Procedure Competency Assessment
Tools: Lessons Learned

STFM
May 2017
Disclosures

No conflicts of interest to report
Objectives

On completion of this session, participants should be able to:

1. Explain what a PCAT is and how it is used
2. Apply strategies to implement use of PCATs at their own institutions
3. Explain what the PCAT learning collaborative is and how to join it
Introductions: Who We Are

- Jessi Taylor Goldstein
- Sara Shields
- David Goldstein
- Suzanne Eidson-Ton

- Also working with us:
- Thomas Kim
- Sue Magee
- Stephanie Rosener
- Wendy Barr
- PCAT Learning Collaborative
What the heck is a PCAT???

- Standardize procedural assessment in FM residencies
- Evaluate resident skill to perform independently
- Goal: baseline level of competence in all core procedures
- Maternity care included
And what about CATs? How is that different from PCATs? What if you google PCAT?

Where can you find the PCATs/CATs? (coming up)
PCAT Development

- CAFM Procedural Competency Task Force
  - 2014: Group develops non-maternity care PCATs
  - 2015: “Unofficially” shared on FMDRL
  - 12/2015: CAFM-endorsed PCATs “officially” published on AFMRD website

- CAFM Maternity Care Task Force
  - 2014: CAFM (through AFMRD) charters task forces
  - 2014: Group develops maternity care PCATs / CATs
  - 2016: “Unofficially” shared on STFM Connect
  - 3/2017: PCATs / CATs “officially” published in Family Medicine

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PCAT Development

• Explored evaluation instruments already in existence
  – Basic skills qualifications (BSQ)
  – Global procedural skills evaluation (GPSE)
  – Operative performance rating system (OPRS)
**Evaluation Process**

When you are ready, you will demonstrate an injection on an actual patient. To receive this qualification you will need to demonstrate correct technique on 3 patients for each of the three required injections, meeting 80% of the criteria listed below.

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**Basic Skills Qualification**

Basic Skills are essential to provide high quality care quickly and efficiently when you have to make decisions and you do not have the luxury of time or the immediate availability of references. Basic Skills Qualifications are minimum basic skill sets prerequisite to learning disease specifics.

The purpose of this Basic Skills Qualification is to assure that you are comfortable performing the major injections of the shoulder. To achieve this Basic Skills Qualification, you will need to demonstrate the systematic approach outlined inside this booklet.

**Shoulder Joint Injection**

- Gathered appropriate equipment
- Chose appropriate medication
- Explained procedure to patient
- Identify landmarks
- Patient positioned
- Cleaned the area
- Injected medication in appropriate direction
- Applied bandage
- Tested adequacy of pain relief
- Evaluated for vagal/allergic response

Completed injections (attending to initial)

<table>
<thead>
<tr>
<th>Site/number</th>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subacromial</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AC joint</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Figure 2

Global Procedural Skills Evaluation Form

Learner: ___________________________ Date: ___________________________

Instructor: ___________________________ Procedure: ___________________________

**Learner self-assessment:**
- What did you do well?
- What could you improve?

**Instructor assessment**

<table>
<thead>
<tr>
<th></th>
<th>Significant guidance provided</th>
<th>Some guidance provided</th>
<th>Performed independently</th>
<th>Unable to evaluate</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Preparation &amp; Medical knowledge</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Indications, complications, patient positioning, relevant anatomy, equipment, steps of procedure, follow-up plan</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Technical skills</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Instrument handling, aseptic technique, efficiency</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Attention to patient comfort</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Appropriate analgesia, response to patient discomfort</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Communication</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Informed consent, communication during procedure, post-procedure instructions</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Self-awareness and seeking help</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Recognizes limits of own skills, seeks help appropriately</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Global assessment of today’s performance of this procedure:**
- □ □ □ □
- Hands-on or verbal guidance provided with most aspects
- Guidance provided with some aspects
- Minimal guidance provided
- Performed independently

