overall Feedback
Table 2 demonstrates the overall ratings that were given to the SpRs by their various rater groups.

In understanding ratings, it is important to bear in mind that the rating scale is from 1 to 6, and should be interpreted as follows:

1.0 – 1.4	1.5 – 2.4	2.5 – 3.4	3.5 – 4.4	4.5 – 5.4	5.5 – 6.0
Strongly disagree	Disagree	Slightly disagree	Slightly agree	Agree	Strongly agree

Scale	Self (n=19)	Educational Coordinator (n=21)	Radiology Consultants (n=74)	Radiology SpRs (n=89)	Radiology Department staff (n=79)	Non-Radiology Department staff (n=54)
Patient Safety and Quality of Care	**4.80**	**6.00**	5.22	5.58	5.58	5.64
Relating to Patients	**4.80**	**6.00**	5.28	**5.70**	**5.76**	5.58
Communication and Interpersonal Skills	4.26	**6.00**	5.34	5.58	5.64	5.58
Collaboration and Teamwork	4.50	**6.00**	5.28	5.46	5.50	5.46
Scholarship	**4.80**	**6.00**	5.28	5.58	5.34	5.50
Supporting a Development Culture	4.20	**6.00**	5.22	5.28	5.46	5.46
Management and Professionalism	4.62	**6.00**	**5.46**	5.64	5.58	**5.70**

Table 2: Feedback ratings for the group overall

The colour coding in Table 3 should be interpreted as follows:

Key	
5.00	Most positive score for this row
5.00	Least positive score for this row
5.00	Most positive score for this column
5.00	Least positive score for this column

Looking at the data, it can be seen that:

- The most positive raters overall is the Educational Coordinator
- The least positive raters overall are the SpRs themselves, followed by the Radiology Consultants
- There is a pattern suggesting that Relating to Patients is the greatest strength of the SpRs, according to 4 of 6 rater groups, with Management and Professionalism being the greatest strength according to the other 2 rater groups
- There is a pattern suggesting that Supporting a Developmental Culture is the relative least strength of the SpRs overall.

Interesting aspects to notice about the feedback for the SpRs is that:

- Ratings overall are rather positive, with the vast majority being comfortably in the “Agree” or “Strongly agree” category
- Relative to other reviewers, the SpRs rate themselves lower as a group. However, their lowest average ratings (for Communication & Interpersonal Skills and Supporting a Developmental Culture) are “Slightly agree”.

  This relative lack of confidence may be a function of being in training, rather than the confidence that typically comes from being in post. It may not be a bad thing, suggesting that they are open to learning. However, it could be of concern if the item potentially relates to ability to provide quality care (e.g. “Overall, I have the appropriate skills (clinical, interpersonal, professional, etc.) required for the stage in my training”).

In some cases it may also be more accurate than the ways in which they are viewed by others, particularly when it relates to aspects of behaviour that the SpRs themselves may know best, such as items relating to things others may not truly know (e.g. “I encourage colleagues to share mistakes openly”)

- The Educational Coordinators are markedly the most positive reviewer group overall. This is worth exploring in more detail, and may not be a positive finding, if it either relates to a lack of awareness of the SpRs strengths and development needs, or a lack of confidence in giving candid ratings that are less that 100% positive. If this is a pattern that follows in real life scenarios, it might not be accurately presenting the situation regarding SpR competence as leaders.
- Radiology Consultants are (apart from the SpRs themselves), the least positive raters (relatively speaking). This may be worth exploring, particularly in terms of the patterns in may present in looking at specific items
- The lowest ratings provided by Non-Radiology Department staff are for Collaboration & Teamwork and Supporting a Developmental Culture. These may be important to note since they relate closely to how SpRs relate to other departmental staff for patient care, and a culture of collectively learning from mistakes being supported.

Feedback for specific items

It is important to look closely at the item level throughout the report, as well as patterns in the dimensions overall. This is because the dimensions take an average and therefore hide meaningful differences between items.

Therefore, looking at individual items can reveal some interesting findings, particularly in relation to:

- Specific areas where rater groups are more or less positive
- Items where more than one rater group is markedly more or less positive.

In looking at specific items for the SpR group report, it can be noted that, for example:

SpR (self ratings)

These are in the “Slightly disagree” category for the following items:

- When taking the lead in a clinical situation, I ensure there are clear lines of communication and systems of accountability in place
- I give regular praise for my colleagues’ achievements
- I encourage colleagues to share mistakes openly
- I act as a role model of best clinical practice for others to learn from
- Overall, I have the appropriate skills (clinical, interpersonal, professional, etc.) required for the stage in my training.

In other items too, there is also a marked difference between SpR self-ratings and others’ ratings of their leadership behaviour.

What is appearing here are likely to be useful to explore in more detail – to ascertain whether there is particular support that SpRs might need to be able to carry out their roles most effectively.

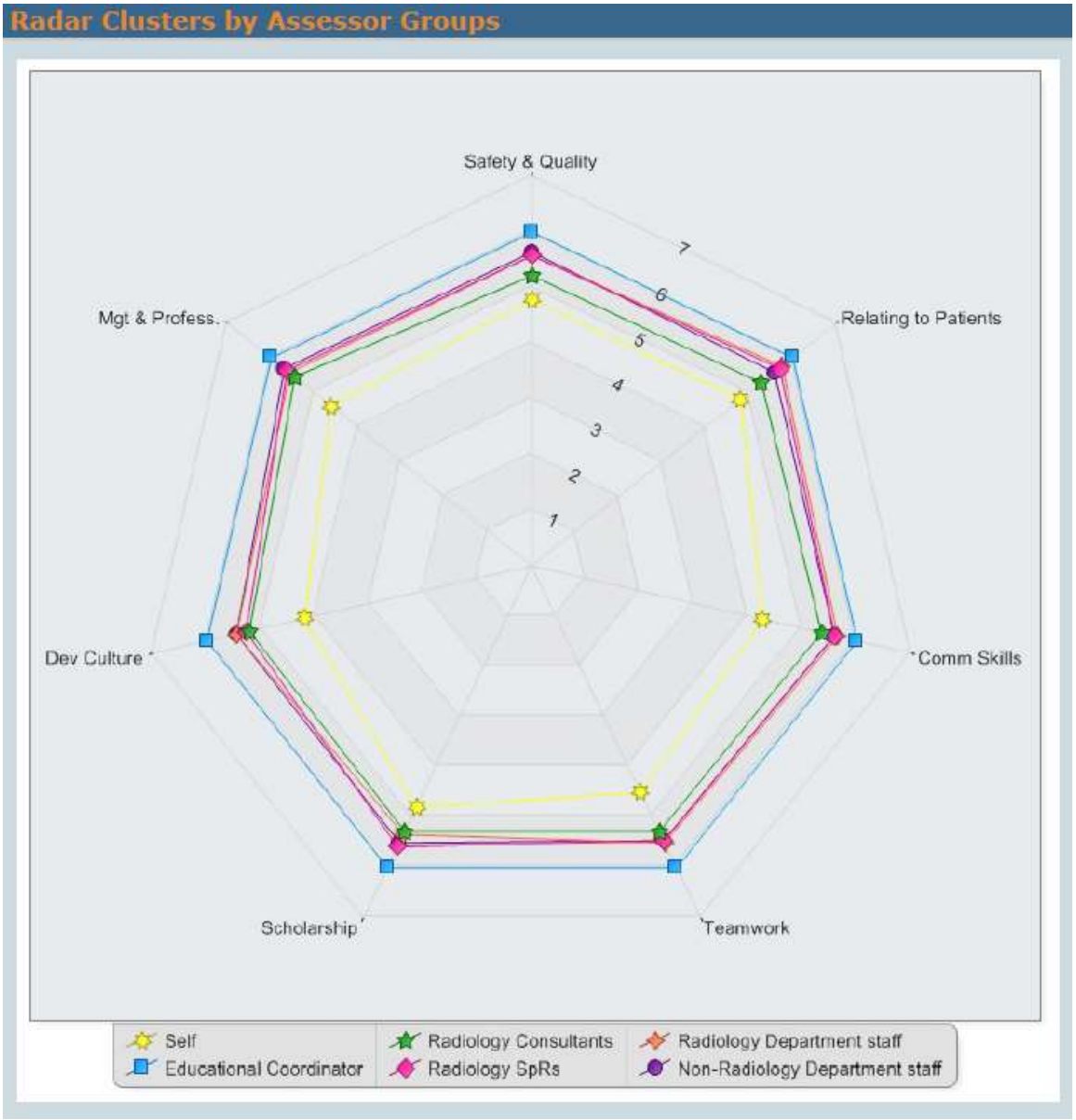
Overall, other reviewers tend to rate the SpRs similarly, with the noticeable exception of Radiology Consultants who tend to be slightly different (lower) than the others in how the rate the SpRs. However, they are also a positive rater group and the differences are only noticeable in relative terms. Therefore, this may or may not be another area that warrants further examination at an item-by-item level.

