

MINUTES
445TH MEETING OF THE FACULTY SENATE
3:00 pm, Wednesday, December 9, 2015
Darner Conference Room, Ross Research Building, Room G007

PRESENT: Drs. Andrisse, Barker, Blakeley, Bosmans, Crino, Dlhosh, Eghrari, Frank, Gonzalez-Fernandez, Hartman, Ishii, Mahesh, McCormack, Poynton, Shuler, Sperati, Tamashiro, Taverna, Tobian, Urban, Zahnnow

Mmes:

Messrs:

ABSENT: Drs. Ahuja, Aucott, Aygun, Barone, Best, Bivalacqua, Bunz, Bydon, Carey, Chanmugam, Chung, Conte, Daoud, Daumit, Gable, Gupta, Huddle, Kudchadkar, Lacour, Lee, Lehmann, Li, Marciscano, Mooney, Neiman, Pettigrew, Puts, Püttgen, Reddy, Redgrave, Rini, Shepard, Sokoll, Solomon, Srikumaran, Swartz, Tewelde, Tufaro, Wade, Wilson, Wyhs, Zhou

Mmes:

Messrs:

REGULAR GUESTS: Dr. Skarupski

Mmes: Vargas

Messrs:

GUESTS: Drs. Berlanstein, Cofrancesco, Flynn, Kritzler, Lee, Mr. Gwon,

- I. Approval of the minutes.** The minutes of the 444th meeting of the Faculty Senate of November 11, 2015, were presented. A motion was made, seconded, and minutes were approved as distributed.
- II. Announcements and comments from Chair Dr. Crino.** The State of Hopkins Medicine address will be 12/10/15 at 12:00 PM. The next Research Integrity Lecture will be 12/15/15 at 3:30 PM. Dr. Barbara Fivush from the Office of Women in Science and Medicine wanted to remind us to nominate someone for the 8th Annual Vice Dean's Award given to a SOM faculty member who has demonstrated a commitment to recruitment, mentoring, and advancement of women faculty. The deadline is 12/17/15. In preparation for the next meeting of the Faculty Senate in January, please email Dr. Crino (by 1/13/16): (1) a copy of your department's parental leave policy and (2) your experience with the travel program. A retirement reception for Dr. Julia McMillan will be held on 1/8/16 at 4:00 PM. The various department director search committees are in progress and on schedule. The election for a new Part Time Faculty representative (to replace Dr. Lacour) will be closing next week.
- III. Howard Gwon, Sr. Director Emergency Management.** Mr. Gwon reviewed the Active Shooter Training Course explaining the origin, background, and purpose – 3 messages: hide, run, or fight. In development: department level response plans and new alert notification systems in building that do not have a public address system (e.g., 2024 E Monument Building).
- IV. John Flynn, MD, MBA, Med, Vice President, Office of Johns Hopkins Physicians, Associate Dean & Executive Director, Clinical Practice Association.** EPIC launched at Bayview on 12/1/15. Developers continue to receive and work-out reported bugs in system. The Go-live date did not incur any patient safety events. Unclosed encounters are being investigated and addressed; Dr. Flynn recognizes some of these cases come from administrative glitches on EPIC's part. Effective 1/1/16, non-compliance notices will be issued. A process document for erroneous encounters will be circulated.

- V. **Robert Kritzler, MD, Deputy Chief Medical Officer; Danny Lee, MD, Office Medical Director, Internal Medicine EMR Lead JHCP, Odenton and Bruce Berlanstein, MD, Clinical Associate, Vice Chair for Operations for Radiology.** ACR Select, Clinical Decision Support for Imaging makes recommendations based primarily on clinically appropriate based on diagnosis from category 1 and 2 evidence bases. Feedback encouraged for reasoning for imaging that would not be supported by insurance. Clinicians will have the ability to override. Scheduled to go live in Ambulatory Unit in January 2016.
- VI. **Joseph Cofrancesco Jr. MD, MPH, FACP, Associate Professor of Medicine, Director & JH Institute for Excellence in Education Professor of Medicine.** Update: Welcoming ambassadors, finalist stages for Faculty Education Scholars, Education “Shark Tank” deadline: 1/15/16, conference: 3/11/16; teaching camp: 8/4/16-8/5/16, four Education Grand Rounds on calendar for 2016. New: Small grants program, Open Office hours available to SOM Faculty, Foundations of Teaching course: July 2016, new faculty encouraged.
- VII. **Discussion:** Dr. Crino wished everyone a happy and safe holiday season.

With there being no further business Dr. Crino thanked everyone for coming and adjourned the meeting at 4:48PM

Respectfully submitted,
Masaru Ishii, MD, PhD
Recording Secretary



JH Medicine Office of Emergency Management

"Active Shooter Course Overview and Major Components"


December 9, 2015 at JHU SOM Faculty Senate

Active Shooter Course Overview

- ▶ Course planned and developed by Corporate Security and JHM Office of Emergency Management from June to October 2015
- ▶ Course mirrors components in JHH/SOM Policy & Response Procedures
- ▶ Course designed and formatted by education division of JHH Nursing utilizing My Learning
- ▶ Rolled out through JHH Nurses as pilot and then required for all faculty, employees and students from JHH, JHHS Corp. Depts., & JHU SOM beginning January 1, 2016 and completed by June 1, 2015
- ▶ Because of Paris terrorist attacks and ISIS threats, OEM requested accelerated roll out for last week in November (received approved)

Active Shooter Course Components

- ▶ Response based on "run, hide or fight" developed by law enforcement
- ▶ Individuals selects most appropriate response based on an active shooter incident or active shooter situation
- ▶ Guide clinical staff on how to help patients
- ▶ Advise staff on what to do when law enforcement and media arrive
- ▶ Annual refresher will be requested
- ▶ Approved by JHH Management Committee and JHU SOM Executive Dean
- ▶ Security and OEM will follow up with "train the trainer" program for management team members to identify evacuation routes, safety/protective measures within departments and associated units, floors, buildings, etc., as well as centrally implemented tasks; dept. Incident command center responsibilities, communication, etc.



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December 8, 2015

- ▶ Newport News Police Chief Richard Myers says **'You can't prepare for a specific incident, because we don't know what it's going to be, but what you can do is develop the ability to adapt and respond.'**



JOHNS HOPKINS
M E D I C I N E

Clinical Decision Support for Imaging

Johns Hopkins Faculty Senate Meeting

December 9, 2015

Presented by: Bruce Berlanstein, M.D., Robert Kritzler, M.D. , Danny Lee, M.D.

Agenda

- Goals & Advantages of CDS
- ACR Select Product Overview
- Scope
- Project Updates
- Reporting in Epic
- Enterprise Opportunities
- Questions?

