Entrustable Professional Activities: Why, What, How, and So What?

ABS EPA PROJECT GRAND ROUNDS
Disclosures

● DISCLOSURES HERE
Overview: Why, What, How, and So What?

Based on this direct observation, the Resident demonstrates entrustability at the following level of supervision for this intraoperative EPA:

**Level 2 - Indirect Supervision**

Motion but are starting to develop some smoothness. They can coordinate between their hands for simple maneuvers without prompting. If forced to go open, these residents can describe the layers of the abdominal wall in the right lower quadrant and can identify them. They can contribute to the case if a bleeding vessel is encountered.

Faculty Assessment

[Graph showing EPA levels vs. PGY level for female and male residents]
Why EPAs?

- Enhances **feedback** as a critical learner need too often unmet
- Responds to the **competency mandate** foreseen by our (present) forbears
- Models that **public trust** is a fundamental goal of the educational paradigm
- Creates a **relatable** framework for competency
- Leverages **assessment as a driver** of learning
- Entrustment incorporates necessary **character foundations** of the profession
- Addresses the **acquisition/application gap** in professional education
Ortho Pilot Results: Better Outcomes, More Efficient

- Modular curriculum (21 modules)
- Had to meet basic rotation or module requirements before going on to advanced
- Stay on any given module until all competencies achieved for same
- Had to complete all 21 modules to complete program
- Progressed at trainee’s own speed
- **Formal feedback to trainee increased 5-fold compared to traditional model**
- After 4 years, up to 2/3 of trainees were completing program up to 1 year ahead of traditional schedule
2002—ASA, ACS, ABS, ACGME RRC-S Blue Ribbon Committee on Surgical Education

- DHR prompted need for re-evaluation of training process
  - Loss of largesse of inefficient and outdated training paradigm
  - Other pressures including technology, growth of knowledge, changing patient acuity profile
- Enhance efficiency and effectiveness by:
  - Defining a standardized national curriculum (SCORE)
  - Eliminating hospital services without educational value
  - Verification of competence at each level of training
An Outcomes Competency Framework is the first core component of CBME and critical to lifelong learning.

1. An Outcomes Competency Framework
2. Progressive Sequencing of Competencies
3. Learning Experiences Tailored to Competencies
4. Teaching Tailored to Competencies
5. Programmatic Assessment

Available at: gocbme.org (Van Melle E. et al. Acad Med, 2019)
Why CBME?

Current System

Fixed Time \(\equiv\) Variable Outcome
Goal System

Fixed Outcome
In the early 21st century, accountability and responsibility to the public for the competency of practicing physicians have become a driving force behind an initiative of the ABMS and ACGME to establish competency-based training for all physicians.” Acad Med 2002; 77:361-7.
Why are We Talking About This?

PAPERS OF THE 133RD ASA ANNUAL MEETING

General Surgery Residency Inadequately Prepares Trainees for Fellowship
Results of a Survey of Fellowship Program Directors
Samer G. Mustaf, MD,* Adnan A. Aligieli, MD, FACS,† Daniel B. Jones, MD, FACS,‡
D. Rohan Jayarajah, MD, FACS,§ Lee L. Svanstrom, MD, FACS,¶ Ralph W. Aye, MD, FACS,#
Steven D. Winnier, MD, FACS, FRCS, FRCS(Edin), PhD (Hon),** José M. Martinez, MD, FACS,††
Sharon B. Ross, MD, FACS,** Michael M. Awad, MD, FACS, §§ Morris E. Franklin, MD, FACS, §§§
Maurice E. Arregui, MD, FACS, ¶¶ Bruce D. Schirmer, MD, FACS,** and Rebecca M. Minter, MD, FACS‡‡

Ann Surg 2013

Are General Surgery Residents Ready to Practice? A Survey of the American College of Surgeons Board of Governors and Young Fellows Association
Lena M Napolitano, MD, FACS, FACP, FCCM, Mark Savarise, MD, FACS, Juan C Paramo, MD, FACS,
Laurel C Soo, MD, FACS, S Rob Tod, MD, FACS, Jay Gregory, MD, FACS, Gary L Timmerman, MD, FACS,
William G Cioffi, MD, FACS, Elisabeth Davis, MD, Ajit K Sachdeva, MD, FRCS, FACS

JACS 2014

Are Today’s New Surgeons Unprepared?
by FACULPC V. CHEN, M.D.
DOCTOR AND PATIENT

How to evaluate physician competencies?