APPENDIX 3E
REAL WORLD GROUP GLOBAL RESULTS

Assessors Breakdown Information

Total Assessments:	**21**
Total Reviewers:	**396**
Total Reviewers Completed:	**336**
Reviewers Breakdown:	**Self: 19 completed of 21 invited** **Educational Coordinator: 20 completed of 22 invited** **Radiology Consultants: 73 completed of 92 invited** **Radiology SpRs: 85 completed of 99 invited** **Radiology Department staff: 79 completed of 88 invited** **Non-Radiology Department staff: 53 completed of 62 invited**
Questionnaire:	**RCSI Faculty of Radiologists SpR360**
Questionnaire Desc:	**Faculty of Radiologists SpR360**

Radar Clusters by Assessor Groups

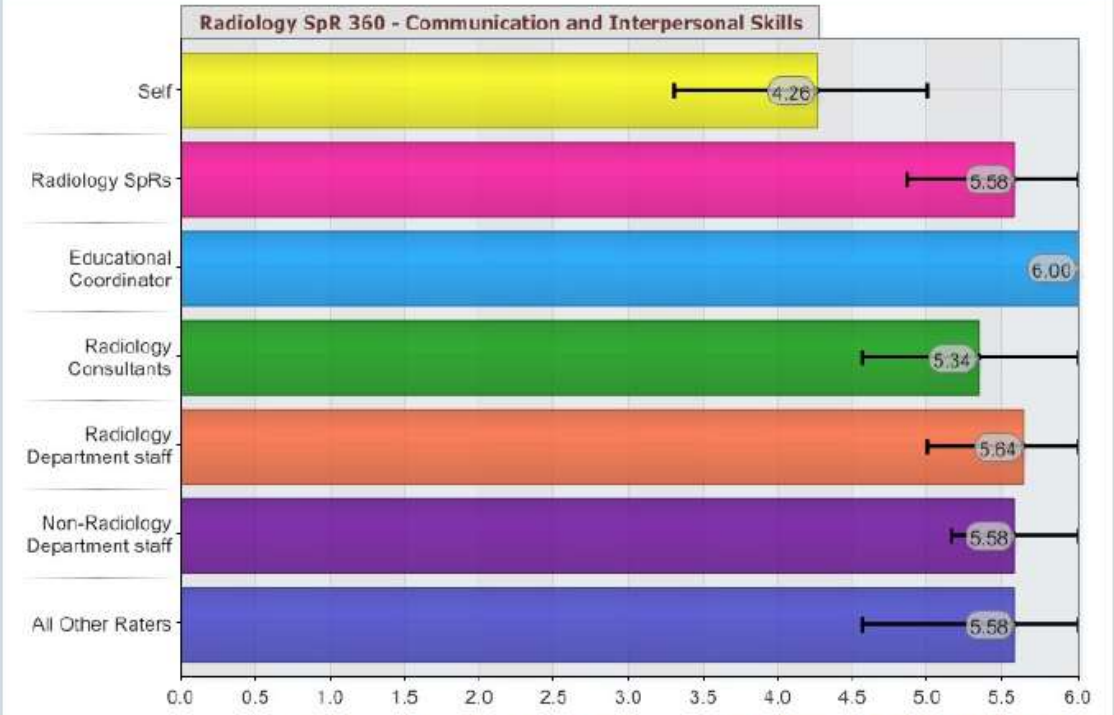


Clusters by Assessor Groups Table

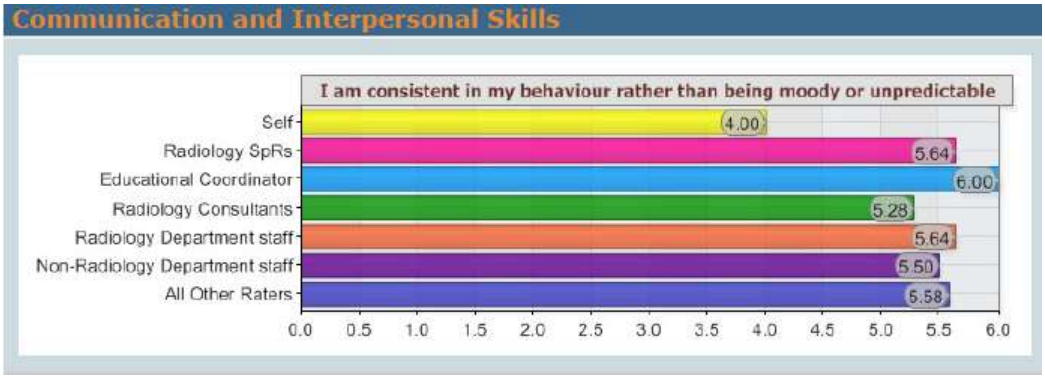
Code	Self	Educational Coordinator	Radiology Consultants	Radiology SpRs	Radiology Department staff	Non-Radiology Department staff
Safety & Quality	4.80	6.00	5.22	5.58	5.58	5.64
Relating to Patients	4.80	6.00	5.28	5.70	5.76	5.58
Comm Skills	4.26	6.00	5.34	5.58	5.64	5.58
Teamwork	4.50	6.00	5.28	5.46	5.50	5.46
Scholarship	4.80	6.00	5.28	5.58	5.34	5.50
Dev Culture	4.20	6.00	5.22	5.28	5.46	5.46
Mgt & Profess.	4.62	6.00	5.46	5.64	5.58	5.70

Example of results from the Communication and Interpersonal Skills section. This is about SpRs demonstrating positive communication and interpersonal skills in a way that allows them to effectively engage with colleagues. It involves being approachable, accessible, sensitive, patient and empathetic, open and honest.

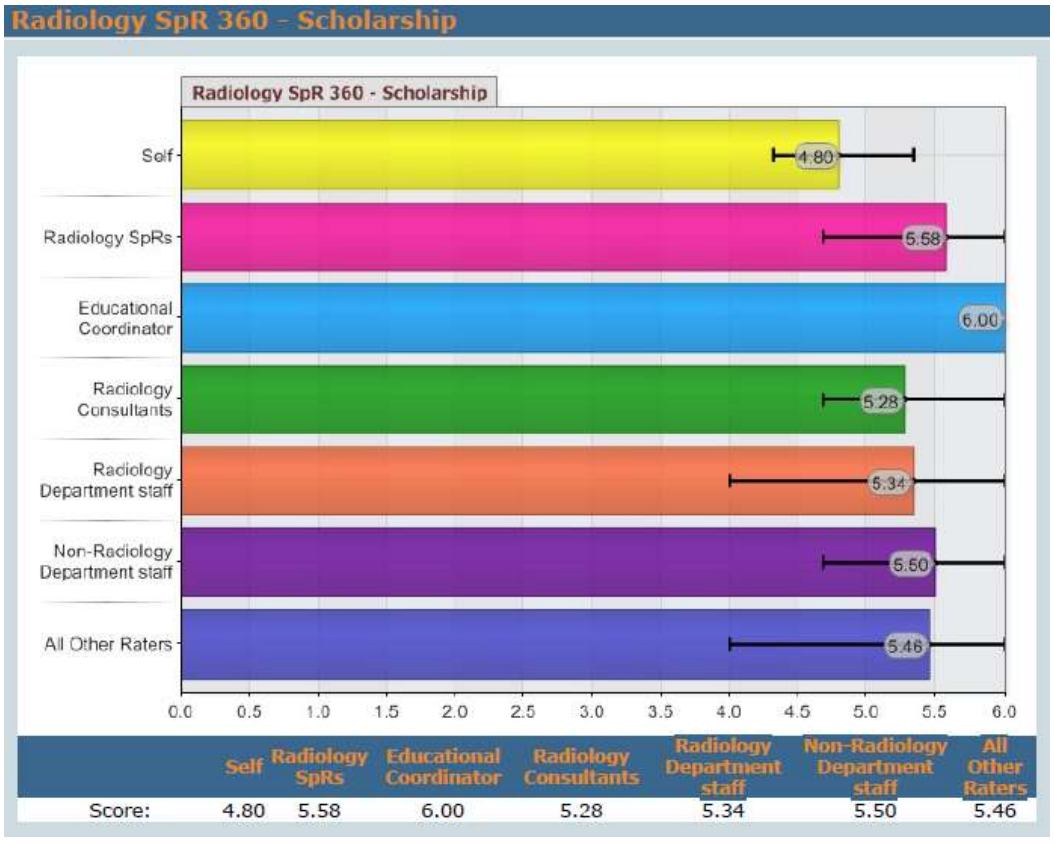
Radiology SpR 360 - Communication and Interpersonal Skills



	Self	Radiology SpRs	Educational Coordinator	Radiology Consultants	Radiology Department staff	Non-Radiology Department staff	All Other Raters
Score:	4.26	5.58	6.00	5.34	5.64	5.58	5.58



Example of results from the Scholarship section. This is about SpRs demonstrating a commitment to improvement and excellence and ensuring that their practice is guided by the best evidence.



