P.R.I.M.E. and its many Uses - A new vocabulary for evaluation in the 21st century

Joseph O. Lopreiato, MD, MPH
Professor of Pediatrics
joe.lopreiato@simcen.usuhs.edu

adapted from L. Pangaro MD, USUHS

Background:

- **Competencies** are ACGME defined behaviors expected of finishing residents in the USA.
- Competencies are not scary, just a common way of communicating skill acquisition. Each competency is measured along a continuum called **milestones**.
- However, these terms are complex and confusing as descriptors of performance in the hands of all teachers.

Consider:

- A new vocabulary aimed at better documenting the competencies that all faculty can recognize, observe and write about.

A new system should have:

- Simple phrases that all faculty and learners can remember.
- Be easy for faculty to observe and write about performance.
- Be easy for learners to know what the endpoints are during training.
- Use a common vocabulary to measure progress across rotations and for learners to gauge progress.
- Have high reliability and validity.

Examples:

What's wrong with our current descriptive system of performance documentation? See for yourself……

Here are some typical examples abstracted from our residency program evaluation forms:

"Needs to work on follow-through of plans, communicating with staff. Will refer to Program Director."

"Very pleasant. Fun to work with. Seemed to enjoy Ped ED setting. Overall, performed as expected."

"Solid FOK, gets the job done."

"Great job. No problems w/ students, staff, patients. Supervised well. Knew his patients. Organized."

"Exceeded all expectations. Very bright and organized."

"Although a likable person, at times he appeared to be confused during the rotation."

"Work on FOK. Did o.k. overall."

"Pleasant. Interested in learning. Performed as expected"

These nonspecific written evaluations lack reliability (based on lack of structure) and are mostly focused on personality rather than performance domains. They reflect the type of comments referenced in the article by Patricia Lye in *Ambulatory Pediatrics 2001 1:128-131.*

A Solution:

Devise a structure of performance domains common to all learners and consistent with the ACGME competencies. One such system had been devised and field tested by Dr. Louis Pangaro, Professor of Medicine at the Uniformed Services University School of Medicine.

The mnemonic "R.I.M.E." was developed by him, to which we have added the additional domain of Professionalism. Therefore the mnemonic become

"P.R.I.M.E.".

- Here are the domains of the mnemonic **P.R.I.M.E.**

PROFESSIONALISM

Did the learner demonstrate Professionalism?

Reliability, Responsibility, Teamwork
Respect for patient's values
Punctuality
Respect for staff and peers
Appropriate attire for clinical care
Demeanor and Comportment

REPORTER

Is the learner a reliable and honest reporter?

Interviewing skills
Physical Examination skills
Written Documentation
Oral case presentations

INTERPRETER

When given data, can the learner interpret them?

Problem Prioritization
Differential Diagnosis formation
Interpreting clinical data (Hx,PE,Labs)

MANAGER

Can the learner manage patients (or manage a team)?

Management of individual patients
Management of a medical team
Formulate Diagnostic Plans
Formulate Therapeutic Plans
Demonstrate Risk/Benefit Decision making
Be proficient at Basic Procedures (IVs, etc.)
Be proficient at Advanced Procedures
Incorporates Patient Values into Medical Plan

EDUCATOR

Does the learner demonstrate educator qualities?

Self-directed Learning Skills
Good response to Feedback
Critical Reading Skills
Teaching Skills with peers and subordinates

PLUS……..

What is needed to reach the next step in their professional development as a physician?

Prime is Developmental and Progressive…….. it can be used to measure progress in a learner…….

Aspect of professional growth	*MS - III*	*MS - IV*	*Intern*	*PGY 2+ & beyond*
REPORTER	***M***			
Interviewing	***M***			
Physical Examination	***M***			
Written Documentation	***P***	***M***		
Oral case presentations	***P***	***M***		
INTERPRETER	***P***	***M***		
Problem Prioritization	***M***			
Differential Diagnosis	***P***	***M***		
Interpreting Data (Hx,PE,Labs)	***I***	***P***	***M***	
MANAGER	***I***	***P***		***M***
Management of individual patients		***I***	***P***	***M***
Management of a medical team			***I***	***P & M***
Diagnostic Plans	***I***	***P***	***M***	
Therapeutic Plans	***I***	***P***	***P***	***M***
Benefit/Risk Decision making	***I***	***P***	***P***	***M***
Basic Procedures (IVs, etc.)	***I***	***P***	***M***	
Advanced Procedures		***I***	***P***	***M***
Incorporates Patient Values in Plan	***I***	***P***	***M***	

EDUCATOR				
Self-directed Learning	***I***	***P***	***M***	
Response to Feedback	***I***	***P***	***P***	***M***
Critical Reading Skills	***I***	***P***	***P***	***M***
Teaching Skills	***I***	***P***	***P***	***M***
PROFESSIONALISM				
Reliability, Responsibility, Teamwork	***M***			
Respect for patient's values	***M***			
Punctuality	***M***			
Respect for staff and peers	***M***			
Appropriate attire for clinical care	***M***			
Demeanor and Comportment	***M***			

****I =** introduced in the curriculum **P =** practiced, repetition **M =** mastered, sufficient proficiency for the next level of independence*

The Matrix illustrates the concept of progressive mastery.

