

Improving Paediatric Interventional Radiology (PIR) services in the UK

Paediatric interventional radiologists are specialists who can provide minimally invasive, high-quality treatment for cancer and many other diseases. Yet there are huge inequities in access to this care across the country. The UK has only 12 specialist consultant posts for PIR, concentrated in Birmingham and London. While pockets of good practice do exist, service provision is extremely variable and almost all centres that deliver PIR are working with inadequate facilities, underfunding and a lack of institutional support. PIR is often delivered through workarounds, which risk compromising infection control and patient safety.

Widespread adoption of PIR has so far failed in the UK, and there has been little progress since the Department of Health's 2010 report on interventional radiology (IR), which highlighted the variability in this service. We are calling for an increased focus on this vital service, and action to ensure good PIR provision for all children who need it.

This briefing provides a summary of the report 'Improving Paediatric Interventional Radiology Services in the UK', authored by Dr Alex M Barnacle, Great Ormond Street Hospital for Children, in partnership with the Royal College of Radiologists. This briefing offers a background on PIR services in the UK, an overview of the current issues preventing the UK from providing an effective service, and a four-point plan for how the UK can begin to resolve these problems.

Background

- Interventional radiology provides an alternative approach to conventional surgical procedures for treating disease. Examples of IR procedures include plugging bleeding blood vessels or draining infections which are deep within the body, through a pinhole rather than through open surgery. Paediatric interventional radiology refers to providing this care for children.
- Compared to traditional surgery, IR offers shorter operating times, reduces the risk of infections and shortens recovery times. For stretched surgical services, this can lead to reduced use of inpatient beds, reduced costs and freeing up of other in-demand resources.
- For children, minimally invasive pinhole procedures and shorter hospital stays mean a less distressing patient experience, less time away from school and from work for parents, minimal scarring and the preservation of organs that need to remain in good working order for another 70 or so years.
- Specialist paediatric IR teams have an intimate working knowledge of complex and rare paediatric conditions, most of which do not occur in adults. They understand how to adjust procedures according to a young child's body tolerance, and how to minimise radiation exposure to children who are far more susceptible to radiation effects than adults.

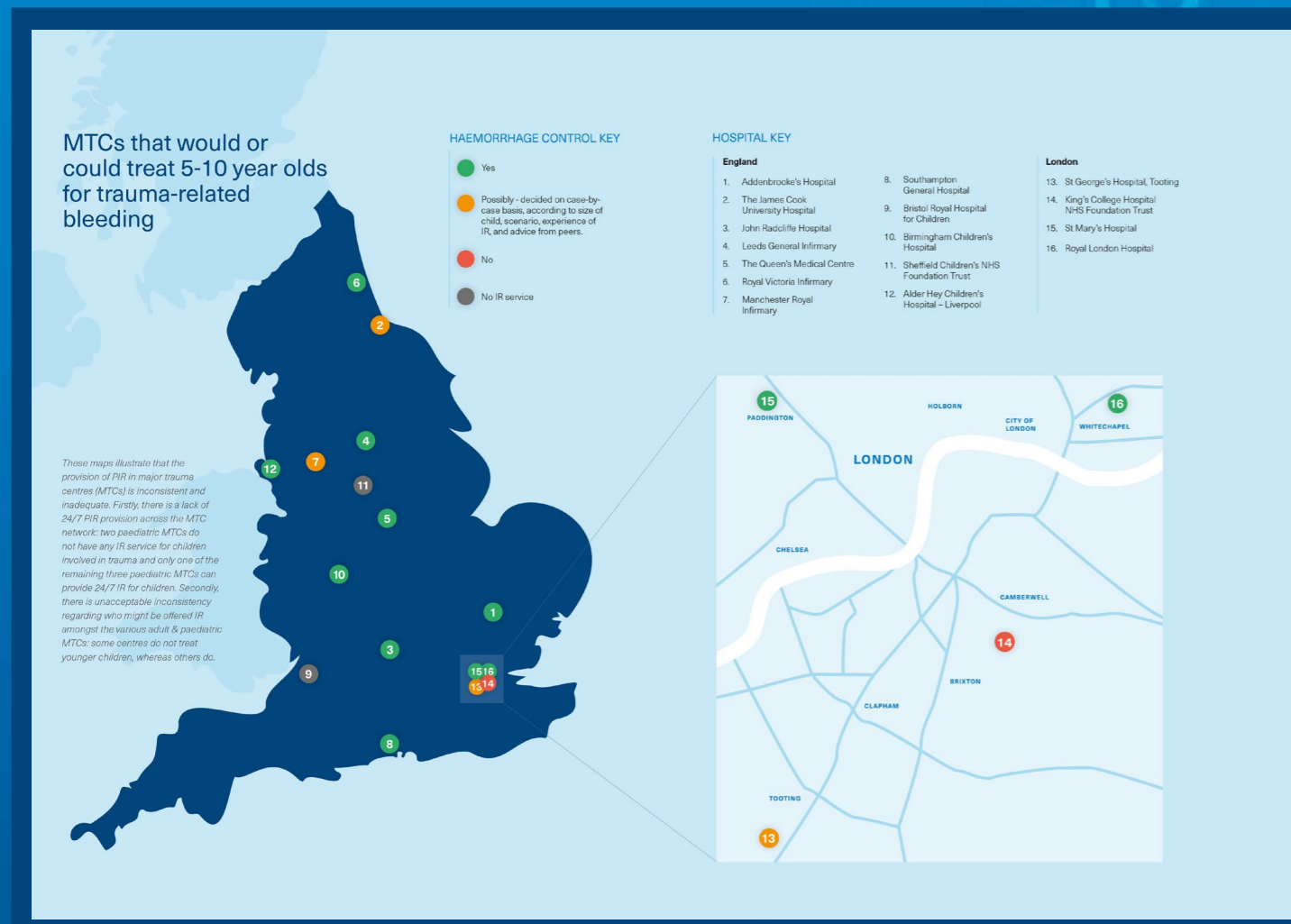
Case study: The role of PIR in trauma management