- Medical Knowledge
- Interpersonal Communication Skills
- Systems-Based Practice
- Patient Care
- Professionalism
- Practice-Based Learning & Improvement
Assessment: a fundamental principle of education

**Assessment** determines whether goals of education are being met

The quality of learning is determined by the quality of **assessment** practice
A RICH model

Agency (proactive, intentional)
Reliability (conscientious, accountable)
Integrity (truthful, benevolent)
Capability (task specific KSA)
Humility (recognizes limits, open to feedback)
Donald Shon (1987): acquisition vs. application

Professional educators have growing worries about the ‘gap’ between the...prevailing conception of professional knowledge and the actual competencies required of practitioners in the field'

We need to see the workplace-based practicum as the medium for the development of professional artistry in problem framing, implementation, and improvisation critical to professional function in uncertain and dynamic settings.
What exactly is an EPA?
What are Entrustable Professional Activities?

**Essential task** of a “discipline” that an individual can be trusted to perform independently in a given context

Together, mass of critical elements that define a specialty

Shifts assessment focus from abstract and independent competencies to the work that must be done
Properties of an EPA:
A key component of daily work; integrates multiple elements

- Part of essential professional work
- Independently executable
- Executable in a time frame
- Observable and measurable in process and outcome
- Reflects one or more professional competencies
- Requires adequate Knowledge, Skills and Attitude (KSA)
- Leads to a recognized unit of professional work
- Confined to qualified personnel

EPA
Reductionist vs holistic: What does a competent surgeon really look like in function?
General Surgery EPAs

1. E&M of a patient with RLQ pain/Appendicitis
2. E&M of a patient with gallbladder disease
3. E&M of a patient with inguinal hernia (groin)
4. Evaluation and initial management of a trauma patient
5. Provide general surgery consultation
6. E&M of a patient with abdominal wall hernia
7. E&M of a patient with the acute abdomen
8. E&M of a patient with benign anorectal disease
9. E&M of a patient with small bowel obstruction
10. E&M of a patient with thyroid and parathyroid disease
11. E&M of a patient with cutaneous and subcutaneous neoplasms
12. E&M of a patient with benign or malignant breast disease
13. E&M of a patient with benign or malignant colon disease
14. E&M of a patient with severe acute or necrotizing pancreatitis
15. Perioperative care of the critically ill surgery patient (Inc Sepsis and Hemorrhage)
16. E&M of a patient needing dialysis access
17. E&M of a patient with soft tissue infection (Inc NSTI)
18. Flexible GI Endoscopy
General Surgery EPA Suite

Surgical Consultation
Trauma
Critically Ill Patient
Flexible Endoscopy

Thyroid/Parathyroid Disease
Breast Disease
Cutaneous Neoplasia

Colon Disease
Small Bowel Obstruction
Abdominal Wall Hernia

Gallbladder Disease
Necrotizing Pancreatitis

Hemodialysis Access
Appendicitis
Anorectal Disease

Inguinal Hernia
Soft Tissue Infection

Acute Abdomen

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EPA Components

The Task

Step 1 EPA Functions

The Assessment Framework

Step 2 Mapped Milestones

Step 3 Specific Observable Behaviors
Evaluate and manage a patient with gallbladder disease

Description of the Activity:
Gallbladder disease is a condition commonly encountered by general surgeons both in the elective and emergent care setting. These surgeons must be able to treat the spectrum of benign biliary disease as well as recognize diseases requiring specialty referral in both adolescent and adult patients.