APPENDIX 3F
PHYSICS - POTENTIAL ASSIGNMENT TOPICS

YEAR 1

Dosimetry:

- Radiation dose tracking; Key challenges to yield meaningful evaluation & optimization of CT patient dose
- Survey of knowledge of radiation doses among referring physicians

Diagnostic

- Use of X-ray CT for acute head injury (what indications? Are people scanned ASAP or within 2-8 hours of injury, etc.)
- Lung cancer – improvement in detection rates with digital imaging systems coupled with image processing
- Cancer staging – CT versus MRI versus US for common cancers
- Proper placement of focal zones for breast US imaging

Interventional

- Radiation doses e.g. to the eye for interventional procedures, or finger doses, availability or use of lead protective devices, etc. look at % staff wearing personal dosimeters
- CT/US guided biopsies – success rates, compared with histology

YEARS 2 & 3

Potential Advanced applied-Physics topics

- Topics could be covered via a paper-based project
- No examination
- Competence Based Training
- Ask newer Radiologists
    - What's new?
    - What's needed?

ADVANCED APPLIED-PHYSICS SUGGESTIONS FOR YEARS 2 & 3

- PACS reconstructions, volume rendering etc.
- Multiparametric MR for prostate/Neuro/breast (Anatomical, DWI, PWI, MRSI, etc.) – current knowledge, clinical indications, adherence to guidelines in different centres, etc.
- Use of micro bubble contrast agents in, say, liver ultrasound for DCE-US
- Ultrasound elastography – clinical applications in liver, breast, etc.
- Advanced dose reduction techniques; iterative reconstruction
- Clinical indications for PET/MRI
- MRI/HIFU (high intensity focused ultrasound) for ablation of fibroids, tumours etc.
- Diffusion imaging
- Molecular Breast Imaging using novel gamma ray detector systems (either breast-specific gamma imaging or positron emission systems)
- Increased sensitivity and specificity for breast cancer diagnosis: X-ray
- Mammography Vs. 3D Tomosynthesis Vs. MBI
- Dual energy X-ray systems – how they might impact clinically

APPENDIX 3G

REGULATIONS RELATING TO THE TRAINING, EDUCATION AND EXAMINATION OF CANDIDATES FOR DIPLOMA OF FELLOW IN THE FACULTY OF RADIOLOGISTS - RADIODIAGNOSIS F.F.R.R.C.S. (IRELAND) REVISED MARCH 2016

1. The Fellowship of the Faculty of Radiologists may be granted to those who possess a qualification registrable in the Irish or British Medical Registers and to graduates of Universities and Medical Colleges overseas whose degrees are not registrable in the Irish or British Registers, under such conditions as may be determined by the Council of the College, on the advice of the Faculty, in each individual case.

   Applications in such special cases must be addressed to the Registrar of the College (see Para. 2) and must be accompanied by certificates showing the date of qualification and particulars of relevant postgraduate experience.

2. Candidates for the Fellowship are required to pass two examinations, namely the Primary Examination and the Final Examination unless an enabling certificate accompanies their application from the Fellowship Advisory Committee of the Faculty. This certificate will be accepted in lieu of the Primary Examination and those candidates may proceed to the Final Examination.

3. All enquiries and communications with reference to the examination for the Fellowship must be addressed to the Academic Operations Manager, RCSI, Student Academic & Regulatory Affairs, 123St. Stephen's Green, Dublin 2.

4. Applications should be completed on line
   https://postgradexams.rcsi.ie/public/openexams
   by the closing date. Fees may be paid online by credit card.

5. Application for admission to the examination must be accompanied by the required certificates and the full amount of the fee payable for the examination.

6. The dates of the examination are published online at
   https://www.rcsi.ie/professional_exams If insufficient candidates present for an examination the Faculty reserves the right to cancel the examination with due notice. If more candidates present for an examination than can be accommodated, first preference will be given to those in the training programme of the Faculty of Radiologists. Others will be added in sequence, arranged in order by the date of receipt of their fully completed application, required certificates and the full amount of the fee payable in the Faculty Offices.

   Details of the examinations are to be made available on the RCSI website, https://postgradexams.rcsi.ie/public/openexams

7. A candidate who wishes to withdraw from the examination should refer to the policy available at http://www.rcsi.ie/postgraduate_exams_policies

8. A candidate who desires to make representations with regard to the conduct of his or her examination shall address them via the appeals process of the policy available at http://www.rcsi.ie/postgraduate_exams_policies

9. The Faculty may refuse to admit to an examination or to proceed with the examination of candidates who infringe any of the regulations or who are considered by the examiners to be guilty of behavior prejudicial to the proper management and conduct of the examination.

10. The Fellowship Advisory Committee of the Faculty shall be empowered to require evidence of satisfactory training i.e. attendance at lectures and evidence of practical experience e.g. Log books, certification of head of department etc. before acceptance for admission to the examination.

11. Candidates on the Irish Training Programme are expected to sit the Faculty Examinations.

(Items 12-15 relate to the Primary FFR)

Final Examination of Radiology

16. Candidates must have experience of all modern imaging techniques.

17. The examination shall consist of two parts. Part 2a and Part 2b. Part 2a is an MCQ examination. Part 2b will consist of Clinical Radiology components (see below).

    The examination is held in the months of April and November unless otherwise ordered.

18. From April 2018, candidates who have passed the Primary Examination in or after May 2016 (or who have been exempted) will be permitted to sit Part 2a of the Final Examination after not less than two (2.0) years accredited and certified training in a radiological post accredited by the Faculty for this purpose or on presentation of a valid enabling certificate issued by the Fellowship Advisory Committee of the Faculty of Radiologists. Candidates should have achieved satisfactory trainee assessments for at least 2 completed years of training.

    The part 2a MCQ examination may be attempted no sooner than April of the 3rd year of accredited training.

    The Part 2b clinical examination may be attempted no sooner than November of the 4th year of accredited training.

    Parts 2a and 2b of the Final Fellowship examination may not be taken at the same sitting of the examination.

19. The Part 2 examination will be in Clinical Radiology. It will consist of some or all of the following:

    (a) MCQ in Clinical Radiology (300 items – 60 stems)
    (b) Viva Voce in Clinical Radiology.
    (c) Digital image reporting session.
    (d) Rapid reporting session.

    A pass in the part 2a MCQ examination confers eligibility to attempt the next 4 consecutive sittings of the Part 2b examination. Failure to pass Part 2b within this timeframe means the candidate must repeat Part 2a. A maximum of 2 extra

attempts at Part 2a will be allowed in these circumstances, regardless of the number of attempts the candidate made before first obtaining a pass in part 2a.

Candidates presenting for the Part 2a or Part 2b Final Examination will be allowed only six attempts at each examination, subject to the following conditions:

1. All attempts at the Final Fellowship examination must be made within nine years of the date of commencing training in Radiology in an approved training scheme; any extension beyond nine years would only be considered in exceptional circumstances where ill-health has forced the candidate to interrupt their training for a considerable period of time

2. After a candidate has failed either the Part 2a or 2b examination three times, approval to make a 4th attempt at the examination will depend on review of their training performance and previous examination performances by the National Training Coordinator and the Fellowship Advisory Committee (FAC); a satisfactory review will be required before such an application will be accepted. This process shall also apply when a candidate has been made eligible to sit the examination because the FAC issued an enabling certificate.

3. A candidate wishing to make any attempts at the Part 2a or 2b examination beyond four must apply in writing to the Education Committee of the Faculty for permission to do so.

4. This application must be supported by a letter from the head of the department in which the candidate is working at the time of the application confirming the candidate's suitability for a further attempt at the exam

5. The Education Committee will then seek a recommendation from the Part 2 examiners regarding the candidate's suitability for a further attempt; this recommendation will be based on the performances by the candidate in previous attempts, and may include appropriate comments arising from these previous attempts.

6. The Education Committee will then make a recommendation, to be ratified by the Board of the Faculty, as to whether the candidate should be allowed attempt the exam at the sitting applied for. The candidate can only apply to the examinations office to sit the exam after receiving written permission to do so from the Faculty Board.

7. In exceptional circumstances, a recommendation may be made in writing by the Chief Final Examiner to the Faculty Board that a candidate should be permitted a 7th and final attempt at either Part 2a or Part 2b of the Final Examination. In the case of Part 2b, such a recommendation may only be made arising from a direct request by the external examiners to the Chief Examiner, made during the final Examiners' meeting on the day of completion of the candidate's unsuccessful 6th attempt, based upon their assessment that the candidate was extremely close to a passing mark on the 6th attempt. The Board of the Faculty may ask the advice of the relevant National training authority before making a decision on such a recommendation. Any such 7th attempt approved by the Board must be made within the next 2 sittings of the examination following the candidate's unsuccessful 6th attempt.

Any candidate seeking to bypass this mechanism or to solicit such a recommendation for a 7th attempt after the completion of the Examiners' meeting, will be automatically disqualified from any further attempts at the examination.

8. The Board of the Faculty reserves the right to alter or remove the provision in paragraph 7 above, and other provisions in these regulations, should it be requested to do so by the relevant Accrediting authority (currently The Medical Council).

GUIDANCE NOTES FOR THE FINAL FELLOWSHIP EXAMINATION (RADIOLOGY):

Ultrasound, Computed Tomography, Radionuclide Imaging, Magnetic Resonance Imaging, Fluoroscopy and Interventional Radiology:

Candidates will be expected to demonstrate that they have gained practical experience in basic imaging and interventional techniques including the value and limitations of imaging modalities in addressing various clinical problems.