In problem learners, PRIME can be used to identify weak areas and the next steps to be mastered…….

E.g. A problem learner may have difficult being a concise and accurate reporter. They will need remediation before the learner can progress to being a good interpreter……a learner cannot be a good interpreter until they have mastered being a good reporter. The same holds true for learners who are having problems interpreting data, they cannot progress to manager until they have a fund of knowledge and the ability to interpret data correctly.

Our Experience:

In our residency program over the last decade, we have taught our faculty how to remember the PRIME format when observing and writing about trainees.

Here are examples of write-ups using the P.R.I.M.E format. These are transcribed from actual written comments during clinical rotations. The domains of PRIME are underlined for your convenience.

1. She is a reliable reporter, although initially she seemed to want to embrace all the problems found in the review of systems in one visit - this improved greatly as she seems to be able to focus & prioritize her histories much more effectively for the clinic setting. Her PE skills are very good, reliable & reproducible. Interpretive skills are good for an intern, & managerially, she always seemed to be able to navigate the system to ensure that the treatment plan/consultations, etc. were instituted. As stated before, she is a motivated learner who is clearly reading & asking more questions of staff for her own education. She was at all times professional in her dealings with patients & physician/ancillary support staff alike. Areas for improvement, as stated before: focus histories & prioritize problems, relax a bit more when it comes to the unpredictability of patient flow/issues in the clinic, continue education as the opportunities arise.

2. Dr. XXX was always on time, reliable and dependable. She was able to report data succinctly and gather complete histories. She performed good differential diagnoses, able to interpret lab data, PFT's, etc. Able to come up with good plans, and managed patients well. She responded well to feedback, worked on fund of knowledge, was able to educate families and patients well on various illnesses. Dr. XXX was a pleasure to have in the Peds Clinic.

3. Professionalism: Highly professional in her interactions with ancillary staff, her intern & her attending. With new mothers & infants, she was caring, sensitive & respectful. Dr. XXX was also able to handle delicate family/social situations head on, yet with tact. She took full ownership for the patients on her service & made sure that all issues, large & small, had been fully addressed prior to patient discharge. Reporter: Dr. XXX mastered the reporting skills necessary for the newborn nursery. For our more medically complex patients, she asked all of the right questions, as was reflected in her reports of patient histories. Interpreter: Dr. XXX offered good analysis of problems we faced in the Nursery, including hyperbilirubinemia in 35-36 week premature infants; mothers with h/o thyroid disease; infants with hip clicks & heart murmurs; & infants born to mothers with GBS. Manager: She offered solid management plans of infants with the problems listed above. Her plans were well thought-out & she sought out answers to more subtle aspects of these management questions.

4. During the three weeks of his rotation, he made some noticeable improvement in his ability to gather data, interpret it, & came up with a reasonable treatment plan. Reporter skills were usually comprehensive, but still some occasional holes

in reporting pertinent aspects of the history. At about expected level for beginning PL-1. As an interpreter, he usually has an idea of the differential, although he needs to focus on the relevant data to help in seeing the "forest from the trees." As a manager, once a plan is formulated, he is able to implement it well. As an educator, he needs to continue his focus on reading to learn from his clinical encounters.

5. Professionally, Dr. XXX was prompt, appropriately groomed, friendly, energetic style. As a reporter, Dr. XXX needs to continue to work on completeness and organization. As an interpreter, he continues to have short differentials and elementary understanding of how to organize and evaluate complex, or multi-problem patients. Manager skills are adequate. Dr. XXX generally did well calling back patients and following up on lab/studies. Needs to continue to develop longer term planning for more complex patients. Educator: Dr. XXX reviewed a longitudinal epidemiologic study. He seemed minimally prepared and had only very basic understanding of how to interpret and use information from a longitudinal study. Could use more experience in critical literature review. He scored 79% on exam. Areas of improvement include increase details in histories, increase completeness of histories and organization of presentations

Does this system have good reliability and validity?