Interventional Radiology is recognised as a critical component to managing complications of adult trauma in a Major Trauma Centre (MTC) and is included in the national service specification for adult major trauma.

In the UK, there are three types of MTC: those that treat only adults (n=27), those that treat only children (n=5), and those that treat both adults and children (n=10). The service specifications for these three types of MTC are the same.

The specification states that IR care must be available for all MTC patients within 60 minutes. For years, every MTC except one failed to meet that standard because they did not have 24/7 PIR on site.

Recently, the assessment standard was changed to specify that surgery or IR must be available within 30 minutes, meaning there is no onus on an MTC to develop a PIR service for children with trauma. While almost all adult centres can provide 24/7 adult IR within the specified 30-minute period, only one paediatric MTC out of five can do the same. Two out of five paediatric MTCs do not have any PIR available.



This has real life consequences for patients. In a region in the north of England, urgent paediatric cases that are likely to require PIR are currently routed past a paediatric MTC and on to an adult and paediatric MTC 36 miles away (where PIR is available), with inevitable delays in diagnosis and treatment and significant risk to patients.

Key issues

Widespread adoption of paediatric IR has failed in the UK so far:

- Across the UK, there are just 12 dedicated consultant PIR posts designed solely for the delivery of PIR. This equates to one PIR per 1 million children, compared to one per 342,000 children in the US.
- It takes time and investment to build PIR capacity and expertise. There are only two dedicated, fully funded PIR-specific training posts in the UK with another three posts offering some exposure to PIR. Not all of these are open to trainees across the four nations.
- The main route into PIR specialisation is through radiology. The shortage of radiologists remains high with a shortfall in posts of 29%, radically weakening the speed and breadth of PIR growth in the UK.
- PIR is a relatively invisible speciality, and is rarely mentioned within existing training programmes, meaning that medical students and junior doctors are largely unaware of the speciality as a career option.

There are huge inequalities in access to care across the country:

- While pockets of good practice exist, large parts of the country aren't sufficiently covered by PIR services or have inadequate services. Only 5 out of 12 consultant posts are based outside London.
- Both the 2019 NHS England and NHS Improvement 'Paediatric critical care and surgery in children' review and the 2019 NHS Long Term Plan committed to the development of paediatric healthcare networks, recognising that all patients should be able to access the right care at the right time.
- Yet currently, the design of national policies and the structure of regional service delivery is limiting this commitment. Trauma management is a prime example.
- While not all hospitals can or should be able to offer 24/7 PIR services, all hospitals must have robust arrangements in place to transfer children to other regional/national centres with PIR services, as is the case in other emergency care situations.