Functions:
Pre-Operative:
- Synthesize essential information from records, history, physical examination, and initial diagnostic evaluations to develop a differential diagnosis.
- Complete a cost-effective, evidence-based diagnostic evaluation
- Communicate both diagnosis and potential treatment options to patients, families, and consultants
- Obtain informed consent, describing indications, risks, benefits, alternatives, and potential complications of the planned operation, including nuances relevant to the patient’s individual condition and comorbidities, and ensure patient understanding
- Identify patients in whom operative intervention may be contraindicated:
  - Patients in whom cholecystostomy placement is indicated
  - Patients with prohibitive surgical or anesthetic risk secondary to medical morbidity
  - High-risk patients who exceed the capacity of the surgical environment
  - Patients with asymptomatic disease or atypical symptoms
Intra-Operative

- Perform the procedures required to manage gallbladder disease
  - Cholecystectomy, minimally invasive and open techniques
    - Systematically identify and dissect the structures of Calot’s triangle to achieve the critical view of safety
    - Circumferentially expose the cystic duct and cystic artery before clipping and dividing structures
    - Recognize when the cystic plate is obliterated or there is failure to progress and transition to either a laparoscopic or open dome down approach or partial cholecystectomy
- Recognize indications for and perform cholangiography (with interpretation)
  - High suspicion of common duct stones
  - Uncertainty regarding biliary anatomy
- Manage common intraoperative complications such as bleeding from the liver bed
- Recognize and develop a management plan for unexpected intraoperative findings such as choledocholithiasis, gallbladder mass, biliary tract injury, and aberrant anatomy

Post-Operative

- Provide postoperative management for patients with benign biliary tract disease to include:
  - Routine postoperative, immediate, and follow-up care
  - Management of cholecystostomy tube
- Communication with the patient/family to ensure that instructions are understood
- Recognize early and late complications related to biliary tract procedures
  - Late presentation of biliary injury
  - Retained stone
  - Bile leak
  - Persistent postcholecystectomy pain or chronic diarrhea
## Milestone Map (Continued)

<table>
<thead>
<tr>
<th>COMPETENCY</th>
<th>BREAST DISEASE</th>
<th>RENAL REPLACE</th>
<th>THYROID AND PARATHYROID</th>
<th>INGUINAL HERNIA</th>
<th>APPENDICITIS</th>
<th>TRAUMA</th>
<th>GALLBLADDER</th>
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</table>
Mapped Milestones

**Pre-Operative**
- **PC-1** (Diagnosis)
- **MK-1** (Pathophysiology)
- **PROF-2** (Timely)
- **ICS-1** (Patient Comm.)

**Intra-Operative**
- **PC-3** (Technical Skills)
- **SBP-2** (Care Coord.)

**Post-Operative**
- **PC-4** (Post-Op)
- **MK-1** (Pathophysiology)
- **ICS-1** (Patient Comm.)
- **SBP-2** (Care Coord.)
## Example Revised Trauma EPA

### EPA 4: EVALUATION & MANAGEMENT OF BLUNT & PENETRATING TRAUMA

<table>
<thead>
<tr>
<th>Level</th>
<th>Trauma Bay</th>
<th>Procedures</th>
<th>Transition of Care</th>
</tr>
</thead>
</table>
| 1     | • Able to gather prehospital information on trauma patients who are not critically ill with some guidance. (PC1 L1)  
• Can prepare the trauma bay with equipment and people for straightforward trauma resuscitations with guidance. (PC1 L1)  
• Able to gather basic history from the patient and perform basic assessment during trauma resuscitation. Unable to complete AFRS evaluation without assistance. (PC1 L1)  
• Can order and interpret simple diagnostic studies to include radiologic and laboratory evaluation. (PC1 L1)  
• Unable to recognize that a patient may need an intervention based on changes in vital signs. (PC1 L1)  
• Develops a differential diagnosis for a straightforward trauma patient. (PC1 L1) | • Can perform a FAST exam with assistance and is unable to interpret the findings (PC2 L1)  
• Can intervene on non-operative trauma patients with straightforward problems without assistance ex: bandage wounds and hold pressure on lacerations (PC2 L1)  
• Serves as an observer for or requires significant guidance for all other procedures (PC2 L1) | • Can place indicated consults for trauma evaluations who are not critically ill with guidance (SBP2 L1, ICS2 L1)  
• Can initiate process of floor admission with significant guidance (SBP2 L1)  
• Communicates with patients and their families and provides timely updates (ICS1 L1)  
• Accurate documentation of trauma resuscitation (ICS3 L1)  
• Limited understanding of national best practice guidelines for management of trauma patients (PBL1 L1) |
| 2     | • Able to gather prehospital information relevant to trauma patients who are not critically ill with no assistance. (PC1 L2)  
• Can prepare the trauma bay with equipment and personnel for straightforward trauma resuscitations without any assistance. (PC1 L2) | • Can perform a FAST exam and interpret a normal exam (PC2 L2)  
• Can intervene on non-operative trauma patients with more complex problems with assistance: splinting, pelvic binder application (PC2 L2)  
• Can do straightforward procedures without assistance: laceration repair, | • Can identify and place appropriate consults for trauma evaluations who are not critically ill with some guidance (SBP2 L2, ICS2 L2)  
• Communicates with all team members regarding next steps with guidance (SBP2 L2, ICS2 L2)  
• Can initiate straight forward floor admissions with some guidance (SBP2 L2) |
## General Frameworks – Pre-Operative Phase

