



# PGY1 and PGY2 Orthopaedic Resident Self-Assessment of Milestone Acquisition

Kendall E. Bradley BS and Kathryn M. Andolsek MD MPH  
Duke University Medical Center



## Introduction

- Orthopaedic Surgery is one of 7 early adopters of milestones.
- Self-assessment is an essential competency for all physicians to develop as part of practice based learning and improvement.
- ACGME endorses self assessment as one evaluative tool
- There are no currently published comparison milestone data available for benchmarking.
- The objective is to provide a “baseline” of Orthopaedic residents’ milestone acquisition judged by self-assessment prior to milestone adoption

## Hypothesis

- There will be differences in the self assessment of milestone acquisition for the 32 Medical Knowledge (MK) and Patient Care (PC) milestones compared to the 9 milestones of systems based practice--practice based learning and improvement-professionalism- interpersonal communication. (SBP-PBLI-P-IC) between PGY1 and PGY2 residents

## Methods

- June 2012 153 ACGME Orthopaedic Surgery Programs were contacted to request participation in a REDCap™ electronic survey (45 questions, 41 of which were milestones).
- Participants were asked to select milestone “boxes,” represented as letters. These were subsequently converted to a numeric scale 1-9. “1” corresponded to Fully achieved Level 1; “3” = Fully achieved Level 2; “5” = Fully achieved Level 3; “7” = Fully achieved Level 4 and “9” = Fully achieved Level 5.
- The survey was anonymous and de-identified. The Duke IRB deemed this study exempt.
- A one-way ANOVA was performed to determine the difference in each milestone across PGY levels. A two way sample t-test was done to compare PC, MK, and SBP-PBLI-P-IC averages across PGY levels

The authors would like to thank William Hardaker Jr., MD for his guidance and help on this project. The authors would also like to thank Dr. Amber Wilk at the Duke Translational Medicine Institute, Biostatistics Core. Her work on this project was partially funded by the National Center for Research Resources and the National Center for Advancing Translational Science of the National Institutes of Health through Grant Number UL1RR024128 and Mr. Cedric Steward Duke Office of Clinical Research.

## Outcomes

- 74 residents responded: 14 PGY1s, all men, and 10 PGY2s (8 men and 2 women).
- Of the 16 paired Patient Care (PC) and Medical Knowledge (MK) milestones, PGY1s self evaluated MK more highly than PC for 11, and “the same” for two milestones.
- Their lowest rating was *MK-ankle arthritis* and their highest was the systems based practice milestone, *use of technology*.
- The PGY1 mean indicated full achievement of all Level 1 milestones; and full achievement of 9 Level Two milestones, 8 of which were SBP-PBLI-P-IC milestones.
- The PGY2 average, indicated full achievement of all Level 2 milestones, and 8 Level 3 milestones: 2 MK; 1 PC, and 5 SBP-PBLI-P-IC milestones.
- Mean PGY2 self -assessment was higher than PGY1s for 40/41 milestones.
- Both PGYs and PGY2 assessed their performance on SBP-PBLI-P-IC milestones more highly than on PC or MK milestones.

