IPads and the Academic Half Day: Embracing the Future in Resident Education

Chief Residents
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Background
- Residency education and healthcare technology are two expanding fields that overlap in their developments and challenges.
- Over the last several years, satisfaction in residency education has been impacted by work hour regulations. In order to conform to the guidelines set forth, residency programs are forced to become innovative with resident lecture education.
- The concept of weekly block lectures has been used in several residency programs with beneficial preliminary results.
- We hypothesized that the introduction of the Academic Half Day would improve resident education.

In addition to the restriction of work hours, most residency programs have entered the world of EMR. In order to stay current with the ever changing technology, we believed that the introduction of the iPad2 WiFi would benefit our residents.

Improving Education
Goals:
- Improve resident satisfaction thru Academic Half Day
- Improve resident attendance thru Academic Half Day
- Improve in-service exam scores, as well as Board scores (future goal)
- Improve access to educational resources thru implementation of mobile device
- Improve patient education and satisfaction thru implementation of mobile device

Methods
- A retrospective survey was given to the residents to evaluate the prior lecture series, educational resources used by the residents, and resident satisfaction during the 2010-2011 academic year
- 50 residents responded to the initial survey
- A second survey was given to the residents 3 months after the initiation of the academic half day and 1 month after the iPads were issued
- 39 residents responded to the follow up survey
Lecture Series 2010-2011

- One hour lectures at noon on Monday, Tuesday, and Wednesday
- Case conference on Thursday mornings at 8am
- Grand rounds on Friday mornings at 8am
- Various topics without consistency on board relationships

Lecture Series 2010-2011

- The overall attendance to lectures during the 2010-2011 academic year was less than 50%
- The major barriers to lecture included
  - Service requirements preventing on time arrival
  - Pages out of lecture
  - Work hour restrictions

Overall Avg Attendance 2010-2011

- Lectures Attended
- Lectures not Attended

Attendance by Service 2010-2011

Resident Satisfaction

- Residents (%) did not feel that the 2010-2011 lecture series prepared them for the in-service exam or pediatric boards.
- Most residents (%) also believed that the program did not have a strong emphasis on education.
- Residents felt that they were given little guidance for the preparation of lectures.
- Overall residents were not satisfied with the 2010-2011 lecture series.
For PL2 and PL3 only, how much time was spent preparing for daily lectures in the past?

- 0-10 min
- 10-30 min
- 30-60 min
- >60 min

For PL2 and PL3, did you feel that you were given guidance on study material for lectures?

- Yes
- No

Resident Satisfaction

Percent of residents that felt prepared for the in-service exam with daily lectures

- Prepared
- Not Prepared

Do you feel the program had a strong emphasis on learning with once daily lectures?

- Yes
- Maybe
- No

Resident Satisfaction

How satisfied were you with the daily lecture series?

- Very satisfied
- Somewhat satisfied
- Not satisfied

Changes

- The academic half day was introduced with weekly 3 hour lectures that are topic based and follow the ABP content outline
- Recommended reading is sent out to each resident the week before lecture
- Lectures were scheduled as a shift in order to prevent work hour violations
- Residents were given protected time in which they were excused from patient care duties and pagers were turned off
Lecture attendance improved from 39% to 98.75% with the implementation of the Academic Half Day. Residents were again surveyed with 37 responses. Resident satisfaction greatly improved with a feeling of preparedness for the boards and a stronger emphasis on education.

### 2011-2012 Overall Attendance

<table>
<thead>
<tr>
<th>Service</th>
<th>Pre-academic half day</th>
<th>Post-academic half day</th>
</tr>
</thead>
<tbody>
<tr>
<td>Elective</td>
<td>10</td>
<td>15</td>
</tr>
<tr>
<td>Clinic</td>
<td>20</td>
<td>25</td>
</tr>
<tr>
<td>Wards</td>
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<td>35</td>
</tr>
<tr>
<td>PICU</td>
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<tr>
<td>NICU</td>
<td>50</td>
<td>55</td>
</tr>
<tr>
<td>ER</td>
<td>60</td>
<td>65</td>
</tr>
</tbody>
</table>

### Resident Satisfaction

**Do you feel that weekly block lectures are beneficial?**

- Yes
- No

**How do you feel about the 3 hr length of the lectures?**

- Too long
- Just right
- Too short
How much time do you spend preparing for weekly lectures?

- 0-10 min
- 10-30 min
- 30-60 min
- >60 min

Have you noticed an improvement in quality of education since introduction of protected time?

- Yes
- No

In the past 3 months, do you feel that you were given adequate guidance on study material for lectures?

- Yes
- No

Do you feel that the current schedule of weekly lectures will prepare you for the boards/inservice?

- Yes
- Maybe
- No

Do you feel that the program has a stronger emphasis on your education since instituting weekly lectures?

