

How to....

Train the Next Generation of
Paediatric Electrophysiologists
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The Next Generation...



What Does The Future Hold for Congenital Arrhythmia Management?

- Continuing workload of paediatric arrhythmia and pacing
- Expanding workload of complex arrhythmia given the expanding population of ACHD patients
- Expanding workload of ACHD patients who will require implantable defibrillator insertion
- Increasing use of mapping technology to improve current success rates in complex cases

The Current State of UK Paediatric EP

- Long waiting lists
 - Single operators per centre
 - Few experienced paediatric cardiac physiologists
 - Some centres with no paediatric EP specialists
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- An increasing workload on the near horizon
 - No new consultant paediatric electrophysiology appointments for a number of years

The Current Issues Affecting Training

- In some centres in the UK, paediatric EP is either not performed at all or not performed by paediatric cardiology doctors
- This has the potential to reduce exposure of trainees to the special interest area and reduces training opportunities for those interested
- In previous curricula, there have been no formal arrangements for training in paediatric EP
- From the 2007 curriculum and into the current 2010 curriculum there are training arrangements set out...

Is anyone following the current training recommendations?

- The 2007 curriculum introduced 2 year “senior fellowship” positions, to be taken up prior to CCT following a 3 year period of basic paediatric cardiology training
- These proposed 2 year positions were supposed to be developed in a number of special interest areas within paediatric cardiology
- Whilst other special interest areas developed training positions, we currently have no formal paediatric EP fellowships in UK hospitals

How are trainees currently being trained?

- Most trainees in curricula prior to 2007 have been exposed to some EP informally in the early stages of their training
- Some have gone on to develop a personal interest in EP and attended lab sessions and clinics on an informal basis
- A few have then gone on to organise formal fellowships in EP departments

But... Mostly not in the UK



Why Train in Canada?

- **Larger populations** - Toronto “Sick Kids” covers a population of 8 million people
- **Larger departments** - There are 4 full-time paediatric EP specialists in this one hospital
- **Focused training** - They aim to employ 2 full-time trainees per year, who have no role in general paediatric cardiac work
- **Culture of research** – Ongoing study and formal research time is built into everyone’s job plan

Practical teaching

- In Toronto, they expect to have 2 consultants and 2 fellows present during each and every case
- Teaching occurs both in the lab with catheter manipulation and at the stimulator in the control room
- As there is time available for tuition (and experienced personnel with time to teach), everyone learns

Or in the UK, but not in paediatric cardiology departments

- There are a number of formal adult EP fellowships in the UK to which paediatric trainees have occasionally been appointed
- Far larger case numbers than available in paediatric centres
- More lab sessions per week meaning more hands-on catheter time
- But EP is becoming more popular amongst adult trainees and therefore these jobs may become scarce

Training in an Adult EP department

Pros

- Greater numbers of cases
- Often multiple consultants per centre allowing more time to train
- Easier to obtain hands-on catheter experience
- Exposure to complex mapping techniques
- Frequent trans-septal punctures

Cons

- Greater burden of workload now taken up with treatment of Atrial Fibrillation
- Greater competition for jobs for which paediatric trainees may not be considered suitable
- Arrhythmia clinics often still include patients with ischaemic heart disease

Training in a Paediatric department in the UK

Pros

- Relevant experience to future practice
- Continued exposure to general paediatric cardiology patients

Cons

- Fewer cases (e.g. 50 EPS/RFA per year in Leeds)
- Consultants still need 1st operator experience to maintain skills therefore less opportunity for trainees to learn
- Little exposure to mapping techniques

Why are there no formal fellowships here?

- No centre has more than one paediatric EP specialist, so there is little time available for training (particularly with waiting list pressures)
- We probably need further consultant appointments to support the development of these training posts
- We need to start planning for appointments into fellowships which will then allow for formal training to develop along the lines of the “Special Interest” positions set out in the curriculum

The 2010 Curriculum proposals

- General paediatric cardiology training should include a basic introduction to the indications for pacemaker implantation and invasive electrophysiology.
- Those wishing to specialise in this field, however, will usually require an additional 2 years of training to achieve the curriculum competencies, obtaining concentrated experience in invasive techniques.
- This training should take place in an educationally approved post in a centre dealing with both paediatric cardiology and adult congenital cardiology services.
- In some cases, a period of up to 6 months may need to be spent in an adult cardiology unit in order to achieve the required competencies

Expected components of an EP training fellowship (2010 curriculum)

- 4-5 sessions per week of EP, pacing or clinics in the special interest area
- Continued commitment to general paediatric cardiology including on-call responsibilities
- Attendance at appropriate special interest specific courses
- Exposure to Adult EP and pacing is recommended

Expected Skills at the end of the Training Programme

- Insert a single or dual chamber pacemaker
- Perform a trans-septal puncture
- Perform an electrophysiology study
- Ablate AV node, accessory pathway and ectopic foci
- Implant an implantable defibrillator
- Perform overdrive pacing
- Pace externally with post-operative pacing wires

How will these skills be assessed?

ST7 competencies

- Valid IRMER certificate
- 75% satisfactory results from 10 consecutive DOPS and 10 consecutive CbDs

ST8 competencies

- Valid IRMER certificate
- Fully satisfactory results from 20 further, consecutive DOPS

Challenges to Training

- Needs to be delivered within a 48 hour week
- Given current rotas, the EWTD often requires a full day off for compensatory rest following an on-call shift
- There are significant issues with losing special interest sessions post on-call, which could markedly reduce experience available
- Issues related to continuing Consultant experience for revalidation purposes in addition to training of registrars with limited case numbers

What would be an ideal training programme?

- Training within both paediatric and adult EP departments to allow for complimentary experience and reduce negative aspects
- Maximise practical experience in EP and pacing labs
- Minimise EP training time lost by EWTD compliance(perhaps by fixing on-call commitments)
- Develop a culture of training with ongoing assessment and feedback
- Include ACHD experience within timetable

How do we achieve this ideal training?

- Initial dialogue between paediatric and adult EP clinicians to organise availability of training time
- Centres currently performing paediatric EP need to develop special interest job plans and apply to the SAC for approval
- Once SAC approval has been given, we need to actively recruit ST6 trainees and encourage them to take up EP as a career
- This may well require national advertisement of posts to ensure the most appropriate trainees are selected

Is this enough experience for a new consultant?

- 2010 curriculum requires minimum 4 sessions per week dedicated to special interest
- 4 sessions per week – 2 clinic, 2 lab sessions
- Once annual and study leave have been taken, 42 remaining weeks per year
- 84 lab sessions per year
- 168 per fellowship...

If not, what next?

- Post CCT fellowships in addition to 2 year training posts
- Out of programme experience during training period – either in the UK at another centre or abroad in an approved centre
- No longer acceptable to learn the majority of your invasive EP skills “on-the-job” as a new consultant

How to train the next generation...

- But first....

Can we employ the current generation of trainees in paediatric electrophysiology?

That's My Opinion...

- Any questions or comments are very welcome