Priming the Pump for Essential Intern Skills

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Disclosures

• I have no disclosures.

• I will mention a few commercially available products, but I have no financial ties to these products or companies.
By the end of this talk...

• Define who is responsible for early intern performance

• Identify core intern skills at greatest risk for deficiency upon start of internship

• Develop the framework for learning modules to address essential intern skills
Who is responsible?

• Undergraduate Medical Education (UME) Frame:
  • Finished product ready to adapt to your system

• Graduate Medical Education (GME) Frame:
  • Numerous new physicians with high variability
  • Only so many people can start on ambulatory/elective

• Let’s change the question, who’s problem is this?
Let’s take a step back

• What do we value during medical school?

• What do we value during the residency recruitment process?

• What makes a good intern?
NRMP 2018 Data – Selecting to Interview

- NRMP 2018 Data – Percent of IM PDs citing importance of each factor in selecting applicants to interview:
  - 95% - USMLE Step 1, COMLEX Level 1 score
  - 90% - USMLE Step 2, COMLEX Level 2 score
  - 85% - MSPE/Dean’s Letter
  - 81% - Any failed attempt in USMLE/COMLEX
  - 76% - Class ranking/quartile
What does USLME Step 1/COMPLEX Level 1 mean to you?

• Medical knowledge is a foundational competence

• Correlation with future results on in-training and board certification examinations

• Question: Does a good Step 1/Level 1 performance = a good intern?

Radabaugh et al, Acad Med 2019
NRMP 2018 Data – Ranking to Match

NRMP 2018 Data – Percent of IM PDs citing importance of each factor in ranking applicants:

- 94% - Interactions with faculty during interview and visit
- 93% - Interpersonal skills
- 86% - USMLE Step 1, COMLEX Level 1 score
- 85% - USMLE Step 2, COMLEX Level 2 score
- 84% - Interactions with house staff during interview and visit
- 83% - MSPE/Dean’s Letter
Residency Recruitment Process Recap

• Initial screen contains large amounts of objective data

• It does not stop there...
  • Ranking still takes nationally standardized tests into consideration
NRMP Data – Assessing Residents’ Success

• NRMP 2018 Data - IM PDs Importance of Factors in Assessing Residents’ Success (5 = Very Important)
  • 4.9 - Clinical Competency
  • 4.9 - Professionalism
  • 4.9 - Quality of Patient Care
  • 4.9 - Ethics
  • 4.8 - Communication Skills
  • 4.6 - Passing board certification examination

NRMP Program Director Survey Results, 2018
Is there a disconnect?

• UME and GME have very different methods of assessment

• Flexner – training experience by exposure to specific contents for specified periods of time

• Competency-based medical education – Entrustable Professional Activities, Milestones
Entrustable Professional Activities Timeline

• 2012 - Alliance for Academic Internal Medicine Educational Redesign Committee published a list of 16 proposed end-of-training EPAs
  • GME - Doing it!

• 2013 - Association of American Medical Colleges developed 13 Core EPAs for entering residency
  • UME – Piloting it 😞
Let’s further translate

• PD’s believe new interns must possess the ability to:
  • 94% - Gather a history and perform at physical exam
  • 87% - Provide an oral presentation/summary of an encounter

• Largest gaps between expected and observed performance on Day 1:
  • 41% gap - Provide an oral presentation/summary of an encounter
  • 33% gap - Develop a prioritized differential diagnosis and select a working diagnosis
  • 30 % gap - Give or receive a patient handover transition care responsibility to another

Angus et al, Acad Med 2017
What do we value?

• Medical Knowledge
• Technical skills

• What other skills do we value in new interns?
  • Time Management
  • Effective Teamwork
  • Resiliency
And...

Non-clinical attributes:
• Commitment to learning
• Being conscientious
• Being curious
• Recognizing one’s limits
• Exhibiting professional behavior
• Strong interpersonal skills
Why is this important...

• “July Effect”

• High variability between new interns regarding medical knowledge, skill, and most recent patient contact

• Quickly shape expectation, efficiency, and performance in new interns
When can we fill the void?

