

## IQ\_2012\_06\_venus - Daily Practice

### Paediatric IR



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The smallest patients need special care, and that is precisely what paediatric interventional radiologists provide. Although a rare breed, there is great interest in this sub-specialty, with many children's hospitals offering a paediatric interventional radiology (IR) programme, or looking to begin one.

IQ talks to Dr. Anne-Marie Cahill, director of the Paediatric IR programme in the Children's Hospital of Philadelphia, Pennsylvania, to find out what makes the specialty so unique.

#### How Many Children do You have Coming Through Your Centre?

We do about 20-25 procedures a day, which is a huge volume. We're one of the largest in the US, with four paediatric interventional radiologists. Many of our patients have very specialised diseases, so they'll come from all over the country.

#### How Many Hospitals Offer Paediatric IR?

Only the major children's hospitals offer this. There are probably only 10-15 of them in the US. In Europe, the big centre is Great Ormond Street Hospital in London. Outside these centres, standard interventional radiologists may sometimes have to treat paediatric patients, as many places won't have a dedicated children's IR service within reach. However, the conditions and physiology of a paediatric patient are different from those of an adult and ideally, they should all be seen by specialist paediatric interventional radiologists.

#### Are all the Procedures You use Specific Paediatric Procedures?

There is an overlap with the adult procedures, of course, but there are some children-only procedures we do – a common example is lumbar puncture: if babies get fever they have to test what the origin of the fever is. We'll use ultrasound to go into the spinal canal, because their bones aren't fully formed, so there is a window. You would never be able to do that in an adult. But most of the procedures we do can also be used in adults, the main difference being the size: if it's a tiny access, like a small artery or vein, a standard IR might have to spend months with us learning how to get into these small vessels, small livers, small lungs, to do biopsies.

#### Is it Difficult to Find the Right-Sized Equipment?

It is: you need smaller needles, smaller access wires, little catheters that would be way too small for adults. One company in particular has worked very closely with us to meet our needs, and we also use the smallest equipment of other companies, such as balloons for angioplasty or drainage catheters.

The calibration of the imaging equipment is also crucial – we see it all in one day, from premature babies to very large teenagers. The room must be set up to accommodate either, with X-ray equipment that's appropriate and monitoring devices that are smaller. You have to change your scope all day long.

The "adult" interventional radiologists don't have this to consider – patients might have varying degrees of illness, but their size-range is nowhere near as diverse. It's a completely different mindset – we always have to think about who's coming in next.

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### **Are There any Other Challenges Facing Paediatric IR?**

A big challenge is protocol, particularly in oncology. The culture in paediatrics is a protective one. There's a sensitivity to doing research on children, and understandably, families are often reluctant to go off protocol or be randomised.

Additionally, it's hard to gather data: for example, the volume of malignant cancers that would allow us to do a prospective randomised trial is limited and there are rarely the numbers to run two arms of a trial. Even if there is a promising technique in the adult world, such as TACE, there usually isn't the data to support its use in children. So I think we paediatric interventional radiologists really need to get together and pool our data.

### **What Kind of Feedback do You Tend to Get from Parents and Patients? Do they Ever have Doubts About Whether to go Ahead with New Procedures?**

Parents can be very nervous about allowing new therapies for their children. But when we do manage to recruit for a new procedure, for example, photodynamic therapy for neurofibromas, we have had promising results, and they're then more confident about enrolling for Phase II.

Parents are often very grateful for what we do for their children, whether it's an everyday procedure or a lifesaving treatment. They recognise you around the hospital and take the time to give you feedback. Families come back to us giving us hugs; the kids remembering the experience and telling us how much better they're feeling. It's a very sad situation when things do not go well, if a biopsy brings bad news, for example – but even then, many are grateful for that knowledge. There are lots of highs and lows in children's hospitals.

### **How Many Paediatric Interventional Radiologists are There – is it a Popular Career Choice?**

There certainly is interest: I personally have offered fellowship training for five years now, and we have fellows lined up for the next three years already, and others wanting to come. So, it's definitely rising in popularity but overall numbers are still low.

Unless we are able to recruit sufficient people to provide the service, it will hinder the discipline, which would be a huge shame – there is so much demand for our services, it's a unique profession. Nobody can provide what we do – vascular surgeons rarely specialise in children, and paediatricians have a totally different skill set.

### **Why is Your Hospital Management Happy to Provide the IR Department with State-of-the-Art Equipment?**

Our patient volume is high enough that there is a budget for upgrades every few years. We're very visible in the hospital: we offer an indispensable service.

The surgeons don't want to open up a liver when we can go in with catheters. There are things that only we can do in a minimally invasive way, such as vascular access, the PICC lines, the biopsies. And there are things that the surgeons would not be able to do if we were not there – there's a mutual respect. We have a good relationship with all of our referring physicians – it's one of the things that makes the hospital so successful.

C.M.

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### **Children's Hospital of Philadelphia**

The Children's Hospital of Philadelphia is the USA's oldest children's hospital, offering family-centred care. It is well known for its excellence and innovation, having been ranked "best pediatric hospital in the United States" by Parents magazine, as well as joint first in U.S. News & World Report's Honor Roll of the nation's Best Children's Hospitals.

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Patients at CHOP benefit from a family-oriented approach and receive their advanced therapies in welcoming surroundings.

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Published on : Wed, 20 Jun 2012