



Review

Access to beds for interventional radiology patients: improving patient care



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This review describes the rationale in support of admitting rights for interventional radiologists and presents options for the management of interventional radiology (IR) inpatients. The manuscript also discusses wider aspects of IR involvement in inpatient treatment, such as income and funding for IR services, and the implications for IR as a clinical specialty.

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Introduction

Interventional radiology (IR) is a core clinical specialty within the hospital. It is crucial to the management of acutely unwell patients, reduction of surgical-related morbidity and mortality and in hospital bed stays.^{1–4} Several recent publications and findings have highlighted the importance of IR involvement in comprehensive service provision, including the 2006 enquiry into maternal deaths at Northwick Park and subsequent Royal College of Obstetrics and Gynaecology guidelines on the management of post-partum haemorrhage, major trauma centre service

provision guidelines and the National Confidential Enquiry into Patient Outcome and Death (NCEPOD) report (Gastrointestinal Haemorrhage: Time to Get Control).^{5–9} IR operates across specialties, managing multiple acute and chronic conditions. In addition to the support aspects of the service, IR also offers multiple primary elective treatment options as an alternative to surgical, medical, or oncological treatments. Benefits of IR treatments include cost and bed occupancy reduction, more rapid patient recovery, and earlier return to work. This frees up capacity and positively impacts other areas. Many IR procedures are performed as day cases, but some require overnight admission

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necessitating optimal inpatient bed allocation and formal assignation of clinical responsibility for these patients.

This review primarily refers to access to inpatient beds for these short-stay IR patients undergoing routine elective operations. This may include benign interventions, such as uterine artery embolisation for symptomatic fibroids (where not performed as a day case), peripheral arterial and venous interventions, and interventional oncology (IO) treatments, such as tumour ablation or embolisation procedures. In these cases, admission is often for immediate postoperative pain control and stabilisation and limited to one to two nights in hospital. The expectation in most centres should be that urgent and emergency cases, including out-of-hours admissions for IR treatment and patients with complex comorbidities requiring multidisciplinary care, would be admitted onto the relevant specialist ward or high-care environment under the care of the primary responsible clinician be that surgeon, physician, or oncologist.

This review outlines the rationale behind IR admitting rights and describes options for IR inpatient management. It also touches upon the wider aspects of IR involvement in inpatient treatment along with income and funding and the implication for IR as a clinical specialty. Although some aspects described within the document are specific to working within the current UK National Health Service (NHS) environment, in particular within England, the overall principles can be applied to any healthcare system.

The case for inpatient beds and admitting rights

The rationale for IR admitting rights is for direct IR involvement in the admission as the team with the best knowledge of the procedure and expertise to manage post-procedural issues. This should include support for the junior staff out of hours. In the absence of adequate appropriate specialist IR junior staff (which are not a feature of current IR or medical training), most admissions require support from junior staff on the appropriate primary clinical team. IR team involvement helps to optimise patient care and maintain cooperative relations with clinical consultant colleagues.

Options for IR inpatient provision

Managing patients in a cooperative and collegiate way within specialty-specific beds has significant benefits from a patient safety, patient experience, staff education, and efficiency standpoint. Sharing beds with the referring clinical specialty keeps patients within the appropriate environment, helps maintain procedure-related knowledge within the associated ward and medical staff, improves IR exposure, and maintains bed occupancy with appropriate specialty patients. Regular throughput and education ensure that staff (usually non-IR) are aware of potential side effects and complications. Procedure-specific pathway documents can be useful in assisting this. IR involvement has the added benefit of improved governance, discharge planning, and follow-up.

At present, specific IR inpatient beds within the hospital or an IR ward (outside the largest centres with a guaranteed throughput) is a less viable option. They would require 24/7 IR staffing (nursing levels would have to be equivalent to an elective surgical ward) and support and would also need constant utilisation to justify funding and as with other areas of the hospital would be at risk of winter pressures. In some centres, this can be ameliorated by sharing these beds with other specialties but admitting onto a single ward.

Benefit to patient care, pathways, and discharge

Centralisation of patients on an IR pathway including pre-assessment, outpatient clinic, ward rounds, admission, and discharge would help streamline the referral process, allow pre-procedure optimisation, ensure adequate consent, reduce inappropriate admissions and last-minute cancellations. This would also reduce the impact on other resource groups. Established arrangements within these patient care pathways should make it easier to book overnight beds (Fig 1).