**Difficulty of this particular case:**
- □ Average
- □ Unusually difficult

**Suggestions for improvement:**

__________________________
Instructor signature
## Operative Performance Rating System (OPRS)

### LAPAROSCOPIC APPENDECTOMY

<table>
<thead>
<tr>
<th>Evaluator:</th>
<th>Resident:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Resident Level:</td>
<td>Program:</td>
</tr>
</tbody>
</table>

**Date of Procedure:**
- Time Procedure
- Was Completed:

**Date Assessment:**
- Time Assessment
- Was Initiated:

Please rate this resident's performance during this operative procedure. For most criteria, the caption above each checkbox provides descriptive anchors for 3 of the 5 points on the rating scale. "NA" (not applicable) should only be selected when the resident did not perform that part of the procedure.

### Case Difficulty

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Straightforward anatomy, no related prior surgeries or treatment</td>
<td>Intermediate difficulty</td>
<td>Abnormal anatomy, extensive pathology, related prior surgeries or treatment (for example radiation), or obesity</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Degree of Prompting or Direction

<table>
<thead>
<tr>
<th>Substantial Direction</th>
<th>Some Direction</th>
<th>Minimal Direction</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Unable to direct team, use/choose instruments, or anticipate next steps as surgeon or as first assistant without constant attending prompting</td>
<td>Actively assists and anticipates own and attending’s needs, performs basic steps with occasional attending direction to resident and/or surgical team. Somewhat hesitant and slow to anticipate or recognize aberrant anatomy, unexpected findings, and/or “slowing down” moments</td>
<td>Performs all steps and directs team with minimal direction from attending to either resident or team, i.e., anticipates needs, sets up exposure for self and assistant, transitions fluidly between steps, gives clear direction to first assistant, maintains situation awareness, calmly recovers from error and recognizes when to seek help/advice</td>
</tr>
</tbody>
</table>

### Instrument Handling

<table>
<thead>
<tr>
<th>Poor 1</th>
<th>Fair 2</th>
<th>Good 3</th>
<th>Very Good 4</th>
<th>Excellent 5</th>
<th>NA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tentative or awkward movements, often did not visualize tips of instrument or clips poorly placed</td>
<td>Competent use of instruments, occasionally appeared awkward or did not visualize instrument tips</td>
<td>Fluid movements with instruments consistently using appropriate force, keeping tips in view, and placing clips securely</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Respect for Tissue

<table>
<thead>
<tr>
<th>Poor 1</th>
<th>Fair 2</th>
<th>Good 3</th>
<th>Very Good 4</th>
<th>Excellent 5</th>
<th>NA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frequent unnecessary tissue force or damage by inappropriate instrument use</td>
<td>Careful tissue handling, occasional inadvertent damage</td>
<td>Consistently handled tissue carefully (appropriately), minimal tissue damage</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Time and Motion

<table>
<thead>
<tr>
<th>Poor 1</th>
<th>Fair 2</th>
<th>Good 3</th>
<th>Very Good 4</th>
<th>Excellent 5</th>
<th>NA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Many unnecessary moves</td>
<td>Efficient time and motion, some unnecessary moves</td>
<td>Clear economy of motion, and maximum efficiency</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Operation Flow

<table>
<thead>
<tr>
<th>Poor 1</th>
<th>Fair 2</th>
<th>Good 3</th>
<th>Very Good 4</th>
<th>Excellent 5</th>
<th>NA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frequent lack of forward progression; frequently stopped operating and seemed unsure of next move</td>
<td>Some forward planning, reasonable procedure progression</td>
<td>Obviously planned course of operation and anticipation of next steps</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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## Procedure Competency Assessment Tool – Newborn Circumcision

### Provider: __________  Date: __________

<table>
<thead>
<tr>
<th>Procedure</th>
<th>Circumcision</th>
<th>Other: __________</th>
</tr>
</thead>
<tbody>
<tr>
<td>Method</td>
<td>Gomco</td>
<td>J. Megn</td>
</tr>
<tr>
<td></td>
<td>Plastibell</td>
<td></td>
</tr>
</tbody>
</table>

**How many of this procedure have you completed thus far?**

Please circle the descriptor corresponding to the candidate’s performance in each category, irrespective of the training level.