They are expected to be familiar with current radiological practice in the use of Ultrasound, CT, Radionuclide Imaging, Magnetic Imaging, Fluoroscopy and Interventional Radiology, together with General Radiology.

APPENDIX 3H
FACULTY OF RADIOLOGISTS, RCSI: SUMMATIVE ASSESSMENTS AND PROGRESSION CRITERIA

These apply to SpRs who passed the Primary Examination in or after May 2016.

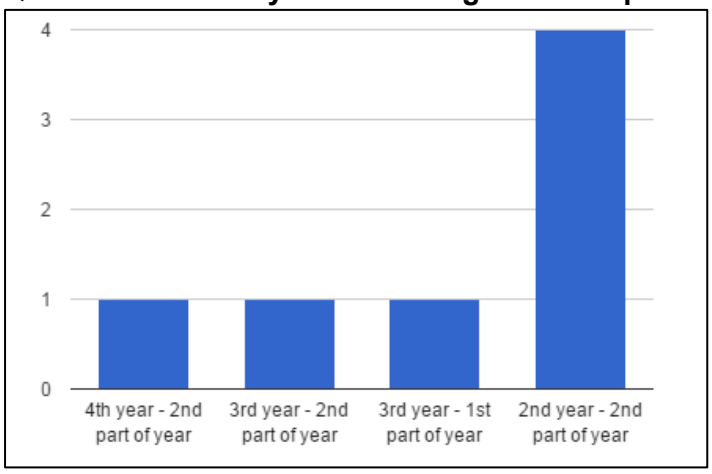
Radiology:

1. A candidate in the training programme of the Faculty of Radiologists cannot be fully accredited for the 1st year of training until they have passed Part 1. If they pass their 2nd attempt at the examination in September (Q1) of chronological year 2 of training, they may proceed in 2nd year with their starting cohort. If not, they must repeat 1st year with the new cohort of 1st year SpRs.
2. A candidate in the training programme of the Faculty of Radiologists cannot be fully accredited for the 3rd year of training until they have passed the MCQ examination (Part 2a). If they pass their 2nd attempt at the examination in September (Q1) of chronological year 4 of training, they may proceed in 4th year with their starting cohort. If not, they must repeat 3rd year with the new cohort of 3rd year SpRs.
3. At the discretion of the Fellowship Advisory Committee (FAC) and Board, a candidate who has not passed Part 2b by the time of the Higher Training Programme interviews may not be allowed to apply for the Higher Training Programme. On the advice of the Educational Coordinator, Consultants in the Training Hospitals and Examiners, and taking into account all available Formative and Summative data and the SpRs history in the programme to that point, the FAC may direct that it is in the best interests of a 4th year SpR, considering patient safety, to repeat 4th year with the new cohort of 4th year SpRs rather than proceed into the Higher Training Programme. In other cases, where failure has been marginal or associated with external factors, the FAC may direct that repeating 4th year is not required.
4. In the circumstances described in point 3 above where repeating the 4th year is not required, all standing members of the FAC who are Consultant Radiologists (Chair, Vice-Chair, Dean, Hon Sec, Hon Treasurer, Vice-Dean, National Educational Coordinator) must unanimously support the chosen course of action. In the absence of a unanimous vote the SpR should, in the interests of eventual patient safety, repeat 4th year.
5. SpRs not accredited for a year of training because of examination failure and repeating the training year do not need to repeat rotations/modules for which they have obtained credit.
6. In the Irish Radiology Training Programme, the CSCST date of SpRs not accredited for a year of training because of examination failure will advance by 12 months.
7. In the Kuwait Training Programme, the Faculty of Radiologists recommends that automatic, time-based promotion of trainees not accredited by reason of examination failure should not occur within the seniority grades of the Ministry of Health (MOH) Kuwait. This applies as follows:
    a. When a candidate is not accredited for Year R2 of Radiology training because of Part I examination failure, promotion should not occur from the Kuwait MOH grade of Assistant Registrar to Registrar.
    b. When a candidate is not accredited for Year R5 of Radiology training because of failure to pass the Final Fellowship Examination, promotion should not occur from the Kuwait MOH grade of Registrar to Senior Registrar.

APPENDIX 3I – HOSPITAL GROUP SURVEY

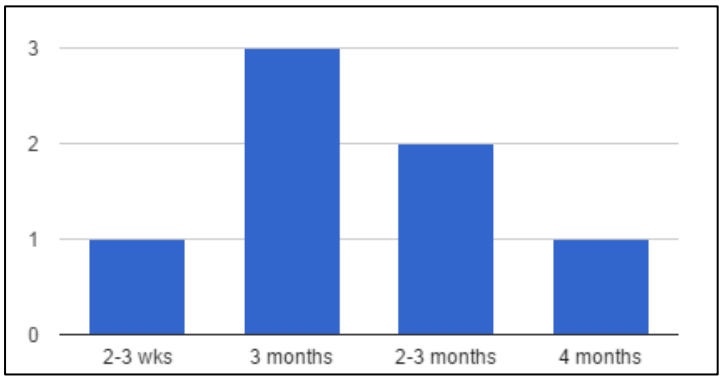
Section A: General Radiology Training

Question 1: Which year of training would be preferable for rotating:



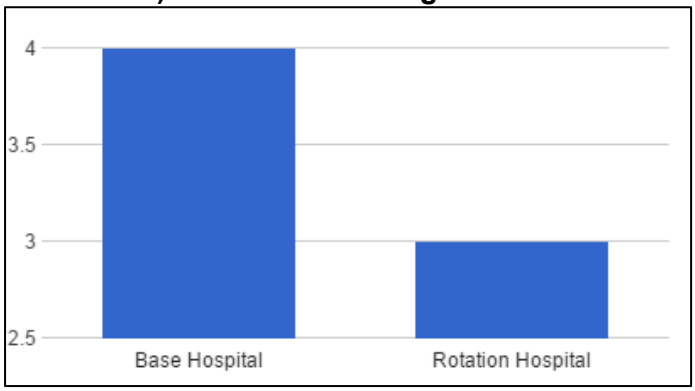
Options not selected by any respondents were: 1st year, 1st part of 2nd year and 1st part of 4th year

Question 2: Duration of Rotations

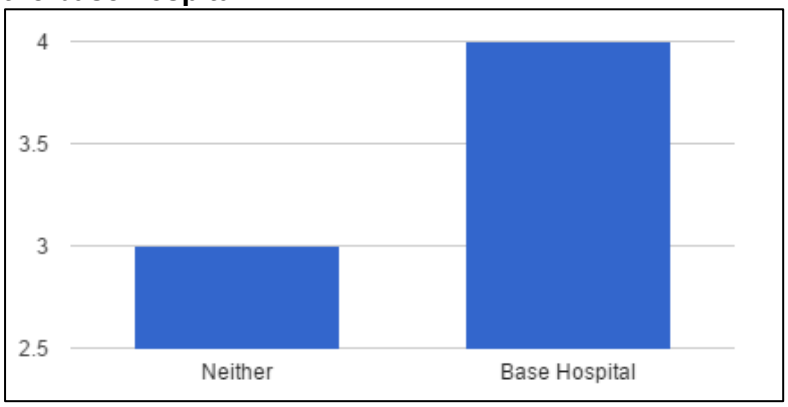


Option not selected by any respondents: 6 month rotation

Question 3: With the exception of centrally-provided and mandatory Faculty modules, do you think the rotating SpR should attend lectures in base hospital (if possible due to distance) or should teaching be carried out in rotation hospital?

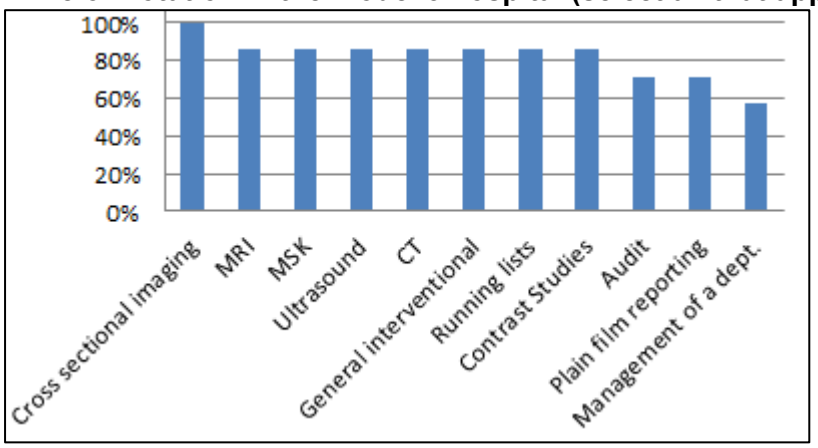


Question 4: Would you recommend that the SpR be on call in the rotation hospital or the base hospital

