The Future of Child Neurology: Challenges and Opportunities

“What is an Academic Child Neurologist?: The Future of Graduate Medical Education and Training”

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Cincinnati Children’s Hospital Medical Center
No relevant disclosures

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Topics

• How does one define an academic physician?
• How do we recruit students with academic potential into child neurology?
• How do we train academic neurologists during residency?
  – Program Directors and Academic Faculty
  – A Flexible Future
• How do we retain academic child neurologists?
I. Academic Physicians
Defined
What Is Academic Medicine?

Medical education... research...patient care. These three missions are the core of academic medicine, a unique area of health care involving the nation’s medical schools, teaching hospitals, and the faculty physicians who work at these institutions. These are the places where the next generation of health care professionals is trained, where medical breakthroughs break through, and where patients can receive the world’s most advanced care.

The focus is on learning, questioning, advancing the practice of medicine, and discovering new scientific knowledge for the benefit of patients.

Association of American Medical Colleges (AAMC)
https://www.aamc.org/
So, while taking care of patients, an academic physician...

• Teaches Students/Residents/Fellows
• Questions
• Does Research
• Innovates
• Makes tomorrow better than today
II. Recruiting Students (with Academic Potential)
High points from conversations

With 20 Residency Program Directors... and counting
Pre-med

• High School, Undergraduate awareness is low

• Participate! High School Science Day! Guest speaker in local AP biology class!

• Include some clinical shadowing in undergraduate research opportunities
Medical School years 1 and 2

• “Pre-clinical” teaching – get your faculty into the Brain/Behavior Course for 1st/2nd year med students. At some centers CN faculty direct it!
  – Peds ➔ Peds Neuro
  – Neuro ➔ Peds Neuro

• Teach with cases – videos, images – that defy misconceptions (we can treat, not merely diagnose) and capture intellectual interest
In addition to cool neuroscience and patient care...

• Show your diverse residents and faculty
• Show fun social activities
• Show patient advocacy activities
• Show your diverse, academic gang having fun
Bring the Med Students in Early to Clinic!

• Google Docs Shadowing at Cincinnati Children’s Child Neurology

• Epic Report Process
  – > 400 clinics per month into Excel
  – Assign residents and clerkship students
  – Offer other clinics via google docs to M1/M2 and others interested
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<th>PROVIDER</th>
<th>TYPE OF CLINIC/PATIENTS</th>
<th>DAY</th>
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<th>TIME</th>
<th>LOCATION - note AM clinics usually 8 AM to noon; PM clinics usually 1PM to 5PM</th>
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<td>CAPAL, JAMIE KORIN</td>
<td>General Neurology</td>
<td>MONDAY</td>
<td>10/03/2016</td>
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Support Medical School Research

• At Cincinnati Children’s, every summer Dr. Cameron Thomas and Marcie Spradlin (admin) organize a program for 4-6 med students between year 1 and 2 to do mentored neurology research
• Includes research curriculum and clinical shadowing
• Presentation at the end of the summer
• See Poster/Abstract 233 by Michael Guthrie on TMS-M1 probe of Response Inhibition
Clerkships!

Target Audience Kid/Neuro-system clinicians
Was Child Neurology a Component of your Med School Neurology Clerkship?

- **YES:**
  - Residents 29% -- WHY SO LOW?
  - Practicing Child Neurologists 41%

*Gilbert et al, Pediatric Neurology 2016*
From a Child Neuro PD:

Our Neurology Clerkship Director tells our students: “You can do Child Neurology for the clerkship but: You Probably Can’t Do Well on the Shelf Exam and Get Honors if you do the Child Neurology Clerkship... because you won’t learn enough adult neurology”

Are we being undermined by this clerkship director?
More From PDs on the clerkship

• Consults or Inpatient? – *more consult*
• Combined with adult? – *definite option*
• Peds Neurology only – *very few programs!*
  – At Cincinnati - We allow them to choose Ped Neuro for the entire 3rd year clerkship. Two weeks inpatient, two weeks outpatient. Combined education with adult neurology clerkship students
III. Supporting and Fostering Academic Training During Child Neurology Residency

- PDs and faculty
- Training
PDs and Faculty

What does a workforce analysis tell us about ability to support academics in residency?
Program Coordinators are Managers
Child Neurology Program Coordinators Organization

• Organized by Julie Campbell, Julie LaBare, and Terri Feist (supported by Nationwide in Columbus, Mayo Clinic, Cincinnati Children’s)
• Analyzing their third annual survey (1 published, 1 submitted in review)
• 3rd survey data PCs and PDs presented at Education Sig 2016
### PD: Academic Rank

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<th>Percentage</th>
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<td>Assistant Professor</td>
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<td>Associate Professor</td>
<td>32%</td>
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<td>Full Professor</td>
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N=41

