



ePoster

Establishing A Multi-disciplinary Paediatric Vascular Access Service: Key Considerations, Challenges and Implementation Strategies – A UK Perspective

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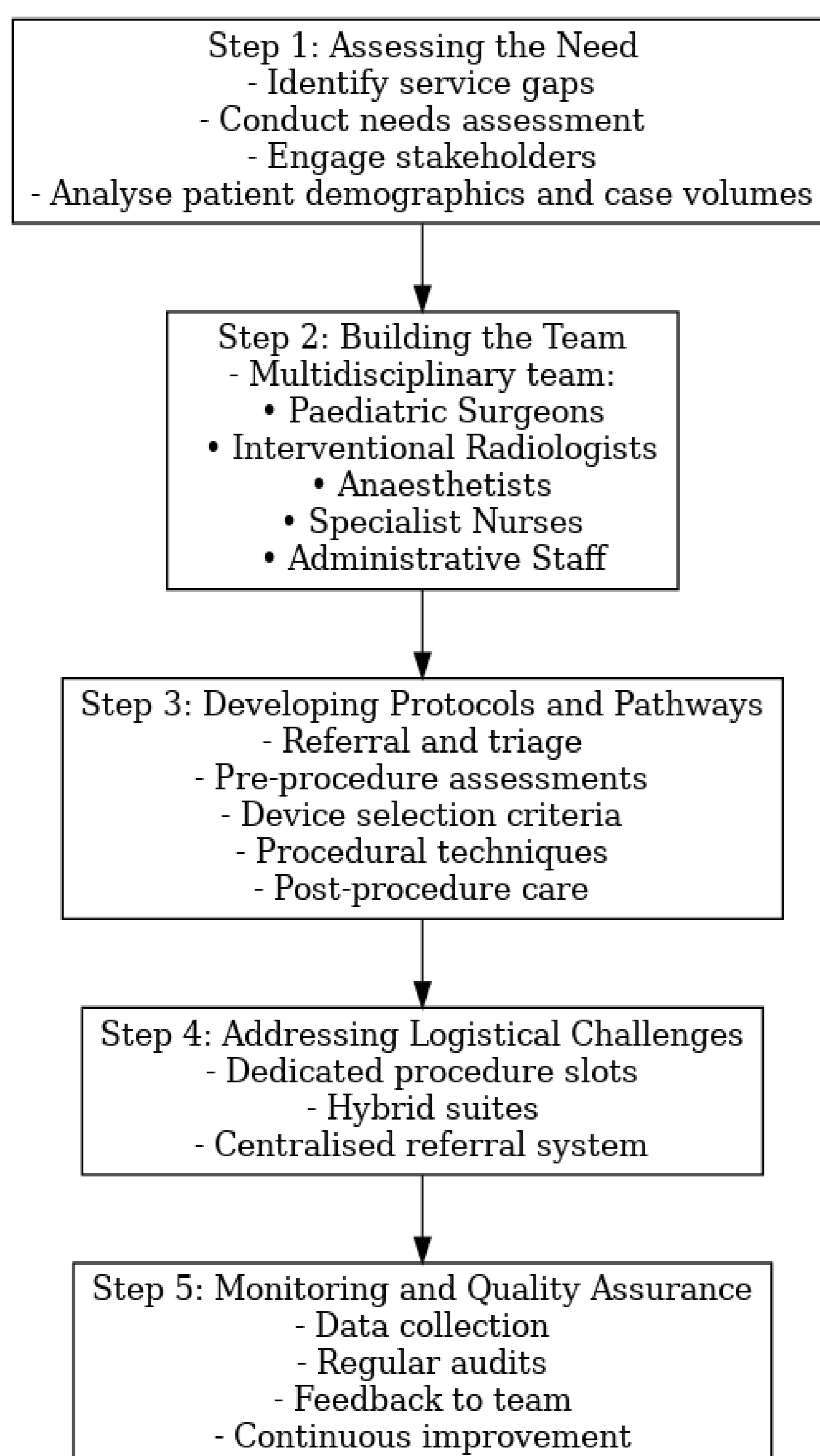
INTRODUCTION

Setting up a paediatric vascular access service is a crucial step to address the unique challenges associated with obtaining reliable vascular access in children, such as small vessel size, increased complication risks, and the need for long-term care coordination. Traditional models often lack multidisciplinary collaboration, leading to fragmented care, inefficiencies, and suboptimal outcomes. This guide outlines the steps, considerations, and potential barriers in establishing a dedicated, multidisciplinary paediatric vascular access service that integrates paediatric surgeons, interventional radiologists (IRs), and allied health professionals.

