

Interventional Radiology Should Establish Its Own Identity it Should be a Primary Specialty Separate from Diagnostic Radiology

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Received: 1 December 2023 / Accepted: 5 December 2023 / Published online: 2 January 2024

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When interventional radiology (IR) emerged from within radiology in the second half of the twentieth century its promise was immense. It offers methods of treatment that can replace more invasive and dangerous procedures, allowing rapid relief of symptoms and early return to normal life. The potential benefits to individuals, the healthcare system, and the public purse are substantial and often underappreciated. However, IR has so far failed to reach its potential: the provision of services remains inadequate, and there is a wide variation in the availability of expertise, which hinders the development of the specialty.

The Pursuit of Specialty Status

In the UK, during the first decade of the 21st Century the Royal College of Radiologists (RCR) created a curriculum for IR and prepared an application for the granting of subspecialty status by the General Medical Council (GMC), which was approved in 2010. The curriculum included recommendations for clinical training, as well as improved instruction in the techniques and procedures used in IR. A minimum of two clinical years before entering

radiological training is followed by three years training in Diagnostic Radiology (DR) and three years training in IR. More recently, CR(I) (Clinical Radiology with IR) posts have been created in the UK [1]. These allow trainees to focus on IR as soon as they start specialising in radiology and represent a substantial improvement. Interventional radiologists receive a Certificate of Completion of Training (CCT) in IR, differentiating them from colleagues in Diagnostic Radiology (DR).

In 2012 the American Board of Radiology recognised IR as a primary specialty, with dual certification in DR and IR. IR is one of four primary certificates offered by the ABR, along with diagnostic radiology, radiation oncology and medical physics.

The pattern and length of IR training in the UK and the USA are very similar, but there is a vitally important difference: whereas in the UK IR remains as a subspecialty of radiology, in the USA it is a separate entity. In most other countries IR is not formally recognised even as a subspecialty by national bodies governing the practise of medicine.

Many trainees and consultants in IR in the UK, Australia, and New Zealand, and several European countries sit the European Board in Interventional Radiology (EBIR) examination, which has been established by the Cardiovascular and Interventional Radiological Society of Europe. However, this is not required for appointment to a specialist post in IR.

This article draws heavily on the experience with IR in the UK since it was recognised as a subspecialty because of the wealth of data in that country regarding treatment outcomes. However, we believe that the lessons derived from this experience are applicable globally.

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An Inadequate Service

Arterial embolization can be lifesaving. The use of this procedure for the treatment of gastrointestinal haemorrhage was first reported in 1972 [2]. If this technique had been invented by surgeons, it is inconceivable that it would not be available routinely in every hospital with an Accident and Emergency department. A survey by NHS Improvement in 2013 showed that seven-day access to embolization for the control of haemorrhage was unavailable in approximately 50% of hospitals in England [3]. The true picture was probably worse, as the figures included hospitals with network arrangements, aiming to transfer patients to another centre within thirty minutes. The effectiveness and safety of such arrangements is unknown, and extensive anecdotal experience suggests that timely transfers are rare, with most patients taking three to four hours to reach the specialist centre.

In many hospitals, embolization remains unavailable for the treatment of post-partum haemorrhage more than fifteen years after the report of the Healthcare Commission on ten maternal deaths at Northwick Park Hospital in London, the main recommendation of which was that obstetric units should 'aim to provide an emergency interventional radiology service that is responsive to patients' needs wherever and whenever they arise' [4].

The Getting It Right First Time (GIRFT) Programme National Specialty Report on Radiology in 2020 [5] demonstrated no significant improvements, and the Clinical Radiology Census carried out by the RCR in 2022 [6] provided further confirmation of the inadequacy of IR services.

It is not just in emergencies that patients are deprived of the benefits of IR. Many patients with malignant tumours can be treated with percutaneous imaging-guided techniques with equal efficacy to surgery but with much greater comfort, convenience, and safety, and at much lower cost. However, only a minority of hospitals offer potentially curative IR procedures to cancer patients [7] and the service in interventional oncology varies unpredictably.