IR clinical involvement should ideally include 24/7 access for advice on IR patients. In departments without 24/7 IR cover, an agreed pathway with documentation on possible complications should be established, along with involvement and education of the Hospital at Night team. This should include development of procedure-specific pathways from referral to follow-up. These pathways would highlight inpatient requirements, streamline discharge, and follow a protocol for follow-up. Clear discharge documentation including patient information and contact details in case of problems post-discharge is important. Where staffing allows, planned patient contact in the early post-discharge period by the IR clinical nurse specialist (CNS) or equivalent can also be helpful in reassuring patients and highlighting any potential issues. As a package, this should reduce readmission and where re-admission is indicated direct patients to the most appropriate place for evaluation, reducing reliance on the emergency department (ED) and emergency services.

IR involvement in discharge helps to improve communication, optimise coding, and in turn, hospital income. This also has a knock-on effect of highlighting IR as a clinical specialty. Along with wider education programmes, this should improve awareness of IR within primary care and the commissioning bodies. On a local level, linking admission episodes with IR helps Trust and public visualisation of the specialty and encourages senior management level understanding of its wider role, which in turn assists funding and investment. This is also more appropriate regarding governance policies and overall accountability.

Service requirements for elective IR inpatient admissions

Along with admitting rights comes the expectation of the extended clinical responsibility of the IR team in the patient episode. This should be made explicit to the referring team