### Indications/Informed Consent:

<table>
<thead>
<tr>
<th>Novice</th>
<th>Competent</th>
<th>Expert</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not sure of the patient’s history, context of the procedure, or has knowledge gaps in procedure contraindications or potential complications</td>
<td>Understands the general indications, contraindications, potential complications, and clinical value of procedure; able to explain to parent/guardian</td>
<td>Clearly articulates the clinical value, potential complications, and relevance to patient; accurately answers all parent/guardian questions to obtain informed consent</td>
</tr>
</tbody>
</table>

### Knowledge of Specific Procedure:

<table>
<thead>
<tr>
<th>Novice</th>
<th>Competent</th>
<th>Expert</th>
</tr>
</thead>
<tbody>
<tr>
<td>Deficient knowledge, unable to articulate procedure steps</td>
<td>Able to articulate all important steps of procedure</td>
<td>Demonstrates familiarity with all aspects of procedure</td>
</tr>
</tbody>
</table>

### Procedure Setup:

<table>
<thead>
<tr>
<th>Novice</th>
<th>Competent</th>
<th>Expert</th>
</tr>
</thead>
<tbody>
<tr>
<td>Does not gather required supplies, poor patient positioning, poor sterile technique, or does not properly identify landmarks</td>
<td>Gathers key instruments and supplies; properly positions patient; identifies landmarks; maintains sterile technique</td>
<td>Anticipates supplies needed for unexpected complications; ergonomic setup of all instruments and supplies</td>
</tr>
</tbody>
</table>

### Local Anesthesia:

<table>
<thead>
<tr>
<th>Novice</th>
<th>Competent</th>
<th>Expert</th>
</tr>
</thead>
<tbody>
<tr>
<td>Requires guidance to perform adequate block</td>
<td>Uses correct technique to perform nerve or field block without guidance and achieves adequate anesthesia</td>
<td>Smoothly and efficiently performs nerve or field block without guidance and with good anesthesia</td>
</tr>
</tbody>
</table>

### Procedure Flow and Efficiency:

<table>
<thead>
<tr>
<th>Novice</th>
<th>Competent</th>
<th>Expert</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frequently stops procedure and seems unsure of next move; many unnecessary moves</td>
<td>Demonstrates some forward planning with reasonable progression of procedure; efficient time/motion but some unnecessary moves</td>
<td>Obviously plans course of procedure with effortless flow from one move to the next; clear economy of movement and maximum efficiency</td>
</tr>
</tbody>
</table>

### Respect for Tissue:

<table>
<thead>
<tr>
<th>Novice</th>
<th>Competent</th>
<th>Expert</th>
</tr>
</thead>
<tbody>
<tr>
<td>Uses unnecessary force, or causes damage by inappropriate use of instruments</td>
<td>Careful handling of tissue without excessive force</td>
<td>Consistently handles tissue adeptly and appropriately with minimal damage</td>
</tr>
</tbody>
</table>

### Instrument Handling:

<table>
<thead>
<tr>
<th>Novice</th>
<th>Competent</th>
<th>Expert</th>
</tr>
</thead>
<tbody>
<tr>
<td>Repeatedly makes tentative or awkward moves with instruments; by inappropriate use of instruments</td>
<td>Competent use of instruments, but occasionally appears stiff, awkward, or uncertain</td>
<td>Fluid moves with instruments and no awkwardness; comfortable with application and extraction</td>
</tr>
</tbody>
</table>

### Management of Complications:

<table>
<thead>
<tr>
<th>Novice</th>
<th>Competent</th>
<th>Expert</th>
</tr>
</thead>
<tbody>
<tr>
<td>Does not recognize or appropriately address developing complication; does not appropriately halt procedure with failed attempts</td>
<td>Recognizes and appropriately addresses developing complication; halts the procedure appropriately</td>
<td>Immediately recognizes developing complication; manages with precise direction and without hesitation</td>
</tr>
</tbody>
</table>