Loss of IR Activity to Other Clinical Specialties

In the 1980s, coronary angiography and much of coronary angioplasty were carried out by radiologists. However, that field was rapidly taken over by cardiologists, who assume primary responsibility for clinical patient care. The loss of coronary angioplasty was followed by the appropriation of prostatic stents (at a time when there were no satisfactory alternative non-surgical treatments to prostatic urethral obstruction), tracheobronchial stents, and oesophageal

stents, by urology, thoracic surgery, and gastroenterology respectively. But it is the ongoing absorption of peripheral vascular intervention by vascular surgery, and the lost opportunity in cancer management, that should concentrate the minds of policy makers in radiology, as it will change the structure of the specialty.

Current Challenges

Self-Identification Prevents Adequate Workforce Planning in IR

When interventional radiologists define themselves, it is not possible to count their number reliably. A pragmatic definition of an interventional radiologist in most countries other than the USA is 'any radiologist who identifies as an interventional radiologist'. In the UK, the curriculum in IR and the recognition of IR as a subspecialty have not resolved the issue of identification: any radiologist performing interventional procedures can claim to be an interventionist. Therefore, the number of individuals who can participate in emergency services such as percutaneous nephrostomy and embolization for the treatment of haemorrhage, is unknown and is changing constantly.

As IR has no distinct identity, the IR service is the responsibility of clinical directors of radiology, who have no obligation to offer any specific treatment. Even potentially life-saving techniques such as embolization for the management of acute gastrointestinal haemorrhage are frequently omitted from the service offered by radiology departments. Omissions of similar magnitude in surgery would result in major investigations and could lead to hospitals being put under special measures. However, any relevant recommendations for major shortcomings in IR can be ignored with impunity.

Poor Recruitment from Within Radiology

The IR workforce in the UK is insufficient to meet basic clinical needs for its services. In a census conducted by the RCR in 2021, 55% of Clinical Directors reported that they did not have sufficient staff in IR to deliver safe patient care [8]. The number of trainees in IR is not increasing at a rate that will enable an adequate number of interventional radiologists to be appointed to consultant posts in the foreseeable future.

Although many registrars in radiology in the UK profess an interest in IR, during their training period the majority become more interested in diagnostic aspects of the specialty and relatively few apply for IR posts [9].

When the GMC recognised IR as a subspecialty, many surgical registrars expressed an interest in it. However,

most of them decided not to enter this discipline when they were told that they had to become radiologists in order to train in IR.

A ‘Technical’ Rather than a Clinical Pattern of practice Constrains Further Growth of IR

The main cause of the unreliable service offered by IR is insufficient capacity, because of the lack of interventional radiologists. This problem is compounded by the ‘technical’ rather than clinical pattern of practice of most interventional radiologists, which blurs patient pathways and decreases referrals for IR procedures.

The non-clinical pattern of practice in IR, constrains the growth of the discipline because all specialties tend to favour techniques and procedures for which they are responsible. At a multidisciplinary meeting thermal ablation may be recommended for a patient with a small renal tumour only for the recommendation to be ignored following a subsequent consultation with a surgeon who is an advocate for robotic partial nephrectomy. Clinicians greatly influence the patient pathway, and unless the interventional radiologists have direct and ongoing responsibility for patient care, they can be bypassed, even if the evidence supports the use of an IR technique. The most effective way of addressing this issue is for interventional radiologists to assume full clinical responsibility. It is sometimes claimed that interventional radiologists would find it difficult to care for their own patients, many of whom have multiple comorbidities [9]. However, in this era of subspecialisation, this is a challenge that faces all specialties. Broad consultation and involvement of other specialists is a hallmark of optimal clinical practice. Interventional radiologists must care for their own patients not because of any aspirations regarding the position of the specialty but because this is the safest and most effective way to work [10].

Why Specialty Status Under Radiology Would not Address the Challenges Facing IR

As indicated above, the main challenges facing IR are its lack of a distinct identity, poor recruitment, and a technical rather than a clinical pattern of practice.

The UK experience has shown that although training has improved following the recognition of IR as a subspecialty, interventional radiologists are still regarded as ‘radiologists who do IR procedures’, rather than as specialists working in a clinical discipline. There are no departments of IR, and clinical directors of radiology can decide what, if any, IR procedures to offer. Specialty status for IR under radiology would not change this unacceptable situation. Poor

recruitment, and inadequate infrastructure for clinical practice in radiology departments, perpetuate an unsatisfactory service.