- Yes
- Maybe
- No

How satisfied are you with the weekly block schedule?

- Very satisfied
- Somewhat satisfied
Summary

- Academic Half Day allows for improved lecture attendance and increased resident satisfaction
- It is hypothesized that this will lead to improved in-service exams and board scores

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In your opinion, how available are computers on the floors?

- Always available: 16%
- Somewhat available: 74%
- Rarely available: 10%
- Never available: 0%

How much time is spent waiting on an available computer?

- 0-5 min: 10%
- 5-10 min: 16%
- 10-15 min: 74%

Mobile Devices

- Compatibility
- Ease of Use
- Cost
- Speed
- Tech support
- Convenience
- Functionality
- Educational Opportunities

iPad2

- Operating System – iOS 5
- Display: 9.7" LED widescreen, multi-touch display
- Storage: 16GB with ability to increase
- iCloud – storage available
- Battery Life = 10 hours
- Processor = 1 GHz dual-core Apple A5 chip
- Wifi available - secure
- Cost = $499
- Tech Support annually

Have you ever used an apple product (iPad, iPod, Mac) before?

- Many of the residents were familiar with Apple product
- Help transition to mobile device
- Enthusiasm and Interest in becoming one of the first residency programs to introduce the iPad

HIPAA Compliance

- Each iPad2 is set up with a 5 minute lockout and an Alpha Numeric Passcode
- In comparison to floor computers which have a 15 minute lockout
- Improvement in security of patient information in comparison to paper copies/signouts/labs
- Mobile ME - Allows for remote deletion of iPad2 contents if lost or stolen

Training Session

- Apple technicians and Chief Residents spent an afternoon training residents on use and application of iPad2
- Orientation – general and specific to pediatrics
- Preset applications were installed
- Schedule was streamed from Amion onto iCalendar
- Email Streamed
- Contract was signed
- Answered questions

Applications Downloaded

- Time Sheet
- iBooks
- Quickoffice
- Kindle
- Pdf notes
- Dropbox
- Overdrive
iBooks
- Library Collection
- Organized
- Lecture schedules with Articles
- Powerpoints from Lectures
- Easily referenced

Pdf notes
- Application that opens our signout system
- Ability to make text notes
- Touch screen writing
- Paperless
- Delete when finished
- Also can use for articles, books, etc

Quickoffice
- Allows user to open word, excel, powerpoint documents
- Allows sharing between residents through Dropbox
- Optional Application
- Notes

Nelson Textbook of Pediatrics
How much time per week is spent reading Nelson's Pediatric Textbook?

What is your primary reason for not reading Nelsons on a regular basis?

Kindle
- One of the many application portals for books
- Interns given Nelsons Textbook of Pediatrics
- Other residents have access through HUBNET
Education

- 79% use educational resources more frequently
- 84% have increased their time reading educational material
- 87% of residents said it improved their time management
- 100% of interns feel that they read their Nelson more since placement on their iPad

Applications Rating

- Quickof...
- Dropbox
- iBooks
- Kindle
- pdf notes

Home Screens Saved

- Kaleidoscope
- Lexicomp
- Bridge
- Up-to-date
- Evaluate
- Wardmanager
- AAP
- Pedialink
- HubNet/UB Library
- Amion

Hospital Use

- Hospital Use

Pedialink

- Board Review Questions
- Available thru AAP
- All residents have acct issued by program
- Educational tool

Evaluate

- University System for evaluations
- Educational Database
- Information on the Program
- Elective Schedules and breakdowns
HUBNET

- Hospitals and University at Buffalo Library Resources Network (HUBNET) is a collaborative project sponsored by the Library Consortium of Health Institutions in Buffalo (LCHIB).
- Electronic Resources for many specialties
- Recently added Harriet Lane and Nelson Textbook

Example of Use in Education

- 8 y/o female with congenital horseshoe kidney and pyelonephritis

Patient Education

- Important Area in Pediatrics
- Family Centered Rounds
- Goal:
  1. Always offer parents the chance to see scans, x-rays, lab results
  2. Explain disease processes and medications with use of visual demonstrations and hand-outs
  3. Multiple languages

Applications for Pt Education

- Examples: Human Atlas

How often were you able to show a patient x-rays, growth charts, or labs on the computer?

If we had access to patient labs and x-rays on the iPad, do you feel that you would use your iPad to educate parents and show values on rounds?

- Never
- Hardly
- Sometimes
- Often

- Yes
- Maybe
- No

8%
92%
3. “How to be a Block Head: A Practical Approach for Moving from Noon Conferences to Block Conferences in Pediatric Residencies” by John Frohna M.D. et al. Powerpoint presentation from AAPM Annual Meeting April 2011.
7. Blausen iPad Application Human Atlas HD