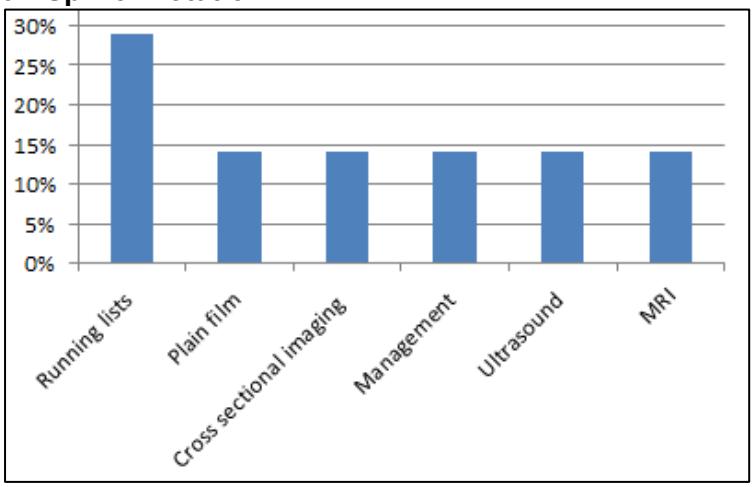


Options not selected by any respondents: Rotation hospital and both hospitals

Question 5 (a): Please indicate what areas you believe the SpRs should be involved in while on rotation in the model 3 hospital (select all that apply)

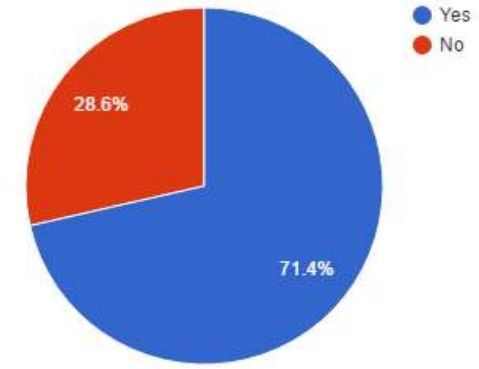


Question 5 (b): From the list above, which do you think would be most beneficial for an SpR on rotation?

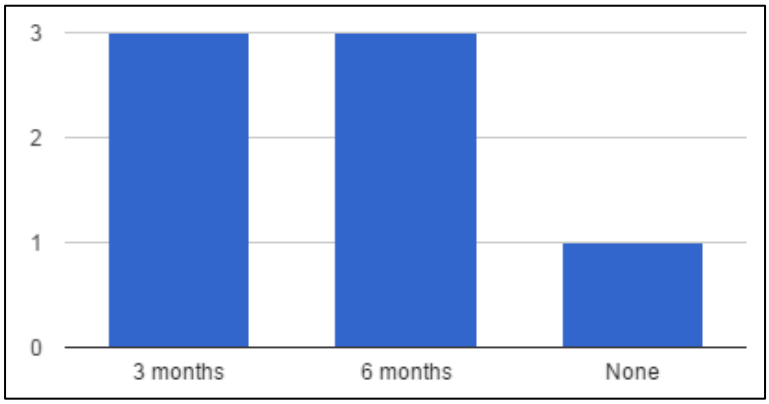


Section B: Higher Training

Question 1: Do you think that a 5th year Higher training post in a Model 3 hospital would be beneficial to an SpR?

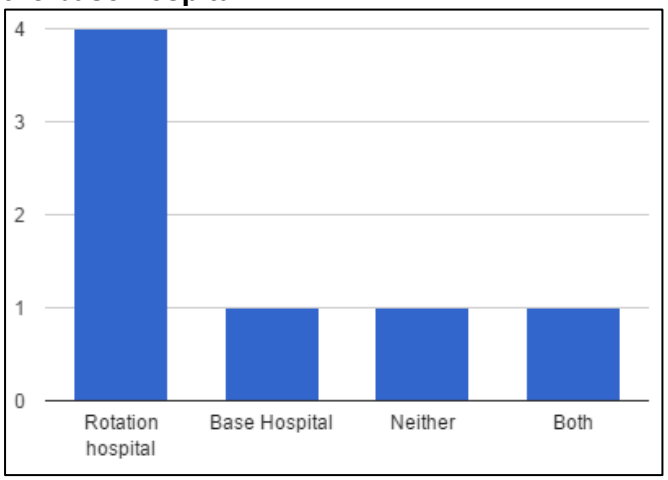


Question 2: Duration of Rotations

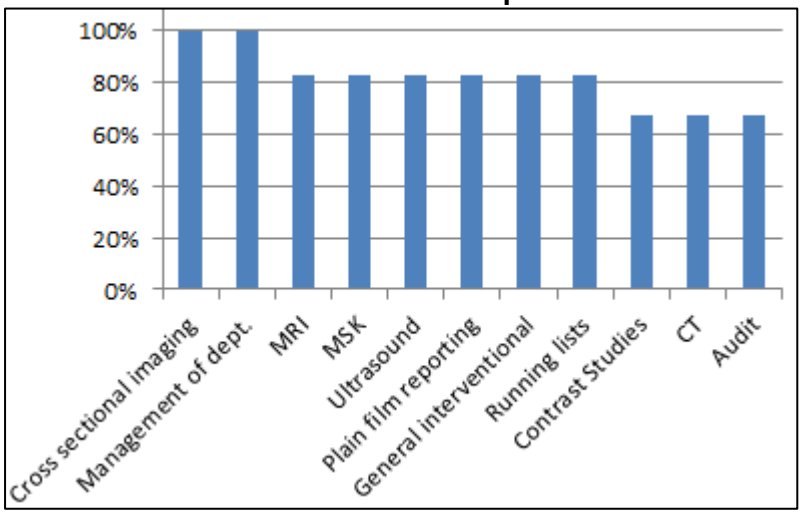


Option not selected by any respondents: 4 months

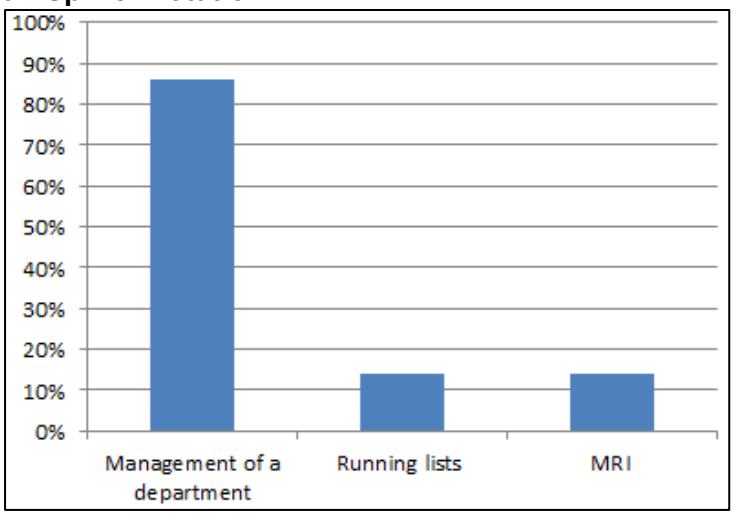
Question 3: Would you recommend that the SpR be on call in the rotation hospital or the base hospital



Question 4 (a): Please indicate what areas you believe the SpRs should be involved in while on rotation in the model 3 hospital



Question 4 (b): From the list above, which do you think would be most beneficial for an SpR on rotation?



Question 5: Would it be acceptable to release the SpR from the Model 3 hospital for academic day release for activities such as RCSI leadership or other postgraduate training courses?