Goals

- Guide providers in selecting the most appropriate radiology procedure
 - Clinically
 - Financially
- Provide more suitable options based upon patient indications
- Collect data to allow further analysis



CDS Advantages

Reduce/eliminate unnecessary exams

- Redirects ordering physicians to more appropriate exams
- Improve safety by reducing radiation doses

Select best protocol for patient and patient's disease

- Capture essential clinical information

Highly responsive to end user requests

- Continuous modifications to clinical indications (check boxes)
- Continuous addition of next exam types
- Changes to rules by consensus of PCP, Specialists, Radiologists

ACR Select Product Overview



Published through the efforts of thousands of physicians representing **27 medical specialty societies** working over the past **25 years**, grading nearly **6500** peer reviewed published articles covering over **1000** individual **imaging CPT codes**, over **3000 discrete clinical scenarios** and **15,000 clinical end points** and individual Appropriate Use Criteria covering all of medical imaging.

ACR Select Product Overview

ACR AC® EXPERT PANELS



Representation from over 20 Medical Specialty Societies

American Academy of Neurology

American Academy of Orthopaedic Surgeons

American Academy of Otolaryngology-Head and Neck Surgery

American Academy of Pediatrics

American Association of Neurological Surgeons

American College of Cardiology

American College of Chest Physicians

American Congress of Obstetricians and Gynecologists

American College of Rheumatology

American College of Surgeons

American Gastroenterological Association

American Pediatric Surgical Association

American Society of Clinical Oncology

American Society of Hematology

American Society of Nephrology

American Urological Association

Society for Vascular Surgery

Society of Gynecologic Oncologists

Society of Nuclear Medicine

Society of Thoracic Surgeons

ACR Select Product Overview

STRENGTH OF EVIDENCE (SOE)

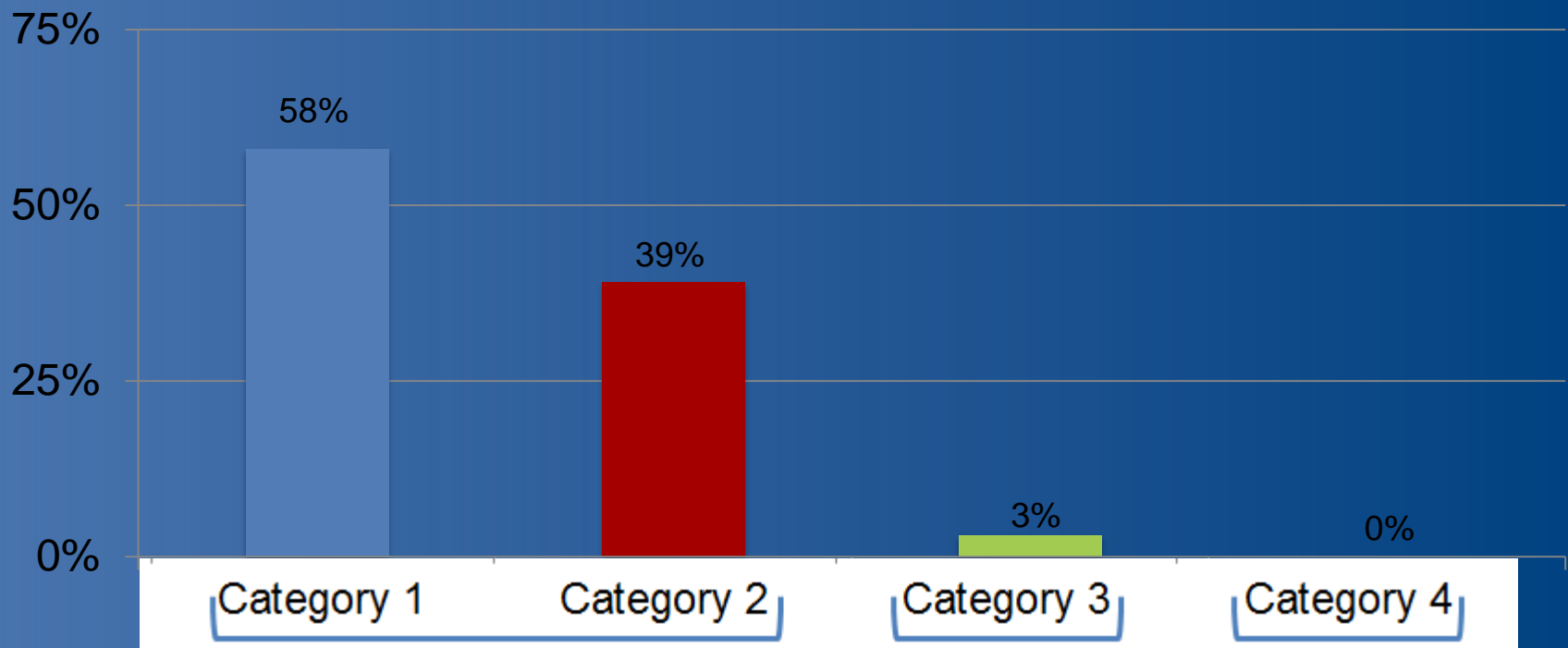
- All AC 5,962 references are evaluated for Strength of Evidence
- RAND methodology for the evaluation of Study Quality (AHRQ)
 - **Category 1:** The study is well-designed and accounts for common biases.
 - **Category 2:** The study is moderately well-designed and accounts for most common biases.
 - **Category 3:** There are important study design limitations.
 - **Category 4:** The study is not useful as primary evidence. The article may not be a clinical study or the study design is invalid, or conclusions are based on expert consensus.

ACR Select Product Overview



SOE OF AC REFERENCE LITERATURE

% AC TOPICS WITH HIGHEST SOE REFERENCES



97% of AC guidelines are informed by Category 1 or 2 references

3% of AC guidelines are informed by Category 3 references

No AC guidelines are informed by only Category 4 references

ACR Select Product Overview



Proven to **reduce imaging utilization by up to 15%** and **reduce change orders downstream in the imaging process by 50%** by providing a structured reason for exam to the Radiologist for protocoling, captured at the point of order.

ACR Select Product Overview

- Decision support tool purchased by JHHC to guide providers in ordering most appropriate Radiology procedures
- Provider orders a Radiology procedure, selects from a pre-determined drop-down of indications, each order is rated using ACR's algorithm
 - **Green (7-9)**
 - information stored in database for future review
 - **Yellow (4-6)**
 - Information stored in database for future review
 - BPA fires suggesting alternative procedures
 - Provider has option to select alternative procedure or continue with original order
 - **Red (1-3: same impact as yellow)**



ACR Select Product Overview

- Provides list of indications (instead of free text)



After visit Procedures (1 Order)

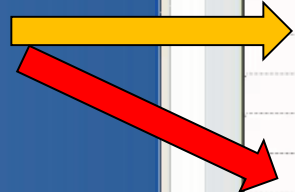
CT Scan Head Contrast (DSS) Accept Cancel Remove

Reason for Exam:

Common indications

<input checked="" type="checkbox"/> Abnormal gait	<input type="checkbox"/> Head trauma, mild, abn neu...	<input type="checkbox"/> Lung cancer, non-small cell...
<input type="checkbox"/> Cerebral hematoma proven	<input type="checkbox"/> Head trauma, mild, norm neu...	<input type="checkbox"/> Lung cancer, small cell, st...
<input type="checkbox"/> Cerebral hemorrhage suspe...	<input type="checkbox"/> Head trauma, mod-severe	<input type="checkbox"/> Neck bruit and/or risk fact...
<input type="checkbox"/> Confusion/delirium, altered...	<input type="checkbox"/> Headache, acute, severe, th...	<input type="checkbox"/> Normal pressure hydroceph...
<input type="checkbox"/> Dementia, alzheimers possi...	<input type="checkbox"/> Headache, chronic, new fea...	<input type="checkbox"/> Seizure, new, 18-40, no tra...
<input type="checkbox"/> Dementia, alzheimers proba...	<input type="checkbox"/> Headache, chronic, no new...	<input type="checkbox"/> Seizure, new, >18y, non-acu...
<input type="checkbox"/> Dementia, routine initial eval	<input type="checkbox"/> Headache, non-acute, abn n...	<input type="checkbox"/> Seizure, new, >40, no trauma
<input type="checkbox"/> Focal neuro deficit 3-24 h...	<input type="checkbox"/> Headache, non-acute, ni ne...	<input type="checkbox"/> Seizure, new, etohl/drug rel...

- Fires BPA for **Yellow** and **Red**



The ordered exam has Marginal utility for the selected clinical condition. Please consider these alternatives:

Appropriateness	Procedure	Cost	RRL
5	CT, head, w iv contrast	\$219.64	⚠️⚠️⚠️
8	MR, head, wo/w iv contrast	\$491.30	
7	MR, head, wo iv contrast	\$439.62	
7	MR, spine, cervical-thoracic-lumbar, wo/w iv contrast	\$1428.00	
6	MR, spine, cervical-thoracic-lumbar, wo iv contrast	\$1164.84	
5	CT, head, wo/w iv contrast	\$221.00	⚠️⚠️⚠️
4	CT, head, wo iv contrast	\$167.62	⚠️⚠️⚠️
3	PET-CT, head, FDG		⚠️⚠️⚠️⚠️
2	MR, spectroscopy, head, wo iv contrast	\$479.74	
2	NUC, brain scan, head, I-123 Ioflupane, SPECT	\$364.48	⚠️⚠️⚠️

[Click here for ACR Appropriateness Criteria reference information](#)

Acknowledge reason: Low Risk Intolerant to MRI See Comments

- Remove unsigned order: CT Scan Head Contrast (DSS) Routine
- Add to unsigned orders: MR, head, no iv contrast
- Add to unsigned orders: MR, head, w/w iv contrast
- Add to unsigned orders: MR, spine, cervical-thoracic-lumbar, w/w iv contrast

- Collects data

Scope

- Procedures
 - MRI, CT, PET/CT, Nuclear Medicine
 - Does not include
 - US, XR by choice
 - 3D Reconstruction, Abscess (except NM), Aspirations, Biopsy, Drain, Guided, Injection, Lumbar Puncture, Radiation Therapy, Tube insertion, Wire Loc, outside films
- Providers
 - JHHS Ambulatory
 - Family Medicine, Pediatrics, Generalists
 - Request to expand to Inpatient
 - Review after 6 months of data collection

Project Update

Progress since previous presentation

- Successful completion of pilot at Odenton office
- Compilation of feedback regarding ACR select
- Expansion and improved specificity regarding clinical indications in ACR Select

Next steps

- Expansion of ACR Select to additional JHCP sites and Bayview
- Continued monitoring of feedback and improvement of process
- Further refinement in clinical indications
- Closer scrutiny of data from ACR Select for practitioners
- Develop ACR FAQ document as part of a major communication plan

Project Update – cont'd

Future considerations

- Comparison of ACR Select data between different sites and specialties
- Inclusion of ACR Select data in resident training
- Expansion of ACR Select rollout
- Discussions with payors regarding replacement of pre-authorization with ACR Select
- Working with ACR Select vendor to create new, innovative and more useful applications

Project Update: Value of CDS Extends beyond the Physician

Using Data to Inform System-Wide Efforts

CDS Analytics Can Improve Physician Counseling, Care Transformation

Utilization Trends



- Average appropriateness of highest-volume exams
- Average appropriateness of highest-cost exams
- Average appropriateness of all exams ordered for specific disease state
- Differences in appropriateness by care setting

Ordering Physician Behavior



- Physician ordering patterns compared to cohort
- Average appropriateness of exams ordered compared by ordering physician specialty
- Average appropriateness of exams ordered compared by ordering physician experience

Radiologist Quality



- Incidence of recommended follow-up imaging compared to peer cohort
- Incidence of recommended follow-up imaging compared by radiologist experience
- Incidence of recommended follow-up imaging compared by level of radiologist expertise

Reporting in Epic

Imaging Imaging Decision Support

Reporting Period: 4/22/2012 - 4/21/2013

1,409 Total Exams

6.61 Average Score

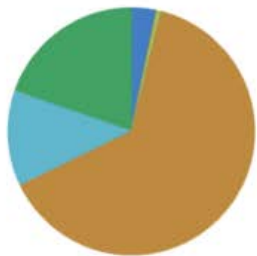
12% Low Utility (1-3)

20% Marginal (4-6)

64% Indicated (7-9)

Score Distribution

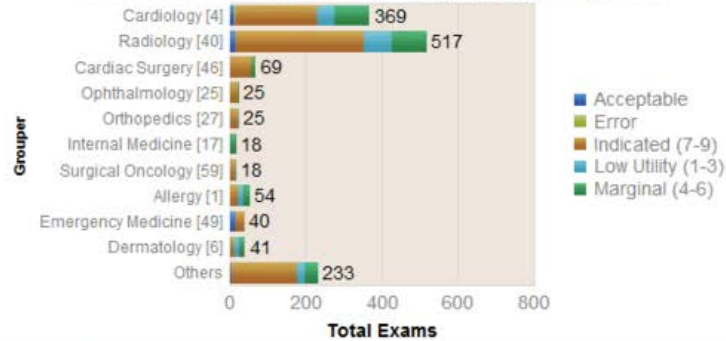
Decision support scores grouped by type



Score Type	Count	Percentage
Acceptable	47	3.3%
Error	6	0.4%
Indicated (7-9)	902	64.0%
Low Utility (1-3)	175	12.4%
Marginal (4-6)	279	19.8%
Total:	1,409	100.0%