<table>
<thead>
<tr>
<th>Knows basic anatomy, takes generic H&amp;P</th>
<th>Includes single-phase, resuscitative/post-resuscitative, evaluation/management EPAs</th>
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</thead>
<tbody>
<tr>
<td>Develops limited DDx, req. oversight for workup</td>
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<tr>
<td>Communicates basic information</td>
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<tr>
<td>H&amp;P targeted; Workup disease-focused, incomplete</td>
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<tr>
<td>Mgmt. plan for straightforward presentation</td>
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<tr>
<td>Conducts general informed consent with risks, benefits, alternatives</td>
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<tr>
<td>Oversees workup &amp; mgmt. of complex problems, but in straightforward patients</td>
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<tr>
<td>Customizes informed consent, seeks understanding</td>
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<tr>
<td>Oversees care of complex patients &amp; problems</td>
<td></td>
</tr>
<tr>
<td>Conducts informed consent for complex procedures &amp; critical situations</td>
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</tbody>
</table>

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General Frameworks – Intra-Operative Phase

- Describes anatomic structures & relationships; needs assistance to identify them
- Difficulty coordinating hands
- Describes basic steps of operation

- Typically performs basic steps, need prompting/direction for others
- Usually coordinated with two hands; gentle tissue-handling
- Visualizes planes, needs redirection

- Moves fluidly throughout a routine operation; requires guidance for difficult cases
- Visualizes & dissects tissue planes
- Requires guidance for unanticipated findings or variants

- Performs the operation even in complex situations (scarring, inflammation)
- Recognizes when operative plan deviation is needed; adapt & implement plan
- Adapts tissue handling based on tissue quality
General Frameworks – Post-Operative Phase

- Manages straightforward, uncomplicated course
- Recognizes & evaluates common post-op problems; needs assistance to manage
- Basic communication skills

- Recognizes deviation from typical recovery
- Manages common post-op problems; recognizes & evaluates complex problems
- Communicates standard post-op instructions

- Manages disease-specific complications in straightforward patients
- Customizes post-operative instructions
- Discusses unanticipated events

- Manages disease-specific complications in medically complex patients
- Leads critical conversations with patients & caregivers, including conflict resolution
### Intra-Operative Phase (sampling of behaviors)

<table>
<thead>
<tr>
<th>Level</th>
<th>Description</th>
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<tbody>
<tr>
<td><strong>Limited Participation</strong></td>
<td>Describes anatomic structures &amp; their relationships; needs assistance to identify them</td>
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<td>Difficulty coordinating hands &amp; requires prompting to identify/dissect normal planes</td>
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<tr>
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<td>Describes basic steps of operation &amp; critical view of safety</td>
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<tr>
<td><strong>Direct Supervision</strong></td>
<td>Provides a basic description of the operative plan but omits some steps</td>
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<td></td>
<td>Usually coordinated with two hands; needs prompting to move operation forward</td>
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<td></td>
<td>Identifies plane to remove gallbladder from liver bed; some assistance to stay in plane</td>
</tr>
<tr>
<td><strong>Indirect Supervision</strong></td>
<td>Identifies variations in cystic duct &amp; artery anatomy; requires assistance to adapt operation</td>
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<tr>
<td></td>
<td>Performs lap chole with straightforward anatomy and minimal inflammation safely</td>
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<td></td>
<td>Identifies critical view of safety; performs IOC in routine case</td>
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<tr>
<td><strong>Practice Ready</strong></td>
<td>Obtains critical view of safety and performs IOC safely in presence of scarring/inflammation</td>
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<td>Recognizes when operative plan deviation indicated; develops/implements plan to address</td>
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<td>Adapts operative technique to tissue quality; analyzes how instrumentation affects cost</td>
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</table>
Other Themes