yes 100%

Section C

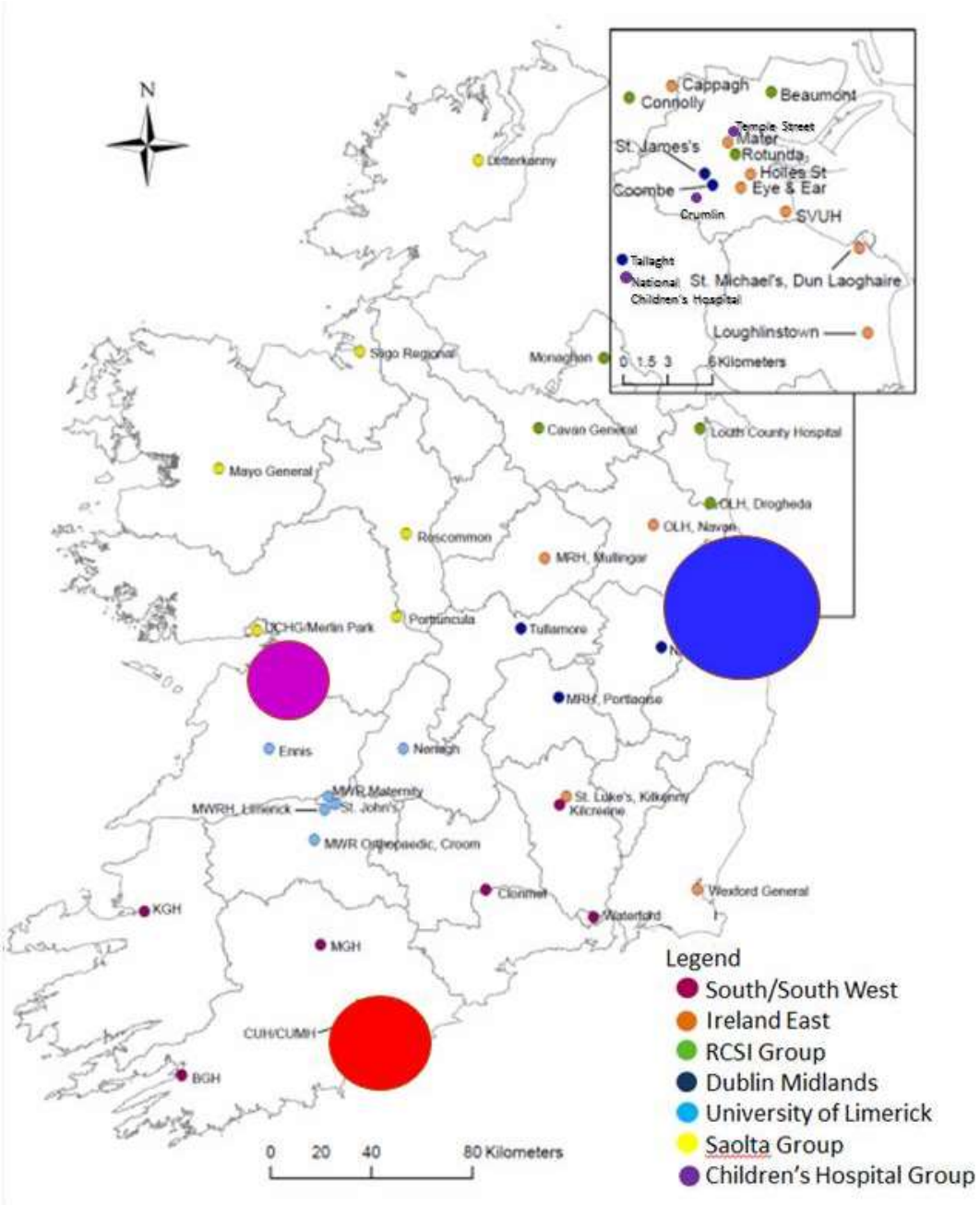
I understand that the Model 3 Hospital Subgroup is Advisory to the Strategic Review Group, Education Committee and Board, and that the approval of a final proposal by these bodies and additional programme funding from HSE to Model 3 and Model 4 hospitals/hospital groups would be needed before a hospital selection process could begin with a view to commencing rotations