Feist, LaBare, Campbell in preparation
# PD: Protected Time

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<th>0 - 0.05</th>
<th>0.06 - 0.10</th>
<th>0.11 - 0.15</th>
<th>0.16 - 0.20</th>
<th>0.21 - 0.25</th>
<th>0.26 - 0.30</th>
<th>0.31 - 0.40</th>
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<td><strong>PD-reported ACGME expected protected FTE time</strong></td>
<td></td>
<td>5%</td>
<td>5%</td>
<td>20%</td>
<td></td>
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<td><strong>PD-reported actual protected FTE time</strong></td>
<td>7%</td>
<td>12%</td>
<td>22%</td>
<td>17%</td>
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- **30% wrong about ACGME policy**
- **60% Under-protected**

Feist, LaBare, Campbell in preparation
PC: Tenure – turnover problem

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<td>&lt;1 year</td>
<td>18%</td>
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<td>1 to 5 years</td>
<td>42%</td>
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<td>6 to 10 years</td>
<td>19%</td>
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<td>11 to 15 years</td>
<td>14%</td>
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<td>16 or more</td>
<td>7%</td>
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Feist, LaBare, Campbell in preparation
## PD: Duration, turnover

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<th>Years as PD at Current Institution</th>
<th>Percentage</th>
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<tr>
<td>&lt;1 year</td>
<td>10%</td>
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<td>1 to 5 years</td>
<td>51%</td>
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<td>6 to 10 years</td>
<td>27%</td>
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<td>11 to 15 years</td>
<td>7%</td>
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<tr>
<td>16 or more</td>
<td>5%</td>
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Feist, LaBare, Campbell in preparation
All: Work and Clinics Per Week

Feist, LaBare, Campbell in preparation
Assorted Comments from these busy PDs about supporting scholarship during residency
“Yes, we require a project but the residents have a very difficult time thinking of a project.”
“Sometimes I have to assign the project.”
“They are tired. On their one research month they work 9AM to 3PM. And take vacation.”
“They say they want to do academics on their personal statement, but that’s not necessarily true.”
“It’s all about who you recruit, not what we do after we get them.”
Let’s unpack our traditional training

- Undergraduate (?
+ Gap year) → age 22
- Med School learning about all types of general medicine → age 26+
- Pediatrics, two years very general (if not neuroscience path) → age 28+
- Adult neurology, one year around patients you will never care for again → 29+
- Initial intensive exposure to CN: age 30
Proactive Approaches

• “We build on research training provided by/during the pediatric years”
• “We are revamping our approach and moving electives earlier”
• “We have created a core research support committee with early mentorship, IRB-assistance, statistical assistance”
• “We have a “research blitz” early each year”
• “We have a donor that supports resident research”
“I find that residents find their mentors and projects so much earlier by having child neurology experience early PGY3 year”

Despite the changes in 2014, the PGY3 adult year still dominates training in the USA. How about alternative approaches to “the adult year”? 
Surveys: consider wording of questions
Current ABPN survey of recent grads

13. Please select from the following your opinion regarding the length of your adult neurology training: (Please select one answer choice)
   - The length of training was too short
   - The length of training was adequate
   - The length of training was too long

14. In your opinion, what should be the length of residency training in clinical adult neurology for a child neurology resident? (Please select one answer choice)
   - 0 months
   - 3 months
   - 6 months
   - 9 months
   - 12 months
   - >1 year

15. Please select from the following your opinion regarding the length of your child neurology training: (Please select one answer choice)
“How useful were child vs. neurology rotations for current clinical practice?”

Gilbert et al. Journal of Child Neurology 2013
“Which residency training model would be most clinically useful for your child neurology practice?”

- More Child Months, Reduce Adult: 70%
- Keep 12 adult, add more electives: 28%
- Keep 12 adult, no change: 18%

For clinical management of diseases which are:
- Common: 16%
- Rare: 11%

First ABPN certified 2001-2010

Gilbert et al, Journal of Child Neurology 2013
Child Neurology Program Director Views on Optimal Clinical Training

- 73% More Child, Fewer Adult
- 27% Same 12 months Adult

Valencia et al. Pediatric Neurology 2016
AAP / CNS Workforce Survey:
Should fewer months of adult neurology be established as a training option for board eligibility in pediatric neurology?

73% Yes

Gilbert et al *Pediatric Neurology* 2016
The upshot: surveys support reducing adult neurology training for child neurologists – percent supporting change

- First ABPN Certified 2001- CN Program Directors (2010) (1)
- AAP CN workforce survey data (3)

(1) Gilbert JCN 2013  (2) Valencia Ped Neurol 2016  (3) AAP data not yet published
Program Director Views on Reducing Adult Neurology Training

- 59% Believe ABPN and ACGME should change requirements
- 57% Would pursue changes at their own program
- 70% Believe changes should be program-flexible

Valencia et al. Pediatric Neurology 2016
Program Director Views on Barriers to Reducing Adult Neurology Training

- 55% Service and manpower needs of adult hospital
- 34% Finances for resident salaries
- 27% Insufficient patients/facilities/faculty

Valencia et al *Pediatric Neurology* 2016
Top Areas for more subspecialty exposure

- Genetics
- Neuromuscular
- Behavior/
- Movement
- Neonatal
- Sleep
- Neurocritical
- Spasticity
- Research
- Rehabilitation
- Demyelination
- Palliative Care
- Psychiatry
- Neurosurgery
- TBI
- EEG/