Patient Safety
- Colon Disease
- Trauma

Cost Effectiveness
- Gallbladder
- Appendicitis
- Renal Replacement

Care Coordination
- Colon Disease
- Acute Abdomen
- Nec. Panc.
- Soft Tissue Infx
- Breast Disease
- Trauma
Other Themes

- **Personal Learning Plan**
  - GI Endoscopy

- **Self-Care**
  - Critically Ill

- **Timeliness**
  - Soft Tissue Infx
  - Consult

- **Evidence-Based Practice**
  - Abd Wall Hernia
  - Critically Ill
  - Appendicitis
  - Skin Neoplasm
  - Inguinal Hernia
  - Trauma
  - Consult
  - Breast Disease
  - Thyroid Parathyroid
  - GI Endoscopy
Lessons and Strategies on How

Based on this direct observation, the Resident demonstrates entrustability at the following level of supervision for this Intraoperative EPA:

Level 2 - Indirect Supervision

- motion but are starting to develop some smoothness. They can coordinate between their two hands for simple maneuvers without prompting. If forced to go open, these residents can describe the layers of the abdominal wall in the right lower quadrant and can identify them. They can contribute to the case if a bleeding vessel is encountered.
EPA Pilot Sites

- 28 volunteer programs
  - 24 Medical school-based
  - 4 Independent programs

- Requirements to participate
  - PD tenure > 3 years
  - Educational infrastructure
  - Willingness to upload data
Pilot Data Overview

● Total possible residents
  ○ 1,115 unique resident IDs in file
  ○ 6,236 Observations
  ○ Average of 5.6 observations per resident
  ○ Residents who received at least one observation had a mean of 7.25 observation

● Source of Faculty Observations
  ○ Surgical Faculty 85%
  ○ Non-surgical faculty 13.8%
  ○ Others 1.2%
## Active residents per cycle

<table>
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<tr>
<th>Cycle</th>
<th>Number of Residents</th>
<th>Number (%) of Residents with observations</th>
<th>Number (%) of Residents with No observations</th>
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<tr>
<td>1</td>
<td>845</td>
<td>265 (31.4%)</td>
<td>580 (68.6%)</td>
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<td>2</td>
<td>826</td>
<td>355 (43%)</td>
<td>471 (57.0%)</td>
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<tr>
<td>3</td>
<td>432</td>
<td>186 (43.1%)</td>
<td>246 (56.9%)</td>
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<td>4</td>
<td>140</td>
<td>54 (38.6%)</td>
<td>86 (61.4%)</td>
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8,143 Surgery residents total in US in 2019-20
Cumulative Observations by Program
ABS Selects the Society for Improving Medical Professional Learning to Provide EPA Technology Solution

SEPT. 01, 2022 | MEDIA CONTACT: ALYSON MALONEY, 215-568-4000

The American Board of Surgery (ABS) is pleased to announce that it has selected the Society for Improving Medical Professional Learning (formerly the Procedural Learning and Safety Collaborative, or PLSC) to develop a mobile platform for trainee assessment as part of its Entrustable Professional Activities (EPA) project.

The ABS is developing a full suite of EPAs to form the foundation for competency-based assessment of surgical residents nationwide. General surgery residents, starting with the entering class of 2023, will be assessed using this individualized, frequent, actionable feedback in the form of EPAs. Other ABS specialties, including vascular surgery, pediatric surgery, complex general surgical oncology, and surgical critical care, will follow suit in subsequent years.