yes 86%
no 14%

APPENDIX 3J.I

RADIOLOGY TRAINING PROGRAMME 2014

Insert shows Dublin Hospitals

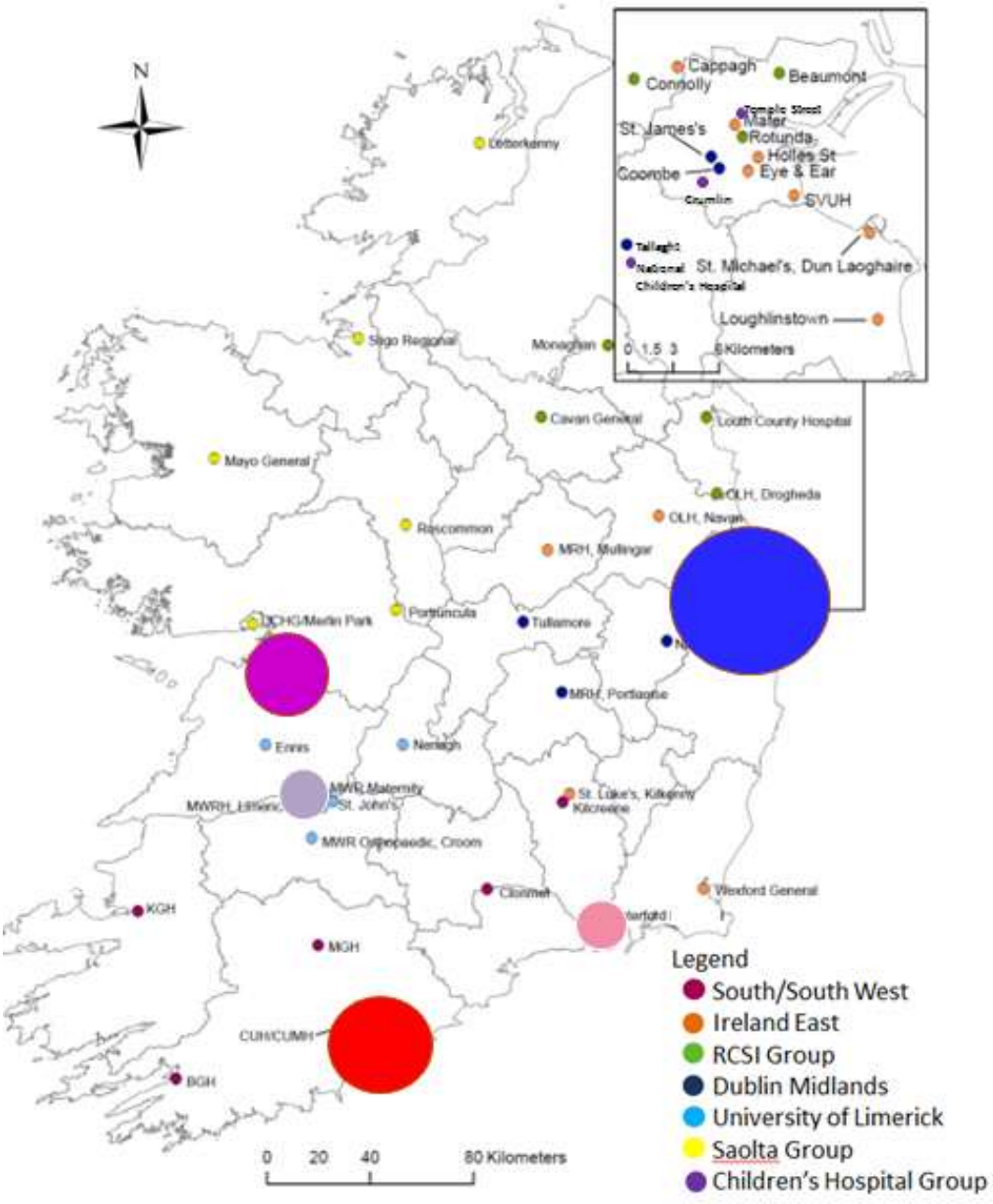


7 PROGRAMMES CENTRED IN MODEL 4 MAJOR URBAN HOSPITALS

APPENDIX 3J.II

RADIOLOGY TRAINING PROGRAMME 2016

Insert shows Dublin Hospitals

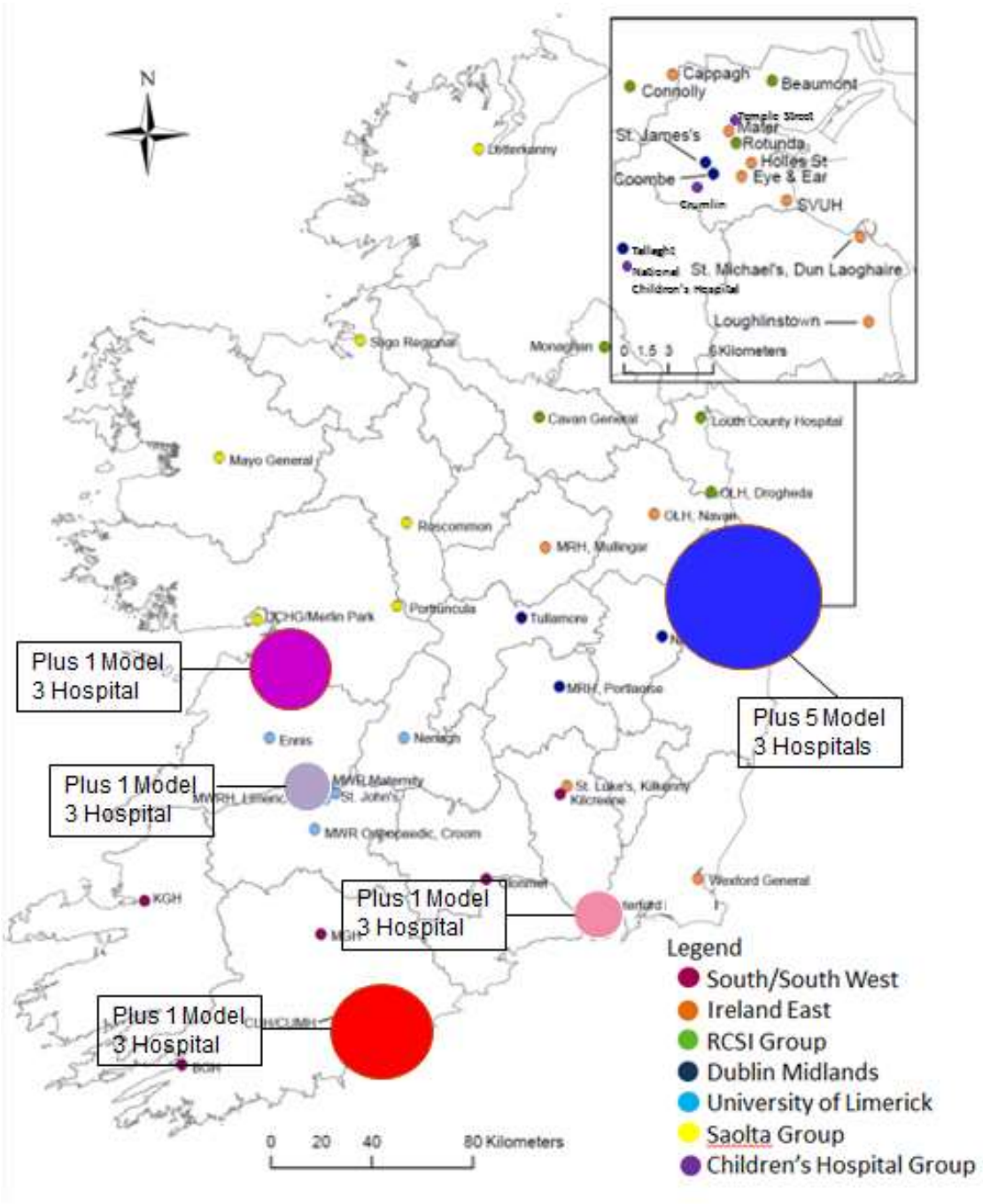


9 PROGRAMMES CENTRED IN MODEL 4 MAJOR URBAN HOSPITALS

APPENDIX 3J.III

PROPOSED RADIOLOGY TRAINING PROGRAMME 2021

Insert shows Dublin Hospitals



9 PROGRAMMES CENTRED IN MODEL 4 MAJOR URBAN HOSPITALS WITH SPRS UNDERTAKING MODEL 3 HOSPITAL ROTATIONS IN 9 HOSPITALS LOCATED OUTSIDE MAJOR URBAN SETTINGS

APPENDIX 3K
QUALIFICATIONS SPECIFIED BY THE HEALTH SERVICE EXECUTIVE
UPDATED 21ST JULY 2015

7.1 Consultant Radiologist

Registration as a specialist in the Specialist Division of the Register of Medical Practitioners maintained by the Medical Council in Ireland in the specialty of radiology.

7.2 Consultant Neuro-Radiologist

(a) Registration as a specialist in the Specialist Division of the Register of Medical Practitioners maintained by the Medical Council in Ireland in the specialty of radiology and

(b) Two years certified postgraduate training in neuro-radiology.

7.3 Consultant Paediatric Radiologist

(a) Registration as a specialist in the Specialist Division of the Register of Medical Practitioners maintained by the Medical Council in Ireland in the specialty of radiology and

(b) Two years certified postgraduate training in paediatric radiology.

7.4 Consultant Radiologist with a special interest in paediatric radiology

(a) Registration as a specialist in the Specialist Division of the Register of Medical Practitioners maintained by the Medical Council in Ireland in the specialty of radiology and

(b) One year certified postgraduate training in paediatric radiology.

7.5 Consultant Radiologist with a special interest in vascular radiology

(a) Registration as a specialist in the Specialist Division of the Register of Medical Practitioners maintained by the Medical Council in Ireland in the specialty of radiology and

(b) One year certified postgraduate training in vascular radiology.

7.6 Consultant Radiologist with a special interest in nuclear medicine

(a) Registration as a specialist in the Specialist Division of the Register of Medical Practitioners maintained by the Medical Council in Ireland in the specialty of radiology and

(b) One year certified postgraduate training in nuclear medicine.

7.7 Consultant Radiologist with a special interest in interventional radiology

(a) Registration as a specialist in the Specialist Division of the Register of Medical Practitioners maintained by the Medical Council in Ireland in the specialty of radiology and

(b) One year certified postgraduate training in interventional radiology.

7.8 Consultant Radiologist with a special interest in breast radiology

(a) Registration as a specialist in the Specialist Division of the Register of Medical Practitioners maintained by the Medical Council in Ireland in the specialty of radiology and

(b) One year certified postgraduate training in breast radiology.

7.9 Consultant Radiologist with a special interest in musculo-skeletal radiology

(a) Registration as a specialist in the Specialist Division of the Register of Medical Practitioners maintained by the Medical Council in Ireland in the specialty of radiology
and
(b) One year certified postgraduate training in musculo-skeletal radiology.

7.10 Consultant Radiation Oncologist

Registration as a specialist in the Specialist Division of the Register of Medical Practitioners maintained by the Medical Council in Ireland in the specialty of radiation oncology.

7.11 Consultant Radiation Oncologist with a special interest in paediatric radiation oncology

(a) Registration as a specialist in the Specialist Division of the Register of Medical Practitioners maintained by the Medical Council in Ireland in the specialty of radiation oncology
and
(b) One year certified postgraduate training in paediatric radiation oncology.

APPENDIX 3L
INTERVENTIONAL RADIOLOGY TREATMENTS SHORT LIST

Elective	Elective or Emergency	Emergency
Biliary stent or drainage for benign or malignant jaundice	Drainage procedures including Nephrostomy	Embolisation for traumatic haemorrhage
Oesophageal/Gastric/Duodenal stents for malignancies	IVC filtration	Embolisation for iatrogenic haemorrhage
Venous interventions for IVC obstruction, ovarian or testicular venous engorgement, Budd Chiari Syndrome	Superior Vena Cava Stent for acute obstruction	Embolisation for post partum haemorrhage
Radiofrequency Ablation for cancers of Lung, Liver, Kidney or Bone	Arterial angioplasty and stent Including thrombolysis	Embolisation for upper gastrointestinal haemorrhage
Chemoembolization for hepatocellular cancer and neuroendocrine tumours	Visceral artery aneurysm coiling	Embolisation for lower gastrointestinal haemorrhage
Uterine Artery embolization for symptomatic fibroids to avoid hysterectomy	Embolization for AV malformations	Stent Grafting of traumatic partial thickness tears of the aorta
Sclerotherapy and embolization of venous malformations	Visceral artery stent	Covered stent for ruptured major artery or vein
Subclavian Artery stenting for arterial stenosis or occlusion	Transjugular Intrahepatic Portosystemic Shunt (TIPS) and variceal embolization	Embolisation for priapism
Fistuloplasty for patient who are failing to dialyse	Large bowel stent for intestinal obstruction	Stroke Thrombectomy
Vertebroplasty	Arterial and AV fistula Thrombolysis	Embolization for massive hemoptysis
Preoperative embolization of tumours to prevent operative haemorrhage	Carotid Stent as an alternative to surgery for stroke	Thrombolysis/Thrombectomy for iliofemoral DVT
Tunnelled central line insertion Ports, Hickmans, Haemodialysis	Treatment of complicated Type B aortic dissection	Biliary drainage for biliary obstruction with sepsis
Facet joint injection for back pain	Iatrogenic pseudoaneurysm thrombosis	

Elective	Elective or Emergency	Emergency
Pulmonary, cerebral, visceral Arterio Venous Malformation embolisation	Liver Transplant Arterial, Venous or biliary intervention	
Percutaneous gastrostomy in patients who cannot swallow	Renal transplant ureteric arterial or venous intervention	
Denver shunt for ascites	Antegrade ureteric stenting	
Vertebral artery PTA or stent	Embolization for epistaxis	

APPENDIX 3M
IR PROCEDURES

Interventional radiology (IR) is a radiological sub discipline providing minimally invasive treatments performed under image guidance. As technology advances and high-quality imaging equipment becomes more widely available, IR is able to offer patients and referral physicians a growing number of new treatment options. Below is a non-exhaustive list of the procedures performed. If viewing the electronic version of this paper, click on the links for further information

1. Tumour Ablation
2. Angiography
3. Angioplasty and stenting
4. Aspiration of fluid collections/abscesses
5. Balloon-occluded retrograde transvenous obliteration (BRTO)
6. Biliary procedures
7. Biopsy
8. Bone augmentation
9. Brachytherapy
10. Bronchial stenting
11. Carotid artery interventions
12. Closure devices
13. Discography
14. Drainage
15. Embolisation for bleeding
16. Embolisation for haemoptysis
17. Embolisation for nosebleeds
18. Embolisation for pelvic congestion syndrome
19. Embolisation for post-partum haemorrhage
20. Embolisation for trauma
21. Embolisation for uterine fibroids
22. Embolisation for varicoceles
23. Embolisation for vascular malformations
24. Embolisation in oncology
25. Embolisation of the bronchial arteries