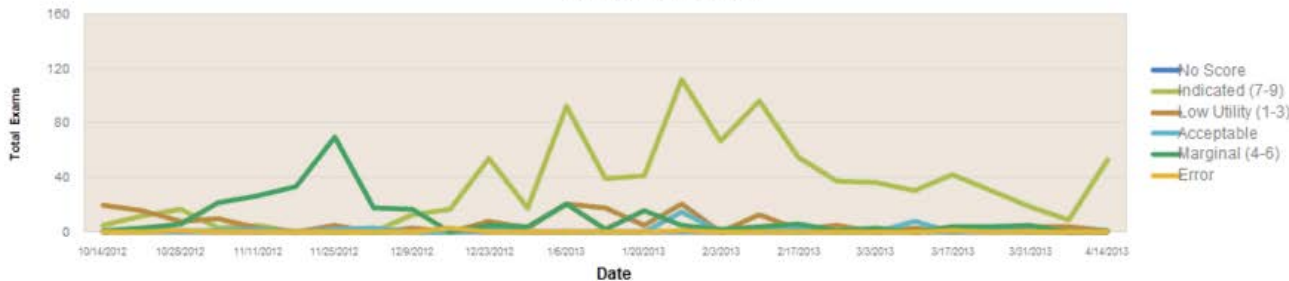
Number of Exams vs. Grouper

Exams distribution based on score, exams grouped by primary grouper



Exam Scores vs. Time

Score distribution over time



Complete Reporting available in Epic
Allows analysis of Ordering Activity and Appropriateness in context with entire EMR dataset

Enterprise Opportunities

- Continuous Improvement
 - Real-time feedback to ordering physicians
 - Opportunity for collaboration between ordering physician and radiologist
- Analytics
 - Utilization profiles of staff
 - Impact on overall care cycle, when integrated with EMR
- Expected impact on care cycle
 - Reduced Length of Stay
 - Better diagnosis -> Better care
- Efficiency
 - Reduces overhead in pre-authorization process
 - Appropriateness criteria at the point of care

Questions?

ACR Select- Frequently Asked Questions

Using Decision Support for Computerized Radiology Order Entry

Why consider Clinical Decision Support (CDS)?

- High tech medical imaging studies contribute to escalation of health care expenses
- Some ordered imaging exams are inappropriate, redundant, and may result in undesirable outcomes
- Interest in feedback on provider ordering profiles
- Interest in patient outcomes related to ordered studies

What are CDS advantages?

- Reduce/eliminate unnecessary exams
 - Redirects ordering physicians to more appropriate exams
 - Improve safety by reducing radiation dose
- Select best protocol for patient and patient's disease
 - Capture essential clinical information
- Highly responsive to end user requests
 - Continuous modifications to clinical indications (check boxes)
 - Continuous addition of next exam types
 - Changes to rules by consensus of PCP, Specialists, Radiologists

Why is JHM implementing decision support for computerized radiology order entry?

- "Decision support for computerized radiology order entry" means that an order and its indication can be used to query a database of consensus standard appropriateness criteria provided by medical societies in order to receive real-time, point-of-care feedback to ordering providers. This mechanism provides opportunity for guidance on order selection based upon medical indication and potentially on relative cost and radiation dose.
- The Senate passed the Protecting Access to Medicare Act of 2014, also known as the Sustainable Growth Rate (SGR) patch legislation. Notably, it delays a significant cut to Medicare physician payment. However, the fine print of this legislation also mandates the use of decision support software to show that ordered tests and procedures (such as radiology exams) meet appropriate use criteria (AUC) set by medical societies in order to get full Medicare/Medicaid reimbursement.

- The Johns Hopkins Health System is implementing decision support for radiology order entry via our Epic electronic health record (EHR). The first step in this implementation requires a change toward the use of structured orders, which means that providers will need to choose coded categorical choices for indications in order to receive decision support feedback at order entry. The feedback will come from integration of our Epic EHR with ACR Select software (National Decision Support Company) using the Appropriateness Criteria® of the American College of Radiology.
- In short, this technology will help meet new federal requirements; improve appropriate utilization of imaging studies (the right exam, lower costs, less radiation); and provide requested real-time support to providers at order entry.

What is decision support for radiology order entry?

- This is electronic point-of-care real-time feedback to you regarding your imaging orders. Based upon the structured indications (checkboxes) you have entered, you will receive instant objective feedback regarding exam appropriateness, relative cost, and relative radiation dose. Then, during the ordering process, you can use your own professional judgment to proceed with or change your order.

Why do I need to select a checkbox?

- These types of structured indications are necessary in order to query a database and provide objective, standardized, real-time, point-of-care feedback to you at time of order entry.

What kind of feedback can you get?

- Green (7-9)
 - Information stored in database for future review
- Yellow (4-6)
 - Information stored in database for future review
 - BPA fires suggesting alternative procedures
 - Provider has option to select alternative procedure or continue with original order
- Red (1-3: same impact as yellow)

Highly indicated studies are green (scores 7-9). Marginally indicated studies are yellow (scores 4-6). Weakly or non-indicated studies red (scores 1-3). Relative cost and relative radiation dose are indicated by number of dollar signs or radiation symbols. The provider can use the feedback and checkboxes to easily modify or replace their order (bottom of screen).

After visit Procedures (1 Order)

CT Scan Head Contrast (DSS)

Reason for Exam:

Common indications

<input checked="" type="checkbox"/> Abnormal gait	<input type="checkbox"/> Head trauma, mild, abn neu...	<input type="checkbox"/> Lung cancer, non-small cell...
<input type="checkbox"/> Cerebral hematoma proven	<input type="checkbox"/> Head trauma, mild, norm neu...	<input type="checkbox"/> Lung cancer, small cell, st...
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<input type="checkbox"/> Focal neuro deficit, 3-24 h...	<input type="checkbox"/> Headache, non-acute, nl ne...	<input type="checkbox"/> Seizure, new, etoh/drug rel...

Provides list of indications (instead of free text)

The ordered exam has Marginal utility for the selected clinical condition. Please consider these alternatives:

Appropriateness	Procedure	Cost	RRL
5	CT, head, w iv contrast	\$219.64	▲▲▲▲▲
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7	MR, spine, cervical-thoracic-lumbar, wo/w iv contrast	\$1428.00	
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5	CT, head, wo/w iv contrast	\$221.00	▲▲▲▲
4	CT, head, wo iv contrast	\$167.62	▲▲▲
3	PET-CT, head, FDG		▲▲▲▲
2	MR, spectroscopy, head, wo iv contrast	\$479.74	
2	NUC, brain scan, head, I-123 loflupane, SPECT	\$364.48	▲▲▲

Click here for ACR Appropriateness Criteria reference information

Acknowledge reason:

Low Risk | Intolerant to MRI | See Comments

Remove unsigned order: CT Scan Head Contrast (DSS) Routine

Add to unsigned orders: MR, head, no iv contrast

Add to unsigned orders: MR, head, w/w iv contrast

Add to unsigned orders: MR, spine, cervical-thoracic-lumbar, wo/w iv contrast

Fires for yellow and red & Collects data

TIPS

Providers are strongly encouraged to select any and all indications which are appropriate to their patient's scenario.

- This provides radiologists with more clinical information for "more informed reads" and will ultimately lead to more accurate appropriateness scores for such orders.

What if I can't find the structured indication(s) (i.e., checkbox entry) relevant to my patient?

- No problem! **The hard stop requirement is really just that you put in an indication, not that you always mark a checkbox.** Providers can choose to enter free text in the "reason for exam" field. You will get credit for entry and be allowed to place the order. However, if you do enter a free text in this field it will show up on the Epic report that the tool was not used, so this method is not recommended.