The Society for Improving Medical Professional Learning (SIMPL Collaborative) will provide the full spectrum of technology support for the ABS EPA Project, including the mobile platform, secure data storage, and reporting structures that will enable programs to implement the EPA assessment model.
EPA Micro-Assessments

Date:

Pre-populated

Assessor:

Complexity:

- Straightforward
- Moderate
- Complex

Level of Entrustment:

Narrative Feedback:

Nice use of both hands to provide tension and counter-tension as you dissected. Work on targeting the same area for spreading to enhance efficiency.
### Resident

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<th>Name</th>
<th>Subitems</th>
<th>Owner</th>
<th>Status</th>
<th>Date</th>
<th>Timeline - Start</th>
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<td>EPA Website Updates</td>
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### Administrative Partners (separate into: Residency Admin; Dept. Admin)

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So what?
Increasing Autonomy
Opportunity for (Eventual) Automation

- Applied **natural language processing** algorithms (Latent Dirichlet Allocation) to dictated feedback in each EPA microassessment
- EPA-entrustment level pairs created (e.g. Gallbladder Disease – Level1)
- Found topics that mapped to each EPA-entrustment pair and **words associated** with each topic
- With more data, **AI based assessment algorithms** may be able to be created
Potential Ability to Combat Biases

- 2480 EPA evaluations reviewed\(^1\)
  - 1230 submitted by faculty
  - 1250 submitted by residents
- Faculty evaluations were NOT impacted by resident gender
- Female trainees rate themselves roughly 1-PGY level lower than male colleagues
- Female trainees focus on “guidance” and “supervision”
- Male trainees focus on “independence”

Addition by Subtraction

- Elimination or mitigated reliance on less meaningful assessments
  - Global End of Rotation Evaluation
- Grounding of CCC conversations->efficiency
- Enhancement of career transition handoffs
- Future potential for integration with and automation of ACGME required elements
  - ‘Case logs’, milestones maps, faculty development
How will this be used?

- Data will be securely held by SIMPL for programs
- Intent is frequent formative assessment oriented to entrustment for autonomy and competence
  - Customized dashboards for key stakeholders (residents, faculty, PD’s, RA’s, CCC’s)
- First year goal is **progressive engagement**
- Summary will be required for class of 2028 ABS QE *application*
  - Goal at outset would be for all graduates to demonstrate practice ready performance on all EPAs
- Use by other residents and across all services where appropriate is strongly encouraged as a ‘best practice’ habit
- Numbers will be informed over time; a goal of ~2 assessments per resident per week would allow 50 per resident per CCC discussion and 500 over course of residency
What about time variability?

- Promotion in place concept
- Flexibility in training
- Potential for scaled autonomy as competence is demonstrated
- Focus on quality and consistency of product
Promoting Surgical Excellence since 1937

Training & Certification
Becoming certified & training programs area
LEARN MORE

Continuous Certification
Maintaining your ABS certification
LEARN MORE

For the Public
Why ABS certification matters to you
LEARN MORE
Entrustable Professional Activities

In February 2022, ABS announced the move to competency-based assessment of surgical trainees with the introduction of the ABS Entrustable Professional Activities (EPA) Project, launching in July 2023 for general surgery residency programs.

What is an EPA?

Entrustable Professional Activities (EPAs) were developed to provide the opportunity for frequent, time-efficient, feedback-oriented and workplace-based assessment in the course of daily clinical workflow. EPAs are an important clinical assessment component of competency-based resident education (CBRE). They offer the opportunity to operationalize competency evaluation and related entrustment decisions in the course of regular patient care, and address some of the challenges educators and trainees have faced in bridging core competency theory into clinical practice and performance assessment.

It is important to note that EPAs are NOT competencies, but rather a complement to competencies, and serve as a way to translate the broad concept of competency into everyday practice.

- EPAs are units of work a physician performs that can be directly observed - things people do, such as evaluating and managing a patient experiencing a specific medical concern.
- Competencies are broad and foundational domains of ability, such as medical knowledge or interpersonal skills.
- Milestones are capabilities that describe progress at advancing levels of competence along the sequence from novice to expert.
Partial list of content sources

- Multiple content sources:
  - Brenessa Lindeman
  - Jake Greenberg
  - George Sarosi
  - Rebecca Minter
  - Karen Brasel
  - Gurjit Sandhu
  - Taylor Coe
EPA Program Champions

- LIST
- LOCAL
- CHAMPIONS
- HERE
Thank you, and questions?