26. Embolisation of the prostatic artery
27. Endovascular treatment of abdominal aortic aneurysms (EVAR)
28. Endovascular treatment of aortic dissections
29. Endovascular treatment of arteriovenous malformations
30. Endovascular treatment of intracranial aneurysms
31. Endovascular treatment of peripheral aneurysms
32. Endovascular treatment of stroke
33. Endovascular treatment of visceral aneurysms
34. Fallopian tube recanalisation
35. Foreign body retrieval
36. Gastrointestinal and oesophageal stenting
37. Gastrojejunostomy
38. Gastrostomy
39. Haemodialysis access maintenance
40. High-intensity focused ultrasound (HIFU)
41. Inferior vena cava (IVC) filters placement and retrieval
42. Infiltrations and guided injections
43. Intervertebral disc decompression
44. Jejunostomy
45. Lymphangiography
46. Nasolacrimal duct interventions
47. Nephrostomy
48. Neurolysis and plexus infiltrations
49. Obstruction relief
50. Paediatric IR techniques
51. Percutaneous arthrodesis
52. Percutaneous therapies for spinal stenosis
53. Pleurodesis
54. Radioembolisation
55. Renal denervation
56. Salivary gland interventions

57. Sclerotherapy
58. Selective internal radiation therapy (SIRT)
59. Spinal vascular malformations treatment
60. Thoracic endovascular aortic repair (TEVAR)
61. Thrombectomy
62. Thrombolysis
63. Transjugular intrahepatic portosystemic shunt (TIPS)
64. Treatment of AV fistula and graft malfunction
65. Tumour marking (pre-operative)
66. Ureteric stenting
67. Vena cava stenting
68. Venous access ports
69. Venous recanalisation
70. Venous sampling
71. Vertebral augmentation
72. Women's health
73. Y-90 embolisation

APPENDIX 3N
ESR CURRICULUM

https://www.myesr.org/html/img/pool/ESR_2014_ESR-EuropeanTrainingCurriculum_web_Dec.pdf

APPENDIX 3O
CIRSE EUROPEAN CURRICULUM AND SYLLABUS FOR INTERVENTIONAL RADIOLOGY

http://cirse.org/?pid=378

APPENDIX 3P
WORKFORCE PLANNING IN INTERVENTIONAL RADIOLOGY

Currently, there are only 15 posts formally designated as "Special interest in Interventional Radiology": 5 in Dublin/Mid-Leinster, 3 in Dublin North East, 3 in the South and 4 in the West. These figures do not include those Radiologists (approximately 23) who perform Interventions despite their posts not having the formal designation, or private hospital-only practitioners, nor do they include Neuro-interventionalists or Paediatric Radiologists (outside the remit of this document).

It should be noted that the vast majority of these practitioners, even those with formal designation, are not "full-time" IRs, and on average, most spend half of their working week contributing to the diagnostic workload of their department e.g. covering CT/MR/Ultrasound and general reporting, attending MDMs and performing non-IR administrative/educational duties.

There are currently approximately 38 Radiologists who self-designate as Interventional Radiologists, (including those whose posts have formal designation- Appendix 3k); however, in addition to IR being a limited portion of their practice, the IR they perform is limited in scope e.g. excluding arterial work, or confined to one organ system e.g. Uro-intervention.

Using a formulaic approach to assessing the current shortfall:

- We have 15 posts formally designated as IR; equivalent to 7.5 FTE
- We have 23 Consultants in posts not formally designated as IR, but who perform IR, with a very heterogeneous skill-mix. By way of over-estimation, this group accounts for, at best, 10 FTEs
- Thus, we have approximately 17.5 FTE IRs, with a requirement for 46, yielding a current shortfall of 28.5

Immediate requirements:
28.5 required.

Projected requirements due to retirement:

- 6 to retire in next 5 years
- 9 to retire in 5-10 years
- 10 to retire in 10-15 years
- 8 to retire in 15-20 years
- 4 to retire in 20-25 years
- 10 to retire in 25-30 years

i.e. 47 over the next 25 years i.e. a minimum of 2 per annum (or 1 FTE per annum based on the above assumptions).

These requirements should be considered a baseline, as, to cover increasing demand and expanding indications and services, the requirements are expected to grow. Stroke services are a particular example whereby if non-Neuro Interventional Radiologists were to offer this service the post-requirements would increase significantly. None of the above takes into account illness, early retirement or voluntary emigration.

Our immediate requirements mean that, were the posts to be approved, we would be dependent on already trained IRs returning from abroad, or non-Irish trained IRs being attracted to the posts.

It is clear that our current number of IR graduates is inadequate and the figures above support an increase to 8 graduates per annum (i.e. protected 5th year posts). It should be noted that some of the existing 5th year posts, particularly Professor Michael Lee's lecturer positions in Beaumont, are funded by RCSI, not the HSE.

Paediatric Interventional Radiology

Although a detailed examination of the Paediatric IR requirement is outside the remit of this document, it is clear that particularly with centralisation of care in the planned National Children's Hospital, the requirements for posts in Paediatric IR will clearly increase. Based on the national population, the requirements would be expected to be within the 5-10 FTE range.

APPENDIX 3Q
CALL FOR INTEREST FOR FACULTY OF RADIOLOGISTS' HIGHER DEGREE SUPPORT BURSARY

Limited funds are available for competitive bursaries to support post-Fellowship SpRs and post-CSCST Fellows of the Faculty who wish to apply for funding that will help them to achieve higher degree training in Radiology and in professional/leadership roles related to Radiology.

It is intended that the Higher Degree Support Bursary funding will be renewable from Faculty investment income and will initially be a rolling fund, capped at €50,000 in the first 5 years.

Applicants must be based in hospitals in Ireland or abroad that are recognised for training by the Faculty of Radiologists. Applicants at an early postgraduate stage in their career and those who propose projects likely to enhance subsequent academic activity by future Consultant Radiologists in Irish hospitals will have an advantage in this competition.

Eligible degrees must be included in the HSE Consultants Incremental Credit framework as agreed between the HSE and Forum of Postgraduate Training Bodies and include MD, PhD, MPH and some MSc degrees. These may be updated by the HSE from time to time. Primary Radiology qualifications (e.g. FRCR, FRANZCR, FRCPC, ABR) are not eligible.

ABBREVIATIONS AND GLOSSARY

Audit
Systematic review and evaluation of current practice against research based standards with a view to improving clinical care

CBME
Competence-Based Medical Education. A focus on outcomes in the form of abilities, rather than solely the examination of knowledge. Also known as Competence-Based Training (CBT)

CIRSE
The Cardiovascular and Interventional Radiological Society of Europe is a non-profit, educational and scientific association aiming to improve patient care through the support of teaching, science, research and clinical practice in the field of cardiovascular and interventional radiology

CSCST
Certificate of Satisfactory Completion of Specialist Training. Awarded to SpRs following satisfactory completion of four years of training, achievement of Final FFR and their 5th subspecialty year.

Educational Coordinators
Consultant in training hospital who ensures the Faculty SpRs meet their training requirements

Entrustable Professional Activities
(EPAs) are a key component of CBME. EPAs are individual core units of professional practice (tasks or responsibilities), which can be entrusted to the SpR, once they have demonstrated the necessary competency to execute the activity unsupervised

ESR
European Society of Radiology (ESR) is an apolitical, non-profit organisation dedicated to strengthening and unifying European radiology

EWTD
European Working Time Directive. The Directive encompasses a number of measures to protect workers welfare and safety. These include:

- a maximum 48 hour working week, averaged over a reference period
- breaks – a 20 minute break for every 4 hours and 30 minutes worked or a 30 minute break for every 6 hours worked
- rest – 11 hours daily rest or equivalent compensatory rest and 35 hours consecutive rest every 7 days or two periods of 35 hours or one period of 59 hours of consecutive rest every 14 days.

Final FFR
Final Fellowship, Faculty of Radiologists, RCSI - Exams that the SpRs sit by the end of their four years of training

FFR RCSI
Fellow of the Faculty of Radiologists, Royal College of Surgeons in Ireland

GMC
General Medical Council. Regulatory body for doctors in the UK

HSE
Health Services Executive. Provides all of Ireland's public health services, hospitals and communities across the country

Medical Council
Regulatory body for doctors in Ireland

MSF
Multisource feedback, also known as 360° feedback. Evaluations consist of measurement tools completed by multiple people in a person's sphere of influence. Evaluators can include superiors, peers, subordinates, patients, and patient families. Most 360° evaluation processes use a survey or questionnaire to gather information about an individual's performance on several topics (eg, teamwork, communication, management skills, decision making) and use rating scales to assess how frequently a behaviour is performed.

NCPR
National Clinical Programme for Radiology

NTDP
National Doctors Training and Planning Unit of the HSE which incorporates Medical Education and Training, Consultant Appointments and Medical Workforce Planning

Practice-Based Learning (PBL)
SpRs must be able to investigate and evaluate their patient care practices, and appraise and assimilate scientific evidence to improve their radiologic practices

Primary FFR
Exams that the SpRs sit at the end of their first year of training

Professionalism
SpRs must demonstrate a commitment to carrying out professional responsibilities, adherence to ethical principles, and sensitivity to a diverse patient population

RCR
The Royal College of Radiologists leads the specialties of clinical oncology and clinical radiology in the UK

RCSI
The Royal College of Surgeons in Ireland is the professional association and educational institution responsible for the medical specialty of surgery throughout the island of Ireland

SpR
Specialist Registrar - a Dr undertaking specialist training in Ireland

Systems Based Practice and Management
SpRs must demonstrate that they are aware of and responsive to the larger context and system of health care and can call on system resources effectively to provide optimal care

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