RADIOLOGY RESIDENT 4TH YEAR CLINICIAN-EDUCATOR PATHWAY

The following is designed as an approximately 12 week elective with time divided into short blocks (likely 1-3 weeks) during the 12 months of the 4th year. The overall goal is to graduate a resident with superior skills in teaching, evaluation and curricula design and with an understanding of educational research design. Shorter elective periods will require the structure to be modified accordingly.

ELECTIVE SUPERVISOR

Petra Lewis MBBS

ELECTIVE STRUCTURE

The elective encompasses 6 areas of study/application:

PEDAGOGY

Learning objectives

Upon completion of this elective, the resident will be able to:

1. Describe some current education theories including active learning, brain friendly learning, cognitive overload etc
2. Design practical applications of these theories, such as classroom flipping and small group workshop development.
3. Deliver his or her educational sessions using a learning method studied during this elective.
4. Conduct a high quality presentation, including soliciting audience participation, keeping to allotted time, clarity, brevity, pace
5. Create high quality multimedia educational material, such as Powerpoint™.

General Assignments

1. Outline how you will spend your dedicated elective time.
2. Getting promoted as a clinician educator
3. Running a great meeting
4. Using a task manager
5. Getting to inbox zero

6. Meet with PJL every 1 month (schedule with Eliz Underhill). At each of these we can update progress and do a short teaching session on a topic of your (or her) choice. This can be based on your current reading or project.
7. Go to AUR and attend the Education track sessions (and others as you wish), ACER, APDR etc
8. Attend the DCAL training course next year
9. Download Snagit (I think I have a license left) DC8CA-BKFBC-95FHZ-ZUZK7-C928E and learn how to use it with their tutorials. Best software ever!
10. Read assigned education articles and texts
11. Departmental educational sessions
12. One on one sessions with department faculty assigned according to topic

Evaluation

1. Qualitative evaluation by elective supervisor during one-on-one sessions
2. Documentation of conference/session attendance and on-line resource completion where possible
3. Evaluation of application in lecturing/small group work by faculty and learners

TEACHING

Learning objectives

Upon completion of this elective, the resident will be able to:

- Conduct a high quality didactic teaching session
- Develop and run small group and other active learning sessions

Assignments

1. Read Make it Stick
2. Read at least parts of the Efficiency in Learning book I gave you
3. Learn (YouTube, other online tutorials) how to do advanced Powerpoint presentations including animations, hyperlinks, movies, annotations e.g. masterslides, QR codes, morph function. We can go through some of these during our sessions.
4. Develop two teaching sessions during the year using concepts you have learned. One for medical students and one as your annual resident presentation. Both should use the principles of active learning, brain friendly teaching, and incorporate audience response questions using PollEverywhere. Discuss with me the topics before development. The student one should be ready to present by March.
5. Participate in one/several of the following: dissection/prosection, radiology-cadaver correlations, radiology simulation labs, anatomy-radiology sessions for 1st year students with Dr. McNulty
6. Watch these videos:

Memory and learning

Brain Friendly Teaching movie

Death by PowerPoint

Classroom flipping

Annotating during webex lectures

Cooling the hot seat

Teaching residents how to protocol

Evaluation

- Evaluation of presentations by faculty/residents
- Evaluation of workshops by medical students and student elective director
- Evaluation of anatomy skills workshops by medical students and supervising faculty

CURRICULUM DESIGN

Learning objectives

Upon completion of this elective, the resident will be able to:

- Design a curriculum for a specific topic
- Understand and write learning objectives associated with the curriculum

Assignments (depending on length of elective)

1. Learn the concept of competencies in radiology education
2. Understand the concept of Blooms Taxonomy
3. Develop or improve one component of the current radiology resident or student curriculum (e.g. a 4th year elective structure)
4. Watch this video: Learning objectives
5. Develop learning objectives for this curricular component
6. Contribute cases to DartRad
7. Develop 2-3 widgets for WIRED https://www.bookwidgets.com/a/home (use my login petra.lewis@hitchcock.org / wired) on topics of your choice

Evaluation

- Qualitative evaluation by the elective supervisor

EVALUATION AND FEEDBACK

Learning objectives

Upon completion of this elective, the resident will be able to:

- Describe competency based evaluations based on the learning objectives of the curriculum
- Write effective and psychometrically sound multiple choice questions

Assignments

Item Writing Guide

12 most common item writing mistakes

Giving feedback

Critique and feedback

NMBE item writing tutorial. Consider reading the NBME gold book

- Use the free version of PollEverywhere to develop high quality questions for your teaching sessions.
- Develop 20 questions for RadExam on any topics.
- We will schedule a 2 hour session to edit these together before they are uploaded to https://dhradiology.knackhq.com/radexam

Evaluation

- Evaluation of the competency based evaluation by the program or clerkship director
- One on one session with Dr Lewis discussing different feedback scenarios
- Evaluation of the submitted question items by Drs Lewis and McNulty

MENTORSHIP

Learning objectives

Upon completion of this elective, the resident will be able to:

1. Describe how the relationship between mentor and mentee can be productive to both individuals
2. Select and mentor a junior colleague
3. Deliver feedback to mentee in an effective and impartial manner

Assignments

- Read resources about mentoring in collection

- Read resources and attend sessions on giving feedback (e.g. at AUR), eg. https://uwaterloo.ca/centre-for-teaching-excellence/catalogs/tip-sheets/receiving-and-giving-effective-feedback
- Be a mentor to a student interested in radiology, with regular sessions with the student during the year