- Because there are numerous clinical scenarios for thousands of exams, you will certainly encounter patient scenarios which have not yet been evaluated and scored by consensus physician panels and translated over to our EHR. Though many scenarios are covered, we also have holes to fill in the future.
- You are strongly encouraged to select any and all indications which are appropriate to your patient's scenario. This provides radiologists with important clinical information for "more informed reads" and will ultimately lead to more accurate appropriateness scores for such orders. Marking a checkbox also provides the opportunity to give you real-time electronic feedback on exam appropriateness, relative cost, and relative radiation dose.
- If you find that you commonly place orders in certain clinical scenarios which are blatantly missing from our content, you can forward these insights to our decision support vendor (ACR Select, National Decision Support Company) so that they may be incorporated into the site. To share this information, please contact Dr. Bruce Berlanstein at bberlan2@jhmi.edu or feedback@nationaldecisionsupport.com.
- If you have questions regarding indications, please contact Dr. Bruce Berlanstein at bberlan2@jhmi.edu or call/text at (617) 549-3872.

Medical-Imaging Stewardship in the Accountable Care Era

Daniel J. Durand, M.D., Jonathan S. Lewin, M.D., and Scott A. Berkowitz, M.D., M.B.A.

Medical-imaging technology plays an essential role in the timely diagnosis and management of many conditions. Lately, however, it's become equally well known for its low-value uses and as the single largest source of per capita radiation exposure. Imaging is by far the most common service on the lists of unnecessary tests and procedures of the Choosing Wisely campaign, and an estimated 20 to 50% of imaging is unnecessary.¹ Medical imaging is thus a valuable resource in dire need of better stewardship.

Because of concerns about overuse, private insurers have increasingly delegated imaging utilization management to radiology benefit management firms (RBMs), inserting into the value chain a third party whose credentials are unfamiliar to both patients and physicians. RBMs evaluate the medical necessity of imaging services and approve or deny physician requests. Although they help control overuse, RBMs fragment the ordering process. The time that physicians and their staff spend gathering and transmitting information and engaging with RBMs reduces their productivity and results in cost shifting rather than value creation.

Two recent policy changes have created a more favorable environment for provider-led imaging stewardship. The first is the movement toward payment reform, as exemplified by the goal of transitioning 50% of all Medicare payments to alternative models by 2018.² The second is a little-known section of the Protecting Access to Medicare Act of

2014, which mandates that, beginning in 2017, physicians reference appropriateness guidelines from provider organizations when ordering advanced imaging for Medicare beneficiaries.³ Although practical aspects of implementation of the law have yet to be clarified, in the context of the shift toward value-based care many health systems are implementing clinical decision support (CDS) systems to help providers select the most appropriate form of imaging while limiting overutilization.

We believe we've reached an inflection point for provider-led imaging stewardship nationwide. To understand the approach to stewardship that may emerge, it's helpful to consider the framework that infectious-disease specialists have used over the past two decades to systematically educate and persuade referring providers to use antimicrobial agents properly. There's growing evidence that these interventions both improve quality — by reducing the spread of resistant nosocomial infections, for example — and reduce costs.⁴ The Centers for Disease Control and Prevention lists seven core elements of effective antimicrobial stewardship (see table).⁵ Its recipe for success involves securing leadership commitment, putting experts in charge of stewardship, implementing process interventions that curb inappropriate utilization, and properly educating ordering physicians. We believe an analogous framework can be used in transitioning to imaging stewardship.

Alternative payment models are creating financial incentives for reducing overutilization, allow-

ing health care leaders to commit themselves more deeply to imaging stewardship. Protecting time for physician champions to lead change-management efforts and investing in infrastructure to support them are necessary but not sufficient; leaders must also publicly signal a cultural transition away from easy imaging access and toward stewardship. This message will be most effective if it's framed as an essential component of a larger quality-improvement strategy. Public endorsement of specific Choosing Wisely recommendations related to imaging is an excellent first step.

Since keeping up with the evidence on appropriate imaging is a full-time endeavor, stewardship programs should be led by practicing imaging specialists such as radiologists, cardiologists, and nuclear-medicine physicians. Although it's important for referring physicians to play a role in shaping local concepts of appropriate imaging within their care pathways, stewardship should be a central function within each provider organization, and dedicated leaders with common goals are required.

CDS can be an enabling tool, but stewardship interventions don't necessarily require it. By making relatively minor adjustments to workflow, organizations can encourage physicians to seek consultation for types of exams that have a high potential for overuse. Several years ago, our institution began requiring radiologist approval for all nonemergency pediatric computed tomographic (CT) scans. We subsequently observed a spillover effect: requiring

Lessons for Imaging Stewardship from the Centers for Disease Control and Prevention (CDC) Antimicrobial Stewardship Framework.

Element of CDC Antimicrobial Stewardship Framework	Imaging Stewardship Analogue	Implementation Steps
Leadership commitment: dedicating necessary resources	Making necessary investments and committing publicly to a cultural shift toward appropriateness and away from easy access to imaging	Endorse Choosing Wisely list items related to imaging; allocate budget for investments in information technology and nonclinical time
Accountability: appointing a single leader responsible for program outcomes	Appointing a single leader within each imaging specialty; establishing joint accountability among the multiple relevant specialties	Shift compensation away from volume-based metrics to include measures of imaging appropriateness
Drug expertise: appointing a single pharmacist leader for improving antibiotic use	Making imaging specialists responsible for executing appropriateness interventions	Designate stewardship champions (with formal roles and partial salary support) within each imaging department
Action: implementing recommended actions, such as systemic evaluation of ongoing treatment need after a set period of initial treatment	Implementing interventions to ensure systematic evaluation of appropriateness at the time of ordering and encouraging dialogue between referring physicians and imaging experts	Change the imaging-order workflow, through CDS, consultation with imaging specialists, or both
Tracking: monitoring antibiotic prescribing and resistance patterns	Monitoring imaging utilization and appropriateness scores for providers and tracking per-capita costs and radiation doses	Gather, and share with providers, data on ordering appropriateness for commonly overused exams
Reporting: regularly reporting information on antibiotic use and resistance to doctors, nurses, and relevant staff	Informing referring physicians about their imaging utilization rates and the best available measures of imaging appropriateness	Generate quarterly reports for physicians showing their ordering performance relative to that of their peers
Education: educating clinicians about resistance and optimal prescribing	Identifying key knowledge gaps on imaging appropriateness and educating referring physicians on relevant evidence-based guidelines	Request or require that ordering physicians review consensus guidelines on imaging relevant to their practice

these conversations in one situation led to more active discussion of appropriateness regarding all pediatric imaging.

Care teams within patient-centered medical homes that are attempting to curb unnecessary utilization of specialist services are increasingly managing more complex conditions and can often benefit from outside consultation when selecting the most appropriate form of imaging. Some specialties are experimenting with the use of telemedicine and “e-consults” to support the patient-centered medical home model, and imaging specialists could similarly consider how their current facility-based consultation capabilities can best be deployed to cover the full continuum of care.