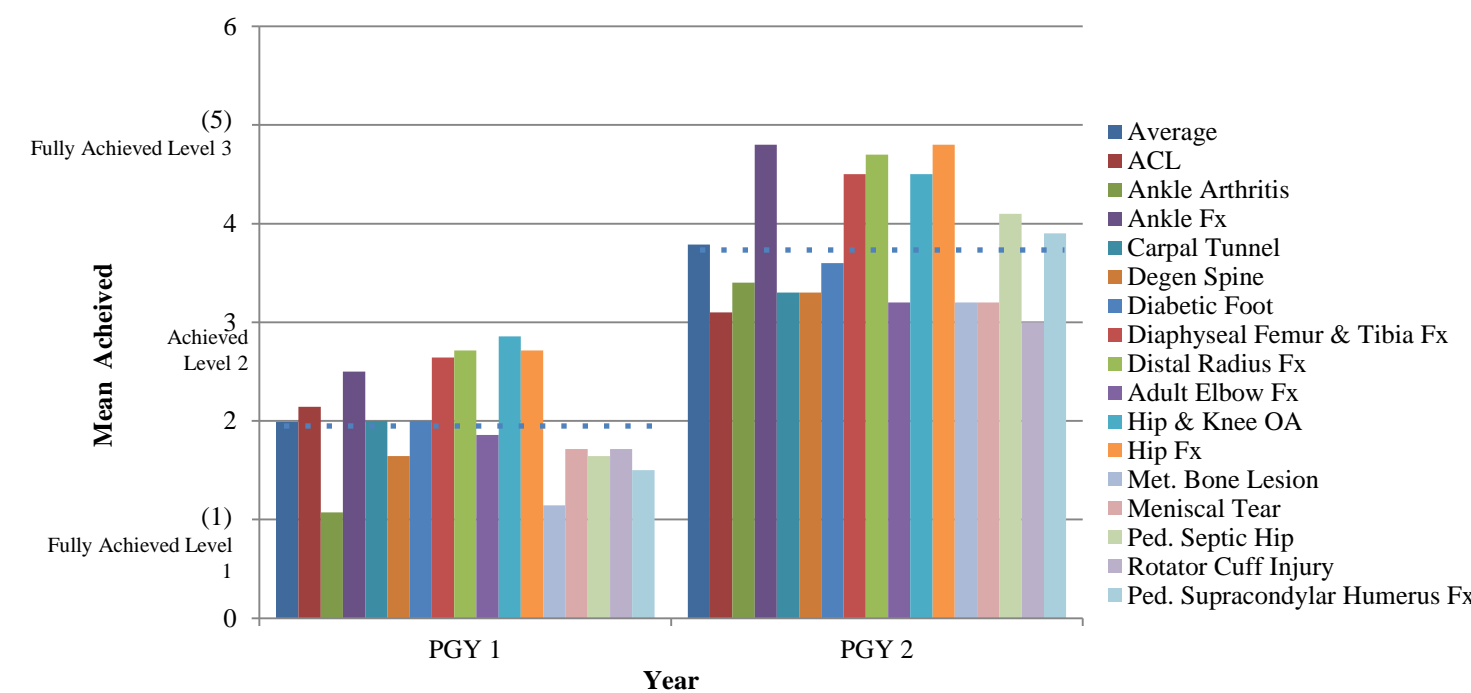


Figure 1: Averages of each of the specific milestones by PGY1 vs. PGY2 Levels for Medical Knowledge (MK)