- Day #1 of internship/On the wards
- Intern orientation
- Post-match/pre-internship learning modules (homework)
- Push back on the medical schools (UME)
Day #1 of Internship/On the wards

• “Schedule for Success”
  • Lighten the load to get interns up to speed

• Intern-specific conferences
  • Tulane: Friday School
  • Penn: Interactive Learning Modules

• Mentorship programs
Intern Orientation Schedule

• Meet and Greet with Leadership
• Hospital Orientation
• Onboarding at Hospital(s)
• HR Paperwork
• Get hospital IDs, fingerprinting
• EMR(s) Orientation
• BLS/ACLS/PALS
• Compliance Training
• Physicals

• Library Orientation
• Research/Mentorship
• Clinic Orientation
• Get White Coats
• Community Tour
• Meet your new team

• What about specialty specific skills?
Post-Match/Pre-Internship

• University of Maryland Medical Center requires all new interns to complete Institute for Healthcare Improvement modules

• Programs could develop specific learning modules to address learning objectives

• Reimburse for required modules?

• Remediation plan?
GME: Not enough time...

• Why not push this back on UME?

• It is in UME’s best interest to present a well-rounded product

• What do students do during 4th year anyway???
What do students do during 4th Year?

• The Answer: NOTHING!

• In reality:
  • Sub-internships
  • Away rotations
  • Licensing exams
  • Residency applications and interviews
  • Spend lots of money and accrue debt
What good is the 4th year?

- University of Colorado student perspectives:
  - Strengthening one’s residency application
  - Developing career-specific skills needed in residency
  - Pursuing personal interests
  - Exploring diverse practice settings
  - Identifying a career

Wolf et al, Acad Med 2014
What do students think of 4th year?

- Survey of 1,367 students from 20 MD-granting medical schools in 2014

- Main purposes of 4th year:
  - Ensuring that a graduating student has the necessary skills to be a successful first-year resident in any type of residency (58.4% strongly agree or agree)
  - Gaining a broad educational experience (56.8%)
  - Maximize likelihood of matching into residency of their choice (47.9%)

Benson et al, Acad Med 2015
What PDs recommend during the 4th year...

- 2007 Semi-structured interviews with 30 Program Directors

- Rotations across specialties
  - Internal medicine sub-internship
  - Sub-internship in the student’s future field
  - Exposure to:
    - Critical care
    - Ambulatory medicine
    - Emergency medicine

Lyss-Lerman et al, Acad Med 2009
In what ways do Interns struggle?

• Common struggles identified by Program Directors:
  • Lack of self-reflection and improvement (40% of PDs reporting struggle)
  • Poor organizational skills (33%)
  • Underdevelopment of professionalism (30%)
  • Lack of medical knowledge (27%)

Lyss-Lerman et al, Acad Med 2009
What are we doing to fix the transition?

• UME Side
  • LCME Questionnaire 2014-15 and 2015-16 – Half of medical schools reported offering a transition-to-residency preparatory course

• GME Side
  • Orientations, Bootcamps, Immersion experiences

• Let’s look at other specialties to see what they are doing
Sidebar: Direct vs. Indirect Supervision

• On Surgical specialties, PDs cannot have interns on call without direct supervision (at the elbow) until the interns have demonstrated competence
  • Example: Evaluation and management of post-operative complications
    • Hypotension
    • Hypertension
    • Oliguria
    • Anuria
    • Cardiac arrhythmias
    • Hypoxemia
    • Change in respiratory rate
    • Change in mental status
    • Compartment syndromes
Surgery Boot Camp Curriculum

• Collaborative effort by the American College of Surgeons (ACS), the Association of Program Directors in Surgery (APDS), and the Association for Surgical Education (ASE)

• “A modular preparatory curriculum to ensure graduating students have solid skills to step into their roles as surgery residents”

• Pilot started in 2014 with 39 schools
ACSA/APS/ASE Resident Prep Camp - Surgery

• Being the first responder for critically ill or unstable patients
• Emergency procedures (ventilation)
• Common electrolyte abnormalities
• Management of common and urgent perioperative conditions
• Interpreting radiographs
• Operative anatomy
• Responding to pages from nurses
• Handoffs
• Difficult patients
• Communication
• Informed consent
Surgery Boot Camp – Methods

• Mock page program/common calls
  • Mean nurse
  • Inexperienced nurse
  • Surgical follow up patient calls

• Human patient simulator scenarios – first responders

• Order entry, prescribing exercises

• Residents involved as instructors especially with simulation
Michigan OB/Gyn Boot Camp