CDS systems provide a useful infrastructure to support further stewardship interventions. All major CDS systems force ordering

providers to select from a list of indications and then use algorithms based on clinical rules to assign each order an appropriateness score. Systems can be set so that low scores trigger passive alerts or suggestions for appropriateness consultation (“soft stops”) or require physicians to complete additional workflow steps, such as gaining approval from an imaging specialist (“hard stops”). Such systems are not universally considered effective, and there will always be some orders that cannot be properly classified by CDS algorithms. In such ambiguous cases, the role of local imaging stewards is even more important, since they can make appropriateness determinations.

Absent CDS, imaging stewards can track test utilization on a per capita or per-encounter basis — though a true understanding of appropriateness typically re-

quires retrospective audits of individual orders. Arguably the greatest advantage of CDS systems is that they can generate appropriateness profiles for all ordering physicians, eliminating the need for such audits. These results can be used to modify workflow. For example, physicians with favorable appropriateness profiles can be made exempt from all stewardship interventions other than appropriateness monitoring, and those with less favorable profiles can be designated to receive more active feedback. Similarly, appropriateness profiles can be used as part of performance-incentive plans.

Since most institutions no longer conduct radiology rounds, imaging stewards need to be well traveled outside their departments — joining referring colleagues for multidisciplinary conferences and actively engaging in system-

redesign efforts to ensure that imaging is appropriate for all care pathways. Although stewards are the most important component of any imaging outreach strategy, CDS can convey additional advantages. Tools embedded in CDS systems can educate ordering physicians regarding the relative radiation dose and approximate cost of each test. And appropriateness profiles can be analyzed to target specific knowledge gaps for educational interventions.

Implicit in this model is the idea that imaging stewards will be able to leverage content that's based on peer-reviewed evidence and expert consensus and contained within order-entry and other systems. Professional society guidelines embedded in CDS rule sets provide a scalable, updatable mechanism for diffusing best practices and establishing standards and benchmarks for scoring the appropriateness of each order. We believe that the more service-oriented components of stewardship — such as directly engaging referring physicians regarding orders and ordering pat-

terns — are best maintained at the local level.

Health care organizations can master stewardship and create value at the point of care by determining the appropriate blend of centralized and decentralized resources to support their provider communities. In locations where value-based contracting is prevalent, providers with mature stewardship capabilities may request that payers delegate imaging utilization management directly to them, waive RBM preauthorization, and consider alternative payment arrangements. Having local ownership of utilization management should allow providers to streamline imaging workflows for different patient populations. Providers in areas where fee-for-service payment remains dominant may choose to focus early stewardship efforts on selected at-risk populations or those for whom imaging is currently unmanaged, to avoid adding a new layer of administrative burden.

Ultimately, health system leaders, referring physicians, and imaging specialists may take the

concept of stewardship in new directions, developing a more robust stewardship model that encourages the use of imaging technology to improve patient outcomes and more reliably create value at the point of care.

Disclosure forms provided by the authors are available with the full text of this article at NEJM.org.

From the Department of Radiology and Radiological Sciences (D.J.D., J.S.L.), and the Division of Cardiology (S.A.B.), Johns Hopkins University School of Medicine, Baltimore.

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Reforming the Veterans Health Administration — Beyond Palliation of Symptoms

Brett P. Giroir, M.D., and Gail R. Wilensky, Ph.D.

The Veterans Health Administration (VHA) is one of the largest health care delivery systems in the United States, with 9.1 million enrollees, 20,000 physicians, 1600 facilities, 288,000 employees, and a \$59 billion budget. In response to highly publicized concerns regarding delayed access to care, preventable deaths in patients awaiting care,

and falsification of lists to make waiting times appear shorter, Congress passed and President Barack Obama signed the Veterans Access, Choice, and Accountability Act of 2014. In addition to expanding non-VHA treatment options for veterans, this law requires a comprehensive, independent assessment of 12 areas of VHA care delivery and

management (see box). Eleven assessments were conducted under the Centers for Medicare and Medicaid Services Alliance to Modernize Healthcare, operated by the MITRE Corporation; the assessment of one area, "Access Standards," was conducted by the Institute of Medicine. An independent blue-ribbon panel of experts was formed to examine

Update: Institute for Excellence in Education

Committed to Leading the Way in Medical and Biomedical Education

Joseph Cofrancesco Jr, MD, MPH, FACP

Associate Professor of Medicine

Director, Johns Hopkins Institute for Excellence in Education



JOHNS HOPKINS
SCHOOL *of* MEDICINE

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The mission of the Institute for Excellence in Education (IEE) of the Johns Hopkins University School of Medicine is to promote, value and advance the educational mission of the School of Medicine while enhancing the School of Medicine's leadership role in medical and biomedical education nationally and internationally.

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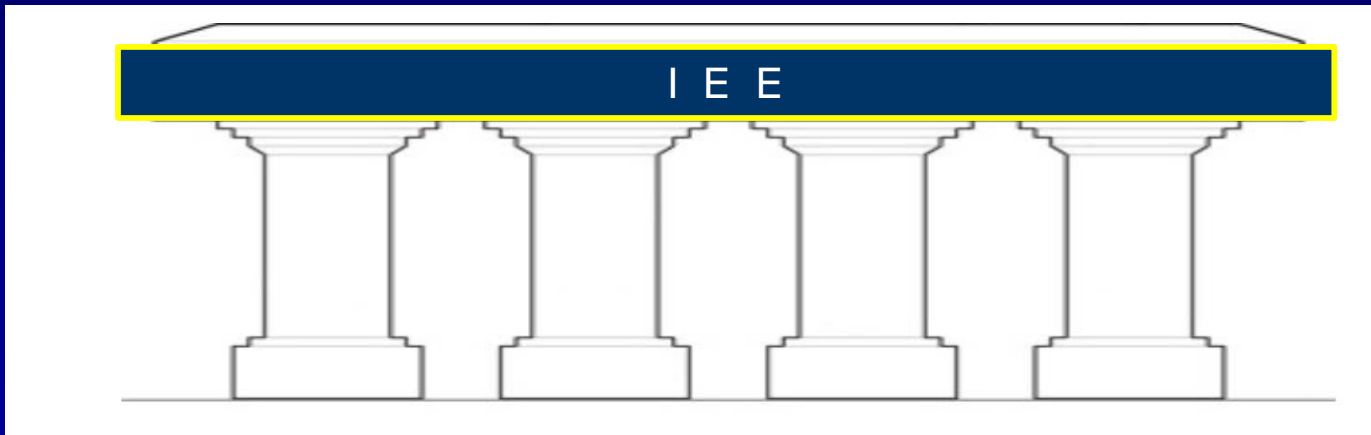
Bethany Sacks, MD, MEd

Misop Han, MD

Urology

Our Four Pillars

- Inspiring and supporting research, scholarship, and innovation in education
- Valuing and recognizing great educators
- Improving teaching
- Nurturing a community of educators



Webpage:

- http://www.hopkinsmedicine.org/institute_excellence_education/

The screenshot shows a web browser displaying the homepage of the Johns Hopkins Institute for Excellence in Education. The browser's address bar shows the URL http://www.hopkinsmedicine.org/institute_excellence_education/. The page features the Johns Hopkins Medicine logo and navigation links for 'Find a Doctor', 'Appointments', and 'Login to MyChart'. A search bar is also present. The main navigation menu includes 'ABOUT', 'HEALTH', 'PATIENT CARE', 'RESEARCH', and 'EDUCATION'. The page title is 'Institute for Excellence in Education'. The main content area features a large image of medical professionals in a classroom setting with the text 'TEACHING NEEDS to be EXCELLENT'. Below the image are links for 'FONT SIZE', 'PRINT THIS PAGE', and 'Share this page'. The page is divided into several sections: a left sidebar with a 'Contact Us' link, a central main content area with a 'Welcome to The Institute for Excellence in Education' heading and a 'Celebrating 5 Years!' sub-heading, and a right sidebar with 'Contact Us', 'Make a Gift', 'Rising to the Challenge Campaign Report', 'Read Hopkins Medicine Magazine', 'What's New', and 'SAVE THE DATES - Summer Teaching Camp' and 'SAVE THE DATE - Education Conference and Celebration' announcements.

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TEACHING NEEDS to be EXCELLENT

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Welcome to The Institute for Excellence in Education

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Committed to Leading the Way in Medical and Biomedical Education

The mission of the Institute for Excellence in Education (IEE) of the Johns Hopkins University School of Medicine is to promote, value and advance the educational mission of the School of Medicine while enhancing the School of Medicine's leadership role in medical and biomedical education nationally and internationally.

IEE Featured Update: Submit Your Nominations, Abstracts, and Proposals Today!

- Call for Nominations: [IEE Education Awards for Outstanding Achievement](#)

Contact Us

Make a Gift

Rising to the Challenge Campaign Report

Read Hopkins Medicine Magazine

What's New

SAVE THE DATES - Summer Teaching Camp
Save August 4 - 5, 2016 on your calendar for the 2016 IEE Summer Teaching Camp.
[More >>](#)

SAVE THE DATE - Education Conference and Celebration
Save March 11 on your calendar for the 2016 IEE Education Conference and Celebration.
[More >>](#)

Call for Abstracts
It's time to submit abstracts for this year's Education Conference and Celebration.
[More >>](#)

[Call for Proposals](#)



#1. Inspiring and Supporting Research, Scholarship and Innovation in Education

1a: Faculty Education Scholars Program



Janet Serwint, MD

Professor of Pediatrics
Director of Pediatric
Resident Education
Member of the IEE
Managing Board

Jessica Bienstock, MD, MPH

Khalil Ghanem, MD, PhD

Mitchell Goldstein, MD

Susan Lehmann, MD

Pam Lipsett, MD, MHPE, FACS, FCCM

Douglas Robinson, PhD

Nicole Shilkofski, MD

Scott Wright, MD

Steve Yang, MD

2016 Berkheimer Faculty Education Scholars Grant

- \$50K for a 12-18 month project
 - Pertinent to an issue at Hopkins
 - National/international impact (Dissemination)
 - ILP (Individual Learning Plan)
- Phase I: 2-page proposal, due October 16:
 - 21 submissions
- Phase II: Invitation to submit full proposals:
 - 3 to 5 proposals due January 15th

2015 Berkheimer Faculty Education Scholars Grant



Brandyn Lau, MPH, CPHC

Co-Director, Analytics Leadership in Patient Safety Program

Instructor of Surgery

Instructor of Health Sciences Informatics

Topic: Learner-centric Education Based on Student Performance



Michael T. Melia, MD

Assistant Professor of Medicine

Division of Infectious Diseases

Topic: Improving Resident Teaching Evaluations with a Smartphone App: Moving from the “End of the Rotation” to the “End of Morning Rounds”

1b: Mentoring/Advice (*new*)

- Dedicating 30-45 minutes of monthly Managing Board meeting to:
 - Mentoring existing grantees
 - Feedback for ideas/new proposals



1c: Education “Shark Tank”

- Up to \$10K “on the table”
 - A project can get all / some / none of the \$
- Deadline for proposals: Monday, Jan 15, 2016, noon
 - 250 words
- Finalist are selected at the IEE Conference



Previous Recipients

- 2014 Recipients:
 - Colleen Christmas, MD and Panagis Galiatsatos, MD for *Aliki in the ICU*
 - Brenessa M. Lindeman, MD for *Operationalizing the AAMC Core EPAs for Entering Residency: Where are the Gaps?*
- 2015 Recipient:
 - Heather Sateia, MD for *Incorporating High-value Care into the IM Interns' Ambulatory Medicine Curriculum*

1d: Small Grants Program (*new*)

- Up to \$7,500 available each round (2-4/year)
 - Specific money for basic science faculty
 - List of “hot topics”
 - Basic Sciences
 - LCME visit
 - CLER visit
 - NOT limited to above topics, just “food for thought”
- 1st Call: March 11, 2016 at IEE Education Conference and Celebration



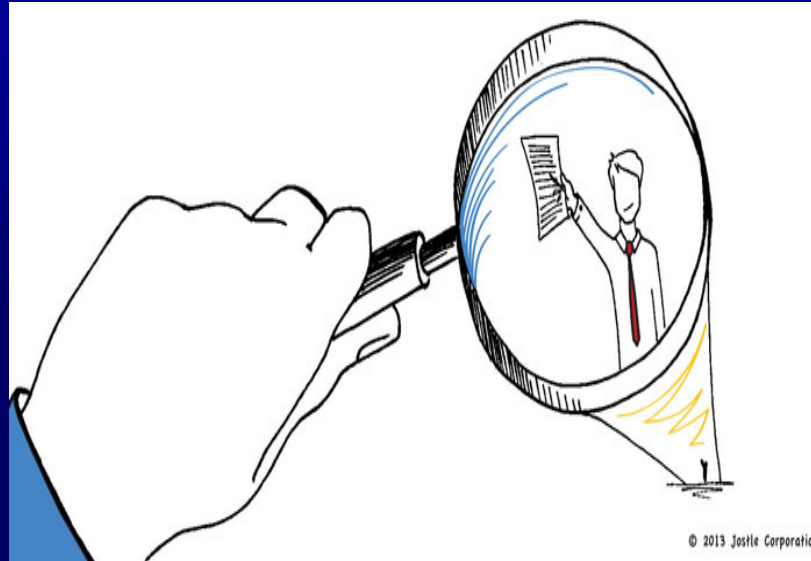
Small Grants Program

- Two-phase process:
 - Phase I: To be considered for live presentation:
 - One paragraph/page synopsis of project OR
 - Four-slide voice over PowerPoint
 - What problem do you want to solve?
 - How are you going to do it?
 - How are you going to demonstrate success?
 - What is your budget?
 - Phase II: Proposal will be presented to the managing board and should include the details of the following points:
 - Proposal
 - Assessment plans

1e: Office Hours (*new*)



- In collaboration with the Office of Assessment and Evaluation (OAE)
- First Wednesday of the month, 3:30-5:00
 - (To start January 2016)
- Daily Grind; some at Bayview
- Who: SOM faculty
- What: Opportunity to casually meet with members of the IEE Managing Board & Office of Assessment and Evaluation. Field questions about research, teaching skills, mentoring, or anything that is on your mind!
 - More detailed questions can be directed for individual sessions.