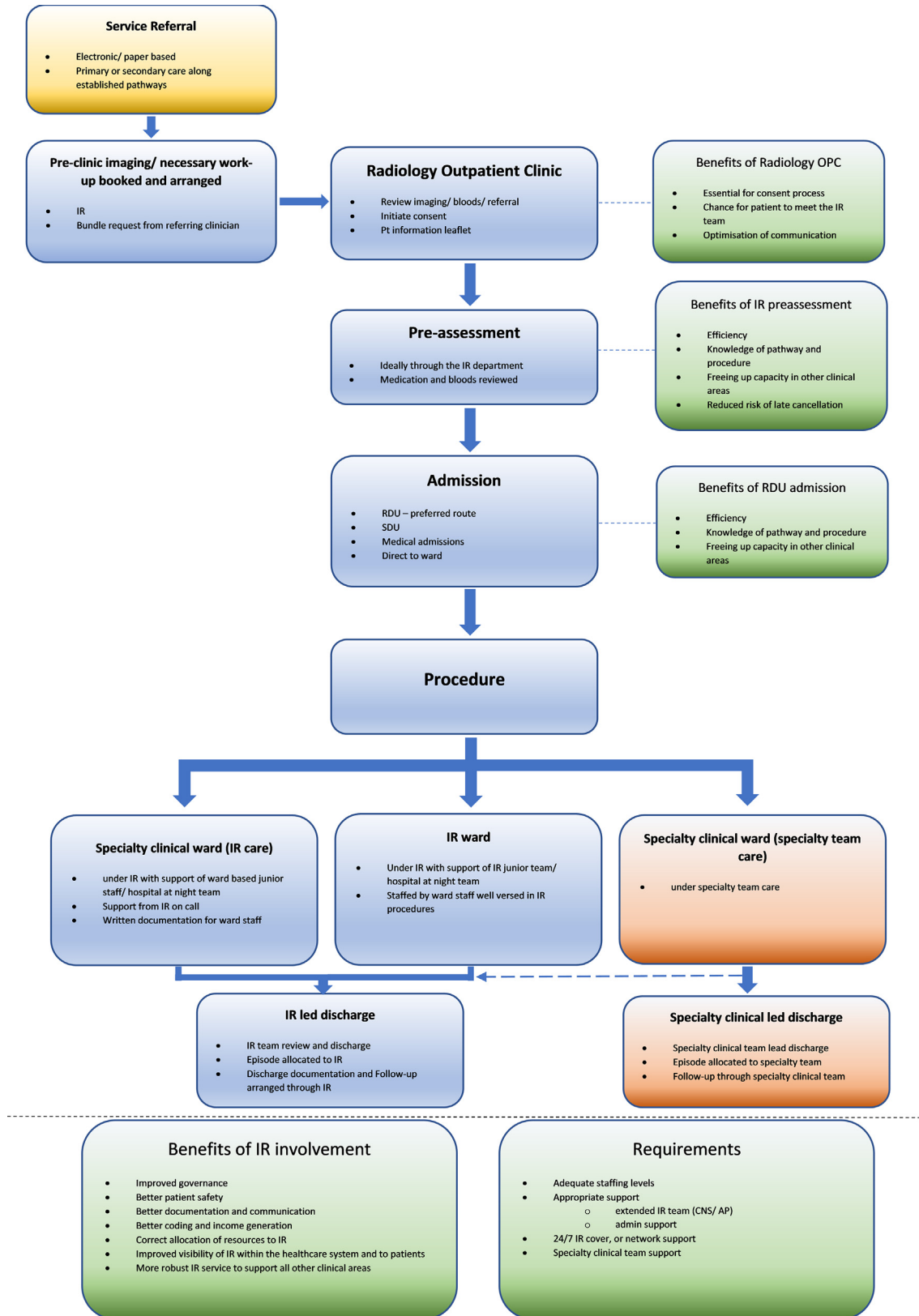


Figure 1 Illustration of the referral and procedural pathway for IR with options for inpatient management of IR cases. IR, interventional radiology; OPC, outpatient clinic; RDU, radiology day unit; SDU, surgical day unit; CNS, clinical nurse specialist; AP, advanced practitioner.

and ward staff and include post-procedure review prior to discharge. This could be performed by the IR consultant, senior IR trainee, IR CNS, or advanced practitioners (AP) depending on department staffing and local models of care. An effort should be made to provide written discharge information and planning in the event of complications or the requirement for re-admission. There would be an expectation of provision of out-of-hours advice. This is essential to support the clinical team and demonstrate the added benefit of IR involvement.

Improved documentation of IR outcomes and POSITIVE impact on income/funding

As services move towards a more regional basis the onus will be on each department to provide outcomes data, including patient-related outcome measures (PROMS) and demonstrate a clinical and cost benefit to the treatments that they offer. Although cost benefit is evidenced across multiple treatments, it is dependent on several variables and continued evidence collection is important.¹⁰ Data collection should include the under-recognised support aspects of IR that are difficult to assess, but essential to the safe running of many services across the hospital. Better data collection to demonstrate the reduction in bed stay and IR outcomes is specifically mentioned in the Radiology Getting it Right First Time (GIRFT) report¹¹ and it is incumbent on Trusts to facilitate this.

There are several financial benefits to IR. Often the procedures themselves are shorter, with a more rapid recovery than associated surgical procedures, reduced costs (both operating and hotel costs), and a more rapid return to the workplace also giving a societal benefit. They also alleviate pressures on other resources (e.g. operating theatres) helping to reduce waiting lists and associated delay costs.¹² At present, the UK internal health market is at a point of transition coming out of the COVID pandemic and moving into the era of integrated care systems (ICS) and a step away from traditional payment by results (PBR) towards blended payments.¹³ Despite this, there remains an onus to demonstrate cost efficiency, optimise procedure coding, and to ensure correct resource allocation. This helps demonstrate the essential nature and potential cost efficiencies of IR, and to ensure adequate funding and investment to maintain and develop the service. This should not be at the expense of other specialties or be perceived as a threat and should be emphasised for its benefit. A strong IR unit is an asset to a Trust.

There are ways of highlighting IR involvement in the patient journey of more complex or longer-stay patients. E-referrals for consultation (or paper-based referrals where electronic notes are not yet routine)^{14,15} and appropriate subsequent documentation helps track IR involvement and improves patient care. Intra-specialty/directorate cross-charging can highlight IR involvement but is expensive for the referring primary specialties and not practical within the current internal market. Electronic or paper-based

transfer of care is a robust process where the patient is transferred under the care of IR by the IR admin team for the duration of their procedure and stay in the IR department including pre-procedure and recovery time. Like the E-referral process, this helps to track patients through IR and flags the treatment episode within the inpatient stay. In the case of transfer of care, where IR is the dominant procedure episode (e.g., transjugular intrahepatic portosystemic shunt (TIPS) formation for variceal haemorrhage) the costs of the episode may be allocated to IR, or act as a flag for IR involvement during the patient stay.

High-cost tariff-excluded devices (HCTED) are a separate issue and currently decided by NHS England.¹⁶ High-cost consumables relevant to IR fall under the radiology budget with the exception of some high-cost vascular stents, and it is the individual department's responsibility to identify these and ensure that they are recompensed.