Dr. Pangaro has critically reviewed this system for reliability among faculty observers and for predictive validity in forecasting performance later on in the learner's education. The reliability of this system is 0.81 which is above the threshold for high stakes decision making (see his article in *Academic Medicine* 1999, vol 74:1203-1207).

P.R.I.M.E. and the General Competencies:

Can PRIME meet all the LCME/ACGME competency domain requirements? YES! Here is the proof:

Professionalism

- Demonstrate respect, compassion, integrity, and altruism in relationships with patients, their families, and colleagues. [PROFESSIONALISM]
- Interact with consultants and allied health professionals in a respectful and appropriate manner. [INTERPERSONAL AND COMMUNICATION SKILLS]
- Demonstrate sensitivity to gender, culture, behaviors, and disabilities of patients. [PROFESSIONALISM]
- Adhere to principles of confidentiality, scientific integrity, and informed consent. [P]
- Recognize and identify deficiencies in one's own performance. [PRACTICE BASED LEARNING AND IMPROVEMENT]

Reporter

- Gather accurate, essential information from all sources: patients, records, and healthcare providers. [PATIENT CARE]
- Use effective listening, nonverbal, questioning, and narrative skills to communicate with patients and their families. [INTERPERSONAL AND COMMUNICATION SKILLS]
- Demonstrate the ability to present information clearly to other health professionals. [IC]
- Perform reliable and accurate physical examinations. [PATIENT CARE]
- Maintain comprehensive, timely, and legible medical records. [IC]
- Provide effective and professional consultation to other physicians and health care professionals. [IC]

Interpreter

- Make informed recommendations on preventive, diagnostic, and therapeutic options based on clinical judgment and scientific evidence. [PATIENT CARE]
- Demonstrate command of the biomedical, clinical, and social sciences that apply to patient care. [MEDICAL KNOWLEDGE]
- Apply knowledge to clinical problem-solving, clinical decision making, and critical thinking. [MK]

Manager

- Develop and implement effective patient management plans. [PATIENT CARE]
- Reliably perform therapeutic procedures inherent to the practice of pediatrics. [PC]
- Demonstrate the ability to understand, access, and utilize the resources and systems necessary to provide optimal care (TRICARE, mental health options, community social services). [SYSTEMS BASED PRACTICE]
- Apply cost conscious strategies to prevention, diagnoses, and disease management. [SBP]
- Collaborate with other members of the health care team to assist patients in dealing effectively with complex systems and processes of care. [SBP]

(Self) Educator

- Demonstrate an analytical and open-minded approach to acquiring new knowledge. [PRACTICE BASED LEARNING AND IMPROVEMENT]
- Use information technology to access and manage information to support patient care. [PBL & I]
- Identify areas for improvement and implement strategies to enhance knowledge, skills, attitudes, and values. [PB & I]
- Analyze practice experiences and implement strategies to improve the quality of patient care. Develop a willingness to learn from errors and use them to improve patient care. [PBL & I]

Other Uses of P.R.I.M.E.

Giving Feedback to residents after a period of observation (e.g. after a month rotation)

1. Organize your observations into these categories:

   Professional Behavior
   - Punctuality, Honesty, Response to Feedback, How they treat others

   Reporter Skills
   - History taking skills, physical exam, oral and written communications

   Interpreter Skills
   - Making sense of data, prioritizing the work to be done

   Manager Skills
   - Managing patients/ managing teams

   Educator Skills
   - Teaching others, teaching themselves, reading more than the minimum

2. Start with the Learner's Assessment of their own Performance

3. Give the feedback, focusing on the P.R.I.M.E. categories listed above

4. End with a plan for getting to the next step.

   E.g. If the resident is strong on P. R. and I. have them work on Management skills. If they are strong in P. R. I. and M. have them work on their teaching skills (Educator). In this way, the P.R.I.M.E. scheme tells you where they are and what is needed to continue down the pathway.

Case Example of PRIME for use in feedback

Ellen Smith

Ellen Smith is third year medical student halfway through your six week clerkship. Her performance has been mixed. While she acted professionally at all times and was reliable, her performance in other areas was concerning to you.

On the inpatient service, she was disorganized in her oral presentations and her written work was only a recapitulation of her intern's notes. On rounds and check-out, she presented her patients in a disorganized fashion with data out of sequence. She received some feedback mid-way through the rotation and she did improved slightly, but has much work to do. Her fund of knowledge seemed about what you expect for her level. Her ability to interpret pediatric data was not observed.

On her one week in the nursery, it was clear that she was knew little about newborns, even after her attending told her to read the modules. She was always present on service when she was supposed to be and attended all conferences. She has been observed to do some reading, but mostly in the shelf exam preparation book and very little in the baby Nelson's book.