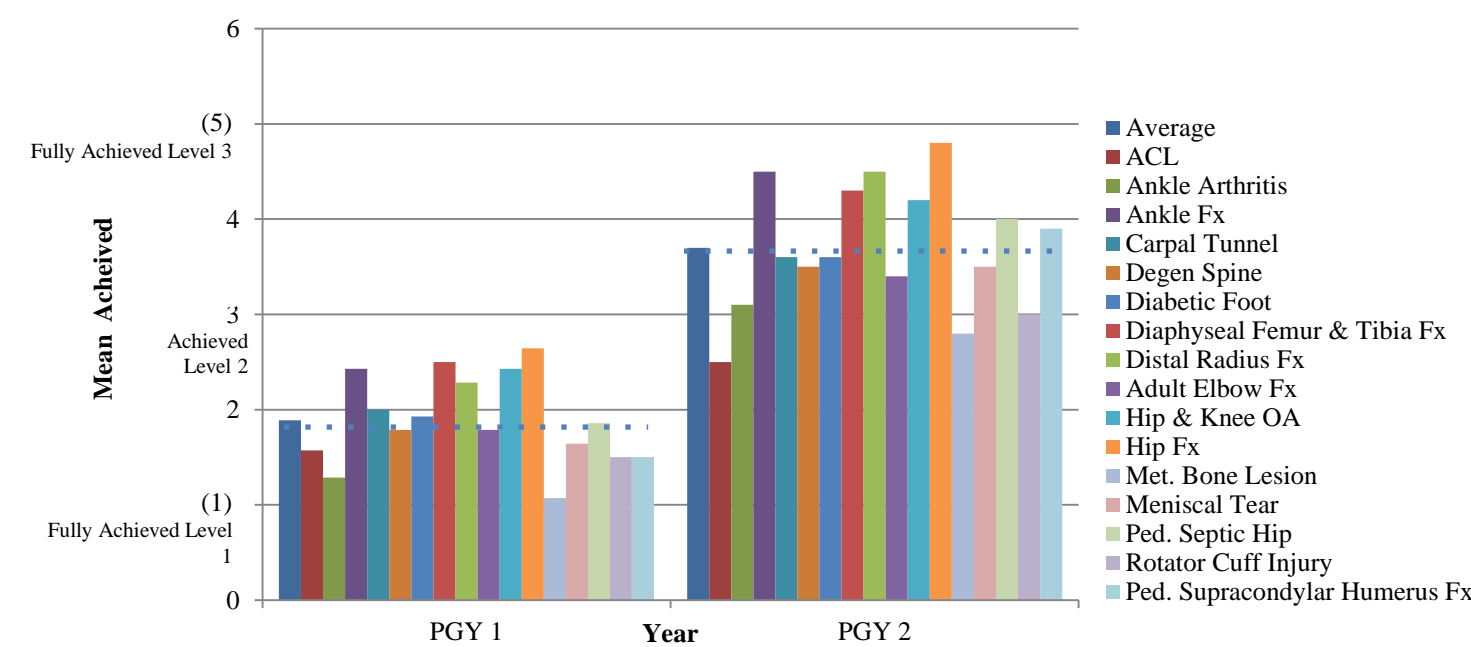


Figure 2: Averages of each of the specific milestones by PGY1 vs. PGY2 Levels for Patient Care Milestones

## Conclusion

- Although there was a low response rate, the results support the proof of concept that residents can self-assess themselves using milestones.
- Residents discriminated among the milestones; They did not assess themselves as equally proficient in all milestones.
- SBP-PBLI-P-IC milestones were rated higher than MK and PC.
- Respondents indicate they progressed from PGY1 to 2.
- Resident self-assessment using milestones may be one tool useful to Clinical Competency Committees as they assess resident performance.

## References

1. ACGME Milestone document Version 12/2012 Accessed at ACGME web site April 24, 2013
2. Davis DA, Mazmanian PE, Fordis M, Van Harrison R, Thorpe KE, Perrier L. Accuracy of physician self-assessment compared with observed measures of competence: a systematic review JAMA. 2006 Sep 6;296(9):1094-102.
3. Abadel FT Hattab AS. How does the medical graduates’ self-assessment of their clinical competency differ from experts’ assessment? BMC Med Educ. 2013 Feb 13;13:24 doi: 10.1186/1472-6920-13-24.
4. Trajkovski T Veillette C Backstein D Wadey V MR Kraemer B Resident self-assessment of operative experience in primary total knee and total hip arthroplasty: Is it accurate? Can J Surg 2012;55(4):S153-157
5. Shanedling J Van Hest A Rodriuez M Putnam M Agel J. Validation of an online assessment of orthopedic surgery residents’ cognitive skills and preparedness for carpal tunnel release surgery. J Grad Med Educ. 2010 2(3):435-41
6. Lipsett PA Harris I Downing S Resident self-other assessor agreement: influence of assessor, competency, and performance level. Arch Surg 2011;146(8):901-6
7. Keune JD Brunsvold ME Hohmann E Korndorffer JR Weinstein DF Smink DS The Ethics of Conducting Graduate Medical Research on Residents. Acad Med. 2013;88:449-453