• Four Week SOM elective focused on entry level milestones for new residents
• Active Learning
  • Flipped Classroom (*next talk*)
  • Simulation
  • Anatomy Dissection
  • “Decision to Incision”
  • Simulated Pages
• Few traditional lectures

• At the end of the four weeks, faculty will send a letter to the PD detailing mastered skills
University of Michigan OB/Gyn Elective

- **Patient Care**
  - Antepartum Care and Complications of Pregnancy
  - Care in the Intrapartum Period
  - Care in the Postpartum Period
  - Gynecology Technical Skills: Lap
  - Gynecology Tech Skills: Endoscopy
  - Peri-Operative Care
  - Family Planning
  - Ambulatory Gyn
  - Care of the patient with Non-reproductive medical disorders

- **Medical Knowledge**
  - Healthcare Maintenance and Disease Prevention
  - Abdominal/Pelvic Pain
  - Abnormal Uterine Bleeding
  - Pelvic Mass
  - Pelvic Floor Disorders
  - First Trimester Bleeding
Pluripotent Medical Student or Budding Intern

• What is the role of the medical school?

• Should medical school be 3 years of learning followed by one year of early apprenticeship?
Let’s take a look at what others do

• UCSF Internship Transition Course – 3 weeks
  • Called “Coda” – concluding passage in music
  • Management of common clinical situations
  • Management of medical emergencies
  • Communication
  • Procedures/skills labs
  • Life skills

• Morning large group didactics, afternoon individualized small group sessions

Teo et al, Acad Med 2011
JHU - TRIPLE

• Transition to Residency and Internship and Preparation for Life
• Two week capstone course in April of 4th Year
  • Offered twice during that month

• Patient care skills
• Management skills
• Self-care skills
Types of Sessions - JHU

• BLS/ACLS
• Common emergency situations
• CVCs, IOs
• Airway management
• Informed consent
• Death certificate
• Disclosing medical error
• End-of-life care

• Time management
• Multi-tasking
• Transition of care
• Teaching others
• Managing conflict
• Reflecting on your experiences
• Critically appraising your knowledge
How we got started...

• In 2013, University of Maryland SOM Clinical Years Committee tasked members to brainstorm about a way to develop a capstone course
  • Goal: Practical knowledge that will be useful during intern year

• Our team:
  • Emergency Medicine Physician - former Program Director
  • Internal Medicine Physician - former Associate Program Director and Assistant Dean
  • Internal Medicine Physician - Associate Program Director and Sub-I Director
Needs assessment

- We created a focus group consisting of medical students and clinical faculty from most major departments
  - Developed a topic list

- Asked the 4th year class leaders to survey their peers
  - Topic list was compared results to Association of American Medical Colleges (AAMC) Graduation Questionnaire results from recent years
  - Month long elective vs. shorter boot camp
  - Peri-Match day vs. prior to graduation
Logistics of our Boot Camp

- Targeting week before graduation
- Cover 3 half days
- Volunteer participation for students
- Mix of lecture based, small group, and simulation/skills sessions
- Each session would last 30 minutes
- Speakers were the best of the best
- Practical knowledge and skills only
Who was there

• **Students:**
  • Voluntary experience open to all senior students in good standing
  • Students sacrificed pre-graduation free time
  • Half of the senior class attended

• **Faculty:**
  • 18 attending physicians
  • 2 pharmacists
  • 3 Internal Medicine chief residents
  • 1 registered nurse
Student wants

• Running a code: What to do until help arrives
• “On call” scenarios
• Prescription and order writing
• Fluids
• Simulation center/procedure practice
What we covered

- Is there a doctor in the house?
- Dangerous EKGs
- Business of medicine
- Breaking bad...news
- Competence and compassion-based medicine
- Things that go “beep” in the night
- Time management and prioritization
- Dangerous inpatient medications errors
- Fluids and electrolytes
- The acutely psychotic patient
- Anaphylaxis: when meds can kill
- Calling a consult
- What do to until your resident arrives
What we covered

• Avoiding prescription errors
• Radiology findings not to miss
• Avoiding critical errors in patient handoffs
• How nurses can save you
• Rapid response simulation
• Airway lab
• Ultrasound skills lab
Heavy Hitters – What to do before your resident arrives

• Emergency Medicine Physician

• Spoke from personal experience

• Described how to bring focus to chaos
  • EM Mantra: IV, O2, Monitor
Heavy Hitters – Anaphylaxis