It is sometimes argued that specialty status within radiology may be sufficient to impart a distinct identity to IR, pointing out that this situation would be analogous to that of surgical specialties such as urology and neurosurgery, which exist under the ‘super specialty’ of surgery. However, urologists and neurosurgeons are surgeons, whose pattern of practice differs in the specifics of organ systems but is appropriate for a clinical procedural discipline: all surgeons work as clinicians, holding outpatient clinics, doing ward rounds, and participating in decisions regarding treatment at multidisciplinary meetings. This situation is completely different from that which would apply to the specialty of IR, which would remain submerged within a diagnostic discipline lacking the infrastructure for clinical practice. Vague concerns about the ‘fragmentation of radiology’ seem to trump the practical needs of IR and the best interests of patients.

The Case for IR Independence

In making the case for separating IR from DR, we have drawn heavily from the performance of IR in the UK, for two reasons. First, IR was formally recognised as a subspecialty of radiology in the UK in 2010, not only by the national radiological society (the RCR), as in several other countries, but also by the GMC, which is recognised by the government for the purposes of accrediting and regulating the medical profession. Second, the UK has a National Health Service. Whatever its advantages and disadvantages in delivering healthcare, the centralised nature of this mammoth organisation makes it possible to carry out nationwide surveys and obtain reliable data on the performance of IR. To our knowledge, the UK remains the only country in which both of the above factors apply. However, we believe that the principles governing the relation of IR to DR and to radiation oncology are universally applicable, as evidenced by the experience in the USA.

The most appropriate comparator with IR is Radiation Oncology, which became a clinical specialty in the mid-twentieth century because the volume of knowledge was too great for that specialty to remain combined with DR and because radiation oncologists practise as clinicians, with primary clinical responsibility for their patients. The situation of IR is almost identical to that of Radiation Oncology before its separation from DR.

A distinct identity is the key to the future of IR. Separation of IR from diagnostic radiology, as happened in the USA, would recognise that interventional radiologists are expert treating clinicians. This would create an identifiable

workforce and facilitate appropriate planning of services. It is essential to the survival of the specialty.

The acquisition of a distinct identity would boost recruitment and would enable IR to attract prospective surgeons and other specialists interested in procedural care in addition to radiology trainees who have self-identified. They are unlikely to want to spend two to three years in non-clinical radiology posts and lose clinical skills. This is a significant issue and must be considered. In the USA recruitment in IR improved significantly following the recognition of IR as a primary specialty separate from DR in 2012. In the first decade of this century in the USA, a significant percentage of fellowships in IR remained unfilled. However, in more recent years IR has been one of the most competitive specialties. Instead of recruiting IRs solely from within radiology, a specialty separate from DR has attracted residents who are interested in procedural care and treating patients from the outset.

There is a pressing and urgent need for national bodies governing IR to advocate for IR as a distinct primary specialty (with dual certification in DR and IR). They must rapidly consider adjustments to the curriculum, emphasising those aspects of diagnostic radiology relevant to IR, rather than requiring the mastering of all aspects of DR, as at present. In addition, there should be a stronger focus on clinical work.

In the workplace, there is a need for distinct IR departments with their own dedicated equipment, putting an end to illogical, inefficient, and potentially unsafe practices, such as the sharing of CT equipment between DR and IR, which is analogous to holding an outpatient clinic in an operating theatre.

An independent specialty of IR in all of its facets, is the most effective method of imparting a clear identity to one of the most promising disciplines in modern medicine, enabling a better service to patients and to the system alike. Without such recognition, IR techniques will be absorbed by other procedural specialties, as many of the treatments already have, and IR may simply disappear in countries without this recognition. This will be to the detriment of all.

Funding There was no financial support from any source in relation to this article.

Declarations

Conflict of interest There are no conflicts of interest in relation to this article.

Ethical Approval This is an editorial. There are no relevant ethical issues.

Consent for Publication The authors give consent for this article to be published.

Informed Consent This is an editorial. No informed consent was required from anyone.

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