Evaluation

- Evaluation by the elective director and research mentor
- Evaluation by the medical student

RESEARCH (OPTIONAL DEPENDING ON ELECTIVE LENGTH)

Learning objectives

Upon completion of this elective, the resident will be able to:

1. Describe the ways in which performing educational research differs from scientific/clinical research
2. Develop a small educational project apply this knowledge.
3. Fill out an application for CPHS approval of an educational project
4. Write abstracts and manuscripts on educational topics
5. Present educational research

Assignments

- Read assigned papers on educational research
- Plan an educational project that can be executed during the year with a mentor
- If required, work with faculty to submit an application or CPHS Exemption to the CPHS for the study. Note: if this is needed, the project will need to be planned and the application made during the resident's 3rd year.
- Execute this project
- Present the project results to the department
- Submit an abstract to AUR/RSNA/ARRS
- Write up the project for publication (long term goal)

Evaluation

- Evaluation by research mentor
- Evaluation by faculty at project presentation
- Acceptance of abstract at meeting
- Acceptance of publication

Petra Lewis MD
Vice Chair of Education DHMC
March 13, 2023

APPENDIX: LEARNING RESOURCES

Dr. Lewis has a shared library in Papers with PDF resources

READING MATERIAL

PEDAGODGY

- What the best college teachers do. Ken Bain, Cambridge, MA: Harvard University Press, 2004.(can be borrowed from DCAL and Ebook from Amazon available)
- How Learning Works: Susan Ambrose et al. John Wiley 2010 (Ebook from Amazon available), PJL has a copy
- Efficiency in Learning: Ruth Clark et al. John Wiley/Pfeiffer 2006 (Ebook from Amazon available)
- Making it Stick , Peter Brown (PJL has a copy)
- Medical College Georgia: Medical teacher's handbook. Janis Work et al. (pdf in educator resources packet)
- AUR 2012 Corrie Yablon: "Types of educational research" (pdf in educator resources packet)
- Classroom activities for Active Learning. UNC (pdf in educator resources)
- Smoothing Out Transitions: How Pedagogy Influences Medical Students' Achievement of Self-regulated Learning Goals. Casey White. Advances in Health Sciences Education (2007) 12:279–297 (pdf in educator resources)
- AUR 2012 Aine Kelly "Assessing educational outcomes" (pdf in educator resources packet)
- Baylor Clinician Educator Handbook (pdf in educator resources packet)
- Does Active Learning Work? Michael Prince J. Engr.Education 93,223-231 2004 (pdf in educator resources packet)
- Successful teaching poster. Davis, Ohio Osteopathic College . (pdf in educator resources packet)

EDUCATIONAL RESEARCH

- Beckman TJ, Cook DA, Developing scholarly projects in education: a primer for medical teachers. Medical Teacher 2007 mar;29(2-3):210-18. (pdf in educator resources packet)
- Cook DA, Beckman, TJ. Reflections on experimental research in medical education. Adv in Health Sci Educ Theory Pract 2010 Aug: 15(3) 455-64. (pdf in educator resources packet)
- Frankel RM, Devers KJ. Study design in qualitative research 1: Developing questions and assessing resource needs. Educ Health 2000; 13 (2);251-61. (pdf in educator resources packet)

- Devers KJ , Frankel RM. Study design in qualitative research 2: Sampling and data collection strategies. Educ Health 2000; 13(2); 263-71. (pdf in educator resources packet)

- Ringsted C, Hodges B, Scherpbier A. 'The research compass': an introduction to research in medical education: AMEE Guide no. 56. Med Teach. 2011;33(9):695-709. (pdf in educator resources packet)

EVALUATION AND FEEDBACK

- Barebones guide to item writing. Petra Lewis. (pdf in educator resources packet)
- ABR Item writing guide (pdf in educator resources packet)
- Giving Effective Feedback: A Faculty Development Online Module and Workshop University of Colorado (folder in resources packet)
- Giving Feedback (The Good and the Bad.) UCLA. (DVD from Dr. Lewis)

MENTORING

- Mentoring Principles, Processes, and Strategies for Facilitating Mentoring Relationships at a Distance. Kalyani Premkumar, University of Saskatchewan College of Medicine (folder in resources packet)
- Mentoring workshop. Hofstra (in educator resources packet)

OTHER ONLINE RESOURCES

University of Waterloo Teaching Tips

https://uwaterloo.ca/centre-for-teaching-excellence/resources/teaching-tips

University of Minnesota faculty resources

https://cei.umn.edu/teaching-resources

University of Michigan short videos on how to engage students

http://www.crlt.umich.edu/faculty/Thurnau/ThurnauVideos

Salman Khan talk at TED 2011 on classroom flipping.

http://www.youtube.com/watch?v=gM95HHI4gLk

Hofstra Faculty Development materials (multiple useful resources including active learning resources on the classroom tab)

http://medicine.hofstra.edu/faculty/facdev/index.html

COURSES

AUR: AMSER and ACER programs as well as the APDR Teaching Certificate Program

Harvard Macy Program for Post-Graduate Trainees: Future Academic Clinician-Educators

http://www.harvardmacy.org/Programs/Programs-PostGrad.aspx

RSNA: Educator track

ARRS: Education series

MERC (Medical Education Research Certificate) from AAMC

https://www.aamc.org/members/gea/merc/

Toastmasters: (public speaking training)

http://www.toastmasters.org