• Requires quick action by the intern

• Interns might react without supervision from the resident/attending

• Passionate speaker
Heavy Hitters – Rapid Response Simulation

• 5 students per group with a high fidelity mannequin

• “Bedside RN” present

• Instructor in the control room

• 15 minute case
• 10 minute debrief
  • Debriefing with good judgment
Heavy Hitters – Skills Sessions

- Anything “hands on”
- Point of Care Ultrasound
- Airway Lab
Heavy Hitters: Time Management & Prioritization

- Highest rated talk in terms of effectiveness
- Standard organizational and efficiency strategies for interns
- Helpful quotes from current interns

System
- “Same routine every day, different routine for every service” — Claire Tannous
- Sickest pat in Church
- Same tasks in same order, tele, vitals, exam — Danielle Glick
- “Try to be ready just 10 minutes early” — Steve Biederman
Post-Prep Camp Evaluation Data

- Before today, how much had you learned about the topic presented in this session?
- How often have you participated directly in the care of patient/patients with the discussed problem?
- How effective was this session and the presenter(s) in teaching you valuable intern skills?
- How would you describe your confidence in caring for patients before today’s session?
- How would you describe your confidence in caring for patients after today’s session?
What we heard back from students

• “Put in perspective what will be most vital for me for next year.”

• “Focused a lot on practical skills that will help you as a new physician.”

• “Many of these sessions or similar sessions should have been done earlier in med school.”
Snap back before the dust settles

- Matched evaluation data with audits of sessions by course masters
- Modified or dropped sessions that were rated poorly
- Recalibrated many talks to be more clinically relevant
- Heaped praise on the most successful sessions
Our data - 3 months out

• We resurveyed attendees with a 3 month follow up survey

• 29 students completed the survey (45% of original attendees)

• 81% of respondents reported using the information learned during the course hourly, daily, or weekly

Bontempo et al, Postgrad Med J 2017
Essentials for every good session

• Content – Practical knowledge, immediately applicable to learner

• Delivery – Anything beats a passive learning lecture

• Passionate speaker(s)
  • Think about your best educators – are they the smartest or do they create the best learning environment?
Delivery

• Probably the most important way to engage the learner

• Simulation
• Flipped classroom
• Modified PBL
• Podcasts
• Role Play – call it “Situational Simulation”
Small group activity

- Break off into small groups
- 5 minutes
- Decide on a boot camp topic
- Decide on a delivery method
- Report back
Example - Handoffs

• Role Play option, I mean “situational simulation”

• Intern A quickly reviews a standardized H&P and signs out the patient to Intern B

• Intern B receives the signout and fields a call from an RN

• Facilitators debrief the interaction and review essentials of handoffs
Not every talk has to be a home run
How have we evolved...

• Lost excellent faculty and had to replace them

• Really good content was inserted earlier in the SOM curriculum

• Course leaders are further from residency with each passing year

• Limited word of mouth between classes as participants scatter across the nation
Attrition of faculty

• We lost excellent faculty to promotion and new positions

• Need a “next in” mentality

• Cannot have a thin bench in education

• Continuous development of new faculty
  • Perfect because of their proximity to residency
Content changes

• Modules were led by highly involved faculty

• When gaps in the curriculum were identified, immediate action was taken by faculty/course directors
  • This took 2 years to be realized in the course
  • Started anticipating expiration dates for modules
  • Lost 40% of original content

• New things get hot: Wellness, AMA Discharges, Escalation in Care
Dated Course Directors, Dated Delivery

- Talks met learners where they were at initially
- Pager noises morphed to HIPAA-compliant Text Message Alerts
- Keeping “cards” on patients moved to “EMR templates”
- Managing fatigue changed to managing a shift
Flag bearers graduate the following week

• We had limited numbers of graduates to share their knowledge of the course with the rising classes

• Encouraged interns from our medical school to explain the course to the clinical years students

• Heavily pushed the course ideas during subinternship educational sessions
By the end of this talk...

• Define who is responsible for early intern performance
  • Everyone – student/intern, UME, GME

• Identify core intern skills at greatest risk for deficiency upon start of internship
  • Oral presentations, differential diagnosis, handoffs, SOFT SKILLS

• Develop the framework for learning modules to address essential intern skills
  • Work on the delivery to meet learners where they are
Questions?

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