PDs

- Genetics
- Neurodevelopment
- Traumatic Brain
- Fetal/Neonatal
- Neuroimmunology
- Neuropsych incl...
- Metabolic
- Neuromuscular
- Seizure
- Movement incl...
- Headache
- Neuro-oncology

AAP survey
What can PDs who favor reducing adult neurology training do in the short term?
And how might changing adult training help develop academic child neurologists?
State of our US training regarding year 3

- Most programs still over-rely on adult neurology faculty to provide foundational clinical training of their residents, with nearly all 12 adult neurology months PGY3 year

- Many child neurology residents favor “just getting it over with” (“pull the bandaid off all at once”)
Benefits of more child neurology PGY3 year

- Child neurology inpatient and consult service patients are followed by resident in continuity clinic for up to 3 years instead of up to 2
- Early exposure to child neurology outpatient work
- Early experiences with potential mentors
- Early clinical work with multiple subspecialties
- Continue to build relationships within pediatrics – general, genetics, NICU, DBP, radiology, science – etc etc
Benefits of more child neurology PGY3 year

• The neuroscience community – is it in the Children’s Hospital?

• Didactic and Bedside Education – learn child neurology early and have more longitudinal opportunity to practice it while supervised

• More time to develop lifelong relationships with peers in child neurology
Opportunities with Adult neurology migrated to PGY 5 year

• Electives can be targeted to a subspecialty or research interest instead of time-based one size fits all get-it-over-with training

• Training occurs closer to the board exam
  – >50% of PDs disagree with distribution of questions on ABPN boards part 1 (Valencia et al Ped Neurol 2015)
Flexible training

What our residents often do...

Works for us in Cincinnati, maybe for you too?
What we do: PGY3 year

- Child Neurology: 8 months including 2 outpatient months, 1 EEG month, 1 research month, 4 inpatient/consult months

- 2 adult consult months, 2 adult inpatient months at University
What we do: PGY 4 year

- Child Neurology 8 months including 4 months inpatient/consults, 1 month outpatient, 1 month EEG, 1 month psychiatry, 1 month elective

- Adult neurology 4 months: 2 months consults, 2 months clinic
What we do: PGY 5 year

- Child Neurology 8 months including 2 months inpatient/consults, 1 month outpatient, 1 month EEG, 4 months elective

- Adult neurology 4 months: 1 month clinic, 3 months electives (not radiology! Usually not path)
Research Tuesdays in Cincinnati

• Neuroscience Research Group: MDs and PhDs
  – Talks by residents all three years
  – Statistical support

• Neurology Division Scientific Review – IRB protocols presented before the faculty review committee
What about general pediatrics?

Should we consider a 4-year total residency, like adult neurology?
Should four (4) years of training with one (1) year of general pediatrics be established as a training option for board eligibility in pediatric neurology?

Percent Respondents

Yes: 58%
No: 42%
Why is this favored by many?

• Tends to be favored more by private practice docs – they do not practice in nor see value of gen peds?
• Almost no initial or re-certification through ABP so what is gained?
• Is the extra year a barrier to research-oriented child neurology fellowships?
IV. Retaining Academic Child Neurologists
Debt

• Too High:

• K23 can → the NIH Loan Repayment Program

• Debt is An Obstacle to Fellowships – residents/fellows need to pay off debts, so research oriented fellowship at fellow/instructor salary is difficult for young adults/faculty members
Problems with $ oriented academic medicine

• Some Faculty feel residents slow them down in clinic, which results in lower billing and fewer RVUs
• RVU / revenue generation pressure stifles time for intellectual inquiry
• Is this an overhead problem at academic centers?
• Should academics accept (even) lower salaries?
NIH salary cap

• Faculty who perform NIH funded research while paid like clinicians end up siphoning off money from other faculty who see more patients

• ***My NIH grants as a full professor mean that our assistant professors have to work harder so I can get my salary
Women faculty

Younger faculty more women

Generated from AAP Workforce survey data by Paul Horn PhD
Women’s issues

• Still underpaid relative to men
• Still under-promoted relative to men
• May need career intermission during early family life
• Example: Why was it so difficult to get the ABPN to change the initial certification exam date and clinical completion time?
Positives of Academics

• Intellectual Stimulation of a community of learners at multiple stages of training and career
• Clinical research is fun
• Impact outside of your immediate sphere
• Ultimately a life well lived
## Collaborators in this talk!

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<td>Nancy E.</td>
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<td>Philadelphia</td>
<td>PA</td>
</tr>
</tbody>
</table>


Plans

• Let’s continue the conversation – I plan to keep calling
• Let’s consider carefully the education survey results
• I’m putting together a “Best Practices” document based on PD input for enhancing recruiting and supporting academic efforts in residency
Conclusions about how to improve academics in child neurology

We are stronger together and can learn from one another as PDs and faculty.

Institutions have different strengths and barriers to academic training.

To optimize both clinical training and academics, more flexibility and fewer time-based requirements are needed in child neurology training.
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