**Overall on this task did the provider demonstrate competency to perform this procedure independently?**

Yes __________  No __________

**Comments:**

__________________________

Attending Name (Print): ____________________  Signature/Date: ____________________
Some Available Maternity PCATs

Laceration Repair
3rd/4th degree
Repair
Cesarean
Uterine Aspiration
Vaginal Delivery
Prenatal Care
Labor
Management

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PCAT Features

- Five-point scale with 3 anchors
  - Novice (below threshold level)
  - Competent (threshold level)
  - Expert (aspirational level)
- Evaluation domains both general and specific to procedure
- One sheet of paper
PCAT Limitations

• Paper instrument in an electronic world
• Designed as a summative assessment
  – Limited effectiveness as a formative tool
  – No milestone language
  – Binary entrustment scale
• No accounting for:
  – Case difficulty
  – Degree of prompting or direction
  – Simulated procedures
How do we get to the PCATs?

- STFM Connect: FCMC Collaborative (requires login)
- STFM Resource Library (no login required)
  - Search for “Procedure Competency Assessment Tools” (with quotation marks)
CAFMRD and STFM [need to] establish and support a learning collaborative for the continuing development, field testing, refinement, and dissemination of this method of procedural competency assessment.
Possible Strategies for Using PCATs

• Incorporate into already-existing evaluation systems
  – Paper (supplement)
  – Electronic (customize)
  – Hybrid

• Outpatient: procedure clinics, prenatal or FM sessions

• Inpatient: L&D, nursery, adult service
PCAT Utilization Survey

• Convenience sample recruited from posts on STFM Connect and AFMRD listserv
• Assesses engagement with PCATs and barriers to use
Survey Results

89 responses in 49 days
All Residency faculty
18 respondents had used PCATs to eval residency skill
PCAT types used in residency programs
PCAT ease of use

Question from survey:
On scale 1 to 10, how difficult is it for you, personally, to use the PCATs to assess procedural competency?

Average 4/10 based on 15 respondents
PCAT ease of use- themes

- paper forms- sometimes not handy
- difficult to get resident to bring
- difficult starting work flow
- not incorporated into already used assessment software
- repetition in forms
What is your personally preferred method of completing written evaluation of trainees?

84 respondents

24 use E-value, 54 New Innovations, 6 other
How likely would you use PCATs if...

- In current form? 5/10
- Integrated into electronic software? 7.5/10
- In a standalone electronic app? 6/10
Natividad Family Medicine Residency

10/10/10 unopposed county hospital residency

Academic affiliation: UCSF – Dept. of Family and Community Medicine

OB Fellowship: 3 Fellows per year, run by OB department

2400 annual deliveries; most w/resident involved

Use New Innovations for evaluations
PCATs rolled out in clinic 8/2016

<table>
<thead>
<tr>
<th>PCAT</th>
<th>Number Completed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Musculoskeletal Injection</td>
<td>18</td>
</tr>
<tr>
<td>Intrauterine Device</td>
<td>17</td>
</tr>
<tr>
<td>Implantable Contraception</td>
<td>15</td>
</tr>
<tr>
<td>Nail Removal</td>
<td>7</td>
</tr>
<tr>
<td>Skin Biopsy (Non-excisional)</td>
<td>7</td>
</tr>
<tr>
<td>Endometrial Biopsy</td>
<td>6</td>
</tr>
<tr>
<td>Incision &amp; Drainage</td>
<td>5</td>
</tr>
<tr>
<td>Destruction of Skin Lesion</td>
<td>4</td>
</tr>
<tr>
<td>Skin and Subcutaneous Excision</td>
<td>4</td>
</tr>
</tbody>
</table>

- Most used PCATs from clinic
- Not always most appropriate form for procedure
- Grade inflation initially (marked expert in every category on first attempt)
Paper folder in clinic
PCATs in New Innovations

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## Incorporating other elements?