#2. Value and Recognize Great Educators

2a: Awards for Outstanding Achievement in Education

Nomination Deadline: December 14th

- Martin D. Abeloff Award for Lifetime Achievement in Medical and Biomedical Education
- Lisa J. Heiser Award for Junior Faculty Contribution in Education

- Teaching
 - Less than 10 years
 - 10 or more years
 - Part-time faculty
- Leadership and Mentoring
- Educational Scholarship
- Educational Innovation
- Educational Program

- Announced at IEE Conference; listed on web pages
- \$1000
- Listed in Graduation Brochure

2b: Promotion

- A work in progress





#3: Improving Teaching

3a: Summer Teaching Camp



Rachel B. Levine, MD, MPH

Associate Professor of Medicine

Co-Director of the Faculty Development
Program in Teaching Skills, Johns Hopkins
Bayview Medical Center

Consultant to the IEE Managing Board

- Institute for Excellence in Education
- Offices of the Vice Dean for Education
- Offices of the Vice Dean for Faculty Development
- Johns Hopkins Faculty Development Program in Teaching Skills, Johns Hopkins Bayview Medical Center
- Master of Education in the Health Professions Program



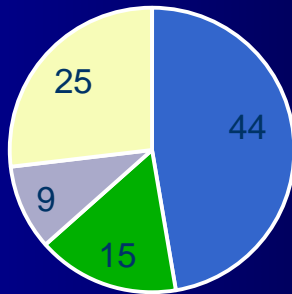
Format and Schedule 2015

- Two day event
- Day 1: Precourses
- Day 2: Mix of lectures, workshops, social and networking activities
- Experiential/interactive learning to role model teaching strategies and methods, transparency about methods
- Influence the culture of teaching (relational, collaborative, facilitative, self-directed, learner-centered)

Teaching Camp Vitals

Four Schools: Medicine, Education, Public Health, Nursing

Participants=93



- Faculty
- Trainees
- Med Students
- Grad Students

>30 Specialties/disciplines represented

12 Faculty from All Children's Hospital

6 faculty from local institutions

4 Precourses

4 Large Group Sessions

14 small group breakouts

10 "Meet the Professor" opportunities

Over 38 faculty involved in planning and facilitating

Faculty - 44
Trainees - 15
Med Students - 9
Graduate Students - 25

How did we do?

	Relevance to my teaching 5 point scale	Improving my skills 5 point scale	Will change my teaching % yes
Teaching learners to work with LGBTQI pts	4.5	4.4	77%
Flipping your classroom	4.7	4.6	100%
Working with struggling learners	4.3	4.5	100%
Curriculum Development	3.7	3.6	61%
Active Teaching and Learning in Large Group Settings	4.5	4.3	83%
E teaching and learning	4.4	4.1	88%
Teaching tips for workplace settings	4.2	4.2	57%

IEE Summer Teaching Camp 2016

SAVE THE DATES

Thursday, August 4 – Friday, August 5, 2016

3b: Foundations of Teaching Course

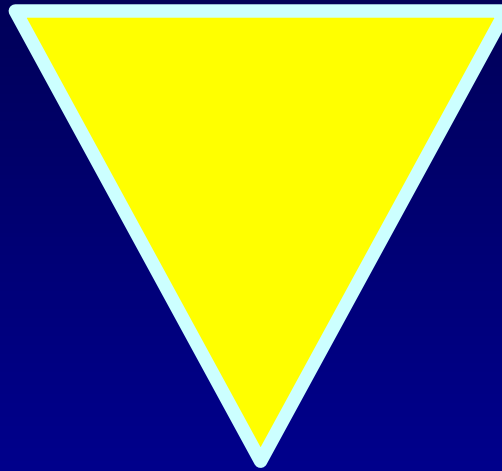
(new)

- For faculty: to ensure basic teaching skills competency
- Target start date: July 2016
- Audience
 - Encourage all new full-time faculty members to participate
 - Open to ALL faculty
 - Faculty suggested by department

Collaborative Program

JH Faculty
Development Program

Office of Faculty
Development



Institute for Excellence in
Education

Foundations of Teaching: Components

1. Online Modules

- Teaching Principles and Learning Theory
- Feedback
 - To be done before in-person session

2. Three to Four Hour Live Session: “Foundations of Teaching” Experiential Course

- Offered 3-4 times a year; once at Bayview and twice at East Baltimore campus

3. Encouraged Additional Activities

- Work on a project with IEE to develop peer and expert coaching
- Attend additional programs focused on education

3c: Peer Feedback and Coaching (*new*)

- Peer Coaching:
 - Pilot: Bayview GIM Hospitalists
 - Pilot: PM+R
- Expert Coaching
 - Being Developed by Office of Faculty Development in collaboration with IEE and JH Faculty Development Program





#4. Nurturing a Community of Educators

4a: IEE Education Conference and Celebration



2016 Conference Schedule (1)

SAVE THE DATE: Next year's conference is
Friday, March 11, 2016



- | | |
|---------------|---|
| 8:00 – 9:15 | Welcome and Plenary Address |
| 9:30 – 11:00 | Oral Abstracts |
| 11:00 – 11:30 | Faculty Education Scholar Grant Updates |
| 11:30 – 12:15 | Poster Presentations |
| 12:15 – 1:00 | Lunchtime: Networking and Table Talks |

2016 Conference Schedule (2)



- | | |
|-------------|--|
| 1:00 – 1:40 | Awards Celebration |
| 1:45 – 3:15 | Workshops To Be Determined |
| 3:20 – 4:50 | Educational Scholarship Shark Tank
- Total available: \$10K |
| 4:50 – 5:00 | Conference Wrap-Up |

4b: Medical and Biomedical Education Grand Rounds



Renee Blanding, MD

Assistant Professor of Anesthesiology and Critical Care Medicine

Vice President of Medical Affairs, Johns Hopkins Bayview Medical Center

Medical Director of Johns Hopkins Bayview Medical Center operating room

Member of the IEE Managing Board



Education Grand Rounds



Dr. Hartmann

Fall: October 28, 2015

Diane M. Hartmann, MD

Senior Associate Dean for Graduate Medical Education
Professor of Obstetrics and Gynecology
University of Rochester School of Medicine and Dentistry

Winter: February 22 or 23, 2016

William C. McGaghie, PhD

Professor of Medical Education
Northwestern University Feinberg School of Medicine



Dr. McGaghie

Spring: April 19, 2016

Ronald Vale, PhD

Professor of Cellular and Molecular Pharmacology
University of California, San Francisco



Dr. Vale

Summer: June 2016

To be Scheduled

THANK YOU!