It is important that IR is flagged within a patient's discharge summary so that hospital coders can appropriately set the tariff and increase the visibility of IR to primary care, increasing understanding of the specialty, improving patient safety, and highlighting treatment options through education. This in turn feeds into the commissioning cycle. Too often, even when IR is the primary treatment episode within a patient's inpatient stay (for instance, splenic embolisation for splenic trauma followed by a period of rehabilitation), it is barely referenced within the discharge summary completed by the discharging team. It is important to increase conspicuity by directly feeding into the discharge summary, thus improving accessibility and visibility of IR. This can be done by direct involvement of the IR team, improving education for junior and ward staff, and better integration of IR procedure documentation into hospital IT systems either through the Hospital Patient Information System (HPIS) or direct transfer of data from the Radiology Information System (RIS) into inpatient notes.

One issue that separates IR from surgery is the requirement under the Ionising Radiation (Medical Exposure) (IRMER) Guidelines¹⁷ for procedural entries to be included within the RIS system. This is often a different system from the main HPIS, which can make radiology/IR episodes less visible than surgical episodes. This can be improved by good-quality clinic and discharge documentation and creation and integration of systems, which are more easily interrogated for auditable information. At the moment, optimal data visibility would require duplication between two separate systems, HPIS and RIS, increasing workload and risking mistakes. Ability to integrate these systems would solve this problem.

How to obtain admitting rights

The strongest drivers to IR having admitting rights are enhanced quality of the service with patient safety at the forefront and the benefit to patients of being looked after by those with greatest knowledge of the procedures performed. The benefit to primary clinicians comes a close

second with direct IR involvement alleviating pressure on the primary specialty and enabling closer relationships to be formed. This in turn creates an atmosphere of improved professional collaboration, support with specialty specific non-elective work and advice and inter-specialty research opportunities. Ward and junior medical staff benefit from improved support and education from IR. Coding, funding, and tariff are also important aspects and are all positively influenced by direct involvement of the IR team who have a vested interest as already detailed (Box 1).

Box 1. Benefits of admitting rights for interventional radiology

- Work collaboratively with referring clinicians and hospital management
- Demonstrate benefits of IR clinical involvement
 - Efficient referral pathways
 - Robust governance arrangements for IR patients
 - Less onus on referring team to manage the inpatient episode
 - Improved patient safety
 - Reduced re-admissions
 - Financial benefits to the Trust
 - Improved coding and hospital income
 - Reduced surgical waiting lists
 - Reduced pressure on OR
 - Reduced bed occupancy
 - Benefits to society
 - Quicker recovery and earlier return to work
 - Benefit to primary care
 - Improved communication
 - Education
 - Better understanding of potential treatment options to aid resource allocation
 - Benefit to the service
 - More robust and engaged IR service

Alternative scenarios

An increase in day-case activity is an option and something that IR is working hard to achieve. Within this framework, there must be a contingency for re-admissions, particularly where a procedure was previously done as an inpatient for valid reasons (e.g., uterine artery embolisation for fibroid disease for post-procedural pain management). This will never completely take the place of elective admission in some scenarios.

Continuing to act as a technical specialty relying on clinical colleagues to provide beds and cover for elective inpatient work as a concept is not an acceptable future direction for the specialty. This falls short from a governance perspective and is not in the best interests of patients. It also may negatively impact the morale of the workforce.

In managing situations without access to inpatient beds, it is important to be the patient advocate. This should

include regular discussion with the referring clinicians, appropriate bed managers, and senior site team highlighting the need of IR in specific patient cases. Knowledge of evidence and patient outcomes data, both locally and nationally, is vital and can highlight where IR can benefit the patient and Trust. Where there is resistance, it is important to reiterate the essential nature of IR across most specialities and that the loss of service where investment is not forthcoming is a real threat.

IR as a clinical specialty

The great benefit of IR is its clinical involvement across specialties. The IR skill set can be applied to the treatment and management of many different pathologies. From a Trust and patient safety perspective this makes IR cost-effective and sustainable.^{18,19} Adding in the expertise in imaging (which sets IR apart from other practical specialties), makes it invaluable in the acute setting and places interventional radiologists as core members of many multidisciplinary teams (MDTs). Loss of these skills or siloing individual clinicians in each specialty, as has happened to a certain extent with vascular surgery, is cost inefficient and has the potential to dilute skills (both surgical and IR), reduce flexibility and the available numbers of clinicians able to provide the gamut of services essential to run a 24/7 comprehensive IR service.

Increasing complexity of IR intervention does however require an element of subspecialisation, often along MDT lines, during working hours while maintaining the general skill set to provide acute out-of-hours care. This has the side benefit of increasing clinical knowledge, increasing clinical involvement, and increased patient and operator satisfaction.