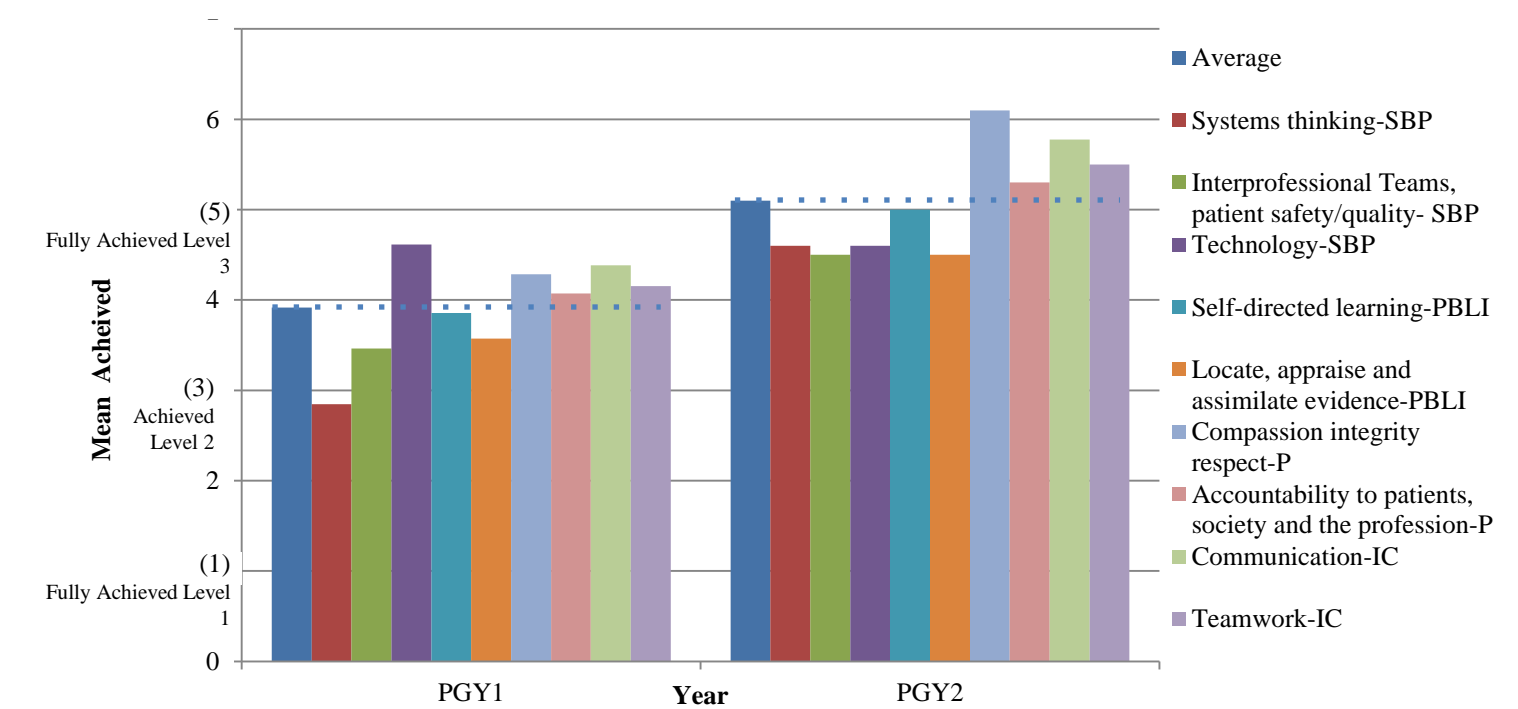


Figure 3: Averages of each of the specific milestones by PGY1 vs. PGY2 Levels for Systems Based Practice-Practice Based Learning & Improvement-Professionalism-Interprofessional Communication (SBP-PBLI-P-IC)

	Adjusted p-value
Medical Knowledge	0.0141
Patient Care	0.009
SBP-PBLI-P-IC	0.0438

Table 1: P values indicating statistical significance between PGY1 vs. PGY2 for each Milestone Category