Inadequate facilities and equipment in almost all centres delivering PIR puts children's safety at risk:

- New services have frequently been developed through workarounds and compromises; often repurposing spaces typically never built to act as operating suites. This can lead to compromises in infection control and patient safety (due to inadequate anaesthesia facilities and lack of physical space for staff or resuscitation equipment in the event of a major event).

- PIR facilities in these spaces often do not match the standards of some adult IR services and specialists may end up completing PIR procedures without sufficient nursing support.
- These inadequate surroundings lead to greater risks of the procedure failing, higher complication rates and increased radiation dose to the child.
- Most surgical and IR procedures in young children are performed under general anaesthesia meaning the two departments are intrinsically linked.
- In almost all hospitals, anaesthesia is a heavily oversubscribed resource; growing a new PIR service cannot take place without significant investment in the hospital's anaesthesia services.

More broadly, the value of PIR is under recognised by most paediatric departmental leads, hospital organisations, health boards and commissioners:

- Many adult IR treatments are widely considered the gold standard of treatment, yet the same cannot be said for PIR.
- For instance, a high proportion of children with cancer in the UK undergo invasive open surgery for both cancer biopsy and for vascular catheter placement for subsequent chemotherapy.
- These procedures could be delivered by paediatric interventional radiologists, yet are currently performed by paediatric surgeons, who should be focusing on other specialist work.
- Traditional 'open' surgery leads to an increased risk of complications and the length of hospital stay is much longer in comparison to a minimally invasive IR approach.
- Part of the challenge in increasing awareness of PIR services is the lack of meaningful data showing its potential value, making it difficult to present the business case or advocate for the development of services.
- Issues surrounding NHS coding methodologies and databases mean that interventional procedures are not identified, and paediatric procedures cannot be specified. This means that the huge disparities in PIR delivery across the UK remain unmapped and unrecognised.

We are calling for urgent action to ensure that all children eligible to receive PIR care do so in the right place, at the right time, and to the highest quality standard.

A four-point plan to improve PIR services across the UK

1. Service provision and capacity should be expanded, supported by the appropriate training and maintenance competencies.

- HEE should increase the number and availability of specialist PIR consultant posts and associated training capacity across all four nations.
- A cohesive course of training to cross-skill appropriate neighbouring clinical teams should be developed to deliver PIR services in innovative ways.
- The national capacity for PIR training should be expanded, including by considering how to better integrate PIR into existing training curricula to attract doctors and nurses in final stages of training.

2. A national gold-standard of care should be developed which requires all hospitals that provide paediatric services to have clear PIR policies in place.

- NHSE should mandate that all hospitals which provide paediatric services have clear PIR policies including referral pathways for children requiring PIR services to local centres.
- NHS delivery bodies should recognise PIR in the service specifications and assessment standards for Major Trauma Services. At a minimum, all paediatric Major Trauma Centres (MTCs) should offer 24/7 PIR.
- To ensure adequate PIR provision out of hours and for emergency care, NHSE should oversee the creation of a nationally commissioned PIR network model, led by Integrated Care Systems and paediatric surgical ODNs.
- NHSE should commit to commissioning an IR Getting It Right First Time (GIRFT) report to include recommendations for improvement in PIR provision.

3. All staff performing PIR procedures should be able to do so within a safe environment, with sufficient space, staff and equipment to support them.

- The Royal College of Radiologists (RCR), Royal College of Anaesthetists (RCOA) and British Society of Interventional Radiology (BSIR) should work collaboratively to stipulate the standards of infrastructure, funding and staffing required to deliver PIR care in all hospitals developing a PIR service.
- To ensure children have access to timely anaesthetic support, hospitals must include anaesthesia services in the development of PIR care pathways, with consideration to the GPAS guidance provided by the RCOA.

4. National and regional bodies should promote the value of PIR and opportunities for expansion within the wider healthcare system.

- NHSE should accept the recommended uplift in tariffs applied to PIR procedures to ensure PIR service development becomes a more attractive option for hospitals and commissioners.
- NHSE should incorporate PIR specifications into the paediatric surgery Operational Delivery Network (ODN) workstreams and recommendations to enable future advocacy.
- To support services in making the business case for PIR, more accurate and systematic methods of PIR data collection is needed. To enable this, NHSE should consult on a definition of IR, considering PIR specialists in discussions.