There is now an expectation that consent is patient centred with supporting literature and a “cool off” or consideration period. This involves seeing and discussing procedures with patients in clinic prior to admission making IR clinics essential to safe service provision. In the same way, patients benefit from direct interaction with the person providing the treatment. They will have the most in-depth knowledge about the procedure and outcome data and will counsel them on its risks and benefits. In cases of inpatient referrals, direct clinical referral for an IR opinion (either e-referral or paper based) and a ward round assessment should replace the traditional radiology request that is still traditionally used in many hospitals across the UK and Europe.¹⁵

With increased clinical involvement, it is incumbent on IR training to include the additional non-technical skills, including advanced communication, inherent in providing a clinical service. The clinical process is well summarised diagrammatically in the Cardiovascular and Interventional Radiological Society of Europe (CIRSE) *Clinical Practice Manual*¹ (Fig 2).

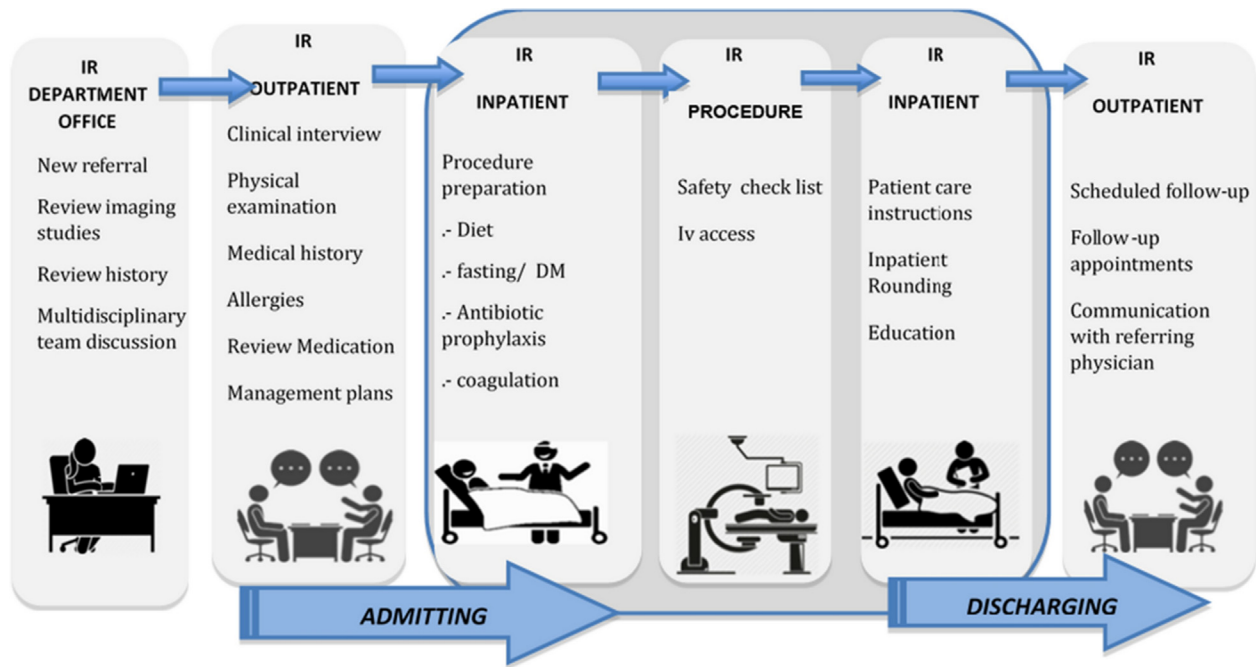


Figure 2 The IR process.

Conclusion

IR is a comprehensive, image-guided, minimally invasive service providing acute and emergency cover to most hospital specialties, reducing inpatient bed stay and improving complex surgical-related morbidity and mortality. In addition, it provides evidence-based National Institute for Health and Care Excellence (NICE) approved elective treatments for a range of pathologies across a variety of specialties. Although many IR procedures can now be performed as day cases some require admission and short inpatient stays. It is important for patient safety, optimal patient care, and for the future sustainability of the service, that IR consultants are directly involved in ward-based care. As such, admitting rights and cooperative access to inpatient beds is of vital importance. By supporting IR, hospitals benefit from a high-quality 24/7 service that is safe, timely, and efficient. This is vital for patient safety as well as being an income generator for elective work.

Conflict of interest

The authors declare no conflict of interest.

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