AIM

The aim of this study is to evaluate existing paediatric vascular access services, identify gaps in care, and implement multi-disciplinary strategies to enhance service delivery, ensuring improved outcomes for our paediatric patients.

Flow chart showing Steps to Establishing a Multi-disciplinary Paediatric Vascular Service



This flow chart outlines the key steps involved in setting up a dedicated Paediatric Vascular Access Service. Each step represents a critical component of the process, ensuring that the service is tailored to meet the unique challenges of providing reliable vascular access for children.

METHOD:

In 2023, the Royal College of Radiologists published an article reviewing ways to enhance Paediatric interventional radiology services in the UK. The article assessed current limitations and proposed strategies to address them. It emphasised the need and urgency for developing paediatric IR services, securing anaesthetic support, and creating consultant posts to provide sustained leadership. Additionally, it highlighted the importance of a coordinated approach to improving overall service provision. Drawing from these insights, we established a stepwise approach to enhance Paediatric IR services in our hospital as well as the UK overall.

Step 1: Assessing the need

The first step is identifying the service gap in existing care pathways. Conduct a needs assessment by analysing current referral patterns, procedural delays, and complication rates. Engage key stakeholders, including paediatric surgeons, IRs, anaesthetists, and nursing teams, to understand their perspectives and gather baseline data. A review of patient demographics and case volumes will help outline the demand for the service.

Step 2: Building the team

A successful vascular access service relies on assembling a committed, multidisciplinary team. Key members include:

- **Paediatric Surgeons and Interventional Radiologists** to provide technical expertise.
- **Anaesthetists** to ensure safe sedation and pain management.
- **Specialist Nurses** for pre- and post-procedure care, patient education, and follow-up.
- **Administrative Staff** to coordinate scheduling and streamline referrals.

Step 3: Developing Protocols and Pathways

Standardising protocols is critical to achieving consistent and efficient care. Develop clear pathways for:

- Referral and triage processes.
 - Pre-procedure assessments, including imaging and clinical reviews.
 - Selection criteria for devices (e.g., PICC lines, TIVADs).
 - Procedural techniques, with an emphasis on minimizing trauma and complications.
 - Post-procedure care and follow-up, including management of complications like infections or catheter displacement.
- Incorporate evidence-based guidelines and adapt them to local resources and expertise.

Step 4: Addressing Logistical Challenges

Operational barriers, such as limited operating room availability or conflicting schedules among disciplines, are common. Solutions include:

- Allocating dedicated procedure slots for vascular access.
- Using hybrid suites for combined IR and surgical procedures
- Implementing a centralized referral system to streamline scheduling

Step 5: Monitoring and Quality assurance

- Data collection and analysis (Collecting data on procedural success rate, complications, patient outcomes and service utilisation. From this we will be able to analyse trends and identify any recurring issues to develop targeted interventions.
- Regular audits
- Feedback Mechanisms (receiving feedback from patients, families and staff
- Training and continuous professional development
- Incident reporting

RESULTS

Following the establishment of the paediatric interventional service, we have successfully expanded the scope of procedures available to paediatric patients. Key interventions now routinely performed include vascular access (such as central venous catheter placements and PICC lines), gastrointestinal dilatation procedures (including colorectal and oesophageal strictures), and complex feeding tube insertions or replacements (e.g., gastrostomy and gastrojejunostomy). Additionally, we have managed emergent cases requiring drain insertions (e.g., abscess or pleural drains) and nephrostomies. These advancements have significantly reduced the need for external referrals, minimised delays in care, and improved access to specialised interventions for paediatric patients within the region.

CONCLUSIONS

Establishing a multi-disciplinary paediatric vascular access service is a complex but rewarding endeavor. By integrating expertise, standardising protocols, and addressing logistical barriers, the service can significantly enhance the quality of care for paediatric patients. The success of such a program relies on strong teamwork, effective communication, and a commitment to continuous improvement.

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