**PROCEDURE:** IUD (Intrauterine Device)-Insertion  
Family Medicine

**DIAGNOSES:**  
- Mirena

**Comments:**

<table>
<thead>
<tr>
<th>Role:</th>
<th>Performed with Supervision</th>
<th>Location:</th>
</tr>
</thead>
</table>

**CONFIRMATION:**
- Pass  
- Not Pass  
- Refuse  
- Unconfirmed

**Case Difficulty**
- STRAIGHTFORWARD (normal anatomy, low-risk)
- INTERMEDIATE difficulty
- DIFFICULT (abnormal anatomy, extensive pathology, high-risk)

**Overall Technical Proficiency**
- NOVICE (needs further direct supervision)
- COMPETENT (ready to perform independently)

**Degree of Prompting or Direction**
- SUBSTANTIAl direction
- SOME direction
- MINIMAL direction

**Recommendations**

Remaining Characters: 1,000

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Actual iPhone screen shot

Available through app Armis which links with New Innovations
PCATs and Tiers

OB Training guideline from recent FM paper

- Basic Maternity Care
- Comprehensive maternity care
- Advanced maternity care
Minimum number prior to competency assessment
maternity care

<table>
<thead>
<tr>
<th>Competency</th>
<th>Basic</th>
<th>Comprehensive</th>
<th>Advanced</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prenatal visit</td>
<td>150</td>
<td>150</td>
<td>250</td>
</tr>
<tr>
<td>Outpatient postpartum</td>
<td>10</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>Continuity patient</td>
<td>3</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>Intrapartum care</td>
<td>10</td>
<td>40</td>
<td>80</td>
</tr>
<tr>
<td>Vaginal delivery</td>
<td>20-40</td>
<td>40-80</td>
<td>80</td>
</tr>
<tr>
<td>Perineal repair</td>
<td>-</td>
<td>5</td>
<td>10</td>
</tr>
<tr>
<td>Adv perineal repair</td>
<td>-</td>
<td>-</td>
<td>5</td>
</tr>
<tr>
<td>Instrumented vaginal delivery</td>
<td>-</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Cesarean assist</td>
<td>-</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Cesarean surgeon</td>
<td>-</td>
<td>-</td>
<td>70-100</td>
</tr>
</tbody>
</table>
Results from Natividad-OB

Pilot ran from 10/1/16-3/31/17 - paper tools
Total number of evals done: 47
Vaginal Delivery 27, Cesarean 8, Laceration Repair 4, Ultrasound 2, Circumcision 1, Labor Management 2, Vacuum 1 , 1 extra one, resident used cesarean one with ob to do a cervical length one!

Only 4/8 deemed competent on cesareans (130,145, 100, 85)

11 deemed competent on vaginal deliveries average was 80 (range 50-100)

1 deemed competent on vacuum and had performed 3.
Results from Natividad-OB

Conclusions:
1. Residents like real time feedback on procedures
2. Hard to keep momentum, need a champion
3. Collaboration important
4. Numbers to competency consistent with other FM literature
Hypothesis:

Using PCATs will increase procedurally competent family physicians.
Learning collaborative

Goal is to pilot tools for their use in residency/fellowship training

Monthly conference calls + In-person meetings + STFM Connect forum →
Real time feedback = better tools
Goals of Learning Collaborative

1. Assess the use of each PCAT at the participating residency programs
2. Determine how many procedures are logged before someone is assessed for competency
3. Discuss which PCATs are not working well for resident assessment
4. Describe barriers found to implementation of the PCATs
5. For maternity care PCATs, integrate these with OB tiers
6. Discuss ongoing work and the future of the PCAT Pilot and learning collaborative

Join the conversation on Twitter: #STFM50th
Learning Collaborative next steps

What is our future direction?

- Electronic tools
- Interfaced with current software v. stand alone app?
- Using tools to legitimize “Recognition of focused practice” - hospital medicine, maternity care next?

How do we keep stakeholders engaged?
References


References

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