She has three weeks of clinic left to do. You are meeting with her because of concern about her skills halfway through the rotation.

Give this student some end of rotation feedback using the PRIME format:

Professionalism
Reporter
Interpreter
Manager (if applicable)
Educator

What does this student need to do to get to the next step in her education?

Use of PRIME in Letters of recommendation

The PRIME scheme can be used to structure your next letter of recommendation and provide more substance than the usual generic letter. The format can be expanded to include specific examples. The use of PRIME covers many of the fundamental properties that future employers or training directors want to see in their new hires……..

DR Richards is a PGY-3 pediatric resident and as his program director, I am delighted to write a letter of recommendation for fellowship training in pediatric infectious diseases. DR Richards completed a pediatric internship and then came to our program after four years as an Undersea Medical Officer where he earned his diving medicine credentials and completed research on GE reflux in US Navy divers. During his three years of residency training, he demonstrated several excellent skills as a pediatric resident in our program. He was always professional in appearance and demeanor during his time with us and garnered the respect of his patients, his peers, and the nursing staff. As a reporter, he demonstrated a good ability to gather data and prioritize symptoms into a problem list. While his presenting style was not always the smoothest, he did have all the data that was needed to make a diagnosis. His strength is in his ability to interpret and integrate of data with his considerable knowledge base to make sound management plans. As a manager, he was praised by the attending staff for his smooth running of the inpatient units and for his supervision of junior learners. He was unflappable in situations that would ruffle others. He showed a very good ability to lead a clinical team on the ward and in the NICU. He mastered several advanced procedures such as central line placement and PICC line insertion. As an educator, he strove to improve his fund of knowledge through self-directed reading and asking critical questions of staff. He scored above the passing level on the certifying examination in pediatrics at the end of his PL-2 year. He conducted clinical research in infectious disease at our University under the direction of Dr. Martin Otis at an early point in his second year and impressed his mentor with his steady work ethic and attention to the task at hand. He used elective time and his call free month to take the tropical medicine course that allowed additional research experience in an overseas lab.

Dr. Richards has clearly demonstrated several excellent qualities during his time as a pediatric resident. His fund of knowledge, clinical skills, and research acumen are what is needed for fellowship training. Given his operational and clinical experience, I strongly endorse his application for fellowship training NOW.

Sincerely,

Annotated References:

1. Pangaro L. A new vocabulary and other innovations for improving descriptive in-training evaluations. Acad Med. 1999 Nov;74(11):1203-7.

The article that started it all…….

2. Short, J. The importance of strong evaluation standards and procedures in training residents. Acad Med. 68(1993):522-525.

A treatise on the standards necessary to develop a sound and effective resident evaluation system.

3. Patricia S. Lye, MD, MS. A Pleasure to Work With—An Analysis of Written Comments on Student Evaluations. , Ambulatory Peds, 2001.

The classic article on what is wrong with our current narratives

4. Holmboe E. Methods for evaluating the clinical competence of residents in internal medicine: a review. Ann Intern Med. 129(1998):42-48.

An excellent review of the many modalities available for evaluating residents including in-training exams, medical record audits, and performance based evaluation methods.

5. Bloomfield, L., Magney, A. and Segelov, E. (2007), Reasons to try 'RIME'. Medical Education, 41: 1104. doi: 10.1111/j.1365-2923.2007.02884.x

A "how to" manual on using RIME as an evaluation instrument

6. Holmes AV, Peltier CB, Hanson JL, Lopreiato JO. Writing medical student and resident performance evaluations: beyond "performed as expected Pediatrics. 2014 May;133(5):766-8. doi: 10.1542/peds.2014-0418. Epub 2014 Apr 14.

The BEST reference, of course! A must read.

WORKSHEET: **PRIME COMMENTS ON RESIDENT PERFORMANCE**

Professionalism (Please comment on *Reliability, Responsibility, Teamwork, Demeanor and Comportment*):

Reporter (Please comment on *Interviewing skills, Physical Exam skills, Written work, Oral presentations*):
For upper level residents: Please comment on *speaking with consultants*

Interpreter (Please comment on *Interpreting data including Hx, PE, Labs, Differential diagnosis*)
For upper level residents: Please comment on *patient problem prioritization*

Manager (Please comment on *Management of individual patients, **Procedures**, Diagnostic plans*):
For upper level residents: Please comment on *management of a medical team*, *Benefit/Risk* decision making

Educator (*Teaches self and patients*):
For upper level residents: Please comment on how the learner *teaches peers and staff*; and if the learner *demonstrates critical reading skills*

Signature of Evaluator: _____ Signature of Resident: _____